

2L  
1  
S761s  
NH



# SPIXIANA

Zeitschrift für Zoologie

Revision of the eastern Palearctic species  
of *Dusona* Cameron

(Insecta, Hymenoptera, Ichneumonidae, Campopleginae)

Rolf Hinz (+) & Klaus Horstmann

# SPIXIANA

ZEITSCHRIFT FÜR ZOOLOGIE

herausgegeben von der

ZOOLOGISCHEN STAATSSAMMLUNG MÜNCHEN

SPIXIANA bringt Originalarbeiten aus dem Gesamtgebiet der Zoologischen Systematik mit Schwerpunkten in Morphologie, Phylogenie, Tiergeographie und Ökologie. Manuskripte werden in Deutsch, Englisch oder Französisch angenommen. Pro Jahr erscheint ein Band zu drei Heften.

Umfangreiche Beiträge können in Supplementbänden herausgegeben werden.

SPIXIANA publishes original papers on Zoological Systematics, with emphasis on Morphology, Phylogeny, Zoogeography and Ecology. Manuscripts will be accepted in German, English or French. A volume of three issues will be published annually. Extensive contributions may be edited in supplement volumes.

Redaktion – Editor-in-chief

M. BAEHR

Manuskripte, Korrekturen und Besprechungs-  
exemplare sind zu senden an die

Manuscripts, galley proofs, commentaries and  
review copies of books should be addressed to

Redaktion SPIXIANA

ZOOLOGISCHE STAATSSAMMLUNG MÜNCHEN

Münchhausenstraße 21, D-81247 München

Tel. (089) 8107-0 – Fax (089) 8107-300 – E-Mail: martin.baehr@zsm.mwn.de

**SPIXIANA – Journal of Zoology**

published by

**The State Zoological Collections München**

**Gedruckt mit Unterstützung des Förderungs- und Beihilfefonds Wissenschaft der VG WORT**

## **Bibliografische Information Der Deutschen Bibliothek**

Die Deutsche Bibliothek verzeichnet diese Publikation in der Deutschen Nationalbibliografie;  
detaillierte bibliografische Daten sind im Internet über  
<http://dnb.ddb.de> abrufbar.

Copyright © 2004 by Verlag Dr. Friedrich Pfeil, München

Alle Rechte vorbehalten – All rights reserved.

No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying or otherwise, without the prior permission of the copyright owner. Applications for such permission, with a statement of the purpose and extent of the reproduction, should be addressed to the Publisher, Verlag Dr. Friedrich Pfeil, Wolfratshauer Straße 27, D-81379 München, Germany.

Druckvorstufe: Verlag Dr. Friedrich Pfeil, München

Druck: grafik + druck GmbH Peter Pöllinger, München

Buchbinder: Thomas, Augsburg

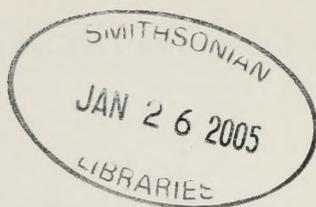
ISSN 0177-7424 – ISBN 3-89937-057-0

Printed in Germany

– Gedruckt auf alterungsbeständigem Papier –

**Verlag Dr. Friedrich Pfeil, Wolfratshauer Straße 27, D-81379 München, Germany**

Tel.: +49-(0)89-7428270 – Fax: +49-(0)89-7242772 – E-mail: [info@pfeil-verlag.de](mailto:info@pfeil-verlag.de) – [www.pfeil-verlag.de](http://www.pfeil-verlag.de)



# SPIXIANA

Zeitschrift für Zoologie

Supplement 29

Revision of the eastern Palearctic species  
of *Dusona* Cameron

(Insecta, Hymenoptera, Ichneumonidae, Campopleginae)

Rolf Hinz (†) & Klaus Horstmann



## Revision of the eastern Palearctic species of *Dusona* Cameron

(Insecta, Hymenoptera, Ichneumonidae, Campopleginae)

Rolf Hinz (†) & Klaus Horstmann

Hinz, R. (†) & K. Horstmann (2004): Revision of the eastern Palearctic species of *Dusona* Cameron (Insecta, Hymenoptera, Ichneumonidae, Campopleginae). – Spixiana Suppl. 29: 1-183

The eastern Palearctic species of *Dusona* Cameron are revised. A key and descriptions are provided for 173 species. 68 species are described as new. The following new synonymies are indicated: *Dusona americana* (Ashmead, 1890), syn. *D. oyamadai* Hinz, 1994; *D. annexa* (Förster, 1868), syn. *Campoplex limnobioides* Thomson, 1887; *D. bicoloripes* (Ashmead, 1906), syn. *C. foersteri* Roman, 1942; *D. circumcinctus* (Förster, 1868), syn. *Campoplegidea melanocerus* Uchida, 1932, ? syn. *Delopia nigrifemur* Sonan, 1929; *D. glauca caliginosa* (Walley, 1940), syn. *D. latisulcor* Hinz, 1994; *D. mercator* (Fabricius, 1793), syn. *Campoplex oxyacanthae* Boie, 1855, syn. *C. mesoxanthus* Förster, 1868; *D. meridionator* Aubert, 1960, syn. *D. kyushui* Hinz, 1994; *D. pugillator* (Linnaeus, 1758), syn. *D. amictor* Hinz, 1979, syn. *D. scutellatoides* Hinz, 1985. A lectotype is designated for *C. foersteri* Roman.

Address of junior author: Dr. Klaus Horstmann, Lehrstuhl Zoologie III, Biozentrum, Am Hubland, D-97074 Würzburg, Germany.

### Introduction (by the junior author)

*Dusona* Cameron is a species-rich genus, and it is well represented in the eastern Palearctic region. This region is defined as Russia east of the Ural Mountains (Sverdlovsk = Yekaterinburg Province included), Iran, Kazakhstan, the central Asian states, Mongoliya, northern China (as defined by Yu & Horstmann 1997: 7), Korea and Japan. No material was available from Afghanistan. The 173 species treated here may represent half of the species existing in that region. The fauna of southeastern Siberia (from Chita Province to Primorye, but only the southern parts of those districts), the southern Kuril Islands (Kunashir, Shikotan) and Japan is documented best, 80 per cent of the species living there may well be covered in this paper. The fauna of the central Asian states and of Mongoliya is less well known, and very few spec-

imens were available from northern Siberia (probably with a poor fauna anyway), Iran, northern China and Korea.

We did not succeed in subdividing the genus into species groups. It is easy to recognize a basal group characterized by plesiomorphies (described as *Kartika* by Gupta & Gupta 1976) or some specialized groups (as the *D. mercator* group defined by Hinz 1977, which nevertheless might be polyphyletic), but it was impossible to sort all species into well defined groups. There are too few correlations between character states and too many intermediate species with a high intraspecific variability. This is also demonstrated by the many exceptions and cross-references noted in the key. Therefore the species are arranged alphabetically.

Because the determination of *Dusona* specimens is difficult, the specimens should be carefully mounted, and all parts of the body must be

clearly visible. The antennae have to be stretched forwards or sideways, so that the frons can be studied, including the dorsal parts of the antennal carina. The junction of the genal carina with the oral carina must be visible at one side of the head, in cases of doubt the head must be turned or a palpus must be removed. The wings have to be stretched upwards, and the legs downwards (especially the front legs), so that all parts of the prepectal carina, a mesopleurum, a metapleurum and the propodeum can be studied. The gaster should be visible from both sides, and the ovipositor sheaths should be in their normal position. Specimens without at least one complete antenna and one complete hind leg are often indeterminate. A high variability in all characters has to be taken into account. In some frequent species this variability is referred to in the key and the descriptions, but in rare species it is unknown. As in many difficult groups of Ichneumonidae, a determination may remain uncertain without the opportunity to compare specimens with determined material.

Sexual dimorphism is not as important in *Dusona* as in some other genera of Campopleginae, and usually the determination of males is not much more difficult than that of females. The number of flagellar segments is often slightly higher in males (by 5-10 per cent), and if the flagellum is particularly stout or slender in the female, it usually presents a more intermediate proportion in the male. The propodeum is often more narrowly and less deeply depressed in the male, with the longitudinal carinae and the wrinkles more strongly developed. The gaster is slenderer in males. In some species, the colour pattern is different between the sexes: yellow marks may be more extensive in the male (maxillary palpus, mandible, tegula, coxae and trochanters of front and mid legs), and if the hind tibia is black in the female, it may be subbasally marked with whitish yellow in the male (but not in all species, and sometimes only in some specimens of a species).

In 1975 Rolf Hinz started working on the taxonomy of eastern Palearctic *Dusona*. He first studied the relevant types and published the results of these studies rather quickly (Hinz 1979), but then he had difficulties to complete his work, because he could not get enough material for a comprehensive revision of the genus. He therefore decided to describe at first only those species which show distinctive characters and which were represented in the material by females (Hinz 1979, 1985). Between 1985 and 1987 he sorted the available material to 180 items and produced a key to

all of these taxa. But he did not complete and publish this work, probably because he would have had to abandon his breeding experiments with *Ichneumon* species for one or two years, and he always was much more interested in working with living animals than in taxonomic studies on dead material.

He was further discouraged by a misfortune with one of his papers. In 1979 he had sent a paper with descriptions of 18 new species to a journal in Stockholm, but the editors misplaced the typescript, and after some time he gave it up as lost. He described three of the species, of which he had got additional material in the meantime, in 1985 (*D. melanator*, *D. sachalini*, *D. yamanakai*), and in his notes he synonymized one species with an already described one (*D. oyamadai* = *D. americana*). He also removed some name labels and type labels, and sent back some of the types to the collectors and/or depositories, where a few of them cannot be found now (*D. melanator*, *D. oyamadai*). In the autumn of 1993, he received the typescript back unpublished, with the remark that the journal had changed its field of interest in the meantime. Because he was already too ill at that time to be able to revise the paper, he sent the unchanged typescript to E. Diller in Munich, the latter published it as quickly as possible, and it came out in early 1994. For these reasons, this paper (Hinz 1994) represents a state of knowledge from 1979. Three species are described in it for a second time, which had already been described in 1985, with the 1994 descriptions having been prepared before 1979, and from shorter type series.

When I received the Hinz collection of *Dusona* and his notes from Zoologische Staatssammlung Munich in 1995, I found the eastern Palearctic material sorted to species (but many specimens of described species already sent back to their owners), including the types of most of the species described by Hinz (1979, 1985, 1994), with the types (named and labelled) of about 40 undescribed new species, and with the material of a further 30 unnamed species, the latter mostly represented by males. I also found a list with all named species (described or undescribed), a provisional key to all items, and lists of localities, collecting dates, collectors and depositories for the specimens already sent back, but almost no descriptions (except those already published). Because on the one hand it was urgent to send the types of described species back to their owners, and on the other hand the preparation of a comprehensive revision would not be possible without those types being at hand, I decided to restrict the work to material already present (except that

in the meantime I received additional material from museums in Linz and Ottawa) while including and describing all species, also those represented only by males. I revised the key accordingly, drew up the descriptions, and added explanations, figures and some remarks on the taxonomy. Those new species already sorted out and named by Hinz are published with Hinz & Horstmann as authors. In species not known to or not accepted and named by Hinz, Horstmann is the only author.

Hinz (1985: 301 f.) described the new species *D. filator* in a paper on Siberian *Dusona* species. But the types originate from Koper Reserve near Varvarino/Voronezh Province in European Russia, therefore the species is not included in this revision.

The recent studies were supported by many colleagues: E. Diller (Zoologische Staatssammlung, Munich) allowed me to remove the *Dusona* material of the Hinz collection from Munich to my home in Würzburg. R. W. Carlson (National Museum of Natural History, Washington, D. C.), A. Freitag and S. Knispel (Musée Zoologique, Lausanne), F. Gusenleitner (Biologiezentrum, Landesmuseum, Linz), J. T. Huber (Biosystematics Research Institute, Agriculture Canada, Ottawa), D. R. Kasparyan and A. Khalaim (Zoological Institute, Russian Academy of Sciences, St. Petersburg), J. Sawoniewicz (Instytut Biologii, Białystok), M. R. Shaw (National Museums of Scotland, Edinburgh), A. Taeger (Deutsches Entomologisches Institut, Müncheberg), C. Taylor (Natural History Museum, London), D. B. Wahl (American Entomological Institute, Gainesville) and K. Yoshizawa and T. Yoshida (Systematic Entomology, Faculty of Agriculture, Sapporo) sent types and other material for comparison. D. R. Kasparyan, A. Khalaim, J. Sawoniewicz, K. Yoshizawa, T. Yoshida and D. S. Yu (Biosystematic Information System, Vancouver) helped with reading or interpreting locality labels. A. Hausmann (Zoologische Staatssammlung, Munich) completed some names of host species. U. Horstmann (my daughter) and M. R. Shaw assisted me with the English language. I am indebted to them all.

### Explanations of terms

Special terms used in the descriptions of Ichneumonidae are defined and figured by Townes (1969: 36 ff.). Some additional explanations are given here. Some definitions (e.g. that of the glymma) differ slightly from those given by Gupta & Gupta (1977: 5 ff.).

Antennal carina (Figs 3-7): Carina surrounding the antennal socket. The descriptions refer to the dorsal part only.

Areolet (Figs 22-25): Its upper side is sessile, pointed or stalked. It receives the second recurrent vein basad of, at, or distad of the middle. Generally, the shape of the areolet has strong infraspecific variability. Therefore this character is not used in the key, and the descriptions do not give the full variability, but usually refer to the holotype of the respective species only.

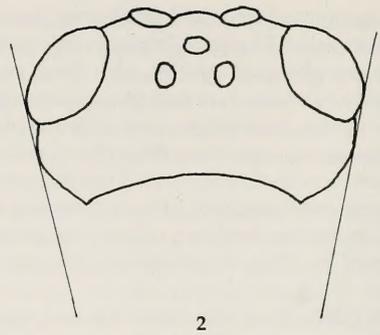
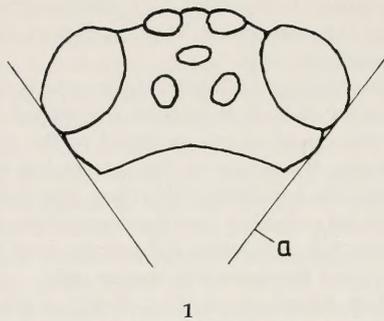
Black lateral stripe (Figs 40-42): A structure on either side of the 3<sup>rd</sup> gastral tergite in most of those species in which the epipleurium is not separated from its tergite (see explanation under epipleurium). It is a horizontal carina on the inside of the tergite, which is marked with black, the black colour showing through the tergite. This character must be checked on both sides of the tergite, because the intensity of the black colour may vary, or its visibility may be obscured by the pigmentation of the tergite.

Epipleurium (= laterotergite) (Figs 39-43): Lateral part of the 3<sup>rd</sup> gastral tergite, which is completely or partly or not at all separated from the remaining part of that tergite by a horizontal crease or bulge (epipleura of other tergites not being referred to in the descriptions; exception: *D. mercator*). Usually the crease or bulge is marked with black. If the epipleurium is separated from its tergite, it is usually folded in and concealed on the inside of the latter. If the epipleurium is separated only on the anterior 0.3 or less of the tergite, it is sometimes folded back secondarily and pendent as a rectangular or triangular lobe. These structures have strong infraspecific variability. If the epipleurium is not separated from its tergite, the former horizontal crease is often replaced by a black lateral stripe, which is well separated from the ventrolateral edge of the tergite (see explanation under black lateral stripe).

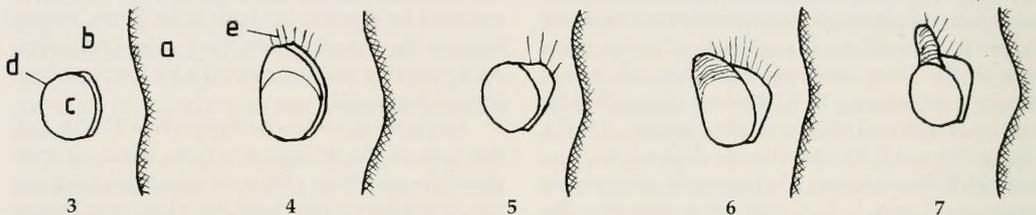
Glymma (Figs 35-36): A large or small groove or pit on either side of the petiole. A large glymma is often bordered by a longitudinal carina dorsally. A small glymma is often situated at the anterior edge of a more or less distinct narrow lateral area, this area being bordered by fine carinae dorsally and ventrally and/or defined by a change in the sculpture of the surface (coriaceous instead of smooth).

Mesopleurium: The descriptions usually refer to the central part only. The speculum and the depression in front of the speculum are mentioned separately.

Nervellus (Figs 26-29): It is inclivous, vertical or reclivous, and it is intercepted near the middle



**Figs 1-2.** Head, top view (a: tangential line on eye and temple). **1.** Temples strongly constricted, 0.6× as long as an eye, tangential lines intersect on the middle of the mesoscutum, ocellar index 0.8 (*D. admontina*). **2.** Temples scarcely constricted, 0.9× as long as an eye, tangential lines intersect on the apex of the gaster, ocellar index 1.7 (*D. capitator*).



**Figs 3-7.** Antennal socket and antennal carina, anterolateral view (a: eye; b: frons; c: antennal socket; d: antennal carina; e: radial wrinkles). **3.** Antennal carina low and narrow (*D. bellipes*). **4.** Antennal carina low, widened to a crescent-shaped smooth plate dorsally (*D. angustifrons*). **5.** Antennal carina raised, narrow (*D. sobolicida*). **6.** Antennal carina raised, its rim bent upwards and widened to a crescent-shaped transversely striate plate (ear-like) (*D. crassiventris*). **7.** Antennal carina raised, with a transversely striate projection dorsally (nose-like) (*D. pineticola*).

or below the middle. Rarely it is not intercepted.

Petiolear suture (Figs 35-38): Suture separating the 1<sup>st</sup> gastral sternite from its tergite. The suture is often partly or completely obliterated.

Pleural carina: Carina bordering the metapleurum dorsally and posteriorly, thus separating it from the propodeum.

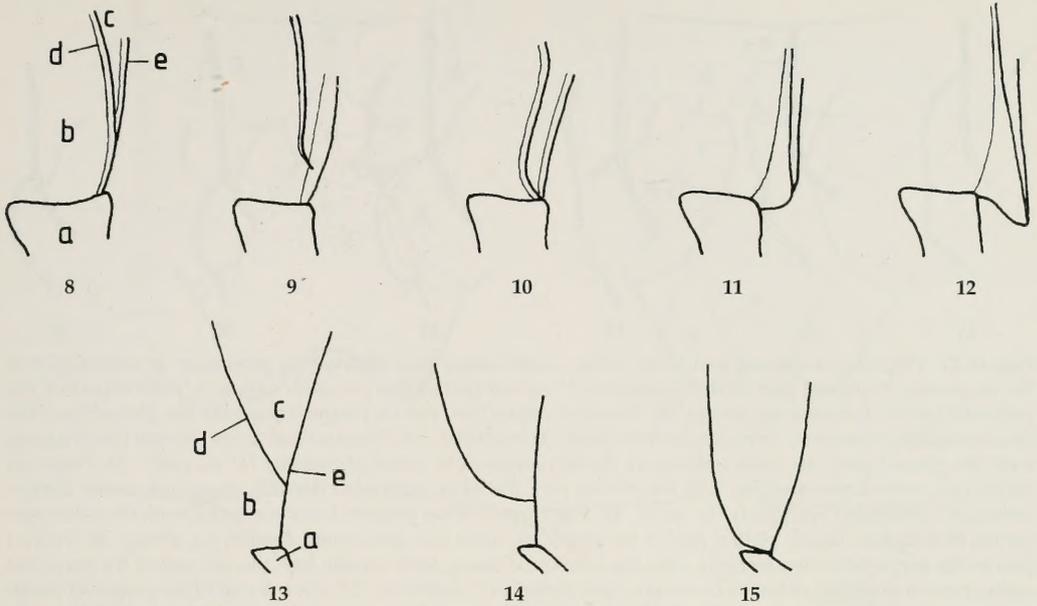
Prepectal carina (= epicnemial carina) (Figs 16-21): The ventral part lies between its junctions with the transverse carinae of the prepectus (= epinemium); the pleural parts extend between their junctions with the transverse carinae and the anterior edges of the mesopleura. In some species the ventral part of the prepectal carina and the transverse carinae are raised. In other species either the transverse carinae or the pleural parts of the prepectal carina are more or less obliterated.

Propodeum (= 1<sup>st</sup> abdominal tergite) (Figs 30-34): The propodeum ranges from not depressed to deeply depressed, the depression being a broad sulcus or a rather narrow longitudinal furrow. Independent of the depression, the propodeum is

very incompletely to almost completely areolated. If very incompletely areolated, the anterior boundary of the area superomedia and some posterior stubs of the apical transverse carina and/or the longitudinal carinae are present. These are not mentioned in the descriptions. If completely areolated, the median longitudinal carinae, parts of the lateral longitudinal carinae, the basal transverse carina and parts of the apical transverse carina are present, and only the median part of the apical transverse carina (the posterior boundary of the area superomedia) is lacking (exception: *D. sachalini*). In an intermediate condition, either two longitudinal carinae (consisting of parts of the median longitudinal carinae and the apical transverse carina) are present posteriorly and medially, or the costulae are complete and the longitudinal carinae are almost completely lacking.

Propodeal spiracle: Measurements of the length and width are made to the centre of the rim surrounding the opening.

Punctuation: In a dense punctuation the punc-



**Figs 8-12.** Genal carina and oral carina, side view (a: mandible; b: gena; c: occiput; d: genal carina; e: oral carina). **8.** Genal carina low and straight ventrally, joining the scarcely raised oral carina distant from the base of the mandible (*D. montana*). **9.** Genal carina low ventrally, bent forwards, joining the strongly raised oral carina distant from the base of the mandible (*D. tenuis*). **10.** Genal carina low ventrally, bent forwards, joining the oral carina at the base of the mandible (*D. angustifrons*). **11.** Genal carina and oral carina both distinctly raised ventrally, forming a lopsided triangular pyramid, the tip of the latter shifted ventrally and situated behind the base of the mandible (*D. aurita*). **12.** Genal carina and oral carina both strongly raised ventrally, forming a high lopsided triangular pyramid, the tip of the latter shifted ventrally and situated behind the base of the mandible (*D. mercator*).

**Figs 13-15.** Genal carina and oral carina, rear view (a: mandible; b: gena; c: occiput; d: genal carina; e: oral carina). **13.** Genal carina straight ventrally, joining the oral carina at an acute angle distant from the base of the mandible (*D. montana*). **14.** Genal carina bent sideways ventrally, joining the oral carina at a right angle distant from the base of the mandible (*D. tenuis*). **15.** Genal carina bent sideways ventrally, joining the oral carina at a right angle at the base of the mandible (*D. angustifrons*).

tures are for the greater part wider than their interspaces. In a disperse punctation the punctures are for the greater part narrower than their interspaces. In a rather dense punctation many punctures are as wide as their interspaces.

**Radial wrinkles (Figs 3-7):** Wrinkles on the ventral part of the frons, running upwards and sideways from the dorsal part of the antennal carina.

**Spiracular carina:** Carina connecting the propodeal spiracle with the pleural carina.

**Tangential lines on eyes and temples (Figs 1-2):** Imaginary lines defined to describe the slope of the temples.

**Tarsal claws:** The hind tarsal claws are described as short (about as long as the empodium) or long (distinctly longer than the empodium).

**Thyridium:** The thyridium is described as cir-

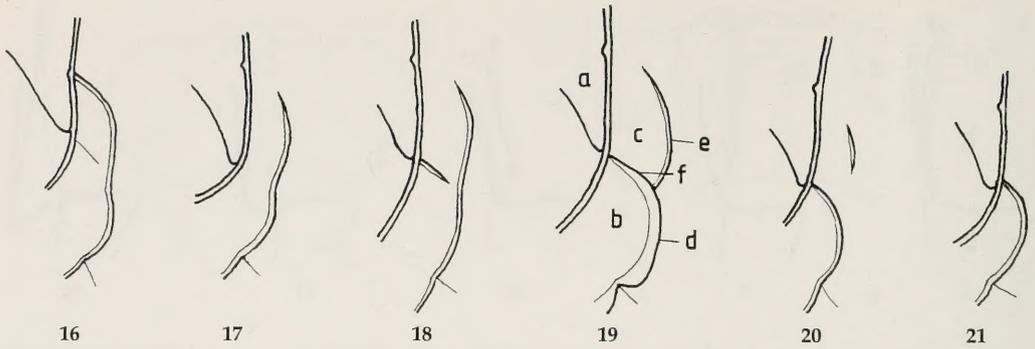
cular (1.0-1.5× as long as wide), oval (about 2.0× as long as wide) or elongate (more than 2.5× as long as wide).

**Transverse carina (Figs 16-21):** Carina separating the ventral from the pleural part of the prepectus (see explanation under prepectal carina).

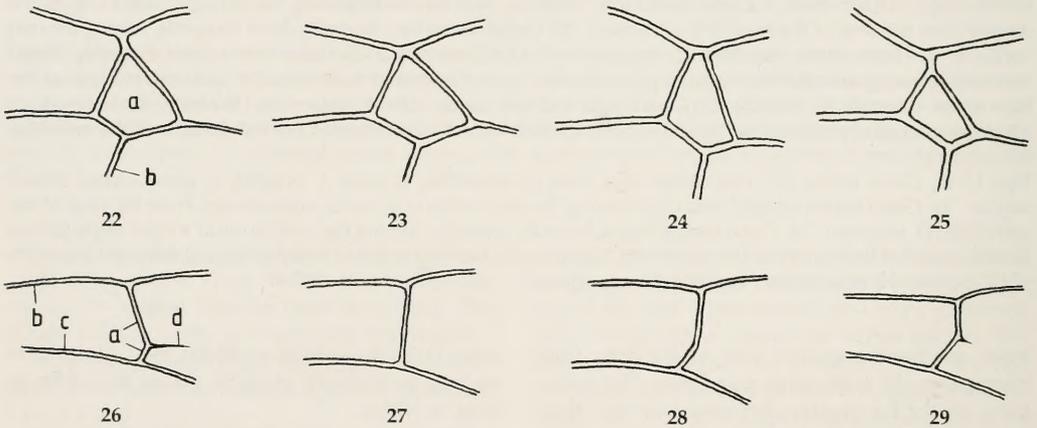
### Definitions of indices

**Epipleural index:** Ratio of the length of the crease or bulge separating the epipleurum from the 3<sup>rd</sup> gastral tergite to the lateral length of that tergite.

**Genal index:** Ratio of the length of the oral carina between its junction with the genal carina and the base of mandible to the basal width of a mandible.



**Figs 16-21.** Prepectal carina and transverse carina, ventrolateral view (slanted) (a: pronotum; b: ventral part of the prepectus; c: pleural part of the prepectus; d: ventral part of the prepectal carina; e: pleural part of the prepectal carina; f: transverse carina). **16.** Prepectal carina low, ventral part merging with the pleural part, the latter complete, transverse carina fine and indistinct (*D. montana*). **17.** Prepectal carina low, ventral part merging with the pleural part, the latter obliterated dorsally, transverse carina obliterated (*D. micrator*). **18.** Prepectal carina low, ventral part merging with the pleural part, the latter obliterated dorsally, transverse carina distinct anteriorly, obliterated posteriorly (*D. opaca*). **19.** Ventral part of the prepectal carina merging with the transverse carina, both carinae raised, pleural part of the prepectal carina low, obliterated dorsally (*D. tenuis*). **20.** Ventral part of the prepectal carina merging with the transverse carina, both carinae low, pleural part of the prepectal carina present medially, obliterated ventrally and dorsally (*D. petiolor*). **21.** Ventral part of the prepectal carina merging with the transverse carina, both carinae low, pleural part of the prepectal carina obliterated (*D. japonica*).



**Figs 22-25.** Areolet (a: areolet; b: 2<sup>nd</sup> recurrent vein). **22.** Areolet short-stalked, receiving the 2<sup>nd</sup> recurrent vein basad of the middle (*D. circumcinctus*). **23.** Areolet pointed, receiving the 2<sup>nd</sup> recurrent vein at the middle (*D. carinifrons*). **24.** Areolet narrowly sessile, receiving the 2<sup>nd</sup> recurrent vein distad of the middle (*D. variator*). **25.** Areolet stalked, receiving the 2<sup>nd</sup> recurrent vein distinctly distad of the middle (*D. admontina*). **Figs 26-29.** Nervellus (a: nervellus; b: mediella; c: submediella; d: discoidella). **26.** Nervellus inclivous, distinctly intercepted, nervellar index 0.8 (*D. infesta*). **27.** Nervellus vertical, not intercepted (*D. angustifrons*). **28.** Nervellus reclivous, weakly intercepted, nervellar index 0.7 (*D. tenuis*). **29.** Nervellus distinctly reclivous, intercepted, nervellar index 0.5 (*D. xenocampta*).

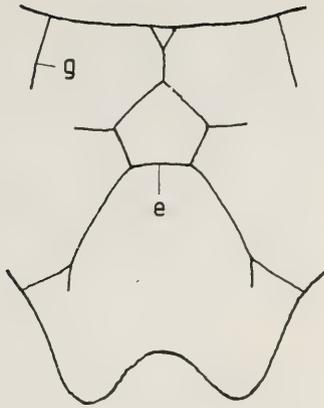
Malar space index: Ratio of the shortest distance between the rim bordering the mandibular groove and the eye (= malar space) to the basal width of a mandible.

Nervellar index: Ratio of the length of the upper (anterior) branch of the nervellus (between

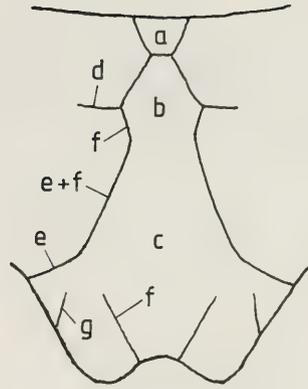
its junctions with the mediella and the discoidella) to the total length of the nervellus.

Ocellar index: Ratio of the shortest distance between the eye and the hind ocellus to the longest diameter of the hind ocellus.

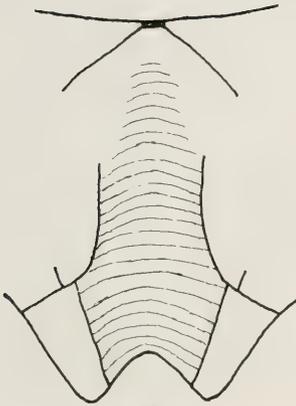
Ovipositor index: Ratio of the visible length



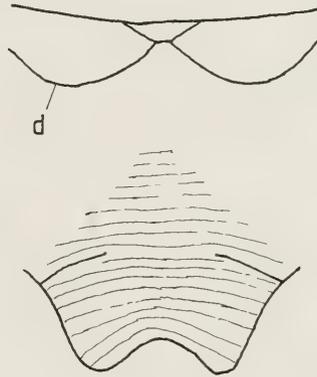
30



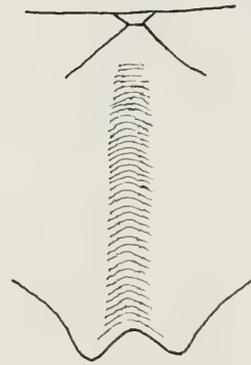
31



32



33



34

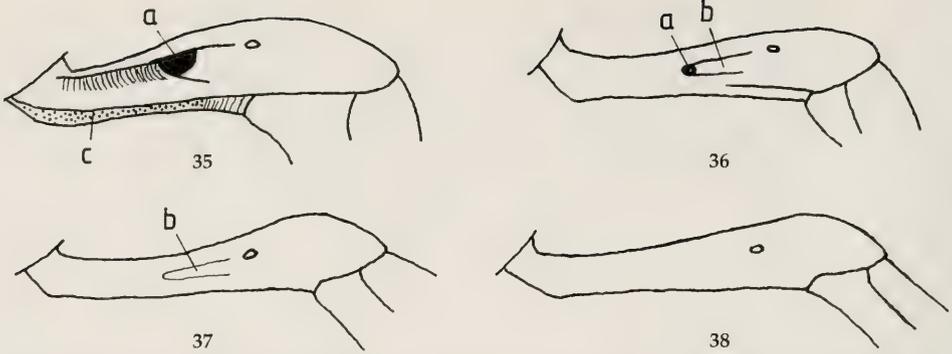
**Figs 30-34.** Propodeum, top view (a: area basalis; b: area superomedia; c: area petiolaris; d: costula = part of the anterior transverse carina; e: parts of the posterior transverse carina; f: parts of the median longitudinal carina; g: parts of the lateral longitudinal carina). **30.** Propodeum almost completely areolated anteriorly, carinae indistinct posteriorly, area basalis stalked, area superomedia bordered by a carina posteriorly (*D. sachalini*). **31.** Propodeum almost completely areolated anteriorly, carinae partly indistinct posteriorly (*D. gastator*). **32.** Propodeum broadly depressed, sulcus with long transverse striae, longitudinal carinae distinct medially and posteriorly (*D. carinifrons*). **33.** Propodeum scarcely depressed, transversely striate medially and posteriorly, costulae complete (*D. circumcinctus*). **34.** Propodeum narrowly depressed, with short transverse striae in the longitudinal furrow, carinae almost completely obliterated (*D. meridionator*).

of the ovipositor sheaths (seen from the side, in normal position) to the length of a hind basitarsus.

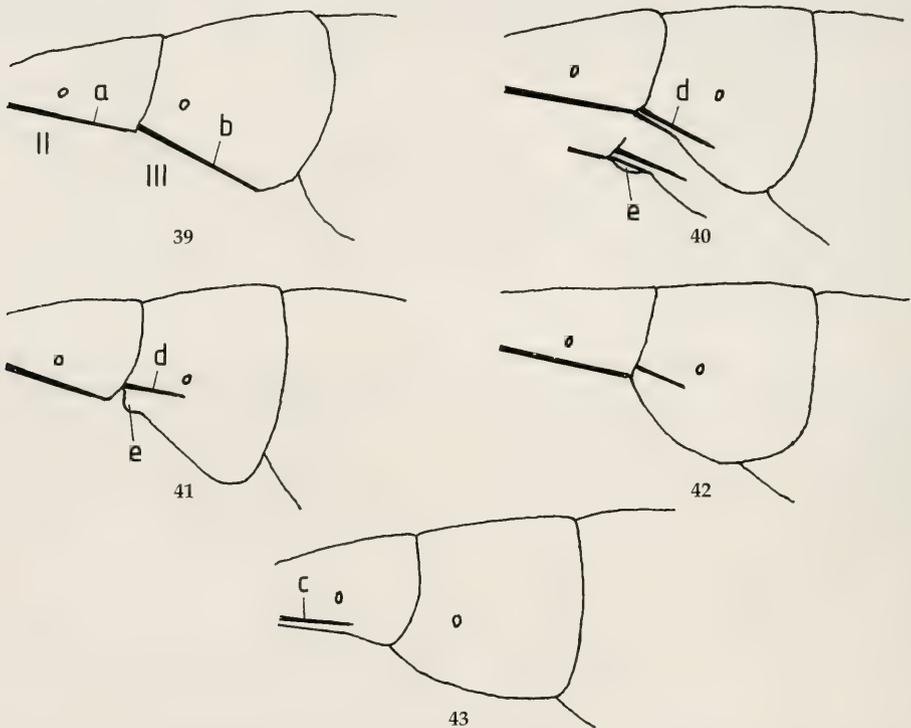
**Spiracular index:** Ratio of the length of the spiracular carina (or, if that carina is obliterated, the distance between the spiracle and the pleural carina) to the length of the spiracle.

**Thyridial index:** Ratio of the shortest distance between the thyridium and the anterior edge of the 2<sup>nd</sup> gastral tergite to the length of the thyridium.

**Tibial spur index:** Ratio of the length of the shorter to the length of the longer spur of the mid tibia.



Figs 35-38. 1<sup>st</sup> gastral segment, side view (a: glymma; b: narrow lateral area; c: petiolar suture). 35. Glymma large, bordered by a longitudinal carina dorsally, a long row of transverse wrinkles in front of the glymma, petiolar suture distinct (*D. nidulator*). 36. Glymma small, at the anterior edge of a narrow lateral area, petiolar suture partly obliterated (*D. angustifrons*). 37. Glymma obliterated, a narrow lateral area present, petiolar suture obliterated (*D. aemula*). 38. Petiole smooth laterally, without glymmae or lateral areas, petiolar suture indistinct or obliterated (*D. auriculator*).



Figs 39-43. 2<sup>nd</sup> and 3<sup>rd</sup> gastral tergite, side view (a: ventrolateral crease of the 2<sup>nd</sup> tergite; b: ventrolateral crease of the 3<sup>rd</sup> tergite; c: black lateral stripe of the 2<sup>nd</sup> tergite; d: black lateral stripe of the 3<sup>rd</sup> tergite; e: epipleurum of the 3<sup>rd</sup> tergite). 39. Epipleurum separated from the 3<sup>rd</sup> tergite and folded in, epipleural index 0.8 (*D. nidulator*). 40. Epipleurum separated from the 3<sup>rd</sup> tergite and folded in anteriorly or folded back and pendent, epipleural index 0.3, a black lateral stripe parallel with the ventrolateral crease in a short distance (*D. perditor*). 41. Epipleurum of the 3<sup>rd</sup> tergite as a small triangular lobe anteriorly, pendent, a black lateral stripe well above the ventrolateral edge (*D. nigradorsum*). 42. Epipleurum not separated from the 3<sup>rd</sup> tergite, a black lateral stripe well above the ventrolateral edge (*D. angustifrons*). 43. 2<sup>nd</sup> tergite with black lateral stripes parallel with the ventrolateral edges in a short distance, epipleurum not separated from the 3<sup>rd</sup> tergite, the latter without black lateral stripes (*D. mercator*).

## Abbreviations of depositories

AEI	American Entomological Institute, Gainesville
DEI	Deutsches Entomologisches Institut, MÜNcheberg
EDI	National Museums of Scotland, Edinburgh
HEL	Zoological Museum, Helsinki
KIS	Institute of Biological Methods of Plant Protection, Kishinev
OTT	Biosystematics Research Institute, Agriculture Canada, Ottawa
LAU	Musée Zoologique, Lausanne
LIN	Biologiezentrum des Landesmuseums, Linz
MIN	Institute of Zoology, Minsk
MOS	Zoological Museum, State University, Moscow
NHM	Natural History Museum, London
PAR	Muséum National d'Histoire Naturelle, Paris
PET	Zoological Institute, Russian Academy of Sciences, St. Petersburg
SAP	Systematic Entomology, Faculty of Agriculture, Sapporo
SAW	Sawoniewicz collection, Instytut Biologii, Białystok
WAR	Museum and Institute of Zoology, Warszawa
WAS	National Museum of Natural History, Washington, D.C.
ZSM	Zoologische Staatssammlung, Munich

## Key to species

1. Epipleurum of the 3<sup>rd</sup> gastral tergite separated from the tergite by a crease and folded in, the crease usually marked with black, epipleural index at least 0.4 (Fig. 39). ..... 2.
  - Epipleurum separated from the tergite at most on its anterior 0.4, often not separated at all or not folded in, the black lateral stripe of the 3<sup>rd</sup> tergite often situated above its ventrolateral edge and divergent from the latter (Figs 40-43). ..... 76.
2. Gaster black. Hind tibia yellowish white medially. .... 3.
  - Gaster more or less marked with red. .... 7.
3. Epipleural index 0.3-0.5. .... 4.
  - Epipleural index 0.7-0.8. Glymma present. 5.
4. Mesopleurum with dense punctation. Propodeum with the longitudinal carinae obliterated

- ed medially, the sulcus irregularly wrinkled, with longitudinal wrinkles posteriorly. Glymma small. 38-43 flagellar segments. Body length 7-9 mm (See also couplets 16 and 168). .....  
 ..... *melanator* Hinz, 1985 ♀♂
- Mesopleurum with fine and disperse punctation. Propodeum with more or less complete longitudinal carinae, the sulcus distinctly transversely wrinkled medially and posteriorly. Glymma lacking. 30-34 flagellar segments. Body length 6-8 mm. ....  
 ..... *vidua* (Gravenhorst, 1829) ♀♂
5. 31 flagellar segments. Body length 6 mm. Speculum smooth and shining. Mesopleurum with fine and disperse punctation. Propodeum slightly depressed, the longitudinal furrow coriaceous anteriorly and medially, with some wrinkles posteriorly, the longitudinal carinae almost completely obliterated. ♂ unknown. ....  
 ..... *nigrina* Horstmann, spec. nov. ♀
  - 35-46 flagellar segments. Body length 7-13 mm. Mesopleurum with distinct and rather dense or dense punctation ..... 6.
  6. Speculum for the greater part smooth and shining. Propodeum somewhat depressed, reticulate-rugose, with a median longitudinal keel posteriorly, almost completely areolated, but the carinae covered with wrinkles. 45-46 flagellar segments. Body length 11-13 mm. ...  
 ..... *myrtilla* (Desvignes, 1856) ♀♂
  - Speculum for the greater part coriaceous. Propodeum not or scarcely depressed, without longitudinal carinae medially, with fine and irregular wrinkles anteriorly and medially, with longitudinal wrinkles posteriorly. 35-37 flagellar segments in the ♀, 38-39 segments in the ♂. Body length 7-9 mm. ....  
 .. *viduator* Hinz & Horstmann, spec. nov. ♀♂
  7. Antennal carina more or less raised dorsally and/or frons depressed above the carinae, the carina therefore distinctly protruding (Figs 5-7). .... 8.
    - Antennal carina not modified dorsally, narrow and low, not distinctly protruding (Fig. 3). .... 12.
  8. Frons scarcely depressed, antennal carina raised, its rim bent upwards (ear-like). Epipleural index 0.3-0.5 (If frons scarcely depressed and epipleural index greater, see couplet 12). .... 9.
    - Frons deeply depressed above the antennal carinae, the latter distinctly raised. .... 10.

9. Antennal carina distinctly raised dorsally, its rim distinctly bent upwards (ear-like), the frons with distinct longitudinal wrinkles, which more or less reach the anterior ocellus. Hind femur completely black. 53-57 flagellar segments. Body length 15-16 mm. ....  
 ..... *infesta* (Förster, 1868) ♀♂
- Antennal carina not much raised (variable), the frons directly above the carina somewhat depressed and with short longitudinal wrinkles, which do not reach the anterior ocellus. Hind femur often marked with red apically. 52-58 flagellar segments. Body length 14-17 mm (See also couplets 37 and 97). ....  
 ..... *pugillator* (Linnaeus, 1758) ♀♂
10. Epipleural index 0.4-0.5. Body length 15-19 mm. .... 94.
- Epipleural index 0.6-0.8. Body length 14-15 mm. .... 11.
11. Frons very deeply depressed (funnel-like), the depression distinctly rugose. Mesopleurum with coarse punctation. Epipleural index 0.8. Ventrolateral crease of the 3<sup>rd</sup> gastral tergite marked with black. Postpetiole marked with red laterally. All gastral tergites marked with black dorsally. 56 flagellar segments. Body length 14 mm. ♀ unknown. ....  
 ..... *infundibulum* Horstmann, spec. nov. ♂
- Frons distinctly depressed (but not funnel-like), the depression coriaceous. Mesopleurum with fine punctation. Epipleural index 0.6. 3<sup>rd</sup> and 4<sup>th</sup> gastral tergites red. Black lateral stripe of the 3<sup>rd</sup> tergite situated above its ventrolateral edge. 60 flagellar segments. Body length 15 mm. ♀ unknown. ....  
 ..... *linearis* Horstmann, spec. nov. ♂
12. Temples straight, strongly constricted behind the eyes, the tangential lines on eyes and temples intersect on the centre of mesoscutum. Genal index about 0.9 (Both characters less distinctive in the ♂). Area basalis partly replaced by a longitudinal keel. Area superomedia bordered by a carina posteriorly (Fig. 30). 45-48 flagellar segments. Body length 9-10 mm. ....  
 ..... *sachalini* Hinz, 1985 ♀♂
- Temples less strongly constricted behind the eyes and/or more strongly rounded. Genal index smaller. Area basalis sessile, as long as or broader than long, often indistinct or reduced. Area superomedia not bordered by a carina posteriorly. .... 13.
13. Only the 2<sup>nd</sup> and 3<sup>rd</sup> gastral tergites marked with red. Glymma present. .... 14.
- Gaster more extensively marked with red, at least the 4<sup>th</sup> tergite marked with red laterally. .... 18.
14. 53-58 flagellar segments. Body length 12-16 mm. Hind femur usually red or marked with red. Hind tibia yellowish red, sometimes darkened basally. Propodeum deeply depressed, the sulcus distinctly transversely striate. Epipleural index 0.5-0.8. ....  
 ..... *cultrator* (Gravenhorst, 1829) ♀♂
- 34-48 flagellar segments. Body length 5-11 mm. Hind femur black. Propodeum slightly depressed, with fine irregular wrinkles, often with longitudinal wrinkles posteriorly. .... 15.
15. 46-48 flagellar segments. Body length 10-11 mm. Hind tibia black. Propodeum almost completely areolated. Epipleural index 0.9. ♀ unknown (See also couplet 54). ....  
 ..... *obscurator* Horstmann, spec. nov. ♂
- 34-43 flagellar segments. Body length 5-9 mm. Carinae of the propodeum for the greater part lacking. Epipleural index 0.3-0.7. .... 16.
16. 38-43 flagellar segments. Body length 7-9. Metapleurum distinctly punctate on a coriaceous background. Epipleural index 0.3-0.4. Hind tibia yellow medially (See also couplets 4 and 168). ....  
 ..... *melanator* Hinz, 1985 ♀♂
- 34-35 flagellar segments. Body length 5-7 mm. Metapleurum coriaceous and with fine wrinkles, not distinctly punctate. Epipleural index 0.6-0.7. .... 17.
17. Tegula yellow. Front femur yellowish red. Hind tibia yellow medially. 34-35 flagellar segments. Body length 5-6 mm. ♂ unknown. ....  
 ..... *chechziri* Hinz & Horstmann, spec. nov. ♀
- Tegula black. Front femur partly black. Hind tibia black. 35 flagellar segments. Body length 7 mm. ♂ unknown. ....  
 ..... *nigrotibialis* Horstmann, spec. nov. ♀
18. Genal carina obliterated ventrally close to its junction with the oral carina. Propodeum slightly depressed, almost completely areolated anteriorly, carinae often indistinct posteriorly (Fig. 31). Epipleural index 0.9. Gaster scarcely compressed posteriorly. 35-36 flagellar segments. Body length 7-8 mm. ♂ unknown. ....  
 ..... *gastator* Hinz, 1985 ♀
- Genal carina complete ventrally. Gaster often more compressed posteriorly. .... 19.

19. Mesopleurum rugose centrally, without distinct punctation. Propodeum not depressed, with distinct longitudinal carinae. Epipleural index 0.9. 38-42 flagellar segments. Body length 7-8 mm. .... *leptogaster* (Holmgren, 1860) ♀♂
- Mesopleurum distinctly punctate centrally, sometimes rugose-punctate. .... 20.
20. Gaster from the apex of the 2<sup>nd</sup> tergite onwards red, the posterior tergites sometimes brown dorsally, but not distinctly black. ..21.
- Gaster more extensively darkened, usually at least the posterior tergites distinctly black dorsally. .... 24.
21. 27 flagellar segments. Body length 7 mm. Flagellum slender basally, clavate subapically, the broadest segment 1.7× as wide as the apical end of the 1<sup>st</sup> segment. Tegula black. Glymma present. Ovipositor index 1.1. ♂ unknown. .... *iwatae* Hinz, 1994 ♀
- At least 34 flagellar segments. Flagellum attenuate subapically. Ovipositor index 0.5-0.6. .... 22.
22. 58-63 flagellar segments, 2<sup>nd</sup> segment 1.5× as long as wide. Body length 11-15 mm. Mesopleurum with fine and rather dense punctation, the interspaces slightly coriaceous. Petiolar suture present only anteriorly. Glymma very small or lacking. ♂ of this variety unknown (See also couplet 45). .... *similator* Hinz, 1994 var. ♀
- Number of flagellar segments lower, 2<sup>nd</sup> segment at least 1.9× as long as wide. Body length 7-11 mm. .... 23.
23. Mesopleurum densely and finely rugose-punctate, the interspaces coriaceous, rather dull. Hind femur red or brown in the ♂, dark brown or black in the ♀. Petiolar suture distinct. Glymma lacking. Posterior gastral tergites marked with brown dorsally. 34-39 flagellar segments. Body length 7-9 mm. .... *admontina* (Speiser, 1908) ♀♂
- Mesopleurum with fine and disperse punctures and shining interspaces. Hind femur black. Petiolar suture scarcely developed. Glymma present. Posterior gastral tergites completely red. At least 42 flagellar segments (Both flagellar tips broken off in the only available specimen). Body length 11 mm. ♀ unknown. .... *gastroides* Horstmann, spec. nov. ♂
24. Frons on either side with a small raised point between the antennal socket and the eye. .... 25.
- Frons without such raised points. .... 27.
25. Hind femur black, marked with red apically. Hind tibia yellowish red to red. Propodeum somewhat areolated, broadly but not deeply depressed between the longitudinal carinae, the sulcus for the greater part transversely wrinkled. Glymma small. 2<sup>nd</sup> gastral tergite red on the posterior 0.4-0.6. 3<sup>rd</sup> and 4<sup>th</sup> tergites red, the 5<sup>th</sup> tergite red in the ♀, for the greater part black in the ♂. 54-55 flagellar segments. Body length 11-13 mm. .... *bellipes* (Holmgren, 1872) ♀♂
- Hind femur completely black. Hind tibia black or marked with black. Glymma large. 2<sup>nd</sup> gastral tergite red on the posterior 0.1-0.3. .... 26.
26. Propodeum not depressed or scarcely depressed, irregularly wrinkled, often with one or more longitudinal wrinkles posteriorly. Hind tibia yellowish brown to dark brown or black medially. 5<sup>th</sup> gastral tergite often red or marked with red. 45-55 flagellar segments. Body length 9-12 mm. .... *bicoloripes* (Ashmead, 1906) ♀♂
- Propodeum slightly depressed, for the greater part irregularly wrinkled, with distinct transverse wrinkles posteriorly. Hind tibia black. 5<sup>th</sup> gastral tergite black. 46-55 flagellar segments. Body length 9-13 mm. .... *chabarowski* Hinz & Horstmann, spec. nov. ♀♂
27. Epipleural index 0.4-0.7. Epipleurum of the 3<sup>rd</sup> gastral tergite folded in, rarely folded back secondarily and pendent, in the latter case the former ventrolateral crease present as bulge close to the ventrolateral edge, the bulge usually marked with black (in this case similar to Fig. 40). .... 28.
- Epipleural index 0.7-0.8. Epipleurum folded in (Fig. 39). .... 42.
28. 32-43 flagellar segments. Body length 6-9 mm. .... 29.
- 46-58 flagellar segments. Body length 9-17 mm. .... 31.
29. Propodeum distinctly depressed, distinctly transversely wrinkled in parts of the sulcus. Gaster red medially, black basally and apically, the 2<sup>nd</sup> tergite red on the posterior 0.3-0.5, the red marks more extended laterally. Hind tibia yellow or yellowish brown medially, black basally, marked with brown apically. 41-43 flagellar segments. Body length 8-9 mm. .... *contumax* (Förster, 1868) ♀♂

- Propodeum shallowly or not at all depressed, not distinctly transversely wrinkled. Gaster darkened dorsally, red laterally, either the 3<sup>rd</sup> and 4<sup>th</sup> tergites marked with black dorsally or the posterior tergites marked with red ventrolaterally, the 2<sup>nd</sup> tergite red at most on the posterior 0.2 dorsally (Propodeum rather narrowly depressed, with short transverse wrinkles in the narrow longitudinal furrow; gaster black dorsally: see *D. specularis*, couplet 54). . . . . 30.
- 30. Flagellum almost filiform, the shortest segments 0.9× as long as wide. Hind tibia light yellow medially, black basally and apically. Gaster for the greater part black, 2<sup>nd</sup> to 4<sup>th</sup> or 5<sup>th</sup> tergites marked with red laterally. 37-41 flagellar segments. Body length 7-8 mm. . . . .  
.... *bellator* Hinz & Horstmann, spec. nov. ♀♂
- Flagellum distinctly fusiform, the shortest segments 0.8× as long as wide in the ♀. Hind tibia yellowish brown to dark brown medially, narrowly black basally, scarcely darkened apically. Posterior gastral tergites black dorsally, marked with red ventrolaterally. Posterior gastral sternites red. 32-36 flagellar segments. Body length 8-9 mm. ♂ unknown. . . . .  
..... *maruyamae* Hinz, 1994 ♀
- 31. Frons with a distinct median longitudinal keel. Pleural part of the prepectal carina lacking, 2<sup>nd</sup> gastral tergite with a black edge posteriorly. Epipleural index 0.6-0.7. Hind tibia red, indistinctly darkened basally. 49-51 flagellar segments. Body length 11 mm. ♂ unknown. . . . .  
..... *carinator* Hinz, 1985 ♀
- Frons at most with a fine median longitudinal carina. Pleural part of the prepectal carina at least partly present. . . . . 32.
- 32. Mesopleurum smooth or scarcely coriaceous between the punctures, strongly shining. Pleural part of the prepectal carina partly obliterated, not reaching the anterior edge of the mesopleurum. Hind tibia yellowish medially, narrowly black basally, broadly black apically. 2<sup>nd</sup> gastral tergite black dorsally and posteriorly. Epipleural index 0.4-0.5. 54-58 flagellar segments. Body length 10-13 mm. . . . .  
..... *yamanakai* Hinz, 1985 ♀♂
- Mesopleurum more or less strongly coriaceous between the punctures. Pleural part of the prepectal carina complete and/or epipleural index 0.6-0.8. . . . . 33.
- 33. Temples not much constricted behind the eyes, tangential lines on eyes and temples intersect on the 1<sup>st</sup> gastral segment (similar to Fig. 2). Temple 0.8× as wide as an eye. Hind tibia yellow with a red apex. Hind tarsus yellow. Epipleural index 0.5-0.6. 48-51 flagellar segments. Body length 10-12 mm. ♀ unknown. . . . .  
..... *flavitarsis* Horstmann, spec. nov. ♂
- Temples shorter and more strongly constricted behind the eyes. Hind tarsus usually black. . . . . 34.
- 34. Epipleural index 0.3-0.5. Mesopleurum punctured on a distinctly coriaceous background. Longitudinal carinae of propodeum often present medially. . . . . 35.
- Epipleural index 0.6-0.7. . . . . 38.
- 35. 2<sup>nd</sup> gastral tergite dorsally black at least on the posterior edge, sometimes tinged with red in front of the edge. Hind tibia yellowish brown medially, narrowly black basally and apically. Epipleural index 0.2-0.3. 45-55 flagellar segments. Body length 9-12 mm (See also couplet 171). . . . .  
..... *vigilator* (Förster, 1868) ♀♂
- 2<sup>nd</sup> gastral tergite red posteriorly. Hind tibia yellow medially. . . . . 36.
- 36. Depression in front of the speculum with short striae, which merge with an narrow area without punctuation anteriorly. Propodeum with complete costulae and longitudinal carinae, sulcus between the longitudinal carinae finely coriaceous and shining anteriorly and medially. Epipleural index 0.4. 50 flagellar segments. Body length 10 mm. ♀ unknown (See also couplet 174). . . . .  
..... *rufovariata* Horstmann, spec. nov. ♂
- Depression in front of the speculum with rather long striae, which merge with the punctuation anteriorly. Costulae and longitudinal carinae often incomplete, sulcus between the longitudinal carinae rugose or transversely wrinkled anteriorly and medially. 51-58 flagellar segments. Body length 12-17 mm. . . . . 37.
- 37. Frons somewhat depressed above the antennal carinae. Antennal carina often somewhat raised and its rim bent upwards. Epipleural index 0.2-0.4. 52-58 flagellar segments. Body length 14-17 mm (See also couplets 9 and 97). . . . .  
..... *pugillator* (Linnaeus, 1758) ♀♂
- Frons slightly depressed. Antennal carina low, its rim scarcely bent upwards. Epipleural index 0.5-0.7. 51-57 flagellar segments. Body length 12-14 mm (See also couplet 41). . . . .  
..... *rugifer* (Förster, 1868) ♀♂

38. Depression in front of the speculum at least dorsally with distinct striae or wrinkles, which usually merge with the punctation anteriorly. Hind tibia yellowish brown to brown medially. .... 39.
- Depression in front of the speculum with fine striae, which usually merge with a narrow coriaceous area without punctation anteriorly, or granulate-strigose. .... 44.
39. Speculum smooth or almost smooth, strongly shining. Mesopleurum slightly coriaceous and shining between the punctures. Metapleurum with rather dense or disperse punctation, slightly coriaceous and shining between the punctures. Propodeum distinctly depressed, the sulcus for the greater part transversely wrinkled, the longitudinal carinae present medially. Gaster distinctly shining posteriorly. 42-46 flagellar segments. Body length 10-12 mm (See also couplets 46 and 64). ....  
..... *polita* (Förster, 1868) ♀♂
- Speculum slightly coriaceous, shining. Mesopleurum distinctly coriaceous and rather dull between the punctures. Metapleurum with dense or rather dense punctation, coriaceous between the punctures, sometimes rugose-punctate. 48-57 flagellar segments. Body length 10-14 mm. .... 40.
40. Propodeum broadly and not deeply depressed, sulcus for the greater part irregularly wrinkled, with transverse wrinkles only posteriorly, longitudinal carinae completely lacking medially. Tegula yellow. Hind tibia yellowish medially, narrowly black basally, broadly black apically. 51-52 flagellar segments. Body length 13-14 mm. ♂ tentatively placed here. ....  
..... *rugosa* Horstmann, spec. nov. ♀ ?♂
- Propodeum rather broadly depressed, sulcus for the greater part transversely wrinkled, longitudinal carinae present medially and posteriorly. Tegula brown or black in the ♀, but often yellow in the ♂. .... 41.
41. Hind tibia broadly yellow medially, narrowly brown basally and apically. 51-57 flagellar segments. Body length 12-14 mm (See also couplet 37). .... *rugifer* (Förster, 1868) ♀♂
- Hind tibia yellowish brown to dark brown medially, narrowly black basally, brown to black apically, the dark apical mark sometimes lacking. 48-52 flagellar segments. Body length 10-13 mm. ....  
..... *stragifex* (Förster, 1868) ♀♂
42. 34-42 flagellar segments. Body length 6-7 mm. Flagellum for the greater part light brown ventrally. 2<sup>nd</sup> flagellar segment 2.0-2.4× as long as wide. Propodeum scarcely depressed, for the greater part coriaceous, with longitudinal wrinkles posteriorly. Glymma distinct. ....  
..... *maruyamator* Hinz 1979 ♀♂
- At least 39 flagellar segments. Body usually longer. In cases of doubt flagellum black and/or propodeum with transverse wrinkles posteriorly. .... 43.
43. Depression in front of the speculum with dense and fine striae, which usually merge with a narrow coriaceous area without punctation anteriorly, or granulate-strigose, ventrally often coriaceous without striae. .... 44.
- Depression in front of the speculum at least dorsally with distinct striae or wrinkles, which merge with the punctation anteriorly, also ventrally often with striae. .... 47.
44. Propodeum distinctly and rather narrowly depressed, with longitudinal carinae bordering the longitudinal furrow, transversely wrinkled almost everywhere between the carinae, area superomedia only coriaceous. Hind tibia yellowish brown medially, broadly black basally and apically. 2<sup>nd</sup> gastral tergite red on the posterior 0.6. 3<sup>rd</sup> and 4<sup>th</sup> tergites red. 49 flagellar segments. Body length 13 mm. ♀ unknown.  
..... *coriacea* Horstmann, spec. nov. ♂
- Propodeum broadly and shallowly depressed, often without longitudinal carinae medially, transversely wrinkled only in some parts of the sulcus, in other parts irregularly wrinkled. 2<sup>nd</sup> gastral tergite red at most on the posterior 0.3. .... 45.
45. 58-63 flagellar segments. Body length 11-14 mm. Mesopleurum with rather dense punctation. Hind tibia yellowish brown to brown medially, narrowly blackish basally, broadly blackish apically (sometimes paler in the ♂). Propodeal spiracle about 4× as long as wide. Glymma very small or lacking (See also couplet 22). ....  
..... *similator* Hinz, 1994 ♀♂
- 42-55 flagellar segments. Body length 9-13 mm. Mesopleurum with dense punctation. Propodeal spiracle about 3× as long as wide. Glymma large. .... 46.
46. Speculum smooth or almost smooth, strongly shining. Mesopleurum slightly coriaceous and shining between the punctures. Metapleurum with rather dense or disperse punctation,

- slightly coriaceous and shining between the punctures. Propodeum distinctly depressed, sulcus for the greater part transversely wrinkled, longitudinal carinae present medially. Gaster distinctly shining posteriorly. 42-46 flagellar segments. Body length 10-12 mm (See also couplets 39 and 64). .....  
..... *polita* (Förster, 1868) ♀♂
- Speculum coriaceous, somewhat shining. Mesopleurum distinctly coriaceous and rather dull between the punctures. Metapleurum rugose or with dense or rather dense punctation, coriaceous between the punctures. 45-55 flagellar segments. Body length 9-13 mm. .... 26.
47. Petiole strongly sculptured laterally in front of the glymmae, usually with a long row of distinct transverse wrinkles, sometimes with irregular wrinkles. Petiolar suture complete and distinct. 1<sup>st</sup> gastral sternite coriaceous anteriorly and medially, with fine transverse striae posteriorly (Fig. 35). Hind tibia yellowish, not darkened basally, distinctly darkened apically. 50-52 flagellar segments. Body length 12-13 mm. .... *nidulator* (Fabricius, 1804) ♀♂
- Petiole smooth or with fine sculpture laterally in front of the glymmae, at most with some transverse wrinkles anteriorly. 1<sup>st</sup> gastral sternite often smooth medially. Number of flagellar segments often lower. .... 48.
48. Males. .... 49.  
- Females. .... 61.
49. Gaster from the 3<sup>rd</sup> tergite onwards black dorsally (to a variable extent), red laterally, the posterior tergites at least half red in lateral view. Genital claspers for the greater part red. .... 50.  
- Posterior gastral tergites for the greater part or completely black. Genital claspers for the greater part black. .... 52.
50. 47-48 flagellar segments. Body length 11-12 mm. 2<sup>nd</sup> flagellar segment 1.6× as long as wide. Front and mid coxae yellow apically. Front and mid trochanters yellow. Hind tibia yellowish, narrowly black basally, not distinctly darkened apically. Longitudinal carinae of propodeum scarcely indicated, the propodeum not depressed, wrinkled, with short longitudinal wrinkles posteriorly. Glymma distinct. ♀ in couplet 70. ....  
..... *momoti* Hinz & Horstmann, spec. nov. ♂
- 43-44 flagellar segments. Body length 8-10 mm. At least the mid coxa and mid trochanter black. .... 51.
51. 2<sup>nd</sup> flagellar segment 2.2× as long as wide. Front coxa yellow apically. Front trochanter yellow. Hind tibia yellowish brown, black basally. Propodeum scarcely depressed, without longitudinal carinae, for the greater part finely wrinkled, with fine transverse wrinkles posteriorly. Glymma very small or lacking. 43 flagellar segments. Body length 9-10 mm. ♀ in couplet 70. ....  
..... *detritor* Hinz & Horstmann, spec. nov. ♂
- 2<sup>nd</sup> flagellar segment 1.7× as long as wide. Front coxa and front trochanter black. Hind tibia blackish, sometimes tinged with yellowish brown medially. Propodeum not depressed, rather completely areolated, coarsely and irregularly wrinkled, with distinct longitudinal wrinkles posteriorly. Glymma distinct. 44 flagellar segments. Body length 8 mm. ♀ in couplet 74. ....  
..... *pictator* Hinz & Horstmann, spec. nov. ♂
52. Pleural carina indistinct, covered with wrinkles medially. Propodeum shallowly depressed, almost completely areolated, wrinkled, with longitudinal wrinkles posteriorly. Hind tibia black. Glymma present. 2<sup>nd</sup> gastral tergite red on the posterior 0.2-0.3. 3<sup>rd</sup> and 4<sup>th</sup> tergites red. 46 flagellar segments. Body length 11 mm. ♀ in couplet 63. .... *caudator* Hinz, 1985 ♂
- Pleural carina distinct and complete medially (Pleural carina partly covered with wrinkles; hind tibia yellowish red medially; see *D. terebrator*, couplet 59). .... 53.
53. Gaster black, at most the 3<sup>rd</sup> and 4<sup>th</sup> tergites red laterally, the 4<sup>th</sup> at least half black. .... 54.  
- Gaster more extensively marked with red. ...  
..... 55.
54. Mesopleurum with fine and dense punctation on a coriaceous background. Speculum finely granulate-strigose. Hind tibia black. Propodeum almost completely areolated, slightly depressed, with fine irregular wrinkles. Glymma distinct. 46-48 flagellar segments. Body length 10-11 mm. ♀ unknown (See also couplet 15). ....  
..... *obscurator* Horstmann, spec. nov. ♂
- Mesopleurum with distinct and partly disperse punctation on a strongly shining background. Speculum smooth. Hind tibia broadly yellowish brown medially, narrowly black

- basally, rather broadly dark brown apically. Propodeum coarsely rugose, the longitudinal carinae indicated, with a shallowly depressed longitudinal furrow, the latter with short transverse wrinkles. Glymma small. 40 flagellar segments. Body length 9 mm. ♀ unknown. ...  
..... *specularis* Horstmann, spec. nov. ♂
55. Glymma lacking, at most a small and shallow furrow present. 2<sup>nd</sup> flagellar segment 2.2× as long as wide. Hind tibia rather dark yellowish brown, black basally, not distinctly darkened apically. Propodeum not depressed, with or without longitudinal carinae, in some parts with fine transverse wrinkles, in particular posteriorly. 2<sup>nd</sup> gastral tergite red on the posterior 0.2 dorsally, the red marks more extended laterally. 3<sup>rd</sup> and 4<sup>th</sup> tergites red. 43-44 flagellar segments. Body length 11-12 mm. ♀ in couplet 68. ....  
..... *montana* (Roman, 1929) ♂
- Glymma present. Basal flagellar segments less slender (Glymma as a very small pit; 58-63 flagellar segments: see *D. similator*, couplet 45).  
..... 56.
56. Genal index 0.9. 2<sup>nd</sup> gastral tergite black or red on the posterior 0.1. 45-47 flagellar segments. Body length 12-13 mm. ♀ in couplet 66. ....  
..... *yezoensis* (Uchida, 1928) ♂
- Genal index at most 0.5 ..... 57.
57. 2<sup>nd</sup> flagellar segment 2.0× as long as wide. ....  
..... 58.
- 2<sup>nd</sup> flagellar segment at most 1.7× as long as wide. .... 59.
58. Tegula black. Hind tibia black, to a variable extent yellowish brown medially. Propodeum elongated, reaching to the middle of the hind coxa, more or less completely areolated, scarcely depressed, partly transversely wrinkled. Glymma small. 2<sup>nd</sup> gastral tergite red on the posterior 0.2. 3<sup>rd</sup> tergite completely, 4<sup>th</sup> for the greater part red. 42-45 flagellar segments. Body length 9-10 mm. ♀ in couplet 63. ....  
..... *longicauda* (Uchida, 1928) ♂
- Tegula yellow. Hind tibia yellow medially, black basally, brownish apically. Propodeum not elongated, more or less completely areolated, somewhat depressed, partly transversely wrinkled. Glymma distinct. 2<sup>nd</sup> gastral tergite red on the posterior 0.2. 3<sup>rd</sup> tergite completely, 4<sup>th</sup> almost completely, 5<sup>th</sup> laterally red. 40-44 flagellar segments. Body length 9-11 mm. ♀ in couplet 67. ....  
..... *spinator* Hinz & Horstmann, spec. nov. ♂
59. Maxillary palpus black. Mandible for the greater part or completely black. Tegula black. Mesopleurum distinctly coriaceous and dull between the punctures. Metapleurum rugose, without distinct punctures. 39-43 flagellar segments. Body length 9-11 mm. ♀ in couplet 66. ....  
..... *terebrator* (Förster, 1868) ♂
- Maxillary palpus yellow. Mandible for the greater part yellow. Tegula usually yellow. Metapleurum often with distinct punctures on a coriaceous background. .... 60.
60. Propodeum not depressed or slightly depressed, for the greater part irregularly wrinkled, without transverse wrinkles or with transverse wrinkles only posteriorly, longitudinal carinae usually obliterated anteriorly and medially. .... 26.
- Propodeum distinctly depressed, with transverse wrinkles at least medially and posteriorly, longitudinal carinae present at least medially and posteriorly. .... 39.
61. Ovipositor index at least 0.8. .... 62.
- Ovipositor index 0.5-0.7. .... 69.
62. Ovipositor index 1.4-2.2. Ovipositor bent upwards. Mesopleurum slightly coriaceous between the punctures, distinctly shining. ... 63.
- Ovipositor index 0.8-1.1. Ovipositor straight. Mesopleurum distinctly coriaceous between the punctures, scarcely shining (exception: *D. polita*). .... 64.
63. 2<sup>nd</sup> flagellar segment 1.3× as long as wide, 5<sup>th</sup> segment as long as wide. Pleural carina indistinct or lacking. Depression in front of the speculum with short wrinkles. Ovipositor index 2.2. 45 flagellar segments. Body length 11 mm. ♂ in couplet 52. ....  
..... *caudator* Hinz, 1985 ♀
- 2<sup>nd</sup> flagellar segment 2.3× as long as wide, 14<sup>th</sup> segment as long as wide. Pleural carina distinct. Depression in front of the speculum with distinct striae. Ovipositor index 1.4. 40-48 flagellar segments. Body length 9-12 mm. ♂ in couplet 58. ....  
..... *longicauda* (Uchida, 1929) ♀
64. 2<sup>nd</sup> flagellar segment 1.3× as long as wide. Speculum smooth or almost smooth, strongly shining. Metapleurum with rather dense or disperse punctation, slightly coriaceous and shining between the punctures. Gaster strongly shining posteriorly. Ovipositor index 0.7-0.8. 42-46 flagellar segments. Body length 10-12 mm (See also couplets 39 and 46). ....  
..... *polita* (Förster, 1868) ♀

- 2<sup>nd</sup> flagellar segment at least 1.6× as long as wide. .... 65.
- 65. 2<sup>nd</sup> flagellar segment 1.6-1.9× as long as wide. Speculum coriaceous, dull. Metapleurum coriaceous and rugose. Propodeum completely or almost completely areolated. .... 66.
- 2<sup>nd</sup> flagellar segment at least 2.1× as long as wide. .... 67.
- 66. 39-43 flagellar segments. Body length 9-11 mm. Genal index 0.5. Hind tibia broadly yellowish brown medially. 2<sup>nd</sup> gastral tergite red on the posterior 0.5. Ovipositor index 1.0. ♂ in couplet 59. .... *terebrator* (Förster, 1868) ♀
- 45-47 flagellar segments. Body length 12-13 mm. Genal index 0.9. Hind tibia black. 2<sup>nd</sup> gastral tergite black or red on the posterior 0.1. Ovipositor index 0.9. ♂ in couplet 56. .... *yezoensis* (Uchida, 1928) ♀
- 67. 40-41 flagellar segments, the shortest segments 0.8-0.9× as long as wide. Body length 10 mm. Hind tibia yellowish brown medially, distinctly darkened basally and apically. Glymma large. ♂ in couplet 58. .... *spinator* Hinz & Horstmann, spec. nov. ♀
- 43-48 flagellar segments, all segments at least as long as wide. Hind tibia dark yellowish brown to black. .... 68.
- 68. The shortest flagellar segments as long as wide. Hind tibia dark yellowish brown, darkened only basally. Propodeum often incompletely areolated. Glymma indicated as a small furrow or lacking. 43-45 flagellar segments. Body length 10-12. ♂ in couplet 55. .... *montana* (Roman, 1929) ♀
- All flagellar segments longer than wide. Hind tibia black. Glymma small. 48 flagellar segments. Body length 13 mm. ♂ unknown. .... *yezoenoides* Hinz & Horstmann, spec. nov. ♀
- 69. Gaster black dorsally, broadly red laterally, 3<sup>rd</sup> tergite black dorsally. 6<sup>th</sup> tergite only narrowly black dorsally. Hind tibia yellowish brown, black basally, scarcely darkened apically. .... 70.
- Gaster red medially, black anteriorly and posteriorly, 3<sup>rd</sup> and/or 4<sup>th</sup> tergites usually completely red, 6<sup>th</sup> tergite at least half black in lateral view (*D. pictator* with a black hind tibia, which is intermediate in this character, is included here). Hind tibia often more darkened, in particular apically. .... 71.
- 70. 44 flagellar segments. Body length 9-10. 2<sup>nd</sup> flagellar segment 2.3× as long as wide. Propodeum scarcely depressed, without longitudinal carinae, partly with fine transverse wrinkles. Glymma very small. ♂ in couplet 51. .... *detritor* Hinz & Horstmann, spec. nov. ♀
- 48-50 flagellar segments. Body length 11-13 mm. 2<sup>nd</sup> flagellar segment 1.5× as long as wide. Propodeum not or scarcely depressed, without longitudinal carinae, irregularly wrinkled, with a short longitudinal keel posteriorly. Glymma distinct. ♂ in couplet 50. .... *momoi* Hinz & Horstmann, spec. nov. ♀
- 71. Clypeus small, rounded, its apical edge rounded forwards medially. Malar space index 1.1. Propodeum not depressed, for the greater part irregularly wrinkled, longitudinal carinae partly indistinct. Subgenital plate black. 40 flagellar segments. Body length 7 mm. ♂ unknown. .... *papator* Hinz & Horstmann, spec. nov. ♀
- Clypeus large, flat, its apical edge truncate or almost truncate medially. Malar space index 0.3-0.4. 41-60 flagellar segments. Body length 8-17 mm. .... 72.
- 72. Mesopleurum slightly coriaceous and shining between the punctures. Metapleurum with dense and fine punctation on a rather smooth background. Hind tibia yellowish brown, sometimes somewhat darkened basally and apically. 6<sup>th</sup> gastral tergite red ventrolaterally. Subgenital plate red. 56-60 flagellar segments. Body length 13-17 mm. ♂ unknown. .... *sasayamae* Hinz & Horstmann, spec. nov. ♀
- Mesopleurum and metapleurum distinctly coriaceous and dull between the punctures, and/or 41-46 flagellar segments and body length 8-12 mm. Subgenital plate often black (58-63 flagellar segments; posterior gastral tergites and sternites completely black: see *D. similator*, couplet 45). .... 73.
- 73. Propodeum not depressed or slightly depressed, for the greater part irregularly wrinkled, without transverse wrinkles or with transverse wrinkles only posteriorly, longitudinal carinae usually obliterated anteriorly and medially. .... 74.
- Propodeum slightly or distinctly depressed, with transverse wrinkles at least medially and posteriorly, longitudinal carinae present at least medially and posteriorly. Mesopleurum and metapleurum distinctly coriaceous and dull between the punctures (42-46 flagellar

- segments; mesopleurum and metapleurum slightly coriaceous and shining between the punctures: see *D. polita*, couplet 64). ..... 75.
74. Genal index 0.2-0.3. Mesopleurum and metapleurum more or less shining between the punctures (variable). 6<sup>th</sup> gastral tergite red ventrolaterally. Subgenital plate red. Gaster not much compressed posteriorly. 41-44 flagellar segments. Body length 8-10 mm. ♂ in couplet 51. .... *pictator* Hinz & Horstmann, spec. nov. ♀
- Genal index 0.5. Mesopleurum and metapleurum distinctly coriaceous and dull between the punctures. 6<sup>th</sup> gastral tergite black. Subgenital plate usually black. Gaster distinctly compressed posteriorly. 45-55 flagellar segments. Body length 9-13 mm. .... 26.
75. Hind tibia black. Propodeum slightly depressed, with complete and distinct longitudinal carinae. Subgenital plate red to brown. 45-46 flagellar segments. Body length 9-10 mm. ♂ unknown. .... *memorator* Hinz, 1994 ♀
- Hind tibia yellow to brown medially, darkened basally and apically. Propodeum distinctly depressed, longitudinal carinae often obliterated anteriorly. Subgenital plate often black. 48-57 flagellar segments. Body length 10-14 mm. .... 41.
76. Antennal carina more or less distinctly raised dorsally, often also distinctly widened and/or its rim bent upwards, the frons above the carinae often depressed (Figs 5-7). .... 77.
- Antennal carina not raised dorsally, formed either as a narrow low carina or widened as a low plate or projection, the frons above the carinae not or only slightly depressed (Figs 3-4). .... 98.
77. Genal carina joining the oral carina at or very close to the base of the mandible, in the latter case the genal index 0.1 or less (Figs 10, 15). .... 78.
- Genal carina joining the oral carina distant from the base of the mandible, genal index at least 0.2 (Figs 8-9, 11-14). .... 81.
78. 26-29 flagellar segments. Body length 6 mm. Shortest flagellar segment 0.7× as long as wide in the ♀, 0.9× as long as wide in the ♂. Hind femur partly or completely red or reddish brown. Ovipositor index 1.3. Ovipositor sheaths distinctly widened apically. .... *alticola* (Gravenhorst, 1829) ♀♂
- 39-50 flagellar segments. Body length 9-10 mm. Flagellum slenderer. Hind femur black. Ovipositor index 0.5. .... 79.
79. 50 flagellar segments. Body length 9 mm. Posterior gastral tergites from the 3<sup>rd</sup> tergite onwards for the greater part red. Posterior gastral sternites red. ♂ unknown (See also couplet 132). .... *chinensis* Horstmann, spec. nov. ♀
- 39-43 flagellar segments. Body length 9-10 mm. Posterior gastral tergites and sternites black. .... 80.
80. Ocellar index about 0.5. Frons with a rather low median longitudinal carina. Antennal carina distinctly raised and widened in the ♂, less strongly modified in the ♀. 2<sup>nd</sup> gastral tergite red on the posterior 0.1-0.2. 39-41 flagellar segments. Body length 9 mm. ♀ also in couplet 103. .... *ucrainator* Hinz, 1985 ♀♂
- Ocellar index about 1.0. Frons with a strong median longitudinal keel, which is distinctly raised medially. Antennal carina distinctly raised in both sexes. 2<sup>nd</sup> gastral tergite red on the posterior 0.2-0.3. 42-43 flagellar segments. Body length 9-10 mm. .... *ucrainica* Hinz, 1972 ♀♂
81. Genal carina raised close to the junction with the also raised oral carina, forming a lopsided triangular pyramid, the tip of the latter shifted ventrally and situated behind the base of the mandible (Figs 11-12). Hind tibia yellowish brown medially, narrowly black basally, broadly black apically. Propodeum broadly and deeply depressed, distinctly transversely wrinkled in almost all parts of the sulcus. .... 82.
- Genal carina not distinctly raised, its junction with the oral carina situated above the base of the mandible (Figs 8-9, 13-14). .... 83.
82. Frons distinctly depressed above the antennal carinae, the latter distinctly widened dorsally to a nose-like projection, with fine transverse striae (Fig. 7). Ventral part of the prepectal carina merging with the pleural part, the latter joining the anterior edge of the mesopleurum. 52-54 flagellar segments. Body length 10-13 mm. .... *aurita* (Kriechbaumer, 1883) ♀♂
- Frons not much depressed above the antennal carinae, the latter somewhat raised dorsally, but not widened, the rim with fine transverse striae (Fig. 5). Ventral part of the prepectal carina merging with the transverse carina, both somewhat raised, the pleural part of the prepectal carina lower and obliterated dorsally.

- 45-50 flagellar segments. Body length 8-10 mm (See also couplet 128). .....  
 ..... *sobolicida* (Förster, 1868) ♀♂
83. Epipleurum of the 3<sup>rd</sup> gastral tergite completely fused with the tergite (Figs 42-43). ..... 84.  
 - Epipleurum of the 3<sup>rd</sup> gastral tergite to some extent separated from the tergite by a horizontal crease or bulge anteriorly (Fig. 40). ..... 92.
84. Antennal carina not much raised. Frons with a fine median longitudinal carina. Hind femur sometimes marked with red. .... 85.  
 - Antennal carina strongly raised and/or frons above the carinae deeply depressed. Hind femur black. .... 87.
85. Hind femur completely or partly red. Posterior gastral tergites red or marked with red. Posterior gastral sternites red. 42-46 flagellar segments. Body length 8-9 mm (See also couplet 111). ..... *auriculator* Aubert, 1964 ♀♂  
 - Hind femur black. Posterior gastral tergites and sternites black. .... 86.
86. 2<sup>nd</sup> flagellar segment 1.5× as long as wide. Propodeum extending to 0.3 of the hind coxae, rather broadly depressed. Petiole with distinct glymmae. 49-50 flagellar segments. Body length 11 mm. ♀ unknown (See also couplet 204). .....  
 ..... *parvicavata* Horstmann, spec. nov. ♂  
 - 2<sup>nd</sup> flagellar segment 2.5-2.7× as long as wide. Propodeum extending to 0.5-0.7 of the hind coxae, with a narrow longitudinal furrow. Petiole without or with very small glymmae. 40-47 flagellar segments. Body length 9 mm. ♂ tentatively placed here. ....  
 ..... *propodeator* Hinz, 1994 ♀?♂
87. Pleural carina usually obliterated or replaced by wrinkles medially. 2<sup>nd</sup> gastral tergite red on the posterior 0.1. Antennal carina distinctly thickened dorsally and produced as a nose-like projection. Frons distinctly depressed above the antennal carina. 46-51 flagellar segments. Body length 11-14 mm. ....  
 ..... *pineticola sibirica* Hinz, 1985 ♀♂  
 - Pleural carina complete. 2<sup>nd</sup> gastral tergite usually more extensively marked with red. ... 88.
88. Frons scarcely depressed above the antennal carinae, with distinct radial wrinkles. Antennal carina with a nose-like dorsal projection. Hind tibia black in the ♀, yellow with a black apex in the ♂. 2<sup>nd</sup> gastral tergite red with a small black dorsal mark anteriorly. 3<sup>rd</sup> tergite with black lateral stripes. 41-49 flagellar segments. Body length 7-9 mm. ....  
 ..... *anceps* (Holmgren, 1860) ♀♂
- Frons distinctly depressed above the raised antennal carinae, with a more or less distinct longitudinal bulge medially. .... 89.
89. Frontal bulge with a cone-like projection ventrally. Rim of the antennal carina distinctly bent upwards (ear-like) and transversely striate. Hind tibia yellow, narrowly darkened basally and apically. 3<sup>rd</sup> gastral tergite with black lateral stripes. 56-62 flagellar segments. Body length 15-17 mm (See also couplet 93). ....  
 ..... *mactatoides* Hinz, 1994 ♀♂
- Frontal bulge without a cone-like projection ventrally. .... 90.
90. Hind tibia whitish yellow medially, narrowly black basally, broadly black apically. Antennal carina strongly widened dorsally, with a transversely striate nose-like projection. 3<sup>rd</sup> gastral tergite with black lateral stripes. 56-60 flagellar segments. Body length 11-13 mm. ...  
 ..... *okadai* (Uchida, 1942) ♀♂
- Hind tibia yellow to yellowish brown medially, narrowly black basally, broadly black apically. 3<sup>rd</sup> gastral tergite without black lateral stripes. 61-69 flagellar segments. Body length 16-17 mm. .... 91.
91. Rim of the antennal carina distinctly bent upwards (ear-like) (Fig. 6). Frons not deeply depressed above the antennal carinae and with strong radial wrinkles. 1<sup>st</sup> gastral tergite 2.4× as long as wide. 61 flagellar segments. Body length 17 mm. ♂ unknown. ....  
 ..... *crassiventris* Horstmann, spec. nov. ♀
- Frons deeply depressed above the antennal carinae (funnel-like), with short wrinkles in the depressions. 1<sup>st</sup> gastral tergite about 4.6× as long as wide. 69 flagellar segments. Body length 16-17 mm. ....  
 ..... *matsumurae* (Uchida, 1928) ♀♂
92. Frons deeply depressed above the antennal carinae, with a longitudinal bulge or keel medially. Antennal carina strongly raised dorsally, either with a dorsal projection (nose-like) (Fig. 7) or its rim bent upwards (ear-like) (Fig. 6). .... 93.
- Frons slightly depressed above the antennal carinae, scarcely raised medially, sometimes with a median longitudinal carina. Antennal carina distinctly but not strongly raised dorsally. .... 95.

93. Frons between the antennal sockets with a cone-like projection, which merges with a median longitudinal bulge dorsally. Rim of the antennal carina distinctly bent upwards (ear-like) and transversely striate. Hind tibia yellow, narrowly darkened basally and apically. Black lateral stripe of the 3<sup>rd</sup> gastral tergite situated above the ventrolateral crease or bulge. 56-62 flagellar segments. Body length 15-17 mm (See also couplet 89). .....  
 ..... *mactatoides* Hinz, 1994 ♀♂
- Frons with a median longitudinal keel or bulge, without a cone-like projection. Ventrolateral crease of the 3<sup>rd</sup> gastral tergite marked with black. .... 94.
94. Depressions of the frons slightly sculptured and with few wrinkles. Rim of the antennal carina somewhat bent upwards (ear-like) and at the same time somewhat widened (nose-like), with fine transverse striae on the dorsal projection. Mesopleurum slightly coriaceous between the punctures. Speculum slightly coriaceous. 2<sup>nd</sup> gastral tergite for the greater part black. 59 flagellar segments. Body length 19 mm. .... *impressifrons* Hinz, 1979 ♀♂
- Depressions of the frons with coarse wrinkles. Antennal carina distinctly widened dorsally (nose-like), with fine transverse striae on the dorsal projection. Mesopleurum smooth between the punctures. Speculum partly smooth. 2<sup>nd</sup> gastral tergite for the greater part red. 56 flagellar segments. Body length 15 mm. ♀ unknown. ....  
 ..... *rugifrons* Horstmann, spec. nov. ♂
95. 42-45 flagellar segments. Body length 8-10 mm. Rim of the antennal carina shortly but distinctly bent upwards (ear-like), not widened dorsally. Frons above the antennal carinae somewhat depressed and with fine wrinkles. Hind tibia yellowish brown medially, narrowly black basally, broadly black apically. Epipleural index 0.2. Epipleurum of the 3<sup>rd</sup> gastral tergite folded in, the black lateral stripe situated above the ventrolateral crease. ♂ of this variety unknown (See also couplet 176). ....  
 ..... *recta* (Thomson, 1887) var. ♀
- 52-63 flagellar segments. Body length 14-18 mm. Antennal carina more strongly modified. .... 96.
96. Antennal carina distinctly raised and widened dorsally, with a transversely striate nose-like projection (as in Fig. 7). Frons distinctly depressed above the antennal carinae. Hind tibia for the greatest part yellow, scarcely darkened basally and apically. Epipleural index 0.2-0.3. Epipleurum of the 3<sup>rd</sup> gastral tergite folded in, sometimes folded back secondarily and pendent, the black lateral stripe situated above the ventrolateral crease or bulge. 59-63 flagellar segments. Body length 16-18 mm. ....  
 ..... *mactator* (Förster, 1868) ♀♂
- Antennal carina distinctly raised, its rim somewhat bent upwards (ear-like), not much widened (variable) (Figs 5-6). Frons above the antennal carinae not much depressed. Epipleural index 0.3-0.4. Epipleurum of the 3<sup>rd</sup> gastral tergite folded in, the ventrolateral crease marked with black. .... 97.
97. Frons with dense punctation and with long radial wrinkles, which almost reach the median ocellus. Mesopleurum shining and almost smooth between the punctures. Hind tibia blackish, tinged with yellowish brown subbasally. 57-61 flagellar segments. Body length 14-16 mm. .... *celator* Hinz, 1985 ♀♂
- Frons coriaceous and with short radial wrinkles, which extend to 0.3 the distance to the median ocellus. Mesopleurum distinctly coriaceous between the punctures. Hind tibia yellow medially, narrowly brown or black basally and apically. 52-58 flagellar segments. Body length 14-17 mm (See also couplets 9 and 37). .... *pugillator* (Linnaeus, 1758) ♀♂
98. Antennal carina not much raised, but widened dorsally to a crescent-shaped plate or a nose-like projection, this part either smooth or transversely striate (Fig. 4). Frons not depressed above the antennal carinae. At most 52 flagellar segments. .... 99.
- Antennal carina not or scarcely modified dorsally, narrow and low, its rim at most somewhat bent upwards (Fig. 3) (58-66 flagellar segments; rim of the antennal carina widened to a narrow crescent-shaped plate: see *D. scutellator*, couplet 224). .... 105.
99. Pleural part of the prepectal carina obliterated (Fig. 21). Pleural part of the prepectus with well separated punctures. 47-51 flagellar segments. Hind legs black. .... 152.
- Pleural part of the prepectal carina at least partly present (Figs 16-20). .... 100.
100. Ventral part of the prepectal carina merging with the transverse carina, the pleural part lower (Figs 19-20). Hind tibia yellowish to brown, darkened only basally. *Glymma* in-

- dicated as a small longitudinal furrow. 29-34 flagellar segments. Body length 6-7 mm. .... 101.
- Ventral part of the prepectal carina usually merging with the pleural part (Figs 16-18). Hind tibia black at least apically. 33-49 flagellar segments. Body length 7-10 mm. .... 102.
101. Mesopleurum with rather dense punctation. Hind femur completely black. Propodeum scarcely depressed, irregularly wrinkled. 32 flagellar segments. Body length 6 mm. ♂ unknown. .... *minutor* Horstmann, spec. nov. ♀
- Mesopleurum with dense or very dense punctation, partly rugose-punctate. Hind femur red or brown on the apical 0.2. Propodeum somewhat depressed, strongly transversely wrinkled in the shallow sulcus. 29-34 flagellar segments. Body length 6-7 mm (See also couplet 149). .... *spiracularis* Hinz & Horstmann, spec. nov. ♀♂
102. Genal carina joining the oral carina at the base of the mandible (Figs 10, 15). Propodeum distinctly depressed, with distinct transverse wrinkles at least in the posterior half. 2<sup>nd</sup> gastral tergite red on the posterior 0.1-0.2. .... 103.
- Genal carina joining the oral carina distant from the base of the mandible (Figs 8-9, 11-14). 2<sup>nd</sup> gastral tergite red on the posterior 0.2-0.6. .... 104.
103. Hind tibia yellowish brown to dark brown or black medially. 33-38 flagellar segments. Body length 7-9 mm. .... 160.
- Hind tibia whitish yellow medially. 39-40 flagellar segments. Body length 9 mm. ♂ in couplet 80. .... *ucrainator* Hinz, 1985 ♀
104. Propodeum scarcely or not depressed, irregularly wrinkled, partly with longitudinal wrinkles. Hind tibia black. 2<sup>nd</sup> gastral tergite red on the posterior 0.2-0.3. 48-52 flagellar segments. Body length 9-10 mm (See also couplet 234). .... *fundator* Hinz, 1990 ♀♂
- Propodeum somewhat depressed, with distinct transverse wrinkles at least in the posterior half. 2<sup>nd</sup> gastral tergite red on the posterior 0.3-0.6. 43-48 flagellar segments. Body length 8-11 mm. .... 215.
105. Ventral part of the prepectal carina merging with the transverse carina, these carinae often raised, the pleural part lower or obliterated at the junction (Figs 19-21). .... 106.
- Ventral part of the prepectal carina merging with the pleural part, both of equal height at the junction, the transverse carina at most as high, often lower or obliterated at the junction, rarely raised at some distance from the junction (Figs 16-18) (This character has strong infraspecific variability, which could not always be taken into account in the key). .... 156.
106. Hind femur for the greater part or completely red or reddish brown. Propodeum elongated, reaching to the middle of the hind coxa (exception: *D. carpathica*). Glymma very small or lacking. .... 107.
- Hind femur for the greater part or completely black, at most lightened apically. .... 112.
107. Genal carina joining the oral carina at the base of the mandible (at a right angle), the former somewhat bent sideways and forwards (Figs 10, 15). 6<sup>th</sup> gastral tergite black. .... 108.
- Genal carina joining the oral carina distant from the base of the mandible (at an acute angle) (Figs 8, 13). 6<sup>th</sup> gastral tergite for the greater part or completely red. .... 110.
108. All flagellar segments at least as long as wide in the ♀. Depression in front of the speculum rather irregularly wrinkled dorsally, striate medially. Glymma completely lacking. 2<sup>nd</sup> gastral tergite red on the posterior 0.7. Epipleurum of the 3<sup>rd</sup> gastral tergite separated from the tergite by a crease anteriorly. 34 flagellar segments. Body length 7 mm. ♂ unknown. .... *collaris* Hinz & Horstmann, spec. nov. ♀
- The shortest flagellar segments about 0.8× as long as wide in the ♀. Depression in front of the speculum usually distinctly striate dorsally and medially. Glymma often present as a small pit or replaced by a lateral area. 2<sup>nd</sup> gastral tergite red on the posterior 0.1-0.3. Epipleurum of the 3<sup>rd</sup> gastral tergite completely fused with the tergite. .... 109.
109. Ventral part of the prepectal carina slightly raised submedially, scarcely emarginate medially. Propodeum extending to 0.3-0.4 of the hind coxae. Ovipositor index 0.6-0.7. 30-36 flagellar segments. Body length 6-8 mm (See also couplet 122). .... *carpathica* (Szépligeti, 1916) ♀♂
- Ventral part of the prepectal carina strongly raised submedially, deeply emarginate me-

- dially. Propodeum extending to 0.5-0.7 of the hind coxae. 26-32 flagellar segments. Body length 7-9 mm. .... 118.
110. Genal index 0.5. Flagellum brown. All flagellar segments longer than wide. Propodeum not depressed, finely transversely wrinkled in the posterior half. Glymma lacking. 41-43 flagellar segments. Body length 7 mm. ♂ unknown. .... *kaspariyani* Hinz, 1985 ♀
- Genal index at most 0.3. Flagellum black. Some flagellar segments as long as wide. ... 111.
111. Temples strongly constricted, tangential lines on eyes and temples intersect on the mesoscutum. Depression in front of the speculum with strong striae. Metapleurum densely punctate on a coriaceous background. Propodeum somewhat depressed, with short transverse wrinkles in the narrow longitudinal furrow. Glymma lacking. 42-46 flagellar segments. Body length 8-9 mm (See also couplet 85). .... *auricator* Aubert, 1964 ♀♂
- Temples less strongly constricted, tangential lines intersect on the prescutellar groove. Depression in front of the speculum finely striate or partly with irregular wrinkles. Metapleurum rugose-punctate. Propodeum scarcely depressed, transversely striate posteriorly. Glymma very small or lacking (Both flagellar tips broken off in the only available ♀). Body length 7-8 mm. ♂ tentatively placed here. .... *rufator* Hinz, 1994 ♀?♂
112. Epipleurum of the 3<sup>rd</sup> gastral tergite separated from the tergite anteriorly, the ventrolateral crease marked with black, or with a black lateral stripe parallel with the crease in a short distance (Fig. 40). .... 113.
- Epipleurum of the 3<sup>rd</sup> gastral tergite completely fused with the tergite (Figs 42-43). ... 115.
113. Frons with a strong median longitudinal keel, the latter raised medially. Propodeum distinctly depressed, longitudinal carinae indicated, sulcus in all parts with transverse wrinkles. 2<sup>nd</sup> gastral tergite red on the posterior 0.2, posterior edge often brown. Epipleural index 0.2-0.3, the epipleurum folded in. 58-62 flagellar segments. Body length 14-17 mm. .... *carinifrons* (Holmgren, 1860) ♀♂
- Frons at most with a fine median longitudinal carina. 2<sup>nd</sup> gastral tergite black dorsally and posteriorly. Epipleural index 0.1-0.3. .... 114.
114. 64 flagellar segments. Body length 18 mm. Mesopleurum with disperse punctation on a smooth background. Depression in front of the speculum with distinct long striae. Spiracular index 0.3. Epipleural index 0.2, the epipleurum pendent as a small triangular lobe. ♂ unknown. .... *perditator* Hinz, 1994 ♀
- 47-49 flagellar segments. Body length 12 mm. Mesopleurum with dense punctation on a slightly coriaceous and shining background. Depression in front of the speculum finely granulate-strigose. Spiracular index 1.0. Epipleural index 0.2-0.3, the epipleurum folded in or pendent as a narrow rather rectangular lobe. .... *perditor* (Förster, 1868) ♀♂
115. Genal carina joining the oral carina at the base of the mandible, often at a right angle, the genal carina often bent sideways and forwards close to the junction (Figs 10, 15). .... 116.
- Genal carina joining the oral carina some distance from the base of the mandible, often at an acute angle, the genal carina often straight close to the junction (Figs 8-9, 11-14) (*D. chinensis* and *D. thomsoni* are included here: Genal index 0.1. 2<sup>nd</sup> gastral tergite red on the posterior 0.1 or completely black dorsally. Posterior gastral tergites red at least ventrolaterally. Posterior gastral sternites red or marked with red). .... 126.
116. 55-56 flagellar segments. Body length 11-12 mm. Hind tibia black. 2<sup>nd</sup> gastral tergite red at most on the posterior 0.1. .... *generator* Hinz, 1979 ♀♂
- 26-47 flagellar segments. Body length 6-9 mm. .... 117.
117. 26-32 flagellar segments. Ventral part of the prepectal carina strongly raised submedially, deeply emarginate medially. Propodeum extending to 0.5-0.7 of the hind coxae. 2<sup>nd</sup> gastral tergite red on the posterior 0.1-0.2. In *D. juvenilis* ovipositor index 1.3. .... 118.
- 30-47 flagellar segments. Ventral part of the prepectal carina less strongly raised submedially and/or propodeum not extending to the middle of the hind coxae. Ovipositor index 0.5-0.7. .... 119.
118. Pleural part of the prepectal carina complete or almost complete. 3<sup>rd</sup> gastral tergite red. 4<sup>th</sup> tergite often for the greater part red, sometimes black or marked with black. Ovipositor index 0.6. 26-30 flagellar segments. Body length 7-8 mm. .... *aemula* (Förster, 1868) ♀♂

- Pleural part of the prepectal carina incomplete, often partly replaced by wrinkles. 3<sup>rd</sup> gastral tergite often marked with black. 4<sup>th</sup> tergite black. Ovipositor index 1.3. 26-32 flagellar segments. Body length 7-9 mm. ....  
..... *juvenilis* (Förster, 1868) ♀♂
- 119. 2<sup>nd</sup> gastral tergite completely black or red on the posterior 0.1. Propodeum distinctly depressed, without longitudinal carinae medially, distinctly transversely wrinkled in at least in some parts of the sulcus. .... 120.
- 2<sup>nd</sup> gastral tergite red on the posterior 0.3. ..  
..... 123.
- 120. Glymma lacking. Speculum and depression in front of the speculum with distinct striae. Hind tibia black, in some ♂♂ tinged with white subbasally on the dorsal side. 38-42 flagellar segments. Body length 7-9 mm. ....  
..... 121.
- Glymma present, sometimes rather small. 30-36 flagellar segments. Body length 6-8 mm.  
..... 122.
- 121. Mesopleurum distinctly coriaceous between the punctures. Pleural carina distinct. Propodeum broadly depressed. Mandible for the greater part or completely black. Mid tibia yellow. 38-42 flagellar segments. Body length 7-8 mm. .... *liberator* Hinz, 1985 ♀♂
- Mesopleurum almost smooth between the punctures. Pleural carina partly indistinct. Propodeum narrowly depressed. Mandible broadly yellow medially. Mid tibia black. 39 flagellar segments. Body length 9 mm. ♀ unknown. ....  
..... *obscuripes* Horstmann, spec. nov. ♂
- 122. Hind corner of pronotum not much produced, distinctly shorter than the tegula. Propodeum for the greater part irregularly wrinkled, sometimes with short transverse wrinkles in the shallow sulcus. 30-36 flagellar segments. Body length 6-8 mm (See also couplet 109).  
..... *carpathica* (Szépligeti, 1916) ♀♂
- Hind corner of pronotum produced to a flange, which projects about as far as the tegula and which is rounded dorsally and excavated ventrally. Propodeum usually with long transverse wrinkles in the sulcus at least posteriorly. 32-36 flagellar segments. Body length 6-7 mm (See also couplet 160). ....  
..... *minor* (Provancher, 1879) ♀♂
- 123. 34-37 flagellar segments. Body length 6-7 mm. Hind tibia yellowish brown medially, narrowly black basally, broadly black apically. Glymma very small or lacking. ....  
..... *scolator* Hinz, 1985 ♀♂
- 39-47 flagellar segments. Body length 7-10 mm.  
..... 124.
- 124. Hind tibia black in the ♀, at most tinged with yellowish brown subbasally. Hind tibia yellowish medially, narrowly black basally, broadly black apically in the ♂, the apical ring extending over 0.3 of the tibia. 2<sup>nd</sup> gastral tergite red on the posterior 0.3-0.4. 42-47 flagellar segments. Body length 7-9 mm (Variety: 39-41 flagellar segments. Body length 7 mm). .... *flagellator* (Fabricius, 1793) ♀♂
- Hind tibia distinctly yellow or yellowish brown medially in both sexes, the black apical ring shorter in the ♂. .... 125.
- 125. Hind tibia light yellow medially, narrowly black basally and apically, the black apical ring extending over 0.1-0.2 of the tibia in both sexes. 2<sup>nd</sup> gastral tergite red on the posterior 0.4-0.6 in the ♀, on the posterior 0.3-0.4 in the ♂. 42-46 flagellar segments. Body length 8-10 mm. .... *inermis* (Förster, 1868) ♀♂
- Hind tibia yellowish brown medially, narrowly black basally, broadly black apically in the ♀, the black apical ring extending over 0.3 of the tibia. 2<sup>nd</sup> gastral tergite red on the posterior 0.3-0.4. 41-44 flagellar segments. Body length 8-9 mm. ♂ unknown. ....  
..... *petitor* Hinz & Horstmann, spec. nov. ♀
- 126. Genal carina raised close to the junction with the also raised oral carina, forming a lopsided triangular pyramid, the tip of the latter shifted ventrally and situated more or less behind the base of the mandible (Figs 11-12).  
..... 127.
- Genal carina not distinctly raised, its junction with the oral carina situated above the base of the mandible (Figs 8-9, 13-14). .... 132.
- 127. Mesopleurum slightly coriaceous between the punctures. Hind tibia yellow or yellowish brown medially, narrowly black basally, broadly black apically. .... 128.
- Mesopleurum smooth between the punctures. Hind tibia completely yellowish or only narrowly darkened basally and apically ....  
..... 129.

128. Antennal carina low and narrow (Fig. 3). Prepectal carina and transverse carina low. Propodeum broadly and shallowly depressed, the sulcus for the greater part irregularly wrinkled. Gaster from the 2<sup>nd</sup> tergite onwards narrowly black dorsally and broadly red laterally. 39-41 flagellar segments. Body length 9 mm. ....  
 ..... *rufiventror* Horstmann, spec. nov. ♀♂
- Antennal carina somewhat raised (Fig. 5). Ventral part of the prepectal carina and transverse carina somewhat raised. Pleural part of the prepectal carina present. Propodeum broadly and deeply depressed, distinctly transversely wrinkled in almost all parts of the sulcus. Gaster red medially, black anteriorly and posteriorly. 45-50 flagellar segments. Body length 8-10 mm (See also couplet 82).  
 ..... *sobolicida* (Förster, 1868) ♀♂
129. Genal carina and oral carina very strongly raised, the gena deeply depressed close to the junction of both carinae, the depression about as deep as the width of the 2<sup>nd</sup> flagellar segment. Sulcus of the propodeum irregularly wrinkled anteriorly, transversely wrinkled posteriorly. 2<sup>nd</sup> gastral tergite completely black dorsally. 49-51 flagellar segments. Body length 11-12 mm. ....  
 ..... *lividariae* Hinz, 1963 ♀♂
- Genal carina and oral carina not very strongly raised, the depression of the gena 0.5-0.8× as deep as the width of the 2<sup>nd</sup> flagellar segment (Figs 11-12). 2<sup>nd</sup> gastral tergite dorsally yellow or red on the posterior 0.1-0.3. ....  
 ..... 130.
130. Flagellum light brown on the apical 0.3. Pleural part of the prepectal carina almost complete. Propodeum broadly but not deeply depressed, with transverse wrinkles over almost the total breadth of the sulcus. 47-49 flagellar segments. Body length 9-11 mm (See also couplet 162). ....  
 ..... *splenditor* Hinz, 1985 ♀♂
- Flagellum black apically. .... 131.
131. Pleural part of the prepectal carina more or less complete ventrally and medially, the dorsal 0.2 replaced by several wrinkles. Propodeum distinctly depressed, with transverse wrinkles over almost the total breadth of the sulcus. 3<sup>rd</sup> gastral tergite without black lateral stripes (Fig. 43). 53-55 flagellar segments. Body length 11-13 mm. ....  
 ..... *mercator* (Fabricius, 1793) ♀♂
- Pleural part of the prepectal carina indicated by an indistinct short wrinkle only. Propodeum distinctly depressed, with short transverse wrinkles in the midline of the sulcus, in other parts irregularly wrinkled. 3<sup>rd</sup> gastral tergite with distinct black lateral stripes (Fig. 42). 47 flagellar segments. Body length 10 mm. ♀ unknown. ....  
 ..... *tibiatoria* Horstmann, spec. nov. ♂
132. Gaster from the 3<sup>rd</sup> tergite onwards almost completely red. Genal index 0.1. 50 flagellar segments. Body length 9 mm. ♂ unknown (See also couplet 79). ....  
 ..... *chinensis* Horstmann, spec. nov. ♀
- Posterior gastral tergites distinctly marked with black or completely black. .... 133.
133. Gaster black dorsally, red laterally, rarely the 3<sup>rd</sup> tergite completely red, but in that case the 2<sup>nd</sup> tergite broadly red laterally. .... 134.
- Gaster red (or rarely yellow) medially, black anteriorly and posteriorly, usually the 3<sup>rd</sup> tergite completely red, often also the 4<sup>th</sup> tergite for the greater part or completely red, the 2<sup>nd</sup> tergite often black anteriorly, red posteriorly (If the 3<sup>rd</sup> tergite is black dorsally and red laterally, then the 2<sup>nd</sup> and 4<sup>th</sup> tergites are almost completely or completely black). ....  
 ..... 141.
134. 58 flagellar segments. Body length about 15 mm. Hind tibia and hind tarsus completely light yellow. 2<sup>nd</sup> to 7<sup>th</sup> gastral tergites narrowly black dorsally, broadly red laterally. ♀ unknown. ....  
 ..... *scalprata* Horstmann, spec. nov. ♂
- Number of flagellar segments and body length often smaller. Hind tibia distinctly dark brown or black at least basally. .... 135.
135. Hind tibia dark brown to black. Ventral part of the prepectal carina and transverse carina not raised, pleural part indicated by wrinkles or obliterated. 48-50 flagellar segments. Body length 11-12 mm. ....  
 ..... *spinipes* (Thomson, 1887) ♀♂
- Hind tibia broadly yellow to brown medially. .... 136.
136. Propodeum irregularly wrinkled at least posteriorly, sometimes with some longitudinal wrinkles. Costulae fine. .... 137.
- Propodeum distinctly transversely wrinkled laterally and posteriorly. Costulae usually distinct, almost reaching the propodeal spiracle. .... 138.

137. Genal index 0.5. Mandible broadly yellow medially. Tegula yellow to brown. Hind tibia yellowish brown medially, narrowly black basally, broadly dark brown to black apically. Propodeum scarcely depressed, for the greater part irregularly wrinkled, often with some longitudinal wrinkles posteriorly. 39-46 flagellar segments. Body length 7-9 mm (See also couplets 221 and 234). .....  
 ..... *subimpressa* (Förster, 1868) ♀♂
- Genal index 0.25. Mandible and tegula black. Hind tibia black basally and on the ventral side, dark brown apically and on the dorsal side. Propodeum slightly depressed, transversely wrinkled anteriorly and medially, irregularly wrinkled posteriorly. 41 flagellar segments. Body length 9 mm. ♂ unknown.  
 ..... *tritor* Hinz & Horstmann, spec. nov. ♀
138. 39-42 flagellar segments. Body length 7-8 mm. Genal index 0.1. Hind tibia yellowish medially, narrowly black basally, broadly black apically, the apical ring extending over 0.3 of the tibia. 2<sup>nd</sup> gastral tergite almost completely black. ....  
 ..... *thomsoni* Hinz, 1963 ♀♂
- 44-58 flagellar segments. Body length 8-14 mm. Genal index 0.4-0.5. Hind tibia yellowish brown medially, narrowly brown or black basally, broadly brown or black apically, the apical dark mark sometimes lacking. ....  
 ..... 139.
139. Pleural part of the prepectal carina obliterated (Fig. 21). Nervellus distinctly reclivous. Flagellum brown apically. Posterior gastral sternites black. 45-47 flagellar segments. Body length 8 mm. ....  
 ..... *constantineanui* Hinz, 1977 ♀♂
- Pleural part of the prepectal carina present at least medially (Figs 19-20). Nervellus vertical. Flagellum black. Posterior gastral sternites red or reddish brown. .... 140.
140. 44-48 flagellar segments. Body length 9-11 mm. Speculum often with fine striae or granulate-strigose also ventrally. Metapleurum rugose, punctures usually not discernible. ....  
 ..... *circumcinctus* (Förster, 1868) ♀♂
- 49-58 flagellar segments. Body length 10-14 mm. Speculum shining, often smooth at least ventrally. Metapleurum often with distinct punctures (punctate or rugose-punctate). ....  
 ..... *signator* (Brauns, 1895) ♀♂
141. Nervellus reclivous, nervellar index 0.4-0.6 (Fig. 29). Hind tibia whitish yellow or yellowish brown medially, narrowly black basally, broadly black apically (Pleural part of the prepectal carina obliterated; flagellum brown apically: see *D. constantineanui*, couplet 139). .... 180.
- Nervellus inclivous, vertical or reclivous, intercepted more or less far below the middle, or not intercepted at all (Figs 26-28). .... 142.
142. Genal carina bent sideways and forwards and more or less obliterated close to its junction with the oral carina, the gena somewhat depressed, the oral carina raised (Figs 9, 14). Ventral part of the prepectal carina and transverse carina strongly raised (Fig. 19). Hind tibia black in the ♀, whitish yellow medially, narrowly black basally and broadly black apically in the ♂. 2<sup>nd</sup> gastral tergite red on the posterior 0.3. 3<sup>rd</sup> and 4<sup>th</sup> tergites red, the 4<sup>th</sup> tergite sometimes marked with black posteriorly. 44-48 flagellar segments. Body length 8 mm. ....  
 ..... *tenuis* (Förster, 1868) ♀♂
- Genal carina sometimes bent sideways close to its junction with the oral carina, but not obliterated. Prepectal carina often not much raised. Gaster often less extensively marked with red. .... 143.
143. 65-67 flagellar segments. Body length 18-20 mm. Hind tibia completely yellow. Gaster yellow medially. 3<sup>rd</sup> tergite without black lateral stripes (See also couplet 195). ....  
 ..... *falcator* (Fabricius, 1775) ♀♂
- At most 56 flagellar segments. Body length at most 13 mm. .... 144.
144. Mesopleurum distinctly coriaceous and dull between the punctures. 2<sup>nd</sup> gastral tergite red on the posterior 0.2-0.4 (exception: *D. amurator*). .... 145.
- Mesopleurum shining and slightly or not at all coriaceous between the punctures. ... 148.
145. 50-51 flagellar segments. Body length 9-10 mm. Genal index 0.6. Hind tibia black, marked with brown ventrally. 2<sup>nd</sup> gastral tergite red on the posterior 0.2-0.4. 3<sup>rd</sup> tergite red. 4<sup>th</sup> tergite red, marked with black posteriorly. ♀ unknown. ....  
 ..... *varipes* Horstmann, spec. nov. ♂
- 36-47 flagellar segments. Body length 6-10 mm. Genal index 0.1-0.4. Hind tibia often yellowish brown to brown medially. ....  
 ..... 146.

146. Genal index 0.3-0.4. Mesopleurum with dense punctation. 2<sup>nd</sup> gastral tergite red on the posterior 0.1-0.2. 3<sup>rd</sup> tergite red, more or less marked with black, sometimes almost completely black. 4<sup>th</sup> tergite black, at most narrowly marked with red anteriorly. 36-41 flagellar segments. Body length 6-10 mm (See also couplets 222 and 235). .....  
 ..... *amurator* Hinz, 1985 ♀♂
- Genal index 0.1-0.3. 2<sup>nd</sup> gastral tergite red on the posterior 0.2-0.5. 3<sup>rd</sup> and 4<sup>th</sup> tergites red, sometimes marked with black. 42-47 flagellar segments. .... 147.
147. Genal index 0.1-0.2. Temple with very fine and disperse punctation medially. Mesopleurum with disperse or rather dense punctation. Petiole with narrow lateral areas. 2<sup>nd</sup> gastral tergite red on the posterior 0.2-0.3. 42-47 flagellar segments. Body length 8-9 mm. (See also couplet 210). .....  
 ..... *annexa* (Förster, 1868) ♀♂
- Genal index 0.2-0.3. Temple with fine and rather dense punctation medially. Mesopleurum with dense punctation. Petiole without glymmae or narrow lateral areas. 2<sup>nd</sup> gastral tergite red on the posterior 0.3-0.5. 43-46 flagellar segment. Body length 8-9 mm (See also couplets 185, 206 and 215). .....  
 ..... *meridionator* Aubert, 1960 ♀♂
148. 29-37 flagellar segments. Body length 6-9 mm. .... 149.
- 40-56 flagellar segments. Body length 8-13 mm. .... 150.
149. Hind tibia black, at most tinged with dark brown medially. Propodeum slightly or not at all depressed, at most with short transverse wrinkles. 2<sup>nd</sup> and 4<sup>th</sup> gastral tergites black. 35-37 flagellar segments. Body length 8-9 mm. ♂ unknown. ....  
 ..... *affinitor* Hinz, 1979 ♀
- Hind tibia yellowish brown, narrowly brown basally, not darkend apically. Propodeum somewhat depressed, strongly transversely wrinkled in the shallow sulcus, in other parts strongly irregularly wrinkled. 2<sup>nd</sup> gastral tergite red on the posterior 0.4. 3<sup>rd</sup> and 4<sup>th</sup> tergites red. 29-34 flagellar segments. Body length 6-7 mm (See also couplet 101). .....  
 ..... *spiracularis* Hinz & Horstmann, spec. nov. ♀♂
150. Mesopleurum slightly coriaceous between the punctures. Mid tibia light yellow dorsally. Hind tibia blackish, dorsally marked with yellowish brown at base. 44 flagellar segments, the 2<sup>nd</sup> segment 2.1× as long as wide. Body length 8 mm. ♂ unknown. ....  
 ..... *belokobyli* Hinz & Horstmann, spec. nov. ♀
- Mesopleurum at least partly smooth between the punctures (exception: some specimens of *D. petiolator*). Mid tibia yellowish brown to blackish brown dorsally. Hind tibia black basally. Base of flagellum usually stouter. ....  
 ..... 151.
151. Pleural part of the prepectal carina lacking (Fig. 21). Pleural part of the prepectus with well separated punctures. .... 152.
- Pleural part of the prepectal carina partly present (Figs 19-20) and/or pleural part of the prepectus distinctly rugose-punctate and with fine wrinkles. .... 153.
152. Temple as long as the width of an eye. Malar space index 0.7. Propodeum not depressed, irregularly wrinkled. 47-48 flagellar segments. Body length 13 mm. ♀ unknown. ....  
 ..... *longigena* Horstmann, spec. nov. ♂
- Temple 0.7× as long as the width of an eye. Malar space index 0.4. Propodeum distinctly depressed, for the greater part transversely wrinkled. 47-51 flagellar segments. Body length 9-10 mm. ....  
 ..... *temnator* Hinz & Horstmann, spec. nov. ♀♂
153. Temples 0.9-1.0× as long as the width of an eye, not much constricted behind the eyes, tangential lines on eyes and temples intersect on the propodeum (Fig. 2). Pleural part of the prepectal carina at least for the greater part present. 40-45 flagellar segments. Body length 9-11 mm (See also couplet 188). ....  
 ..... *bucculenta* (Holmgren, 1860) ♀♂
- Temples shorter and more constricted behind the eyes and/or pleural part of the prepectal carina obliterated and replaced by dense punctation or by short wrinkles. ....  
 ..... 154.
154. Pleural part of the prepectal carina obliterated and replaced by dense punctation or by short wrinkles (Fig. 21). Black lateral stripes of the gastral 3<sup>rd</sup> tergite distinct. Ovipositor index 0.5. 44-52 flagellar segments. Body length 10-13 mm. ....  
 ..... *japonica* (Cameron, 1906) ♀♂
- Pleural part of the prepectal carina usually present, sometimes shortened (Figs 19-20) (in the ♂ of *D. petiolator* rarely replaced by irregular wrinkles). Black lateral stripes of the 3<sup>rd</sup> gastral tergite sometimes reduced. ...  
 ..... 155.

155. 42-45 flagellar segments. Body length 8-10 mm. 3<sup>rd</sup> gastral tergite without black lateral stripes or these stripes indistinct. Ovipositor index 1.4. .... *petiolator* (Fabricius, 1804) ♀♂
- 53-56 flagellar segments. Body length 10-11 mm. 3<sup>rd</sup> gastral tergite with distinct black lateral stripes. Ovipositor index 0.5. .... *petiolatoides* Hinz & Horstmann, spec. nov. ♀♂
156. Genal carina joining the oral carina at the base of the mandible (Figs 10, 15). .... 157.
- Genal carina joining the oral carina some distance from the base of the mandible (Figs 8-9, 11-14). .... 161.
157. 2<sup>nd</sup> gastral tergite red on the posterior 0.2-0.4. .... 158.
- 2<sup>nd</sup> gastral tergite red at most on the posterior 0.1. .... 159.
158. Temples scarcely constricted behind the eyes, tangential lines on eyes and temples intersect on the apex of the gaster or not at all. Temple with distinct and dense punctation medially. Metapleurum coriaceous and with dense punctation (sculpture almost as in the adjoining parts of the mesopleurum). Hind femur marked with red apically. 43-44 flagellar segments. Body length 8 mm. ....
- ..... *temporalis* Horstmann, spec. nov. ♀♂
- Temples more strongly constricted behind the eyes. Temple with fine and disperse punctation medially. Metapleurum rugose-punctate or rugose (sculpture as in the adjoining parts of the propodeum). Hind femur black. .... 123.
159. Genal carina joining the oral carina short distance from the base of the mandible, genal index 0.1 or less (sometimes hardly visible). Propodeum slightly depressed, in most parts finely and irregularly wrinkled, with short transverse wrinkles in the narrow longitudinal furrow, without costulae. Glymma lacking. 36-37 flagellar segments. Body length 7 mm. ♂ unknown (See also couplet 209). ...
- .... *radiator* Hinz & Horstmann, spec. nov. ♀
- Genal carina joining the oral carina distinctly at the base of the mandible. Propodeum rather shallowly and broadly depressed, usually with long transverse wrinkles posteriorly, with complete costulae. Glymma small, sometimes developed as a shallow furrow. .. 160.
160. Hind corner of pronotum not much produced, distinctly shorter than the tegula. 33-38 flagellar segments. Body length 7-9 mm. ....
- ..... *angustifrons* (Förster, 1868) ♀♂
- Hind corner of pronotum produced to a flange, which projects about as far as the tegula and which is rounded dorsally and excavated ventrally. 32-36 flagellar segments. Body length 6-7 mm (See also couplet 122). ....
- ..... *minor* (Provancher, 1879) ♀♂
161. Genal carina raised close to the junction with the also raised oral carina, forming a lopsided triangular pyramid, the tip of the latter shifted ventrally and situated more or less behind the base of the mandible (Figs 11-12). 2<sup>nd</sup> gastral tergite red laterally on the posterior 0.3. .... 162.
- Genal carina and oral carina not or not much raised (Figs 8, 13). .... 164.
162. Flagellum light brown on the apical 0.3. Mesopleurum scarcely coriaceous or smooth between the punctures. Hind tibia light yellow, very narrowly darkened basally and apically or not at all darkened. 47-49 flagellar segments. Body length 9-11 mm (See also couplet 130). .... *splenditor* Hinz, 1985 ♀♂
- Flagellum dark brown to black to its apex. Mesopleurum distinctly coriaceous between the punctures. Hind tibia whitish yellow medially, narrowly black basally, broadly black apically. 37-39 flagellar segments. Body length 8 mm. .... 163.
163. Genal carina and oral carina not very strongly raised, the depression of the gena about half as deep as the width of the 2<sup>nd</sup> flagellar segment (Fig. 11). Propodeum somewhat depressed, in most parts irregularly wrinkled. 3<sup>rd</sup> gastral tergite without black lateral stripes. 37-39 flagellar segments. Body length 8 mm. ♂ unknown. .... *dictor* Hinz, 1979 ♀
- Genal carina and oral carina very strongly raised, the gena deeply depressed close to the junction of both carinae, the depression about as deep as the width of the 2<sup>nd</sup> flagellar segment. 3<sup>rd</sup> gastral tergite with black lateral stripes. 38 flagellar segments. Body length 8 mm. ♂ unknown. ....
- ..... *lamellifer* Hinz, 1994 ♀
164. Epipleural index 0.1-0.4. Epipleurum of the 3<sup>rd</sup> gastral tergite either folded in or folded back secondarily and pendent, in the latter case the former crease present as a bulge and

- the ventrolateral edge of the epipleurum running parallel with this bulge in a short distance. Black lateral stripe, if present, on the bulge or close to the latter (Fig. 40). ..... 165.
- Epipleurum of the 3<sup>rd</sup> gastral tergite fused with the tergite, rarely discernible as a small triangular lobe anteriorly. Black lateral stripe, if present, distinctly distant from the ventrolateral edge and divergent from the latter (Figs 41-43). ..... 179.
165. Petiole on either side with a long row of distinct transverse wrinkles in a long longitudinal furrow in front of the glymma (as in Fig. 35). 46-48 flagellar segments. Body length 9-11 mm. .... *insignita* (Förster, 1868) ♀♂
- Petiole on either side smooth or coriaceous in front of the glymma, at most with some transverse wrinkles anteriorly. .... 166.
166. 2<sup>nd</sup> gastral tergite dorsally black posteriorly, often laterally red in front of the posterior edge, rarely also dorsally tinged with red in front of the posterior edge. .... 167.
- 2<sup>nd</sup> gastral tergite dorsally red at least on the posterior 0.2, rarely the posterior edge brownish, but not black, often the red marks more extended laterally. Usually the 3<sup>rd</sup> and 4<sup>th</sup> tergites completely or almost completely red (exception: *D. rectoides*). .... 172.
167. Hind tibia black, rarely somewhat lightened medially (dark reddish brown). Propodeum slightly depressed, distinctly and rather irregularly wrinkled, the longitudinal carinae sometimes indicated. 3<sup>rd</sup> and 4<sup>th</sup> tergites red, rarely marked with black dorsally. 42-49 flagellar segments. Body length 8-12 mm ..... *norikurae* Hinz & Horstmann, spec. nov. ♀♂
- Hind tibia yellowish brown to light brown medially, dark brown to black basally and apically, and / or 4<sup>th</sup> gastral tergite almost completely black. .... 168.
168. 38-43 flagellar segments. Body length 7-9 mm. Propodeum somewhat depressed, distinctly irregularly wrinkled, with short and strong longitudinal wrinkles posteriorly. Area superomedia sometimes delimited laterally, for the greater part coriaceous and not wrinkled. Gaster usually for the greater part or completely black dorsally, 2<sup>nd</sup> and 3<sup>rd</sup> tergites to a variable extent marked with red laterally, rarely the posterior tergites narrowly red ventrally (See also couplets 4 and 16). ..... *melanator* Hinz, 1985 ♀♂
- 44-55 flagellar segments. Body length 9-14 mm. 3<sup>rd</sup> gastral tergite usually for the greater part red dorsally. .... 169.
169. Temples not much constricted behind the eyes, tangential lines on eyes and temples intersect on the propodeum (similar to Fig. 2). Propodeum slightly depressed, irregularly wrinkled, dull, somewhat transversely wrinkled posteriorly. 2<sup>nd</sup> to 7<sup>th</sup> gastral tergites broadly marked with red laterally and to a variable extent darkened dorsally. 53-55 flagellar segments. Body length 14 mm. ♂ unknown. .... *peptor* Hinz & Horstmann, spec. nov. ♀
- Temples more strongly constricted behind the eyes. At least the 6<sup>th</sup> and 7<sup>th</sup> tergites black dorsally and laterally. Body often shorter. .... 170.
170. Metapleurum coriaceous and with dense and fine wrinkles, punctation hardly visible (sculpture as in the adjoining parts of the propodeum). Speculum finely coriaceous, distinctly shining. Depression in front of the speculum almost completely striate. Propodeum somewhat depressed, with distinct longitudinal carinae, distinctly and for the greater part irregularly wrinkled, dull, distinctly transversely striate posteriorly. 3<sup>rd</sup> to 5<sup>th</sup> gastral tergites red, 5<sup>th</sup> tergite black dorsally. 50 flagellar segments. Body length 12 mm. ♂ unknown. .... *nubilator* Hinz, 1994 ♀
- Metapleurum with fine punctation on a coriaceous background, scarcely rugose (sculpture as in the adjoining parts of the mesopleurum). Speculum more distinctly coriaceous. Depression in front of the speculum for the greater part granulate-strigose, with distinct striae or wrinkles only dorsally (this character being variable) (Depression in front of the speculum with distinct striae ventrally; propodeum without transverse wrinkles: see *D. yamanakai*, couplet 32). .... 171.
171. Depression in front of the speculum granulate-strigose, with some fine striae dorsally. Propodeum scarcely depressed in the area superomedia, distinctly and narrowly depressed in the area petiolaris, with short transverse wrinkles in the longitudinal furrow, in other parts irregularly wrinkled. 2<sup>nd</sup> gastral tergite black. 4<sup>th</sup> tergite for the greater part black, marked with red only laterally. 44 flagellar segments. Body length 9 mm. ♂ of this variety unknown (See also couplet 178). .... *graptor* Hinz, 1985 var. ♀

- Depression in front of the speculum with distinct striae or wrinkles dorsally. Propodeum rather broadly depressed, for the greater part with fine irregular wrinkles, often with strong transverse wrinkles posteriorly. 2<sup>nd</sup> gastral tergite often laterally and rarely also dorsally marked with red in front of the dark posterior edge. 4<sup>th</sup> tergite often completely or almost completely red. 48-55 flagellar segments (Variety: 45-47 segments). Body length 9-12 mm (See also couplet 35).  
..... *vigilator* (Förster, 1868) ♀♂
- 172. Metapleurum distinctly and densely rugose-punctate, not discernibly coriaceous. Hind tibia yellow medially, narrowly black basally, broadly black apically. Propodeum scarcely depressed, coarsely and irregularly wrinkled, almost completely areolated, but the carinae scarcely discernible among the wrinkles. 3<sup>rd</sup> gastral tergite without black lateral stripes. 43 flagellar segments. Body length 10 mm. ♀ unknown (See also couplet 233).  
..... *inconspicua* Horstmann, spec. nov. ♂  
Metapleurum usually distinctly coriaceous or finely wrinkled between the punctures. Propodeum not coarsely wrinkled all over. 3<sup>rd</sup> gastral tergite with black lateral stripes.  
..... 173.
- 173. Speculum and depression in front of the speculum densely and finely striate, the striae merging with dense punctation anteriorly. Metapleurum densely rugose-punctate, not coriaceous at least dorsally and centrally. Hind tibia black. Propodeum scarcely depressed, irregularly wrinkled in the shallow depression, somewhat shining. 48-49 flagellar segments. Body length 10 mm. ♂ unknown.  
..... *venitor* Hinz & Horstmann, spec. nov. ♀
- Speculum coriaceous. Depression in front of the speculum finely granulate-strigose, the striae merging with a coriaceous area without punctation anteriorly (exception: *D. nigridens*). Metapleurum coriaceous between the punctures. Hind tibia usually yellowish medially (exception: *D. rectoides*). ..... 174.
- 174. Propodeum somewhat depressed, with complete costulae and longitudinal carinae, shining in the depression. Area superomedia coriaceous. Area petiolaris with fine irregular or transverse wrinkles. Hind tibia whitish yellow medially, narrowly black basally, rather broadly black apically. 50 flagellar segments. Body length 10 mm. ♀ unknown (See also couplet 36).  
..... *rufovariata* Horstmann, spec. nov. ♂
- Propodeum more strongly wrinkled and/or not distinctly shining in the depression (exception: *D. graptor*), carinae more reduced.  
..... 175.
- 175. Propodeum distinctly depressed, distinctly transversely wrinkled over the total breadth of the sulcus at least posteriorly. .... 176.
- Propodeum more or less distinctly depressed, for the greater part irregularly wrinkled, at most with some short transverse wrinkles not extending over the total breadth of the sulcus. .... 177.
- 176. Hind tibia whitish yellow medially, narrowly black basally, broadly black apically. Propodeum with a distinct sulcus, with short or indistinct transverse wrinkles anteriorly, more transversely wrinkled medially, strongly transversely wrinkled over the total breadth of the sulcus posteriorly. 42-45 flagellar segments. Body length 8-10 mm (See also couplet 95).  
..... *recta* (Thomson, 1887) ♀♂
- Hind tibia yellowish brown medially, narrowly black basally, broadly black apically. Propodeum finely transversely striate over the total breadth anteriorly and posteriorly, more irregularly wrinkled medially (Both flagellar tips broken off in the only available specimen). Body length 11 mm. ♂ unknown.  
... *rectator* Hinz & Horstmann, spec. nov.. ♀
- 177. 37-41 flagellar segments. Body length 6-9 mm. Metapleurum with very fine punctation on a distinctly coriaceous background. Hind tibia blackish in the ♀, yellowish brown to brown medially, black basally and apically in the ♂. Propodeum slightly depressed, with partly developed longitudinal carinae, for the greater part irregularly wrinkled, with some longitudinal wrinkles posteriorly. ....  
..... *rectoides* Hinz & Horstmann, spec. nov. ♀♂
- 44-52 flagellar segments. Body length 8-12 mm. Metapleurum with distinct punctation on a coriaceous background. Hind tibia lighter medially. Longitudinal carinae of propodeum scarcely developed. .... 178.
- 178. 44-50 flagellar segments. Body length 8-10 mm. Tegula yellow to brown. Depression in front of the speculum granulate-strigose, with a narrow coriaceous area without punctation in front of the depression. Hind tibia medial-

- ly yellowish brown in the ♀, yellow in the ♂, narrowly black basally, broadly black apically. Propodeum not depressed in the area superomedia, the latter coriaceous, distinctly depressed in the area petiolaris, with short and fine transverse wrinkles in the rather narrow longitudinal furrow, coriaceous and with fine irregular wrinkles in areas beside the furrow (See also couplet 171). .....  
 ..... *graptor* Hinz, 1985 ♀♂
- 52 flagellar segments. Body length 12 mm. Tegula black. Depression in front of the speculum with fine striae, which merge with the punctation anteriorly. Hind tibia yellowish brown medially, narrowly brown basally and apically. Propodeum broadly and shallowly depressed, for the greater part irregularly wrinkled, with some longitudinal wrinkles posteriorly. ♀ unknown. ....  
 ..... *nigridens* Horstmann, spec. nov. ♂
179. *Nervellus* reclivous, nervellar index 0.4-0.6 (Fig. 29). Flagellum and hind femur black. .  
 ..... 180.
- *Nervellus* inclivous, vertical or reclivous, intercepted more or less far below the middle, or not intercepted at all (Figs 26-28) (*D. contumator* and *D. rubator* with a nervellar index of 0.6 are included here. *D. contumator*: Flagellum brown apically. *D. rubator*: Hind femur red). ..... 181.
180. Propodeum not depressed, for the greater part with very fine irregular wrinkles, with some short transverse wrinkles posteriorly. 2<sup>nd</sup> gastral tergite red on the posterior 0.2. 3<sup>rd</sup> tergite red. 4<sup>th</sup> tergite broadly red anteriorly. 52 flagellar segments. Body length 12 mm. ♀ unknown. ....  
 ..... *nervellator* Horstmann, spec. nov. ♂
- Propodeum deeply depressed, with distinct transverse wrinkles in the sulcus medially and posteriorly. 2<sup>nd</sup> gastral tergite red on the posterior 0.1-0.4. 3<sup>rd</sup> and 4<sup>th</sup> tergites red. 45-53 flagellar segments. Body length 8-12 mm (See also couplet 201). ....  
 ..... *xenocampta* (Förster, 1868) ♀♂
181. Temples at least 0.9 (rarely 0.8) × as long as the width of an eye, not much constricted behind the eyes, tangential lines on eyes and temples intersect on the posterior end of the propodeum or on the gaster or not at all (Fig. 2). ..... 182.
- Temples shorter and/or more strongly constricted behind the eyes (*D. fundator* and *D. pulmentariae*, which are intermediate in this character, are included here. *D. fundator*: Hind tibia black; propodeum irregularly wrinkled. *D. pulmentariae*: Hind tibia light yellow basally and medially, distinctly black apically). ..... 189.
182. Hind tibia yellowish brown to brown, often narrowly darkened basally and/or apically. 2<sup>nd</sup> gastral tergite red on the posterior 0.7, rarely black dorsally and marked with red only laterally. 3<sup>rd</sup> and 4<sup>th</sup> tergites red. .... 183.
- Hind tibia blackish, in some species with a brownish mark medially on the dorsal side (with a whitish mark in *D. meridionator*). ....  
 ..... 184.
183. Hind femur red. Mesopleurum distinctly coriaceous between the punctures. Propodeum scarcely depressed, irregularly wrinkled. 46 flagellar segments. Body length 10 mm (See also couplet 190). ....  
 ..... *alpinator* Hinz & Horstmann, spec. nov. ♀♂
- Hind femur black. Mesopleurum smooth between the punctures. Propodeum distinctly depressed, with short and strong transverse wrinkles in the longitudinal furrow, with very dense punctation in the areas beside the furrow. 40-45 flagellar segments. Body length 9-10 mm. .... *capitator* Hinz, 1985 ♀♂
184. Mesopleurum distinctly coriaceous between the punctures. .... 185.
- Mesopleurum smooth between the punctures. Hind tibia completely black or tinged with brown medially on the dorsal side. ....  
 ..... 186.
185. Hind tibia white medially on the dorsal side. Propodeum deeply depressed, distinctly transversely wrinkled in the narrow longitudinal furrow. Pleural carina and spiracular carina distinct. Spiracular index 0.3-0.5. 47 flagellar segments. Body length 8-9 mm. ♀ of this variety unknown (See also couplets 147, 206 and 215). ....  
 ..... *meridionator* Aubert, 1960 var. ♂
- Hind tibia completely black or tinged with brown medially. Propodeum shallowly and broadly depressed, with long transverse wrinkles posteriorly. Pleural carina often partly indistinct. Spiracular carina obliterated. Spiracular index 0.9-1.1. 44-48 flagellar segments. Body length 10-11 mm (See also couplet 216). ....  
 ..... *stygia* (Förster, 1868) ♀♂

186. 33-35 flagellar segments. Body length 8 mm. Propodeum scarcely depressed and partly with fine transverse wrinkles in the ♀, not depressed and irregularly wrinkled in the ♂. 2<sup>nd</sup> gastral tergite red on the posterior 0.6-0.8 in the ♀, on the posterior 0.2 in the ♂. Usually the 3<sup>rd</sup> and 4<sup>th</sup> tergites red. Glymma and black lateral stripes of the 3<sup>rd</sup> gastral tergite lacking. Ovipositor index 1.3. .... *setator* Hinz, 1985 ♀♂
- 40-46 flagellar segments. Body length 10-12 mm. Ovipositor index 0.6. .... 187.
187. Pronotum with punctures ventrolaterally. Propodeum scarcely depressed, irregularly wrinkled. Glymma distinct. 2<sup>nd</sup> gastral tergite red on the posterior 0.3. 3<sup>rd</sup> tergite red. 4<sup>th</sup> tergite red laterally. 43 flagellar segments. Body length 11 mm. ♂ unknown. .... *pseudobucculenta* Hinz & Horstmann, spec. nov. ♀
- Pronotum distinctly wrinkled ventrolaterally. Propodeum slightly depressed, with long and fine transverse wrinkles almost over the total breadth of the sulcus at least posteriorly. Petiole without glymmae, at most with very small lateral furrows. 2<sup>nd</sup> gastral tergite red on the posterior 0.1. .... 188.
188. Flagellum black. 4<sup>th</sup> gastral tergite red. Ventral part of the prepectal carina often distinctly raised, usually twice as high as the width of the apical segment of a maxillary palpus. 40-45 flagellar segments. Body length 9-11 mm (See also couplet 153). .... *bucculenta* (Holmgren, 1860) ♀♂
- Flagellum light brown apically. 4<sup>th</sup> gastral tergite black. Ventral part of the prepectal carina not distinctly raised. 43-46 flagellar segments. Body length 10-12 mm. .... *bucculentoides* Hinz & Horstmann, spec. nov. ♀♂
189. All femora and tibiae red. .... 190.
- Hind femur black and/or hind tibia distinctly marked with black. .... 191.
190. Flagellum, tegula, trochanters, trochantelli, postpetiole and anterior 0.3-0.4 of the 2<sup>nd</sup> gastral tergite black. Remaining part of 2<sup>nd</sup> and 3<sup>rd</sup> and 4<sup>th</sup> tergites red. Mesopleurum coriaceous and dull between the punctures. Propodeum broadly but not deeply depressed, partly transversely wrinkled, partly irregularly wrinkled. 44-46 flagellar segments. Body length 9-10 mm (See also couplet 183). .... *alpinator* Hinz & Horstmann, spec. nov. ♀♂
- Flagellum marked with brown apically. Tegula yellow. Trochanters, trochantelli, postpetiole and 2<sup>nd</sup> to 4<sup>th</sup> gastral tergites light red. Mesopleurum smooth between the punctures. Propodeum distinctly depressed, transversely striate in the longitudinal furrow, irregularly wrinkled in areas beside the furrow. 39-40 flagellar segments. Body length 8 mm. ♂ unknown. .... *rubator* Hinz, 1985 ♀
191. Front and mid femora and all tibiae and tarsi yellow, the tarsi marked with brown apically. 2<sup>nd</sup> to 4<sup>th</sup> gastral tergites light red, 2<sup>nd</sup> tergite black on the anterior 0.2. Mesopleurum, metapleurum and propodeum for the greater parts distinctly and densely rugose-punctate. Propodeum slightly depressed. 40-42 flagellar segments. Body length 9-11 mm. .... *confusator* Hinz & Horstmann, spec. nov. ♀♂
- Legs not as extensively marked with yellow. 2<sup>nd</sup> gastral tergite not as extensively marked with red. .... 192.
192. Hind tibia yellow basally and medially, black on the apical 0.3. Flagellum light brown apically. 36-40 flagellar segments. Body length 6-9 mm. .... *pulmentariae* Hinz, 1963 ♀♂
- Hind tibia with a different colour pattern. .... 193.
193. Pleural part of the prepectal carina distinctly joining the anterior edge of the mesopleurum (on either side) (Fig. 16). .... 194.
- Pleural part of the prepectal carina not joining the anterior edge of the mesopleurum, either obliterated dorsally or replaced by several wrinkles (Figs 17-18) (This character has strong infraspecific variability). .... 203.
194. 59-67 flagellar segments. Body length 14-20 mm. Hind tibia yellow, sometimes marked with red apically. 3<sup>rd</sup> gastral tergite without black lateral stripes. .... 195.
- At most 53 flagellar segments. Body length at most 12 mm. Hind tibia marked with black. .... 196.
195. Depression in front of the speculum for the greater part with distinct longitudinal striae. Sulcus of the propodeum for the greater part transversely wrinkled. Hind tibia yellow apically. Gaster yellow medially. 65-67 flagellar segments. Body length 18-20 mm (See also couplet 143). .... *falcator* (Fabricius, 1775) ♀♂
- Depression in front of the speculum granulate-strigose in the ventral half. Sulcus of the propodeum for the greater part coriaceous

- or irregularly wrinkled, with transverse wrinkles posteriorly. Hind tibia reddish apically. Gaster yellowish red medially. 59-66 flagellar segments. Body length 14-17 mm (See also couplet 225).  
..... *obliterata* (Holmgren, 1872) ♀♂
196. Mesopleurum slightly coriaceous and distinctly shining between the punctures. Metapleurum slightly sculptured and distinctly shining centrally. Hind tibia black. Propodeum slightly depressed, in most parts irregularly wrinkled, with transverse wrinkles posteriorly. 2<sup>nd</sup> gastral tergite red on the posterior 0.3. 3<sup>rd</sup> and 4<sup>th</sup> tergites red (Both flagellar tips broken off in the only available specimen). Body length 9 mm. ♂ unknown (See also couplet 238).  
..... *nitidipleuris* Horstmann, spec. nov. ♀
- Mesopleurum distinctly coriaceous and rather dull between the punctures. Metapleurum distinctly punctured and/or distinctly coriaceous and rather dull centrally. .... 197.
197. 34-44 flagellar segments. Body length 6-9 mm.  
..... 198.
- 45-53 flagellar segments. Body length 8-12 mm. Propodeum with long or short transverse wrinkles at least posteriorly. .... 200.
198. Glymma lacking. 3<sup>rd</sup> gastral tergite often without black lateral stripes. Depression in front of the speculum with distinct striae, which merge with the punctation anteriorly. Hind tibia black, marked with whitish yellow subbasally. Propodeum narrowly depressed, with short transverse wrinkles in the longitudinal furrow, with long transverse wrinkles posteriorly. 36-42 flagellar segments. Body length 6-9 mm. ♂ tentatively placed here (See also couplets 208 and 222).  
..... *schikotani* Hinz, 1994 ♀ ?♂
- Glymma distinct. 3<sup>rd</sup> gastral tergite with distinct black lateral stripes. Propodeum broadly depressed, sulcus for the greater part with irregular wrinkles. .... 199.
199. Genal index 0.3. Depression in front of the speculum granulate-strigose or with fine striae, which merge with a coriaceous area without punctation anteriorly. Hind tibia dark yellowish brown medially, narrowly black basally, broadly black apically. 34-40 flagellar segments. Body length 6-8 mm.  
..... *humilis* (Förster, 1868) ♀♂
- Genal index 0.6. Depression in front of the speculum with wrinkles, which merge with the punctation anteriorly. Hind tibia completely black or tinged with brown medially. 42-44 flagellar segments. Body length 7-9 mm (See also couplet 238).  
..... *variator* (Hinz, 1990) ♀♂
200. 2<sup>nd</sup> gastral tergite dorsally red on the posterior 0.2-0.3, the red marks more extended laterally. 3<sup>rd</sup> and 4<sup>th</sup> tergites red. .... 201.
- 2<sup>nd</sup> gastral tergite red on the posterior 0.1. 4<sup>th</sup> tergite black. .... 202.
201. Propodeum distinctly depressed, transversely wrinkled over almost its total breadth, without longitudinal carinae. 50-53 flagellar segments. Body length 11-12 mm.  
..... *indistinctor* Hinz, 1979 ♀♂
- Propodeum distinctly depressed, with short transverse wrinkles in the midline of the sulcus, in other parts irregularly wrinkled, longitudinal carinae indicated medially. 45-53 flagellar segments. Body length 8-12 mm (See also couplet 180).  
..... *xenocampta* (Förster, 1868) ♀♂
202. Metapleurum densely punctate on a coriaceous background, dull. Flagellum brown apically in the ♀, dark brown to black in the ♂. Hind tibia black, with whitish yellow marks subbasally (these marks rarely reduced). Propodeum distinctly depressed, with transverse wrinkles in the longitudinal furrow, densely rugose-punctate or transversely wrinkled beside the furrow. Glymma very small or lacking. 3<sup>rd</sup> gastral tergite usually completely red. Epipleurum of 3<sup>rd</sup> tergite completely fused with the tergite. 45-51 flagellar segments. Body length 9-10 mm.  
..... *contumator* Hinz, 1979 ♀♂
- Metapleurum finely punctate on a very slightly sculptured background, shining. Flagellum black. Hind tibia black, tinged with brown medially on the dorsal side. Propodeum not strongly depressed, longitudinal carinae indicated medially, strongly transversely wrinkled posteriorly, in other parts coriaceous and with fine wrinkles. Glymma distinct. 3<sup>rd</sup> gastral tergite red only laterally. Epipleurum of the 3<sup>rd</sup> tergite indicated anteriorly, the black lateral stripes distinctly distant from the ventrolateral edge of the tergite. 48-49 flagellar segments. Body length 8 mm (See also couplet 230).  
..... *nigridorsum* Horstmann, spec. nov. ♀♂

203. Genal index smaller than 0.3. Mesopleurum distinctly coriaceous between the punctures (exception: *D. americana*). ..... 204.
- Genal index at least 0.3. .... 211.
204. 49-50 flagellar segments. Body length 11 mm. Hind tibia yellow medially, narrowly black basally, broadly black apically. Propodeum slightly depressed, partly transversely wrinkled, partly irregularly wrinkled in the broad longitudinal sulcus. Glymma present, but sometimes very small. 2<sup>nd</sup> gastral tergite black or dark brown posteriorly, marked with red in front of the dark posterior edge. 3<sup>rd</sup> tergite with black lateral stripes. ♀ unknown (See also couplet 86) .....  
 ..... *parvicavata* Horstmann, spec. nov. ♂
- 36-47 flagellar segments. Body length 6-9 mm. Glymma often lacking. 2<sup>nd</sup> gastral tergite to a variable extent red posteriorly, rarely completely black. .... 205.
205. Front and mid coxae whitish yellow, narrowly darkened basally (possibly only in the ♂). Hind tibia yellow to yellowish brown, narrowly black basally, slightly marked with brown apically. Propodeum slightly depressed, longitudinal carinae indicated medially, transversely wrinkled in the broad sulcus. Glymma very small or lacking. 2<sup>nd</sup> gastral tergite red on the posterior 0.1-0.2. 3<sup>rd</sup> tergite with black lateral stripes. 40-44 flagellar segments. Body length 7-8 mm. ♀ unknown. ....  
 ..... *flavopicta* Horstmann, spec. nov. ♂
- Front and mid coxae black, at most the tip of the front coxa narrowly yellow. Hind tibia marked with dark brown or black at least apically (Genal index about 0.3; hind tibia scarcely darkened apically: see *D. opaca*, couplet 220). .... 206.
206. Metapleurum coriaceous and with fine punctures, the punctures distinctly discernible (sculpture almost as in the adjoining parts of the mesopleurum). Hind tibia black, sometimes tinged with dark brown subbasally in the ♀, marked with white subbasally on the dorsal side in the ♂. Glymma lacking. 2<sup>nd</sup> gastral tergite red on the posterior 0.3-0.5. 3<sup>rd</sup> tergite with black lateral stripes. 43-46 flagellar segments. Body length 8-9 mm (See also couplets 147, 185 and 215). ....  
 ..... *meridionator* Aubert 1960 ♀♂
- Metapleurum coriaceous and finely rugose, the punctures scarcely discernible among the wrinkles (sculpture almost as in the adjoining parts of the propodeum). .... 207.
207. Hind tibia black, sometimes tinged with dark brown subbasally. Mandible black, tinged with dark brown medially. Propodeum broadly depressed, for the greater part irregularly wrinkled, with short transverse wrinkles in the shallow sulcus. Glymma lacking. 2<sup>nd</sup> gastral tergite red on the posterior 0.1-0.2. 3<sup>rd</sup> tergite with black lateral stripes. 40-44 flagellar segments. Body length 7-8 mm. ♂ unknown. .... *micrator* Hinz, 1979 ♀
- Hind tibia distinctly yellow to yellowish brown medially (In *D. schikotani* the hind tibia is often only narrowly marked with whitish yellow subbasally). .... 208.
208. Mandible black, at most tinged with brown medially. Propodeum slightly depressed, without longitudinal carinae medially, transversely wrinkled in the narrow longitudinal furrow at least posteriorly, rather coarsely irregularly wrinkled beside the furrow. 2<sup>nd</sup> gastral tergite red on the posterior 0.1-0.3. 3<sup>rd</sup> gastral tergite often without black lateral stripes. 36-42 flagellar segments. Body length 6-9 mm. ♂ tentatively placed here (See also couplets 198 and 222). ....  
 ..... *schikotani* Hinz, 1994 ♀?♂
- Mandible distinctly marked with yellow medially. 3<sup>rd</sup> gastral tergite with black lateral stripes. .... 209.
209. Mesopleurum densely punctate on a distinctly coriaceous background. Propodeum slightly depressed, the narrow longitudinal furrow with short transverse wrinkles. Glymma lacking. 2<sup>nd</sup> gastral tergite red on the posterior 0.1. 3<sup>rd</sup> and 4<sup>th</sup> tergites red, both marked with dark brown medially. 36-37 flagellar segments. Body length 7 mm. ♂ unknown (See also couplet 159). ....  
 .... *radiator* Hinz & Horstmann, spec. nov. ♀
- Propodeum distinctly depressed and strongly transversely wrinkled in the ♂, less distinctly depressed and slightly transversely wrinkled in the ♀, the sulcus rather broad in both sexes. Glymma lacking or present as a small shallow furrow. 2<sup>nd</sup> gastral tergite usually red on the posterior 0.2-0.3. 3<sup>rd</sup> and 4<sup>th</sup> tergites red. In some specimens the gaster is more darkened. .... 210.

210. Mesopleurum densely punctate (rarely less densely punctate) on a slightly coriaceous and shining background, the background sometimes smooth. Genal carina always straight ventrally. Transverse carina obliterated posteriorly. 36-43 flagellar segments. Body length 6-9 mm. ....  
 ..... *americana* (Ashmead, 1890) ♀♂
- Mesopleurum with disperse or rather dense punctation on a distinctly coriaceous background. Genal carina sometimes bent forwards ventrally close to its junction with the oral carina. Transverse carina complete. 42-47 flagellar segments. Body length 8-9 mm (See also couplet 147). ....  
 ..... *annexa* (Förster, 1868) ♀♂
211. Petiole without glymmae, in their place sometimes a change in the sculpture of the surface or very fine longitudinal carinae or very shallow pits (Figs 37-38) (This character has strong infraspecific variability). .... 212.
- Petiole with distinct small or large glymmae (Figs 35-36). .... 223.
212. Hind tibia completely black, at most slightly tinged with brown medially. 3<sup>rd</sup> gastral tergite with black lateral stripes. .... 213.
- Hind tibia white to yellowish brown medially, to a variable extent darkened basally and apically. .... 217.
213. 2<sup>nd</sup> gastral tergite black dorsally, at most red on the posterior 0.1. .... 214.
- 2<sup>nd</sup> gastral tergite dorsally red on the posterior 0.3-0.6. .... 215.
214. Propodeum scarcely depressed, without longitudinal carinae, with short transverse wrinkles in a weakly indicated narrow longitudinal furrow, irregularly wrinkled beside the furrow. 2<sup>nd</sup> gastral tergite with a black posterior edge, red laterally. 3<sup>rd</sup> and 4<sup>th</sup> tergites red, the 3<sup>rd</sup> marked with black dorsally. Posterior sternites red. 42-43 flagellar segments. Body length 9 mm. ♂ unknown. ....  
 .... *meritor* Hinz & Horstmann, spec. nov. ♀
- Propodeum somewhat depressed, with longitudinal carinae medially, transversely wrinkled between the carinae over the total breadth of the sulcus. 2<sup>nd</sup> gastral tergite usually red on the posterior 0.1, sometimes completely black dorsally. 3<sup>rd</sup> tergite red, sometimes marked with black dorsally. 4<sup>th</sup> tergite for the greater part black. Posterior sternites black. 41-43 flagellar segments. Body length 9-10 mm (Variety: 39 flagellar segments. Body length 7 mm). .... *obtutor* Hinz, 1994 ♀♂
215. Propodeum distinctly depressed, with short transverse wrinkles over the total length of the narrow longitudinal furrow, irregularly wrinkled beside the furrow (Fig. 34). 2<sup>nd</sup> gastral tergite dorsally red on the posterior 0.3-0.5. 43-46 flagellar segments. Body length 8-9 mm (See also couplets 147, 185 and 206). ....  
 ..... *meridionator* Aubert, 1960 ♀♂
- Propodeum slightly depressed, without a narrow longitudinal furrow. 2<sup>nd</sup> gastral tergite red on the posterior 0.4-0.6. .... 216.
216. Temples less strongly constricted behind the eyes, tangential lines on eyes and temples intersect on the propodeum. Antennal carina with a short dorsal projection (nose-like). Propodeum with long transverse wrinkles posteriorly. 44-48 flagellar segments. Body length 10-11 mm (See also couplet 185). ....  
 ..... *stygia* (Förster, 1868) ♀♂
- Temples distinctly constricted behind the eyes, tangential lines on eyes and temples usually intersect on the scutellum. Antennal carina without a dorsal projection, but with distinct radial wrinkles instead. Propodeum irregularly wrinkled posteriorly. 43-45 flagellar segments (Variety: 48 segments). Body length 9 mm. ....  
 ..... *templator* Hinz & Horstmann, spec. nov. ♀♂
217. 34 flagellar segments. Body length 5 mm. Hind tibia whitish yellow medially, narrowly dark brown basally, broadly dark brown apically. Propodeum slightly depressed, longitudinal carinae indicated beside the broad and shallow sulcus, for the greater part coarsely and irregularly wrinkled. 2<sup>nd</sup> gastral tergite dorsally red on the posterior 0.1. 3<sup>rd</sup> and 4<sup>th</sup> tergites red, marked with black dorsally. ♀ unknown. ....  
 ..... *nanus* Horstmann, spec. nov. ♂
- 38-48 flagellar segments. Body length 7-11 mm. .... 218.
218. Speculum and depression in front of the speculum granulate-strigose, the striae merging with a coriaceous area without punctation anteriorly. Hind tibia yellowish brown medially, narrowly black basally, marked with dark brown apically. Propodeum somewhat depressed, transversely striate posteriorly in the broad sulcus, in other parts irregularly wrinkled. 2<sup>nd</sup> gastral tergite red on the

- posterior 0.1. 3<sup>rd</sup> and 4<sup>th</sup> tergites red. 46-47 flagellar segments. Body length 8 mm. ♀ unknown. .... *nebulosa* Horstmann, spec. nov. ♂
- Depression in front of the speculum with distinct striae and wrinkles, which merge with the punctation anteriorly, and/or hind tibia marked with white medially. .... 219.
219. 43-48 flagellar segments. Body length 9-11 mm. Hind tibia dark yellowish brown medially, narrowly and indistinctly darkened basally and apically (43-46 flagellar segments; hind tibia black or marked with white subbasally on the dorsal side: see *D. meridionator*, couplet 215). .... 220.
- 38-42 flagellar segments. Body length 7-9 mm. Hind tibia broadly dark brown or black apically. .... 221.
220. Ocellar index about 1.0. 2<sup>nd</sup> gastral tergite red on the posterior 0.3. 3<sup>rd</sup> and 4<sup>th</sup> tergites red, rarely marked with black dorsally. Hind gastral sternites black, 43-47 flagellar segments. Body length 9-10 mm (See also couplet 240). .... *opaca* (Thomson, 1887) ♀♂
- Ocellar index 0.5. 2<sup>nd</sup> gastral tergite black dorsally, marked with red laterally. 3<sup>rd</sup> and 4<sup>th</sup> tergites red. Hind gastral sternites reddish brown. 48 flagellar segments. Body length 11 mm. ♂ unknown. .... *ternata* Hinz & Horstmann, spec. nov. ♀
221. Hind tibia yellowish brown to brown medially, narrowly dark brown to black basally, broadly dark brown to black apically. Propodeum not depressed, finely and irregularly wrinkled, often with longitudinal wrinkles posteriorly, without longitudinal carinae medially. 2<sup>nd</sup> gastral tergite dorsally black or red on the posterior 0.1, marked with red laterally. 3<sup>rd</sup> and 4<sup>th</sup> tergites for the greater part red, to a variable extent marked with black dorsally. 39-46 flagellar segments. Body length 7-9 mm (See also couplets 137 and 234). .... *subimpressa* (Förster, 1868) ♀♂
- Hind tibia whitish medially, narrowly black basally, broadly black apically. Propodeum distinctly depressed, distinctly transversely wrinkled in the shallow sulcus (Hind tibia yellowish brown medially; propodeum distinctly depressed: see *D. americana*). .... 222.
222. Malar space index 0.3-0.4. Glymma indicated as a very small pit. 1<sup>st</sup> gastral sternite with distinct transverse striae at least in the posterior half. 2<sup>nd</sup> gastral tergite red on the posterior 0.1. 3<sup>rd</sup> tergite red only laterally. 4<sup>th</sup> tergite completely black. 3<sup>rd</sup> tergite with black lateral stripes. 36-41 flagellar segments. Body length 6-10 mm (See also couplets 146 and 235). .... *anurator* Hinz 1985 ♀♂
- Malar space index 0.6. Glymma lacking. 1<sup>st</sup> gastral sternite for the greater part smooth. 2<sup>nd</sup> gastral tergite red on the posterior 0.1-0.2. 3<sup>rd</sup> tergite red. 4<sup>th</sup> tergite broadly red anteriorly. 3<sup>rd</sup> tergite often without black lateral stripes. 36-42 flagellar segments. Body length 6-9 mm. ♂ tentatively placed here (See also couplets 198 and 208). .... *schikotani* Hinz, 1994 ♀♂
223. 58-66 flagellar segments. Body length 15-17 mm. Mesopleurum slightly coriaceous and shining between the punctures. Hind tibia yellow or yellowish brown medially, narrowly black basally, at most slightly darkened apically. 3<sup>rd</sup> gastral tergite without black lateral stripes. .... 224.
- 35-52 flagellar segments. Body length 6-12 mm. Mesopleurum distinctly coriaceous between the punctures. Hind tibia dark brown or black at least apically (exceptions: *D. opaca*, *D. opacoides*). .... 226.
224. Metapleurum densely rugose-punctate on a smooth background. 2<sup>nd</sup> gastral tergite black dorsally, red laterally. 3<sup>rd</sup> to 7<sup>th</sup> tergites almost completely red. 58-66 flagellar segments. Body length 15-16 mm. ♂ unknown. .... *scutellator* Hinz, 1979 ♀
- Metapleurum rugose or punctate on a coriaceous background. At least the 6<sup>th</sup> and 7<sup>th</sup> gastral tergites for the greater part black. .... 225.
225. Hind femur marked with red apically. Hind tibia yellow, scarcely darkened apically. 2<sup>nd</sup> gastral tergite black dorsally, marked with red laterally. 3<sup>rd</sup> to 4<sup>th</sup> or 5<sup>th</sup> tergites red. 59-66 flagellar segments. Body length 15-17 mm (See also couplet 195). .... *obliterata* (Holmgren, 1872) ♀♂
- Hind femur black. Hind tibia dark yellowish brown. 2<sup>nd</sup> to 7<sup>th</sup> gastral tergites black dorsally, to a variable extent red laterally. 61 flagellar segments. Body length 15 mm. ♂ unknown. .... *scriptor* Hinz & Horstmann, spec. nov. ♀
226. 35 flagellar segments. Body length 6-7 mm. 2<sup>nd</sup> gastral tergite red on the posterior 0.5-0.7. .... 227.

- 37-52 flagellar segments. Body length 7-12 mm. 2<sup>nd</sup> gastral tergite less extensively marked with red at least dorsally. .... 228.
- 227. Flagellum with all segments distinctly longer than wide. Hind femur marked with red. Hind tibia dark brown to black. Propodeum with a narrow longitudinal furrow, with short transverse wrinkles in the furrow. 1<sup>st</sup> gastral tergite 5.2× as long as wide. 2<sup>nd</sup> tergite red on the posterior 0.7. 35 flagellar segments. Body length 7 mm. ♀ unknown. ....  
..... *longistilus* Horstmann, spec. nov. ♂
- Flagellum with the shortest segments wider than long. Hind femur black. Hind tibia broadly whitish medially, black basally and apically. Propodeum with a broad shallow sulcus, irregularly wrinkled, more longitudinally wrinkled posteriorly. 1<sup>st</sup> gastral tergite 3.4× as long as wide. 2<sup>nd</sup> tergite red on the posterior 0.5. 35 flagellar segments. Body length 6 mm. ♀ unknown. ....  
..... *parva* Horstmann, spec. nov. ♂
- 228. Metapleurum with fine but distinct and dense punctation on a coriaceous background (sculpture about as in the adjoining parts of the mesopleurum). 49-52 flagellar segments. ....  
..... 229.
- Metapleurum finely and densely rugose-punctate, the interspaces not coriaceous (sculpture about as in the adjoining part of the propodeum) (In *D. variator* with 42-44 flagellar segments the interspaces are coriaceous). .... 232.
- 229. Posterior gastral tergites from the 3<sup>rd</sup> tergite onwards red, at most tinged with brown dorsally. Hind tibia light yellowish brown medially, narrowly black basally, broadly black apically. Propodeum with a broad shallow sulcus, with long transverse wrinkles posteriorly. 51 flagellar segments. Body length 10 mm. ♂ unknown. ....  
..... *rufopicalis* Horstmann, spec. nov. ♀
- Posterior gastral tergites completely black or distinctly marked with black dorsally. ... 230.
- 230. Hind tibia dark brown medially, black basally and apically. Propodeum slightly depressed, the longitudinal carinae indicated medially, for the greater part irregularly wrinkled, somewhat transversely wrinkled posteriorly. All gastral tergites black dorsally, 3<sup>rd</sup> and 4<sup>th</sup> tergites laterally red in the ♀, 2<sup>nd</sup> to 5<sup>th</sup> tergites laterally red in the ♂. Genital clasper of the ♂ yellowish brown. 48-49 flagellar segments. Body length 8 mm (See also couplet 202). ....  
..... *nigridorsum* Horstmann, spec. nov. ♀♂
- Hind tibia yellow to yellowish brown medially. At least the 3<sup>rd</sup> gastral tergite completely red. .... 231.
- 231. Propodeum deeply depressed, the longitudinal carinae indicated only posteriorly, distinctly transversely striate in the longitudinal sulcus, area superomedia only coriaceous. 2<sup>nd</sup> gastral tergite dorsally red on the posterior 0.2, almost completely red laterally in front of the brown posterior edge. 3<sup>rd</sup> and 4<sup>th</sup> tergites red. Posterior tergites and sternites black. Genital clasper black. 52 flagellar segments. Body length 10 mm. ♀ unknown. ....  
..... *levibasis* Horstmann, spec. nov. ♂
- Propodeum slightly depressed, the longitudinal carinae indicated medially, irregularly wrinkled, with some longitudinal wrinkles posteriorly. 2<sup>nd</sup> gastral tergite red laterally (including the posterior edge). 3<sup>rd</sup> tergite red. 4<sup>th</sup> tergite red with a black dorsal mark. Posterior tergites black dorsally and red laterally. Posterior sternites red. 49 flagellar segments. Body length 11 mm. ♂ unknown. ....  
..... *ventrator* Hinz & Horstmann, spec. nov. ♀
- 232. Propodeum not or almost not depressed, irregularly wrinkled, often with one or more longitudinal wrinkles posteriorly. .... 233.
- Propodeum distinctly depressed, often transversely wrinkled in some parts of the longitudinal furrow, sometimes with a short longitudinal keel posteriorly (*D. nitidipleuris*, in which the propodeum is scarcely depressed, but distinctly transversely wrinkled posteriorly, is included here). .... 235.
- 233. Propodeum coarsely wrinkled, almost completely areolated, but the carinae hardly discernible among the wrinkles. Metapleurum with distinct and very dense punctures, not coriaceous. Hind tibia yellow medially, narrowly black basally, broadly black apically. 3<sup>rd</sup> gastral tergite without black lateral stripes. 43 flagellar segments. Body length 10 mm. ♀ unknown (See also couplet 172). ....  
..... *inconspicua* Horstmann, spec. nov. ♂
- Propodeum finely wrinkled. 3<sup>rd</sup> gastral tergite with black lateral stripes. .... 234.

234. Hind tibia black. 2<sup>nd</sup> gastral tergite red on the posterior 0.2-0.3. 3<sup>rd</sup> and 4<sup>th</sup> tergites red, sometimes 4<sup>th</sup> tergite marked with black posteriorly. 48-52 flagellar segments. Body length 9-10 mm (See also couplet 104).  
.....  
..... *fundator* Hinz, 1990 ♀♂
- Hind tibia yellowish brown to brown medially, black basally and apically. 2<sup>nd</sup> gastral tergite completely black dorsally or red on the posterior 0.1, marked with red laterally. 3<sup>rd</sup> and 4<sup>th</sup> tergites for the greater part red, to a variable extent marked with black dorsally. 39-46 flagellar segments. Body length 7-9 mm (See also couplets 137 and 221).  
.....  
..... *subimpressa* (Förster, 1868) ♀♂
235. Depression in front of the speculum granulate-strigose, the striae merging with a narrow coriaceous area without punctation anteriorly. Hind tibia whitish medially on the dorsal side, black on the ventral side and basally and apically (sometimes whitish medially also on the ventral side). Propodeum broadly and distinctly depressed, for the greater part finely and irregularly wrinkled and with some short transverse wrinkles in the ♀, more deeply depressed, more strongly wrinkled and with the longitudinal carinae indicated in the ♂. 2<sup>nd</sup> gastral tergite red on the posterior 0.1. 3<sup>rd</sup> tergite red only laterally. 36-41 flagellar segments. Body length 6-10 mm (See also couplets 146 and 222).  
.....  
..... *amurator* Hinz, 1985 ♀♂
- Depression in front of the speculum with fine or distinct striae, which merge with the punctation anteriorly. Hind tibia yellowish brown to dark brown medially, brown or black basally and apically, or completely black. Gaster usually marked with red to a greater extent. .... 236.
236. 2<sup>nd</sup> gastral tergite with a dark brown to black posterior edge, to a variable extent marked with red in front of the posterior edge, or completely black dorsally. Hind tibia yellowish brown to dark brown medially or completely black. Longitudinal carinae of propodeum usually distinct medially, sometimes also anteriorly, the sulcus between the longitudinal carinae irregularly wrinkled or transversely wrinkled. Glymma large. 3<sup>rd</sup> and 4<sup>th</sup> gastral tergites red, to a variable extent marked with black. 37-48 flagellar segments. Body length 7-12 mm. ....  
..... *glauca caliginosa* (Walley, 1940) ♀♂
- 2<sup>nd</sup> gastral tergite red on the posterior 0.1-0.3, the posterior edge rarely slightly darkened (Glymma very small or lacking, 2<sup>nd</sup> gastral tergite red on the posterior 0.1 or completely black dorsally; see *D. obtutor*, couplet 214).  
..... 237.
237. Hind tibia black, at most tinged with dark brown medially. .... 238.
- Hind tibia broadly yellowish brown medially, narrowly and often indistinctly darkened basally and apically. 3<sup>rd</sup> and 4<sup>th</sup> tergites for the greater part or completely red. .... 239.
238. Mesopleurum distinctly coriaceous and dull between the punctures. Metapleurum coriaceous and rugose-punctate, rather dull. Propodeum slightly depressed, finely coriaceous and rugose, usually with a short longitudinal keel posteriorly and with transverse wrinkles beside the keel, in the ♂ longitudinal carinae sometimes indicated. Glymma large. 2<sup>nd</sup> gastral tergite red on the posterior 0.1-0.3. 3<sup>rd</sup> tergite red. 4<sup>th</sup> tergite marked with red or completely black. 42-44 flagellar segments. Body length 7-9 mm (See also couplet 199).  
..... *variator* (Hinz, 1990) ♀♂
- Mesopleurum slightly coriaceous and shining between the punctures. Metapleurum slightly rugose, distinctly shining centrally. Propodeum broadly and shallowly depressed, without a longitudinal keel posteriorly. Glymma rather large. 2<sup>nd</sup> gastral tergite red on the posterior 0.3. 3<sup>rd</sup> and 4<sup>th</sup> tergites red. At least 42 flagellar segments (Both flagellar tips broken off in the only available specimen). Body length 9 mm. ♂ unknown (See also couplet 196). ... *nitidipleuris* Horstmann, spec. nov. ♀
239. Penultimate flagellar segment 1.0-1.1× as long as wide. Temple with very fine and disperse punctation medially. Hind tibia broadly yellow to yellowish red medially, distinctly dark brown to black basally and apically. Hind basitarsus in lateral view for the greater part dark brown to black. Propodeum slightly and rather broadly depressed, for the greater part transversely wrinkled and with weak longitudinal carinae in the ♀, more deeply depressed, coarsely transversely wrinkled and with strong longitudinal carinae in the ♂. Glymma rather large. 2<sup>nd</sup> gastral tergite dorsally red on the posterior 0.2-0.3, sometimes the posterior edge slightly marked with brown. 39-41 flagellar segments. Body length 7-9 mm. .... *remota* (Förster, 1868) ♀♂

- Penultimate flagellar segment 1.2-1.4× as long as wide. Hind tibia broadly yellowish brown to reddish brown medially, narrowly medium brown basally and apically, the apical mark sometimes indistinct. Hind basitarsus in lateral view usually for the greater part light brown. Propodeum somewhat depressed, with short transverse wrinkles in the rather narrow longitudinal furrow, irregularly wrinkled beside the furrow, without longitudinal carinae medially. 2<sup>nd</sup> gastral tergite red on the posterior 0.2-0.3. .... 240.
- 240. Temple with fine and rather dense punctation medially. Propodeal spiracle rather large, 4.0× as long as wide. Glymma very small, sometimes lacking. 43-47 flagellar segments. Body length 9-10 mm (See also couplet 220). ..... *opaca* (Thomson, 1887) ♀♂
- Temple with very fine and disperse punctation medially. Propodeal spiracle small, 2.5× as long as wide. Glymma small. 39-40 flagellar segments. Body length 7 mm. ♂ unknown. .... *opacoides* Hinz, 1985 ♀

### Descriptions of species

#### *Dusona admontina* (Speiser, 1908)

**Description.** ♀: Body length 7-9 mm. Temples strongly constricted behind the eyes, 0.6× as long as the width of an eye, tangential lines on eyes and temples intersect on the middle of the mesoscutum. Ocellar index 0.8 (Fig. 1). Frons slightly depressed, coriaceous, very finely and rather densely punctate, with a fine median longitudinal carina, with rather long radial wrinkles, which extend to 0.4 the distance to the median ocellus. Antennal carina low and narrow. Face coriaceous, finely and densely rugose and rugose-punctate. Clypeus flat, coriaceous, with fine rather dense or disperse punctation, its apex truncate medially. Malar space index 0.4. Genal carina low and almost straight ventrally, joining the slightly raised oral carina at an acute angle. Genal index 0.3. Temple finely coriaceous and with very fine disperse punctation medially. Flagellum with 37-39 segments, filiform, the apical 0.2 attenuate, 2<sup>nd</sup> segment 3.0×, shortest segment 1.0×, penultimate segment 1.0× as long as wide. Pronotum densely rugose laterally on the dorsal 0.1-0.2, with longitudinal wrinkles ventrally. Mesoscutum coriaceous and densely rugose-punctate. Scutellum coriaceous, finely and rather densely punctate, with lateral carinae on the anterior 0.4. Prescutellar groove for the greater part

with fine punctation on a smooth background, with longitudinal striae laterally. Prepectal carina low, ventral part merging with the pleural part, the latter complete, joining the anterior edge of the mesopleurum. Transverse carina obliterated. Mesopleurum coriaceous, dull, densely rugose-punctate. Speculum coriaceous and dull. Depression in front of the speculum with rather long longitudinal wrinkles, which merge with the punctation anteriorly. Metapleurum coriaceous and finely and densely rugose. Pleural carina distinct. Areolet small, stalked, receiving the 2<sup>nd</sup> recurrent vein distinctly distad of the middle (Fig. 25). Nervellus vertical, weakly intercepted. Nervellar index 0.7. Tibial spur index 0.6. Hind femur 4.8× as long as high. Hind tarsal claws short, with distinct pectinate teeth basally and medially. Propodeum extending to 0.4 of the hind coxae, scarcely depressed, completely areolated, for the greater part irregularly wrinkled, with distinct longitudinal wrinkles posteriorly. Propodeal spiracle small, 2.6× as long as wide. Spiracular carina narrow. Spiracular index 0.9. 1<sup>st</sup> gastral tergite 4.0×, 2<sup>nd</sup> tergite 1.9× as long as wide. Petiole without glymmae, with indistinct narrow lateral areas, smooth in front of these areas. Petiolar suture fine but complete. 1<sup>st</sup> gastral sternite coriaceous. Thyridium elongate. Thyridial index 1.3. Epipleurum separated from the 3<sup>rd</sup> gastral tergite, the crease marked with black. Epipleural index 0.8. Gaster distinctly but not strongly compressed posteriorly. Ovipositor index 0.6.

**Colour:** Black. Maxillary palpus yellow. Mandible almost completely yellow (teeth black). Tegula yellow or light brown. Wings hyaline. Stigma dark brown. Front leg from the trochanter or the tip of the coxa onwards yellowish brown. Mid femur completely yellowish brown or yellowish brown on the apical 0.2. Mid tibia and tarsus yellowish brown. Hind tibia yellowish brown, sometimes narrowly black basally. Hind tarsus yellowish brown to brown. 2<sup>nd</sup> gastral tergite red on the posterior 0.2-0.3. Tergites from the 3<sup>rd</sup> onwards red, more or less indistinctly marked with brown dorsally. Gaster sternites red. Pilosity whitish.

♂: Flagellum with 34-35 segments. Front and mid legs yellow, mid coxa marked with black basally. Hind femur reddish brown to dark brown. Genital clasper red. In other characters similar to the ♀.

**Material** (2♀♀, 2♂♂): Russia: Khabarovsk Terr.: Khekh-tsir near Khabarovsk; Primorye: Chuguyevka, Khasan; Kuril Isl.: Shikotan (PET).

*Dusona aemula* (Förster, 1868)

**Description.** ♀: Body length 7-8 mm. Temples slightly constricted behind the eyes, 0.7-0.8× as long as the width of an eye, tangential lines on eyes and temples intersect on the propodeum. Ocellar index 0.8. Frons slightly depressed, coriaceous, with fine dense wrinkles, with a very fine median longitudinal carina, without radial wrinkles. Antennal carina low and narrow. Face and dorsal half of the clypeus densely and finely rugose-punctate. Clypeus flat, coriaceous and with rather dense punctation ventrally, its apex distinctly convex medially. Malar space index 0.6. Genal carina low ventrally, distinctly bent forwards and joining the oral carina at the base of the mandible at a right angle. Temple finely coriaceous and with fine disperse punctation medially. Flagellum with 26-29 segments, slightly but distinctly fusiform, 2<sup>nd</sup> segment 1.9×, shortest segment 0.9×, penultimate segment 1.0× as long as wide. Pronotum with dense punctation and longitudinal wrinkles laterally on the dorsal 0.3, with longitudinal wrinkles without punctation ventrally. Mesoscutum and scutellum coriaceous, densely and finely rugose-punctate. Scutellum with lateral carinae on the anterior 0.4. Prescutellar groove with short longitudinal striae. Ventral part of the prepectal carina merging with the transverse carina, both distinctly raised, the former deeply emarginate medially. Pleural part of the prepectal carina low, almost joining the anterior edge of the mesopleurum. Mesopleurum finely coriaceous and densely punctate. Speculum with fine oblique striae. Depression in front of the speculum with fine and long longitudinal striae, which merge with the punctation anteriorly. Metapleurum rugose-punctate, with fine and very dense punctation. Pleural carina distinct. Areolet rather small, short-stalked, receiving the 2<sup>nd</sup> recurrent vein distad of the middle. Nervellus slightly inclivous, intercepted. Nervellar index 0.8. Tibial spur index 0.6. Hind femur 4.5× as long as high. Hind tarsal claws rather long, with short pectinate teeth basally. Propodeum extending to the middle of the hind coxae, broadly and rather deeply depressed, transversely wrinkled almost all over the broad sulcus, longitudinal carinae and costulae almost complete, but partly covered with wrinkles. Propodeal spiracle small, 2.4× as long as wide. Spiracular carina strong, partly widened. Spiracular index 0.5-0.8. 1<sup>st</sup> gastral tergite 4.3×, 2<sup>nd</sup> tergite 1.5× as long as wide. Petiole with small and somewhat elongate glymmae at the anterior edge of narrow lateral areas, smooth in front of the glymmae. Sometimes only the narrow lateral areas present (Fig. 37).

Petiolar suture for the greater part obliterated. 1<sup>st</sup> gastral sternite smooth. Thyridium oval. Thyridial index about 1.0. Epipleurum not separated from the 3<sup>rd</sup> gastral tergite, the latter with short and indistinct black lateral stripes. Gaster distinctly compressed posteriorly. Ovipositor index 0.6.

Colour: Black. Maxillary palpus yellowish red. Mandible narrowly yellowish brown dorsally and medially. Tegula yellowish brown. Wings hyaline. Stigma yellowish medially. Femora, tibiae and tarsi of the front and mid legs yellowish red, the tarsi darkened apically. Hind tibia dark yellowish brown medially, narrowly black basally and apically. Hind femur and hind tibia sometimes completely red. 2<sup>nd</sup> gastral tergite red on the posterior 0.2. 3<sup>rd</sup> and 4<sup>th</sup> tergites red, the 4<sup>th</sup> dorsally marked with black apically or completely black. Pilosity whitish.

♂: Flagellum with 28-30 segments. Propodeum with stronger carinae and wrinkles. Mandible broadly yellowish brown medially. In other characters similar to the ♀.

**Material** (1♀): Kazakhstan: Dzhabagly River ESE of Chimkent, 1700 m (PET).

*Dusona affinitor* Hinz, 1979

**Description.** ♀: Body length 8 mm. Temples distinctly constricted behind the eyes, 0.8× as long as the width of an eye, tangential lines on eyes and temples intersect on the postscutellum. Ocellar index 0.8. Frons not depressed, coriaceous, densely rugose and rugose-punctate, without a median longitudinal carina and without distinct radial wrinkles. Antennal sockets rather close to each other. Antennal carina low and narrow. Face and dorsal half of the clypeus coriaceous, densely rugose and rugose-punctate. Clypeus slightly rounded, coriaceous and with fine rather dense punctation ventrally, its apex truncate medially. Malar space index 0.3. Genal carina low and straight ventrally, joining the scarcely raised oral carina at an acute angle. Genal index 0.3. Temple finely coriaceous and with fine disperse punctation medially. Flagellum with 35-37 segments, slightly fusiform, 2<sup>nd</sup> segment 1.5×, shortest segment 0.9×, penultimate segment 1.0× as long as wide. Pronotum with longitudinal wrinkles laterally. Mesoscutum and scutellum coriaceous, with dense or very dense punctation. Scutellum with lateral carinae on the anterior 0.4. Prescutellar groove almost completely smooth. Ventral part of the prepectal carina merging with the transverse carina, both carinae slightly raised, the former not emar-

ginate medially. Pleural part of the prepectal carinae present as a wrinkle medially, obliterated or covered with wrinkles dorsally and ventrally. Mesopleurum distinctly and very densely punctate on an almost smooth background. Speculum finely granulate-strigose, shining. Depression in front of the speculum with fine and long longitudinal striae, which merge with the punctation anteriorly. Metapleurum very finely and densely rugose or rugose-punctate, the wrinkles smooth. Pleural carina distinct. Areolet large, narrowly sessile or pointed, receiving the 2<sup>nd</sup> recurrent vein at the middle. Nervellus distinctly inclivous, weakly intercepted. Nervellar index 0.7-0.8. Tibial spur index 0.7. Hind femur 4.8× as long as high. Hind tarsal claws short, with few short pectinate teeth basally. Propodeum extending to 0.4 of the hind coxae, a narrow longitudinal furrow weakly indicated, for the greater part irregularly wrinkled, with some transverse wrinkles in the longitudinal furrow, sometimes with a short longitudinal keel posteriorly, carinae almost completely obliterated. Propodeal spiracle small, 1.7-2.0× as long as wide. Spiracular carina narrow. Spiracular index 0.9. 1<sup>st</sup> gastral tergite 4.2×, 2<sup>nd</sup> tergite 1.7× as long as wide. Petiole without glymmae, with narrow lateral areas, smooth in front of these areas. Petiolar suture almost completely obliterated. 1<sup>st</sup> gastral sternite for the greater part smooth, with few transverse striae posteriorly. Thyridium elongate. Thyridial index about 2.0. Epipleurum not separated from the 3<sup>rd</sup> gastral tergite, the latter without distinct black lateral stripes. Gaster distinctly compressed posteriorly. Ovipositor index 0.7.

Colour: Black. Mandible tinged with brown subapically. Wings hyaline. Stigma dark brown medially. Front femur yellowish brown dorsally and apically. Front tibia and tarsus yellowish brown. Mid femur yellowish brown on the apical 0.2. Mid tibia yellowish brown. Mid tarsus dark brown. Hind tibia tinged with dark brown medially. 3<sup>rd</sup> gastral tergite red, narrowly tinged with black dorsally. Pilosity whitish.

♂ unknown.

**Material** (2♀): Russia: Kuril Isl.: Tretyakovo on Kunashir (PET). Japan: Hokkaido: Sapporo (SAP).

*Dusona alpinator* Hinz & Horstmann,  
spec. nov.

**Types.** Holotype (♀): Kirgiziya, Alayskiy Mts., 2800 m, 30.5.1956 (MOS). – Paratypes: 1♀ Kazakhstan, Alma-Ata, 1400-1800 m, 3.-12.6.1951 (Hinz/ZSM); 1♂ Kirgiziya, Kirgizskiy Mts., Issykata, 1800 m, 19.5. 1951 (MOS).

**Description.** ♀: Body length 9-10 mm. Temples distinctly but not strongly constricted behind the eyes, 0.9× as long as the width of an eye, tangential lines on eyes and temples intersect on the anterior part of the propodeum. Ocellar index 1.0. Frons scarcely depressed, coriaceous, finely rugose-punctate, with a fine median longitudinal carina, without distinct radial wrinkles. Antennal carina low and narrow. Face and dorsal half of the clypeus coriaceous, very densely punctate. Clypeus flat, coriaceous and densely punctate ventrally, its apex almost truncate medially. Malar space index 0.4. Genal carina low, almost straight ventrally, joining the slightly raised oral carina at an acute angle. Genal index 0.4. Temple coriaceous and with fine disperse punctation medially. Flagellum with 44 segments, stout, slightly fusiform, 2<sup>nd</sup> segment 1.3×, shortest segment 0.9×, penultimate segment 1.0× as long as wide. Pronotum with very dense punctation laterally on the dorsal 0.4, for the greater part with irregular wrinkles ventrally. Mesoscutum and scutellum coriaceous and with dense punctation. Scutellum with lateral carinae on the anterior 0.7. Prescutellar groove smooth medially, with short longitudinal wrinkles laterally. Prepectal carina low, its ventral part merging with the pleural part, the latter almost joining the anterior edge of the mesopleurum. Transverse carina obliterated. Mesopleurum coriaceous, strongly and densely punctate. Speculum coriaceous and granulate-strigose. Depression in front of the speculum with short longitudinal wrinkles, which merge with the punctation anteriorly. Metapleurum coriaceous, with fine and dense irregular wrinkles. Pleural carina fine, partly indistinct and covered with wrinkles. Areolet large, pointed, receiving the 2<sup>nd</sup> recurrent vein at the middle. Nervellus somewhat inclivous, intercepted. Nervellar index 0.7-0.8. Tibial spur index 0.7. Hind femur 5.1× as long as high. Hind tarsal claws long, with short pectinate teeth basally. Propodeum extending to the basal 0.4 of the hind coxae, slightly depressed, almost without carinae, with short transverse wrinkles medially in the shallow broad sulcus, irregularly wrinkled in other parts. Propodeal spiracle small, 2.0× as long as wide. Spiracular carina obliterated. Spiracular in-

dex 1.1. 1<sup>st</sup> gastral tergite 3.9×, 2<sup>nd</sup> tergite 1.4× as long as wide. Petiole smooth laterally, without glymmae and longitudinal areas. Petiolar suture partly indicated. 1<sup>st</sup> gastral sternite for the greater part smooth. Thyridium elongate. Thyridial index about 1.0. Epipleurum not separated from the 3<sup>rd</sup> gastral tergite, sometimes discernible as a small lobe anteriorly, 3<sup>rd</sup> tergite with distinct black lateral stripes well above the ventrolateral edge. Gaster distinctly but not strongly compressed posteriorly. Ovipositor index 0.5.

Colour: Black. Maxillary palpus dark brown. Wings slightly darkened. Stigma light brown medially. All femora and tibiae red. Front and mid tarsi dark brown, hind tarsus black. 2<sup>nd</sup> gastral tergite red on the posterior 0.6-0.7. 3<sup>rd</sup> and 4<sup>th</sup> tergites red. 5<sup>th</sup> tergite narrowly red anteriorly. Pilosity on head and thorax brown.

♂: Temples broad and not much constricted behind the eyes, 1.1× as long as the width of an eye, tangential lines on eyes and temples intersect on the 1<sup>st</sup> gastral segment. Flagellum with 46 segments. In other characters very similar to the ♀ and therefore placed to the same species, despite the different shape of the temples.

**Variety:** Body length 7 mm. Flagellum with 42 segments. Mandible, tip of the front coxa and front trochanter yellow. Front and mid tarsi yellowish red. Pilosity whitish. Material: 1♂ Russia, Altaysk Terr., Biysk (PET). Probably this ♂ belongs to another species.

#### *Dusona alticola* (Gravenhorst, 1829)

**Description.** ♀: Body length 6 mm. Temples slightly constricted behind the eyes, 0.9× as long as the width of an eye, tangential lines on eyes and temples intersect on the propodeum. Ocellar index 0.9. Frons slightly depressed, coriaceous, with fine disperse punctation, almost not wrinkled, with a fine and shortened median longitudinal carina, without radial wrinkles. Antennal carina slightly raised, the rim slightly widened, with fine transverse striae. Face and dorsal 0.3 of the clypeus coriaceous, for the greater part densely rugose-punctate, face almost not punctate medially. Clypeus flat, coriaceous and with rather dense punctation ventrally, its apex slightly convex medially. Malar space index 0.5. Genal carina low ventrally, slightly bent forwards and sideways, joining the low oral carina almost at a right angle. Genal index 0.1. Temple finely coriaceous, with very fine disperse punctation medially. Flagellum with 26-27 segments, distinctly fusiform, 2<sup>nd</sup> seg-

ment 2.0×, penultimate segment (which is the shortest segment) 0.7× as long as wide. Pronotum coriaceous, punctate and wrinkled laterally on the dorsal 0.3, with longitudinal wrinkles ventrally. Mesoscutum coriaceous, finely and densely punctate. Scutellum finely coriaceous, for the greater part with fine and disperse punctation, with lateral carinae on the anterior 0.4. Prescutellar groove smooth medially, with longitudinal striae laterally. Ventral part of the prepectal carina merging with the transverse carina, both distinctly raised, the former distinctly emarginate medially. Pleural part of the prepectal carina low, complete or almost complete. Mesopleurum coriaceous, with disperse or rather dense punctation. Speculum very finely coriaceous, shining. Depression in front of the speculum with rather long longitudinal striae, which merge with the punctation anteriorly. Metapleurum shining, finely rugose-punctate medially. Pleural carina distinct. Areolet rather small, pointed, receiving the 2<sup>nd</sup> recurrent vein distinctly distad of the middle. Nervellus slightly inclivous, weakly intercepted. Nervellar index 0.8. Tibial spur index 0.7. Hind femur 4.9× as long as high. Hind tarsal claws short, with distinct pectinate teeth basally. Propodeum extending to 0.3 of the hind coxae, rather broadly and deeply depressed, sulcus with long transverse wrinkles, carinae complete or almost complete. Propodeal spiracle small, 2.4× as long as wide. Spiracular carina narrow. Spiracular index 0.7. 1<sup>st</sup> gastral tergite 3.7×, 2<sup>nd</sup> tergite 1.4× as long as wide. Petiole with distinct glymmae, which are bordered by longitudinal carinae dorsally, smooth in front of the glymmae. Petiolar suture almost complete. 1<sup>st</sup> gastral sternite finely coriaceous and rugose. Thyridium oval. Thyridial index 0.8. Epipleurum not separated from the 3<sup>rd</sup> gastral tergite, the latter with distinct black lateral stripes well above the ventrolateral edge. Gaster distinctly compressed posteriorly. Ovipositor index 1.3, ovipositor sheaths distinctly widened apically (in lateral view).

Colour: Black. Tegula light brown. Wings hyaline. Stigma yellowish brown medially. Front and mid legs from the femur onwards light red, the femora sometimes tinged with brown ventrally. Hind femur reddish brown to brown. Hind tibia broadly yellowish brown medially, scarcely marked with brown basally, rather narrowly marked with brown apically. Hind tarsus dark brown, marked with yellowish brown basally. 2<sup>nd</sup> gastral tergite red on the posterior 0.3, sometimes completely black dorsally and marked with red only laterally. 3<sup>rd</sup> tergite red. 4<sup>th</sup> tergite completely black or narrowly marked with red anteriorly. Pilosity whitish.

♂: Flagellum with 29 segments, filiform, the apical 0.8 attenuate, shortest segment 0.9×, penultimate segment 1.0× as long as wide. Hind femur brown to dark brown. Hind tibia distinctly marked with brown also basally. Genital claspers black. In other characters similar to the ♀.

**Material** (1♀): Russia: Sverdlovsk Prov.: Nizhnyi Tagil (PET).

### *Dusona americana* (Ashmead, 1890)

*Dusona oyamadai* Hinz, 1994 (syn. nov.)

The type of *Casinaria americana* Ashmead (WAS) which is much damaged (head, greater parts of the legs, one front wing and gaster lacking), has recently been studied by the junior author. It agrees well with European material of the species. *D. oyamadai* was synonymized with *D. americana* by Hinz (unpublished notes; see introduction). The holotype of *D. oyamadai* is lost, but two paratypes (1♀, 1♂) from Novoaleksandrovsk/Sakhalin/Russia (PET), which belong to *D. americana*, have recently been studied by the junior author (see below). *D. americana* is similar to *D. annexa* (see key, couplet 210).

**Description.** ♀: Body length 7-9 mm (rarely 6 mm; see below). Temples distinctly constricted behind the eyes, 0.7× as long as the width of an eye, tangential lines on eyes and temples intersect on the scutellum. Ocellar index 0.8. Frons scarcely depressed, coriaceous, densely rugose-punctate, with a fine median longitudinal carina, with short radial wrinkles. Antennal carina low and narrow. Face and dorsal half of the clypeus coriaceous, densely rugose-punctate. Clypeus flat, coriaceous and with rather dense punctation ventrally, its apex truncate medially. Malar space index 0.4. Genal carina low and straight ventrally, joining the scarcely raised oral carina at an acute angle. Genal index 0.2. Temple finely coriaceous and with very fine disperse punctation medially. Flagellum with 37-43 segments (rarely 36 segments; see below), filiform, the apical 0.2 attenuate, 2<sup>nd</sup> segment 2.2×, shortest segment 1.1×, penultimate segment 1.4× as long as wide. Pronotum densely rugose-punctate laterally on the dorsal 0.2, the wrinkles smooth, with longitudinal wrinkles ventrally. Mesoscutum and scutellum coriaceous, densely rugose-punctate. Scutellum with lateral carinae on the anterior 0.8. Prescutellar groove with some longitudinal striae. Prepectal carina low, ventral part merging with the pleural part,

the dorsal 0.2-0.3 of the latter obliterated or covered with wrinkles. Transverse carina obliterated or present anteriorly. Mesopleurum densely punctate (rarely dispersely or rather densely punctate; see below) on a finely coriaceous and shining background. Speculum granulate-strigose, somewhat shining. Depression in front of the speculum with distinct longitudinal striae, which merge with the punctation anteriorly. Metapleurum densely rugose. Pleural carina complete. Areolet rather large, stalked, receiving the 2<sup>nd</sup> recurrent vein almost at the middle. Nervellus vertical or slightly reclivous, weakly intercepted. Nervellar index 0.7. Tibial spur index 0.6. Hind femur 5.1× as long as high. Hind tarsal claws short, with short pectinate teeth basally. Propodeum extending to 0.4 of the hind coxae, slightly and rather narrowly depressed, with short transverse wrinkled in the shallow longitudinal furrow, in other parts irregularly wrinkled, carinae almost completely obliterated. Propodeal spiracle rather small, 2.9× as long as wide. Spiracular carina narrow. Spiracular index 0.6. 1<sup>st</sup> gastral tergite 4.6×, 2<sup>nd</sup> tergite 1.9× as long as wide. Petiole without glymmae, with distinct narrow lateral areas, smooth in front of these areas. Petiolar suture fine. 1<sup>st</sup> gastral sternite finely sculptured, partly smooth. Thyridium elongate. Thyridial index about 2.0. Epipleurum not separated from the 3<sup>rd</sup> gastral tergite, the latter with distinct black lateral stripes well above the ventrolateral edge. Gaster distinctly compressed posteriorly. Ovipositor index 0.6.

**Colour:** Black. Maxillary palpus yellow. Mandible narrowly marked with yellow dorsally and medially. Tegula yellowish brown. Wings hyaline. Stigma dark brown medially. Front and mid legs from the trochanter onwards yellowish red, tibiae and tarsi yellow. Hind femur red or black (apparently often for the greater part red in European material, but black in eastern Palearctic material). Hind tibia yellowish brown medially, narrowly black basally, broadly dark brown or black apically. Hind tarsus yellowish brown to dark brown. 2<sup>nd</sup> gastral tergite red on the posterior 0.2-0.3. 3<sup>rd</sup> and 4<sup>th</sup> tergites red, the latter sometimes marked with black dorsally or laterally. Pilosity whitish.

♂: Propodeum distinctly depressed, longitudinal carinae present medially and posteriorly, with long transverse wrinkles between these carinae. Mandible broadly marked with yellow medially. Tegula yellow. Front coxa yellow apically. In other characters similar to the ♀.

**Variability:** Those ♀♀ from Sakhalin which have recently been studied by the junior author (in-

cluding a paratype of *D. oyamadai*) are smaller than characteristic *D. americana* (body length 6 mm, 36 flagellar segments), and the mesopleurum is less densely punctate centrally (on a shining background, in that respect differing from *D. annexa*). Probably this variation led Hinz (1994: 36) to describe a new species. ♂♂ collected at the same localities do not differ from *D. americana*.

**Material** (7♀♀, 9♂♂): Russia: Amur Prov.: Novorossiyska (PET); Sakhalin: Aniva (Hinz/ZSM, PET), Novaleksandrovsk; Kamchatka: Dalkiy, Kozyrevsk (PET). Kazakhstan: Zailynskiy Alatau (MOS). China: Liaoning Prov.: Kaigen (= Kaiyuan) (SAP). North Korea: Chongjin (SAW).

### *Dusona amurator* Hinz, 1985

**Description.** ♀: Body length 8-10 mm. Temples distinctly constricted behind the eyes, 0.7× as long as the width of an eye, tangential lines on eyes and temples intersect on the prescutellar groove. Ocellar index 0.6. Frons scarcely depressed, coriaceous and densely rugose, with a fine median longitudinal carina, with distinct radial wrinkles, which extend to half the distance to the median ocellus. Antennal carina low and narrow. Face and dorsal 0.7 of the clypeus densely and rather coarsely rugose. Clypeus flat, finely coriaceous and with rather dense punctation ventrally, its apex almost truncate medially. Malar space index 0.3-0.4. Genal carina low and straight ventrally, joining the slightly raised oral carina at an acute angle. Genal index 0.3-0.4. Temple finely coriaceous and with fine disperse punctation medially. Flagellum with 38-41 segments, filiform, the apical 0.2 distinctly attenuate, 2<sup>nd</sup> segment 1.8×, shortest segment 0.9×, penultimate segment 1.2× as long as wide. Pronotum densely rugose-punctate laterally on the dorsal 0.4, with longitudinal wrinkles ventrally. Mesoscutum and scutellum coriaceous and densely punctate. Scutellum with lateral carinae on the anterior 0.6. Prescutellar groove with longitudinal striae or almost smooth. Ventral part of the prepectal carina merging with the pleural part or with the transverse carina, in the latter case the transverse carina slightly raised. Pleural part of the prepectal carina low, its dorsal 0.3 obliterated. Mesopleurum distinctly coriaceous, distinctly and densely punctate. Speculum coriaceous or granulate-strigose. Depression in front of the speculum with fine or distinct longitudinal striae, which merge with a narrow area without punctation anteriorly. Metapleurum finely and densely rugose. Pleural carina distinct. Areolet rather large,

short-stalked, receiving the 2<sup>nd</sup> recurrent vein slightly distad of the middle. Nervellus slightly inclivous, intercepted. Nervellar index 0.7-0.8. Tibial spur index 0.6. Hind femur 4.5× as long as high. Hind tarsal claws short, with short pectinate teeth basally. Propodeum extending to 0.4 of the hind coxae, broadly and deeply depressed, sulcus with short transverse wrinkles in the midline, with long transverse wrinkles posteriorly, in other parts irregularly wrinkled, costulae partly present, longitudinal carinae present only posteriorly. Propodeal spiracle rather small, 2.2× as long as wide. Spiracular carina narrow or slightly widened. Spiracular index 0.3-0.5. 1<sup>st</sup> gastral tergite 4.0×, 2<sup>nd</sup> tergite 1.9× as long as wide. Petiole with very small glymmae at the anterior edge of narrow lateral areas, smooth in front of the glymmae. Petiolar suture distinct. 1<sup>st</sup> gastral sternite smooth or with fine sculpture anteriorly, with distinct transverse striae on the posterior half. Thyridium elongate. Thyridial index about 1.3. Epipleurum not separated from the 3<sup>rd</sup> gastral tergite, the latter with distinct black lateral stripes well above the ventrolateral edge. Gaster distinctly compressed posteriorly. Ovipositor index 0.6.

**Colour:** Black. Maxillary palpus dark brown. Mandible narrowly marked with reddish brown dorsally and medially. Tegula dark brown or black. Wings hyaline. Stigma brown medially. Front leg from the femur onwards yellowish red, the femur sometimes marked with brown. Mid femur yellowish red on the apical 0.1-0.2. Mid tibia yellowish red. Mid tarsus brown, marked with yellow basally. Hind tibia whitish yellow medially (sometimes only on the dorsal side), narrowly black basally, broadly black apically. 2<sup>nd</sup> gastral tergite red on the posterior 0.1-0.2. 3<sup>rd</sup> tergite completely red or narrowly marked with black posteriorly. 4<sup>th</sup> tergite completely black or narrowly marked with red anteriorly. Pilosity whitish.

♂: Longitudinal carinae of propodeum sometimes present medially. Glymmae sometimes obliterated. 3<sup>rd</sup> gastral tergite sometimes marked with red only laterally. In other characters similar to the ♀.

**Material** (4♀♀, 2♂♂): Russia: Buryatiya: Khमार-Daban Mts. (MOS); Amur Prov.: Novorossiyska; Yevreyskaya A.O.: Amurzet (PET); Kuril Isl.: Dubovoye on Kunashir (Hinz/ZSM), Shikotan (PET).

**Variety:** Body length 6 mm. Flagellum with 36 segments. Ventral part of the prepectal carina merging with the transverse carina (as in some specimens of *D. amurator*). Material: 1♀ Russia, Irkutsk Prov., Dachnaya (PET). This ♀ may be a small specimen of *D. amurator*.

### *Dusona anceps* (Holmgren, 1860)

**Description.** ♀: Body length 7-9 mm. Temples distinctly constricted behind the eyes, 0.7× as long as the width of an eye, tangential lines on eyes and temples intersect on the postscutellum. Ocellar index 0.9. Frons slightly depressed, coriaceous, finely and densely punctate, with a fine median longitudinal carina, with distinct radial wrinkles, which extend to half the distance to the median ocellus. Antennal carina distinctly raised, the rim distinctly bent upwards (ear-like), with fine transverse striae on the crescent-shaped surface. Face and dorsal 0.4 of the clypeus coriaceous and densely rugose. Clypeus slightly concave, coriaceous and with rather dense punctation ventrally, its apex rather thick and truncate medially. Malar space index 0.4. Genal carina low and straight ventrally, joining the slightly raised oral carina at an acute angle. Genal index 0.2-0.3. Temple finely coriaceous and with fine disperse punctation medially. Flagellum with 41-46 segments, filiform, the apical 0.3 attenuate, 2<sup>nd</sup> segment 1.8×, shortest segment 0.9×, penultimate segment 1.4× as long as wide. Pronotum densely rugose-punctate laterally on the dorsal 0.6, with longitudinal wrinkles ventrally. Mesoscutum and scutellum finely coriaceous and densely punctate. Scutellum with lateral carinae on the anterior 0.8. Prescutellar groove smooth. Prepectal carina low, ventral part merging with the pleural part, the dorsal 0.3 of the latter obliterated. Transverse carina obliterated. Mesopleurum finely coriaceous, distinctly and densely punctate. Speculum punctate posteriorly, very finely coriaceous and shining anteriorly. Depression in front of the speculum with distinct longitudinal striae, which merge with the punctation anteriorly. Metapleurum finely coriaceous, distinctly and densely punctate. Pleural carina distinct. Areolet rather large, short-stalked, receiving the 2<sup>nd</sup> recurrent vein at or slightly basad of the middle. Nervellus vertical, weakly intercepted. Nervellar index 0.7. Tibial spur index 0.5. Hind femur 4.5× as long as high. Hind tarsal claws rather long, with distinct pectinate teeth basally. Propodeum extending to 0.4 of the hind coxae, rather broadly and not deeply depressed, sulcus with long transverse wrinkles, costulae partly present, longitudinal carinae almost completely obliterated. Propodeal spiracle rather small, 4.3× as long as wide. Spiracular carina narrow. Spiracular index 0.6. 1<sup>st</sup> gastral tergite 4.0×, 2<sup>nd</sup> tergite 1.6× as long as wide. Petiole with small glymmae at the anterior edge of narrow lateral areas, smooth in front of the glymmae. Petiolar suture fine, complete. 1<sup>st</sup> gastral sternite smooth. Thyridium oval.

Thyridial index about 1.0. Epipleurum not separated from the 3<sup>rd</sup> gastral tergite, the latter with distinct black lateral stripes well above the ventrolateral edge. Gaster distinctly compressed posteriorly. Ovipositor index 0.6.

**Colour:** Black. Mandible narrowly tinged with reddish brown dorsally. Wings hyaline. Stigma yellowish brown medially. Apical half of the front femur and front tibia and tarsus yellow, the tarsus marked with brown apically. Apical 0.2 of the mid femur and basal 0.1 of the mid tibia yellowish red. Remaining part of the mid tibia dark brown. 2<sup>nd</sup> gastral tergite red on the posterior 0.7. 3<sup>rd</sup> and 4<sup>th</sup> tergites red. Pilosity whitish.

♂: Flagellum with 44-49 segments. Transverse carina complete. Maxillary palpus yellow. Mandible broadly marked with yellow medially. Tegula yellow. Front and mid legs yellow, the coxa black basally. Hind tibia yellow medially, narrowly black basally, broadly black apically. In other characters similar to the ♀.

**Material** (15♀, 10♂): Russia: Krasnoyarsk Terr.: Maklakovo, River Yenisey; Primorye: Kamen Rybolov (PET), Lazo (MOS), Novokatsalinsk, Posyet, Yakovlevka, Vladivostok; Kuril Isl.: Kunashir (PET). Turkmeniya: Ashadag (MOS). Kazakhstan: Kustanay. Mongolia: Selenge (PET). Japan: Hokkaido: Rebun-dake (SAP).

### *Dusona angustifrons* (Förster, 1868)

**Description.** ♀: Body length 7-9 mm. Temples distinctly constricted behind the eyes, 0.8× as long as the width of an eye, tangential lines on eyes and temples intersect on the scutellum. Ocellar index 0.9. Frons not depressed, coriaceous, densely rugose-punctate, with a fine median longitudinal carina, with rather long radial wrinkles, which extend to half the distance to the median ocellus. Antennal carina low, but the rim more or less bent upwards, sometimes widened to a smooth narrow crescent-shaped plate (Fig. 4). Face and dorsal 0.4 of the clypeus coriaceous, very densely rugose-punctate. Clypeus almost flat, coriaceous and with rather dense punctation ventrally, its apex truncate medially. Malar space index 0.5. Genal carina low, bent forwards and sideways, joining the oral carina at the base of the mandible at a right angle (Fig. 10 and 15). Temple finely coriaceous and with very fine disperse punctation medially. Flagellum with 33-37 segments, slightly fusiform, 2<sup>nd</sup> segment 2.5×, shortest segment 0.9×, penultimate segment 1.1× as long as wide. Pronotum coriaceous and densely rugose-punctate lat-

erally on the dorsal 0.2, with longitudinal wrinkles ventrally. Mesoscutum coriaceous, with finely and densely punctate. Scutellum coriaceous, rather densely punctate, with lateral carinae on the anterior 0.9. Prescutellar groove for the greater part smooth, with few longitudinal striae laterally. Prepectal carina low, ventral part merging with the pleural part, the latter complete, joining the anterior edge of the mesopleurum. Transverse carina complete, low posteriorly, somewhat raised anteriorly. Mesopleurum distinctly coriaceous and densely punctate. Speculum coriaceous, for the greater part rather dull, a small ventral part almost smooth and shining. Depression in front of the speculum with distinct longitudinal striae, which merge with the punctation anteriorly. Meta-pleurum densely rugose. Pleural carina distinct. Areolet rather large, short-stalked, receiving the 2<sup>nd</sup> recurrent vein at or slightly distad of the middle. Nervellus vertical, not intercepted (Fig. 27) or weakly intercepted. In the latter case nervellar index 0.8. Tibial spur index 0.6. Hind femur 5.1× as long as high. Hind tarsal claws short, with short pectinate teeth basally. Propodeum extending to 0.4 of the hind coxae, rather broadly and distinctly but not deeply depressed, sulcus with short transverse wrinkles anteriorly and medially in the midline, with long transverse wrinkles posteriorly, irregularly wrinkled in other parts, costulae complete, longitudinal carinae almost completely obliterated. Propodeal spiracle small, 2.7× as long as wide. Spiracular carina often widened. Spiracular index 0.5. 1<sup>st</sup> gastral tergite 4.0×, 2<sup>nd</sup> tergite 1.9× as long as wide. Petiole with small glymmae at the anterior edge of narrow lateral areas (Fig. 36), glymmae sometimes almost obliterated, petiole smooth in front of the glymmae. Petiolar suture almost completely obliterated. 1<sup>st</sup> gastral sternite smooth. Thyridium oval. Thyridial index about 1.5. Epipleurum not separated from the 3<sup>rd</sup> gastral tergite, the latter with distinct black lateral stripes well above the ventrolateral edge (Fig. 42). Gaster distinctly compressed posteriorly. Ovipositor index 0.5.

Colour: Black. Maxillary palpus dark brown basally, yellowish brown apically. Mandible narrowly marked with yellowish brown dorsally. Tegula dark brown or black. Wings hyaline. Stigma light brown medially. Front leg from the femur onwards yellowish red. Mid femur yellowish brown on the apical 0.2. Mid tibia yellowish brown. Mid tarsus dark brown. Hind tibia yellowish brown to dark brown medially, narrowly marked with dark brown basally, broadly marked with dark brown apically (apparently rather dark and sometimes completely black in eastern Palearctic

material). Hind tarsus sometimes marked with yellowish brown basally. 2<sup>nd</sup> gastral tergite red on the posterior 0.1. 3<sup>rd</sup> and 4<sup>th</sup> tergites red, the 4<sup>th</sup> tergite sometimes marked with black posteriorly or completely black. Pilosity whitish.

♂: Flagellum with 36-38 segments. Petiolar suture complete. Mandible broadly yellow medially. Tegula yellowish brown. Front and mid legs from the tip of the coxa onwards yellowish red. In other characters similar to the ♀.

**Material** (31♀, 11♂♂): Russia: Irkutsk Prov.: Dachnaya; Chita Prov.: Adrianovka, Chita, Klichka, Nerchinskiy Zavod; Amur Prov.: Novorossiyska; Yevreyskiy A.O.: Londoko; Primorye: Barabash-Levada, Khualaza, Ussuriysk (PET); Sakhalin: Novikovo (KIS), Novoaleksandrovsk, Ozerskiy, Tymovskoye; Kuril Isl.: Tretyakovo on Kunashir (PET). Kazakhstan: Zailynskiy Alatau Mts. (MOS). Mongoliya: Hentiy Prov. (PET). Japan: Hokkaido: Sapporo (AEI); Kyushu: Hiko-san (SAP).

### *Dusona annexa* (Förster, 1868)

*Campoplex limnobius* Thomson, 1887 (syn. nov.)

Bachmaier (1979: 73) selected as lectotype for *Campoplex annexus* Förster a specimen which had been determined as *D. limnobius* (Thomson) by Hinz (1962: 3), but did not formally synonymize both taxa. The synonymy was also overlooked by Yu & Horstmann (1997: 143 and 149).

**Description.** ♀: Body length 8-9 mm. Temples strongly constricted behind the eyes, 0.7× as long as the width of an eye, tangential lines on eyes and temples intersect on the posterior half of the mesoscutum. Ocellar index 0.8. Frons scarcely depressed, coriaceous, finely and densely rugose-punctate, with a fine median longitudinal carina, with few radial wrinkles, which extend to half the distance to the median ocellus. Antennal carina low or slightly raised, the rim sometimes slightly bent upwards. Face and dorsal half of the clypeus coriaceous and densely rugose. Clypeus flat, coriaceous and dispersely punctate ventrally, its apex truncate medially. Malar space index 0.4. Genal carina low ventrally, bent forwards and sideways, joining the slightly raised oral carina at a right angle. Genal index 0.1-0.2. Temple finely coriaceous and with very fine disperse punctation medially. Flagellum with 42-47 segments, filiform, the apical 0.2 attenuate, 2<sup>nd</sup> segment 2.4×, shortest segment 1.1×, penultimate segment 1.4× as long as wide. Pronotum densely rugose-punctate laterally on the dorsal 0.2, with longitudinal wrinkles

ventrally. Mesoscutum and scutellum coriaceous and densely punctate. Scutellum with lateral carinae on the anterior 0.8. Prescutellar groove almost smooth, with few longitudinal striae laterally. Prepectal carina low, ventral part merging with the pleural part or with the transverse carina. Pleural part almost complete or its dorsal 0.1-0.4 obliterated or covered with wrinkles. Transverse carina complete, low posteriorly, somewhat raised anteriorly. Mesopleurum distinctly coriaceous and with disperse or rather dense punctation. Speculum coriaceous and finely granulate-strigose. Depression in front of the speculum with distinct longitudinal wrinkles and striae, which merge with the punctation anteriorly. Metapleurum rugose or rugose-punctate. Pleural carina distinct. Areolet rather large, stalked, receiving the 2<sup>nd</sup> recurrent vein distad of the middle. Nervellus reclivous, weakly intercepted. Nervellar index 0.7. Tibial spur index 0.6. Hind femur 5.0× as long as high. Hind tarsal claws short, with short pectinate teeth basally. Propodeum extending to the middle of the hind coxae, rather broadly and shallowly depressed, sulcus for the greater part irregularly wrinkled, usually with transverse wrinkles posteriorly, rarely with some longitudinal wrinkles, costulae partly present, longitudinal carinae for the greater part obliterated. Propodeal spiracle rather small, 2.4× as long as wide. Spiracular carina narrow. Spiracular index 0.8. 1<sup>st</sup> gastral tergite 4.3×, 2<sup>nd</sup> tergite 2.2× as long as wide. Petiole usually without glymmae, with distinct narrow lateral areas, sometimes with very small glymmae at the anterior edge of these areas, petiole smooth in front of these areas. Petiolar suture fine, partly obliterated. 1<sup>st</sup> gastral sternite for the greater part smooth, with few transverse striae posteriorly. Thyridium elongate. Thyridial index about 1.0. Epipleurum not separated from the 3<sup>rd</sup> gastral tergite, the latter with distinct black lateral stripes well above the ventrolateral edge. Gaster distinctly compressed posteriorly. Ovipositor index 0.6.

Colour: Black. Maxillary palpus yellowish brown. Mandible narrowly marked with yellow dorsally and medially. Tegula brownish black. Wings hyaline. Stigma light brown medially. Front leg from the trochanter or the femur onwards yellowish red. Mid femur yellowish red on the apical 0.3. Mid tibia and tarsus yellowish red. Hind femur red or black. Hind tibia dark yellowish brown medially, narrowly black basally, broadly black apically. 2<sup>nd</sup> gastral tergite red on the posterior 0.2-0.3. 3<sup>rd</sup> and 4<sup>th</sup> tergites red. 5<sup>th</sup> tergite sometimes narrowly marked with red anteriorly. Pilosity whitish.

♂: Mesopleurum with rather dense or dense punctation. Propodeum sometimes with longitudinal carinae medially and posteriorly and with distinct transverse wrinkles between these carinae. Maxillary palpus yellow. Mandible broadly yellow medially. Tegula brown. Tip of front coxa and front trochanter yellow. 3<sup>rd</sup> gastral tergite sometimes marked with red posteriorly. 4<sup>th</sup> tergite sometimes partly or completely black. In other characters similar to the ♀.

**Material** (6♀♀, 17♂♂): Russia: Buryatiya; Chita Prov.: Ivan Lake, Kalga, Nerchinskiy Zavod; Yevreyskiy A.O.: Amurzet; Khabarovsk Terr.: Khekhtsir near Khabarovsk; Primorye: Pozhiga SO of Dalnerechensk (PET), Sikhote-Alin (MOS), Spassk Dalniy (MOS, PET); Sakhalin (SAP); Kamchatka: Milkovo (PET). Kazakhstan: Alma-Ata (MOS, PET). Mongoliya: Selenge Prov. (PET). Japan: Hokkaido: Sapporo (AEI).

#### *Dusona auriculator* Aubert, 1964

The type of this species (Aubert/LAU) has recently been studied by the junior author.

**Description.** ♀: Body length 8 mm. Temples strongly constricted behind the eyes, 0.6× as long as the width of an eye, tangential lines on eyes and temples intersect on the posterior half of the mesoscutum. Ocellar index 0.7. Frons slightly depressed, finely coriaceous, densely punctate, with a fine median longitudinal carina, with indistinct radial wrinkles, sometimes smooth ventrally. Antennal carina in most specimens slightly but distinctly raised, the rim widened to a smooth bulge, in few specimens rather low and narrow. Face and dorsal 0.7 of the clypeus coriaceous and densely rugose. Clypeus almost flat, coriaceous and with rather dense punctation ventrally, its apex slightly convex medially. Malar space index 0.3. Genal carina slightly raised ventrally, almost straight or slightly bent forwards and sideways, joining the slightly raised oral carina at an acute angle. Genal index 0.2. Temple finely coriaceous and with very fine disperse punctation medially. Flagellum with 43-46 segments, filiform, the apical 0.2 attenuate, 2<sup>nd</sup> segment 2.7×, shortest segment 1.3×, penultimate segment 1.5× as long as wide. Pronotum very densely punctate on a smooth background laterally on the dorsal 0.1-0.2, with longitudinal wrinkles ventrally. Mesoscutum and scutellum coriaceous and densely punctate. Scutellum partly punctate on a shining background, with lateral carinae on the anterior half. Prescutellar groove with longitudinal striae. Prepectal carina low ven-

trally, somewhat raised ventrolaterally, merging with the raised transverse carina. Pleural part of the prepectal carina low, its dorsal 0.2 obliterated. Mesopleurum with rather dense punctation on a very finely coriaceous and shining background. Speculum very finely coriaceous and granulate-strigose. Depression in front of the speculum with distinct long longitudinal striae, which merge with the punctation anteriorly. Metapleurum coriaceous, finely and densely rugose-punctate. Pleural carina complete. Areolet rather small, long-stalked, receiving the 2<sup>nd</sup> recurrent vein distad of the middle. Nervellus distinctly reclivous, weakly intercepted. Nervellar index 0.7. Tibial spur index 0.4. Hind femur 4.9× as long as high. Hind tarsal claws short, with short pectinate teeth basally. Propodeum extending to 0.7 of the hind coxae, distinctly but narrowly and not deeply depressed, with short transverse wrinkles in the longitudinal furrow, in other parts irregularly wrinkled, costulae fine but complete, longitudinal carinae almost completely obliterated. Propodeal spiracle rather small, 3.2× as long as wide. Spiracular carina narrow. Spiracular index 0.5. 1<sup>st</sup> gastral tergite 4.9×, 2<sup>nd</sup> tergite 2.9× as long as wide. Petiole smooth laterally, without glymmae or lateral areas (Fig. 38). Petiolar suture fine, partly obliterated. 1<sup>st</sup> gastral sternite smooth. Thyridium elongate. Thyridial index about 1.5. Epipleurum not separated from the 3<sup>rd</sup> gastral tergite, the latter with or without black lateral stripes. Gaster distinctly compressed posteriorly. Ovipositor index 0.6.

Colour: Black. Maxillary palpus yellow. Mandible broadly yellowish red medially. Tegula yellow. Wings hyaline. Stigma dark brown medially. Front and mid legs from the tip of the coxa onwards yellow. Hind trochantellus and femur light red. Hind tibia yellowish brown medially, narrowly marked with dark brown basally, rather broadly marked with dark brown apically. Hind tarsus sometimes for the greater part yellowish brown basally. 2<sup>nd</sup> gastral tergite dorsally red on the posterior 0.1, the red marks more extended laterally. 3<sup>rd</sup> and 4<sup>th</sup> tergites light red, sometimes narrowly marked with black dorsally. 5<sup>th</sup> to 7<sup>th</sup> tergites broadly black dorsally, marked with red laterally, or for the greater part or completely red. Gaster sternites red. Pilosity whitish.

♂: Propodeum extending to 0.5-0.6 of the hind coxae. Petiole sometimes with very small and shallow glymmae at the anterior edge of indistinct narrow lateral areas. Genital clasper usually red, rarely black. In other characters similar to the ♀.

**Material** (4♀♀, 15♂♂): Russia: Khabarovsk Terr.: Khekhstir near Khabarovsk; Primorye: Khasan, Pozhiga SO of Dalnerechensk (PET). Japan: Hokkaido: Sapporo (AEI); Honshu: Fukuoka, Nagano (OTT), Saitama (OTT, SAP), Sasayama (SAP); Kyushu: Hikosan (Hinz/ZSM).

#### *Dusona aurita* (Kriechbaumer, 1883)

**Description.** ♀: Body length 10-13 mm. Temples strongly constricted behind the eyes, 0.7× as long as the width of an eye, tangential lines on eyes and temples intersect on the posterior half of the mesoscutum. Ocellar index 0.8. Frons coriaceous and densely rugose-punctate dorsally, strongly depressed with long radial wrinkles ventrally, the latter extending to 0.8 the distance to the median ocellus, with a distinct median longitudinal carina on the top a slightly raised median longitudinal bulge. Antennal carina strongly raised and widened to a nose-like dorsal projection, the latter with fine transverse striae. Face and the greater part of the clypeus coriaceous, densely rugose and rugose-punctate. Clypeus flat, a small median area coriaceous and rather densely punctate ventrally, its apex truncate medially. Malar space index 0.3. Genal carina straight ventrally, distinctly raised close to the junction with the also raised oral carina, forming a lopsided triangular pyramid, the tip of the latter shifted ventrally and situated behind the base of the mandible (Fig. 11). Gena depressed close to the junction, the depression about 0.7× as deep as the width of the 2<sup>nd</sup> flagellar segment. Genal index 0.4. Temple finely coriaceous and with very fine disperse punctation medially. Flagellum with 52-54 segments, filiform, the apical 0.3 distinctly attenuate, 2<sup>nd</sup> segment 1.5×, shortest segment 0.9×, penultimate segment 1.3× as long as wide. Pronotum densely rugose-punctate laterally on the dorsal 0.4, with longitudinal wrinkles ventrally. Mesoscutum and scutellum coriaceous and very densely punctate. Scutellum with lateral carinae on the anterior 0.7. Prescutellar groove smooth medially, with fine longitudinal striae laterally. Prepectal carina low, ventral part merging with the pleural part, the latter complete, joining the anterior edge of the mesopleurum. Transverse carina present. Mesopleurum strongly and densely punctate on a finely coriaceous and shining background. Speculum finely granulate-strigose, shining. Depression in front of the speculum with distinct rather long longitudinal striae, which merge with the punctation anteriorly. Metapleurum densely rugose or rugose-punctate. Pleural carina strong. Areolet

large, stalked, receiving the 2<sup>nd</sup> recurrent vein slightly distad of the middle. Nervellus inclivous, strongly intercepted. Nervellar index 0.7-0.8. Tibial spur index 0.6. Hind femur 5.2× as long as high. Hind tarsal claws rather short, with distinct pectinate teeth basally. Propodeum extending to the middle of the hind coxae, broadly and deeply depressed, sulcus with long transverse wrinkles, sometimes with a short median longitudinal keel posteriorly, carinae almost completely obliterated. Propodeal spiracle large, 3.4× as long as wide. Spiracular carina narrow. Spiracular index 0.3. 1<sup>st</sup> gastral tergite 4.9×, 2<sup>nd</sup> tergite 2.0× as long as wide. Petiole with small but deep glymmae at the anterior edge of narrow lateral areas, with very fine longitudinal striae in front of the glymmae. Petiolar suture almost completely obliterated. 1<sup>st</sup> gastral sternite smooth. Thyridium oval. Thyridial index about 1.0. Epipleurum not separated from the 3<sup>rd</sup> gastral tergite, the latter with distinct black lateral stripes well above the ventrolateral edge. Gaster strongly compressed posteriorly. Ovipositor index 0.6.

Colour: Black. Maxillary palpus yellowish brown. Mandible narrowly marked with yellow dorsally and medially. Tegula yellowish brown to dark brown. Wings hyaline. Stigma yellowish brown medially. Front trochanter brown. Front femur, tibia and tarsus yellowish red. Mid femur yellowish brown on the apical 0.2. Mid tibia yellowish. Mid tarsus dark brown. Hind tibia yellowish brown medially, narrowly marked with dark brown basally, broadly marked with dark brown apically. 2<sup>nd</sup> gastral tergite red on the posterior 0.3. 3<sup>rd</sup> and 4<sup>th</sup> tergites red, sometimes tinged with black. Pilosity whitish.

♂: Propodeum less strongly depressed, longitudinal carinae almost complete. Mandible broadly yellow medially. Tegula yellowish brown. Front leg from the tip of the coxa onwards yellowish red. Mid tibia yellow. Hind tibia yellow medially. Genital clasper black. In other characters similar to the ♀.

**Host:** *Hypomecis punctinalis* (Scopoli, 1763) (Geometridae) (MIN).

**Material** (14♀♀, 7♂♂): Russia: Novosibirsk Prov.: Akademgorodok (PET); Altaysk Terr.: Gorno-Altaysk, Volchikha (MIN); Krasnoyarsk Terr.: Shushenskoye (MOS); Khabarovsk Terr.: Khabarovsk; Primorye: Khasan (PET), Vladivostok (KIS, PET). Mongoliya: Dornod Prov.: Choybalsan (PET). Japan: Hokkaido: Sapporo (SAP).

*Dusona bellator* Hinz & Horstmann, spec. nov.

**Types.** Holotype (♀): Russia, Khabarovsk Terr., Khekhtsir, near Khabarovsk, 1.7.1983 (PET). – Paratypes: 1♀ same locality, 12.6.1983 (Hinz/ZSM); 1♂ same locality, 13.6.1985 (PET); 1♀ Russia, Primorye, Vladivostok, 1.6.1962 (MOS); 2♂♂ Japan, Honshu, Nagano, 400-700 m, 8.-20.5.1963 (OTT); 1♂ Japan, Honshu, Nagano, Kinasa, 600-1000 m, 13.5.1962 (OTT); 1♂ Japan, Honshu, Nagano, Yamada, 1200 m, 11.5.1962 (OTT); 1♂ Japan, Honshu, Kamitakai, 800 m, 5.5.1962 (Hinz/ZSM).

**Description.** ♀: Body length 7-8 mm. Temples distinctly constricted behind the eyes, 0.8× as long as the width of an eye, tangential lines on eyes and temples intersect on the scutellum. Ocellar index 1.0. Frons scarcely depressed, coriaceous, dull, finely rugose-punctate, with a very fine median longitudinal carina, with distinct radial wrinkles, which extend to half the distance to the median ocellus. Antennal carina low and narrow. Face and dorsal half of the clypeus coriaceous and dull, densely rugose-punctate. Clypeus flat, coriaceous and dull, finely and rather densely punctate ventrally, its apex smooth, slightly convex medially. Malar space index 0.4. Genal carina low, almost straight ventrally, joining the low oral carina at an acute angle. Genal index 0.6. Temple coriaceous and with fine disperse punctation medially. Flagellum with 37-41 segments, slightly fusiform, 2<sup>nd</sup> segment 1.8×, shortest segment 0.9×, penultimate segment 0.9-1.0× as long as wide. Pronotum rugose-punctate laterally on the dorsal 0.2, with dense punctation and longitudinal wrinkles ventrally. Mesoscutum and scutellum coriaceous and rugose-punctate. Scutellum with lateral carinae on the anterior 0.4. Prescutellar groove smooth. Prepectal carina low, its ventral part merging with the pleural part, the latter almost joining the anterior edge of the mesopleurum. Transverse carina obliterated. Mesopleurum distinctly coriaceous, with rather dense or dense punctation. Speculum finely coriaceous or almost smooth. Depression in front of the speculum with fine longitudinal striae, which merge with the punctation anteriorly. Metapleurum coriaceous, densely rugose or rugose-punctate. Pleural carina strong. Areolet rather small, short-stalked, receiving the 2<sup>nd</sup> recurrent vein distad of the middle. Nervellus distinctly inclivous, intercepted. Nervellar index 0.7-0.8. Tibial spur index 0.7. Hind femur 5.1× as long as high. Hind tarsal claws short, with distinct pectinate teeth basally and medially. Propodeum extending to the basal 0.3 of the hind coxae, slightly and broadly depressed, almost without carinae,

for the greater part coriaceous and with fine irregular wrinkles, with some transverse and longitudinal wrinkles posteriorly in the shallow sulcus. Propodeal spiracle small, 2.5× as long as wide. Spiracular carina distinct, sometimes widened. Spiracular index 0.5-0.7. 1<sup>st</sup> gastral tergite 3.0×, 2<sup>nd</sup> tergite 1.0× as long as wide. Petiole with large glymmae, which are bordered by longitudinal carinae dorsally and ventrally, smooth in front of the glymmae. Petiolar suture indicated. 1<sup>st</sup> gastral sternite for the greater part smooth, with fine transverse striae posteriorly. Thyridium oval. Thyridial index about 1.0. Epipleurum partly separated from the 3<sup>rd</sup> gastral tergite, black lateral stripe in a short distance to the horizontal crease. Epipleural index 0.4. Gaster distinctly but not strongly compressed posteriorly. Ovipositor index 0.7.

Colour: Black. Maxillary palpus, mandible medially (broadly) and tegula yellow. Wings hyaline. Stigma medium brown medially. Front leg from the trochanter onwards yellow, the femur yellowish red. Mid leg from the apical 0.3 of the femur onwards yellow. Hind tibia light yellow medially, narrowly black basally, broadly black apically. Hind tarsus yellowish brown to brown. 2<sup>nd</sup> gastral tergite dorsally red on the posterior 0.1, the red marks more extended laterally. 3<sup>rd</sup> tergite for the greater part red, marked with black dorsally. 4<sup>th</sup> tergite marked with red on the ventrolateral half. 5<sup>th</sup> tergite sometimes with narrow red marks ventrolaterally. Pilosity whitish.

♂: Front and mid coxae with yellow tips. Mid trochanter yellow. Mid femur yellowish red. Longitudinal carinae of the propodeum indicated. Epipleural index 0.6. In other characters similar to the ♀.

### *Dusona bellipes* (Holmgren, 1872)

**Description.** ♀: Body length 11-13 mm. Temples strongly constricted behind the eyes, 0.8× as long as the width of an eye, tangential lines on eyes and temples intersect on the posterior half of the mesoscutum. Ocellar index 0.9. Frons slightly depressed, coriaceous, finely and dispersely punctate, a fine median longitudinal carina indicated only medially, without radial wrinkles, with a small raised point on either side between the antennal socket and the eye. Antennal carina low and narrow (Fig. 3). Face and dorsal 0.6 of the clypeus coriaceous and densely rugose-punctate. Clypeus flat, coriaceous and densely punctate ventrally, its apex truncate medially. Malar space index 0.3. Genal carina low and almost straight ventrally, joining the low oral carina at an acute angle. Genal index

0.6. Temple coriaceous and with very fine disperse punctation medially. Flagellum with 54-55 segments, filiform, the apical 0.3 attenuate, 2<sup>nd</sup> segment 1.8×, shortest segment 0.9×, penultimate segment 1.2× as long as wide. Pronotum coriaceous and densely rugose-punctate laterally on the dorsal 0.3, with longitudinal wrinkles ventrally. Mesoscutum and scutellum coriaceous and very densely punctate. Scutellum with lateral carinae on the anterior 0.3. Prescutellar groove smooth medially, with longitudinal striae laterally. Prepectal carina low, the ventral part merging with the pleural part, the latter complete, joining with the anterior edge of the mesopleurum. Transverse carina obliterated. Mesopleurum finely coriaceous, with rather dense or dense punctation. Speculum very finely coriaceous, shining. Depression in front of the speculum dorsally with short longitudinal striae, which merge with a coriaceous area without punctation anteriorly, granulate-strigose and shining on the ventral 0.3. Metapleurum densely and rather coarsely rugose. Pleural carina distinct. Areolet large, narrowly sessile, receiving the 2<sup>nd</sup> recurrent vein at the middle. Nervellus slightly inclivous, distinctly intercepted, its upper branch bent inwards. Nervellar index 0.7. Tibial spur index 0.6. Hind femur 6.5× as long as high. Hind tarsal claws short, with distinct pectinate teeth basally. Propodeum extending to the middle of the hind coxae, broadly and not deeply depressed, sulcus with long transverse wrinkles, costulae and longitudinal carinae almost complete. Propodeal spiracle small, 2.7× as long as wide. Spiracular carina narrow. Spiracular index 0.8. 1<sup>st</sup> gastral tergite 5.1×, 2<sup>nd</sup> tergite 2.4× as long as wide. Petiole with small but distinct glymmae at the anterior edge of narrow lateral areas, partly with very fine longitudinal striae in front of the glymmae. Petiolar suture fine, partly obliterated. 1<sup>st</sup> gastral sternite for the greater part smooth, with fine transverse striae posteriorly. Thyridium oval. Thyridial index about 1.5. Epipleurum separated from the 3<sup>rd</sup> gastral tergite, the crease marked with black. Epipleural index 0.6-0.7. Gaster strongly compressed posteriorly. Ovipositor index 0.7.

Colour: Black. Maxillary palpus dark brown basally, yellowish brown medially and apically. Mandible narrowly marked with yellow dorsally and medially. Tegula yellowish brown to dark brown. Wings hyaline. Stigma medium brown medially. Front femur yellowish red dorsally, black ventrally. Front tibia and tarsus yellow. Mid femur yellowish red on the apical 0.3. Mid tibia and tarsus yellowish red. Hind femur yellowish brown on the apical 0.2. Hind tibia yellowish brown, without dark marks. 2<sup>nd</sup> gastral tergite red on the

posterior half. 3<sup>rd</sup> and 4<sup>th</sup> tergites red. 5<sup>th</sup> tergite marked with red ventrolaterally. Pilosity whitish.

♂: Mandible rather broadly yellow medially. Tegula yellow. Front coxa and trochanter marked with yellow. Front and mid femur yellowish dorsally, brownish ventrally. Front and mid tibia and tarsus yellow. 5<sup>th</sup> gastral tergite completely red. In other characters similar to the ♀.

**Material** (1♀): Japan: Honshu: Sasayama (SAP).

*Dusona belokobylji* Hinz & Horstmann,  
spec. nov.

**Holotype** (♀): Russia, Primorye, Chuguyevka, 3.6. 1985 (PET).

**Description.** ♀: Body length 8 mm. Temples distinctly constricted behind the eyes, 0.6× as long as the width of an eye, tangential lines on eyes and temples intersect on the prescutellar groove. Ocellar index 0.6. Frons slightly depressed, coriaceous, densely rugose-punctate, without a median longitudinal carina, with short radial wrinkles. Antennal carina slightly raised and its rim slightly bent upwards (inconspicuous). Face and dorsal 0.6 of the clypeus distinctly and densely rugose-punctate. Clypeus flat, finely coriaceous and rather densely punctate ventrally, its apex slightly concave medially. Malar space index 0.3. Genal carina low, almost straight ventrally, joining the low oral carina at an acute angle. Genal index 0.1. Temple coriaceous and with distinct rather dense or dense punctation medially. Flagellum with 44 segments, filiform, the apical 0.2 attenuate, 2<sup>nd</sup> segment 2.1×, shortest segment 0.9×, penultimate segment 1.0× as long as wide. Pronotum densely rugose-punctate laterally on the dorsal 0.3, with longitudinal wrinkles ventrally. Mesoscutum and scutellum coriaceous, with very dense punctation. Scutellum with lateral carinae on the anterior 0.3. Prescutellar groove with distinct longitudinal striae. Ventral part of the prepectal carina merging with the transverse carina, both slightly raised, the former not emarginate medially. Pleural part of the prepectal carina indicated medially, obliterated dorsally and ventrally. Mesopleurum finely coriaceous and with dense punctation. Speculum finely coriaceous or almost smooth, shining. Depression in front of the speculum with distinct short longitudinal striae, which merge with the punctation anteriorly. Metapleurum densely rugose-punctate. Pleural carina strong. Areolet rather small, short-stalked, receiving the 2<sup>nd</sup> recurrent vein at the middle. Nervellus slightly reclivous,

slightly intercepted. Nervellar index 0.8. Tibial index 0.6. Hind femur 4.9× as long as high. Hind claws short, with short pectinate teeth basally and medially. Propodeum extending to the middle of the hind coxae, shallowly and rather narrowly depressed, transversely wrinkled in the longitudinal furrow, in other parts irregularly wrinkled, costulae complete, longitudinal carinae almost completely obliterated. Propodeal spiracle 3.4× as long as wide. Spiracular carina distinct. Spiracular index 0.7. 1<sup>st</sup> gastral tergite 4.4×, 2<sup>nd</sup> tergite 2.3× as long as wide. Petiole without glymmae, with indistinct narrow lateral areas, these areas coriaceous, petiole smooth in front of the areas. Petiole suture almost completely obliterated. 1<sup>st</sup> gastral sternite for the greater part smooth, with fine transverse striae posteriorly. Thyridium oval. Thyridial index 1.8. Epipleurum not separated from the 3<sup>rd</sup> gastral tergite, the latter with distinct black lateral stripes well above the ventrolateral edge. Gaster distinctly compressed posteriorly. Ovipositor index 0.7.

Colour: Black. Maxillary palpus yellow. Mandible narrowly reddish brown dorsally and medially. Tegula dark brown. Wings hyaline. Stigma dark brown medially. Front femur reddish brown dorsally, dark brown ventrally. Front tibia and tarsus yellow. Mid femur yellow on the apical 0.1. Mid tibia yellow dorsally, medium brown ventrally. Mid tarsus medium brown, basitarsus yellowish. Hind tibia marked with medium brown basally on the dorsal side, in other parts dark brown to black. 2<sup>nd</sup> gastral tergite dorsally red on the posterior 0.1, the red marks slightly more extended laterally. 3<sup>rd</sup> and 4<sup>th</sup> tergites red, the 3<sup>rd</sup> narrowly marked with medium brown dorsally. Pilosity whitish, pilosity of the face tinged with light brown.

♂ unknown.

*Dusona bicoloripes* (Ashmead, 1906)

*Campoplex foersteri* Roman, 1942 (syn. nov.)

The type (♂) of *Campoplex bicoloripes* Ashmead from Hakone near Tokyo/Honshu/Japan (WAS) has recently been studied by the junior author; it had been misinterpreted by Hinz (1979: 216). Lectotype (♀) of *Campoplex foersteri* Roman here designated: "10/6 38." (from Lousberg/Aachen/D; after Förster 1868: 818), "*Pugillator* Foerst.", coll. Förster/ZSM. The specimens in coll. Förster are syntypes of this taxon, because Roman (1942: 18) referred to *Campoplex pugillator* sensu Förster nec Linnaeus. The name given by Roman is not a

nomen novum in the definition of the Code (article 60), but a new description validated by an indication (article 31.1.2 of the Code), because Förster (1868: 816) did not describe a new species, but referred to Gravenhorst (1829: 606 ff.) as the author, and the latter referred to Linnaeus. The name *Campoplex foersteri* Teunissen is considered here not as a separate taxon, but as a citation of *Campoplex foersteri* Roman, because Teunissen (1947: 266) expressly referred to Roman as the author of the name. This was overlooked by Yu & Horstmann (1997: 146).

*D. bicoloripes* is a variable and poorly defined species. It differs from *D. chabarowski* (= *D. bicoloripes* sensu Hinz 1979: 216) in the sculpture of the propodeum (see key, couplet 26). Specimens without raised points on the frons are similar to *D. stragifex* and also differ from the latter mainly in the sculpture of the propodeum. As far as known, *D. bicoloripes* is thelytokous in Europa (and probably in central Asia), but arrhenotokous in Japan. Populations in eastern Russia (Khabarovsk Terr., Primorye) may represent an intermediate position (1♂ from Khekhtsir among a long series of ♀♀)

**Description.** ♀: Body length 9-12 mm. Temples strongly constricted behind the eyes, 0.7× as long as the width of an eye, tangential lines on eyes and temples intersect on the posterior half of the mesoscutum. Ocellar index 1.0. Frons slightly depressed, coriaceous, finely and rather densely punctate, with a fine median longitudinal carina, with few short radial wrinkles (which may be lacking), usually on either side with a distinct or indistinct raised point between the antennal socket and the eye, which may be completely obliterated. Antennal carina low and narrow. Face and dorsal 0.7 of the clypeus coriaceous, densely rugose-punctate. Clypeus flat, coriaceous and with rather dense punctation ventrally, its apex truncate medially. Malar space index 0.3. Genal carina low and rather straight ventrally, joining the slightly raised oral carina at an acute angle. Genal index 0.5. Temple finely coriaceous and with very fine disperse punctation medially. Flagellum with 45-55 segments, filiform, the apical 0.7 attenuate, 2<sup>nd</sup> segment 1.5×, shortest segment 0.9×, penultimate segment 1.1× as long as wide. Pronotum densely rugose-punctate laterally on the dorsal 0.4, with longitudinal wrinkles ventrally. Mesoscutum and scutellum coriaceous, very densely punctate. Scutellum with lateral carinae on the anterior 0.6. Prescutellar groove smooth. Prepectal carina low, ventral part merging with the pleural part, the latter complete or indistinct and covered with wrin-

kles dorsally. Transverse carina present. Mesopleurum distinctly coriaceous and densely punctate. Speculum punctate posteriorly, finely coriaceous or granulate-strigose and shining anteriorly, sometimes smooth ventrally. Depression in front of the speculum dorsally with rather short longitudinal striae or wrinkles, which merge with the punctation anteriorly, ventrally often granulate-strigose or with fine striae, which may merge with a narrow area without punctation anteriorly. Metapleurum coriaceous, finely and densely rugose-punctate. Pleural carina distinct. Areolet large, stalked, receiving the 2<sup>nd</sup> recurrent vein at or basad of the middle. Nervellus vertical or slightly reclivous, distinctly intercepted. Nervellar index 0.7. Tibial spur index 0.6. Hind femur 5.1× as long as high. Hind tarsal claws short, with short pectinate teeth basally. Propodeum extending to 0.3 of the hind coxae, scarcely or not at all depressed, irregularly wrinkled, often with a long median keel posteriorly, sometimes with some longitudinal wrinkles, rarely with short transverse wrinkles beside that keel, costulae shortened or absent, longitudinal carinae present posteriorly, rarely also present medially. Propodeal spiracle large, 2.9× as long as wide. Spiracular carina narrow or more or less covered with wrinkles. Spiracular index 0.7. 1<sup>st</sup> gastral tergite 3.6×, 2<sup>nd</sup> tergite 1.8× as long as wide. Petiole with large glymmae, which are bordered by longitudinal carinae dorsally, with very fine sculpture in front of the glymmae. Petiolar suture fine. 1<sup>st</sup> gastral sternite coriaceous or finely rugose, sometimes smooth medially. Thyridium oval. Thyridial index about 1.5. Epipleurum separated from the 3<sup>rd</sup> gastral tergite, the crease marked with black. Epipleural index 0.7-0.8. Gaster distinctly compressed posteriorly. Ovipositor index 0.5.

Colour: Black. Maxillary palpus yellowish brown. Mandible broadly yellow medially. Tegula yellowish brown to dark brown. Wings hyaline. Stigma yellowish brown medially. Front leg from the trochanter onwards yellowish red. Mid femur yellowish red on the apical 0.3. Mid tibia yellowish red. Mid tarsus dark brown. Hind tibia brown to dark brown, narrowly black basally, sometimes also marked with black apically, sometimes completely black. 2<sup>nd</sup> gastral tergite red on the posterior 0.3. 3<sup>rd</sup> to 5<sup>th</sup> tergites red. Posterior gastral sternites sometimes reddish brown. Pilosity whitish. Specimens from central Asia and eastern Russia are often darker: Mid leg black, marked with dark brown. Hind leg black. 2<sup>nd</sup> gastral tergite completely black or red on the posterior 0.1. 4<sup>th</sup> tergite for the greater part black. 5<sup>th</sup> tergite completely black.

♂: Similar to the ♀.

**Material** (52♀, 38♂): Russia: Yevreyskiy A.O.: Birobidzhan; Khabarovsk Terr.: Khekhtsir near Khabarovsk, Troitskoye; Primorye: Kamenushka, Lazo, Roshchino on River Iman, Shkotovo (PET), Spassk Dalniy (MOS, PET), Ussuriysk; Kuril Isl.: Tretyakovo on Kunashir (PET). Kazakhstan: Alma-Ata (LIN, PET), Talgar (PET). Kirgiziya: Dzhang-i-Dzhol (LIN). Japan: Hokkaido: Jozankei (AEI), Sapporo (AEI, SAP), Tokachi-dake (SAP); Honshu: Hakone near Tokyo (WAS), Hiroshima (AEI), Nagano (OTT), Sasayama (SAP), Yokohama (AEI).

### *Dusona bucculenta* (Holmgren, 1860)

**Description.** ♀: Body length 9-11 mm. Temples slightly constricted behind the eyes, 0.9-1.0× as long as the width of an eye, tangential lines on eyes and temples intersect on the propodeum or the 1<sup>st</sup> gastral segment. Ocellar index 1.0. Frons not depressed, densely rugose and rugose-punctate, with short radial wrinkles, without a median longitudinal carina. Antennal sockets close to each other. Antennal carina low and narrow. Face and dorsal half of the clypeus very densely punctate on a finely coriaceous or smooth background. Clypeus slightly concave, densely punctate on a finely coriaceous or smooth background ventrally, its apex slightly convex medially. Malar space index 0.5. Genal carina low ventrally, bent sideways, joining the slightly raised oral carina at a right angle. Genal index 0.3. Temple with rather dense punctation on a very finely coriaceous or almost smooth background medially. Flagellum with 40-45 segments, filiform, the apical 0.2 slightly attenuate, 2<sup>nd</sup> segment 1.4×, shortest segment 0.8×, penultimate segment 1.2× as long as wide. Pronotum densely rugose-punctate on a smooth background laterally on the dorsal 0.3, with longitudinal wrinkles ventrally. Mesoscutum and scutellum strongly and densely punctate on a smooth background. Scutellum with lateral carinae on the anterior 0.6. Prescutellar groove smooth medially, with longitudinal striae laterally. Ventral part of the prepectal carina more or less strongly raised, merging with the raised transverse carina or with the pleural part, the latter low, its dorsal 0.3 obliterated. Sometimes the pleural part is obliterated also ventrally and present only medially. Mesopleurum with strong and rather dense or dense punctation on a smooth background. Speculum punctate posteriorly, finely coriaceous and shining anteriorly. Depression in front of the speculum with distinct longitudinal striae, which merge with the punctation anteriorly. Metapleurum densely rugose-punctate on a smooth back-

ground. Pleural carina distinct. Areolet large, short-stalked, receiving the 2<sup>nd</sup> recurrent vein slightly distad of the middle. Nervellus vertical, weakly intercepted. Nervellar index 0.7. Tibial spur index 0.7. Hind femur 4.8× as long as high. Hind tarsal claws rather long, with distinct pectinate teeth over their total length. Propodeum extending to 0.4 of the hind coxae, broadly and not deeply depressed, sulcus with transverse wrinkles medially and posteriorly, sometimes also anteriorly, costulae partly present, longitudinal carinae present posteriorly and sometimes also medially. Propodeal spiracle rather large, 2.9× as long as wide. Spiracular carina narrow, sometimes obliterated. Spiracular index 0.5. 1<sup>st</sup> gastral tergite 4.8×, 2<sup>nd</sup> tergite 1.7× as long as wide. Petiole without or with very small glymmae, the latter at the anterior edge of indistinct narrow lateral areas, petiole smooth on front of these areas, sometimes with very fine striae. Petiolar suture fine, sometimes partly obliterated. 1<sup>st</sup> gastral sternite smooth. Thyridium oval. Thyridial index about 1.5. Epipleurum not separated from the 3<sup>rd</sup> gastral tergite, the latter with short or indistinct black lateral stripes well above the ventrolateral edge. Gaster distinctly compressed posteriorly. Ovipositor index 0.7.

**Colour:** Black. Mandible narrowly marked with reddish brown medially. Wings hyaline. Sigma medium brown to dark brown medially. Front femur marked with yellowish brown dorsally. Front tibia and tarsus yellowish brown. Mid tibia yellowish brown to dark brown. 2<sup>nd</sup> gastral tergite red on the posterior 0.1. 3<sup>rd</sup> and 4<sup>th</sup> tergites red. Pilosity whitish.

♂: Similar to the ♀.

**Variability:** Apparently in European material the ventral part of the prepectal carina is merging with the transverse carina, and both are raised, whereas in eastern Palearctic material the ventral part is merging with the pleural part, and both are rather low. The significance of this difference is unknown.

**Host:** *Heliothis viriplaca* (Hufnagel, 1767) (Noctuidae) (PET).

**Material** (53♀, 26♂): Russia: Altaysk Terr.: Lake Teletskoye (Hinz/ZSM, MIN); Yakutsk A.S.S.R.: Betyakh na Amgu; Amur Prov.: Novorossiyska; Primorye: Chernigovka, Novokachalinsk, Pogranichnyy (PET), Vladivostok (HEL, KIS); Magadan Prov.: Tunguska (PET). Kazakhstan: Alma-Ata (MOS), Yanvaruyev on Ural River (PET). Tadzhikistan: locality unreadable (MOS). Kirgiziya: Kashkasi in Kirgyzskiy Mts., 1800 m, Kyzyl-Oy, 1800 m (LIN). Mongoliya: Ara Hangay Prov., Hentiy Prov., Selenge Prov. (PET). China: Hei-

longjiang Prov.: Charbin (= Harbin) (AEI), Maoershan (WAR); Xinjiang Prov.: Houxia, 2000-3000 m (LIN).

*Dusona bucculentoides* Hinz & Horstmann,  
spec. nov.

**Types.** Holotype (♀): Russia, Primorye, Ussuriysk, 2.9.1962 (MOS). – Paratypes: 1♀ Russia, Primorye, Spassk Dalniy, 2.7.1961 (Hinz/ZSM); 1♂ Russia, Primorye, Khasan, 9.9.1982 (PET).

**Description.** ♀: Body length 11-12 mm. Temples slightly constricted behind the eyes,  $0.9\times$  as long as the width of an eye, tangential lines on eyes and temples intersect on the propodeum. Ocellar index 1.0. Frons not depressed, coriaceous and densely rugose-punctate, without a median longitudinal carina and without radial wrinkles. Antennal sockets close to each other. Face and dorsal 0.7 of the clypeus densely rugose-punctate. Clypeus flat, with a rather dense punctation on an almost smooth background ventrally, the apex truncate medially. Malar space index 0.5. Genal carina low ventrally, slightly bent sideways, joining the low oral carina at an acute angle. Genal index 0.6. Temple with fine rather dense punctation on a smooth background medially. Flagellum with 43-46 segments, filiform, the apical 0.2 attenuate, 2<sup>nd</sup> segment  $1.5\times$ , shortest segment  $0.9\times$ , penultimate segment  $1.3\times$  as long as wide. Pronotum densely rugose-punctate laterally on the dorsal 0.2, with longitudinal wrinkles ventrally. Mesoscutum and scutellum distinctly and densely punctate on an almost smooth or smooth background. Scutellum with lateral carinae on the anterior 0.6. Prescutellar groove smooth or with fine longitudinal wrinkles. Prepectal carina low, its ventral part merging with the pleural part, the dorsal 0.4 of the latter obliterated. Transverse carina obliterated. Mesopleurum strongly and densely punctate on a smooth background. Speculum with fine oblique striae. Depression in front of the speculum with distinct longitudinal striae, which merge with the punctation anteriorly. Metapleurum distinctly and densely rugose-punctate. Pleural carina distinct. Areolet large, pointed or short-stalked, receiving the 2<sup>nd</sup> recurrent vein distad of the middle. Nervellus almost vertical, weakly intercepted. Nervellar index 0.7. Tibial spur index 0.6. Hind femur  $4.6\times$  as long as high. Hind tarsal claws rather long, with distinct pectinate teeth almost over their total length. Propodeum extending to the middle of the hind coxae, broadly and not deeply depressed, with transverse wrinkles almost all over the broad sulcus, costulae and longi-

tudinal carinae partly indicated. Propodeal spiracle large,  $3.1\times$  as long as wide. Spiracular carina distinct, narrow. Spiracular index 0.4. 1<sup>st</sup> gastral tergite  $4.3\times$ , 2<sup>nd</sup> tergite  $1.7\times$  as long as wide. Petiole without glymmae, with narrow lateral areas, with very fine sculpture or smooth in front of the lateral areas. Petiolar suture partly obliterated. 1<sup>st</sup> gastral sternite smooth. Thyridium elongate. Thyridial index about 1.0. Epipleurum not separated from the 3<sup>rd</sup> gastral tergite, the latter with distinct black lateral stripes well above the ventrolateral edge. Gaster distinctly compressed posteriorly. Ovipositor index 0.5.

Colour: Black. Maxillary palpus dark brown. Mandible narrowly reddish brown medially. Flagellum medium brown apically. Wings hyaline. Stigma brownish black medially. Front femur with a yellow stripe anteriorly. Front tibia yellowish red. Front tarsus brown. Mid tibia dark brown. 2<sup>nd</sup> gastral tergite red on the posterior 0.1. 3<sup>rd</sup> tergite red. Pilosity whitish.

♂: Temples  $0.8\times$  as long as the width of an eye. Propodeum almost not depressed and with transverse wrinkles only medially. In other characters similar to the ♀.

*Dusona capitator* Hinz, 1985

**Description.** ♀: Body length 9-10 mm. Temples scarcely constricted behind the eyes,  $0.9\times$  as long as the width of an eye, tangential lines on eyes and temples intersect on the apex of the gaster. Ocellar index 1.7 (Fig. 2). Frons not depressed, very densely punctate on a smooth background, with a fine median longitudinal carina, with fine radial wrinkles, which extend to half the distance to the median ocellus. Antennal carina low and narrow. Face and dorsal half of the clypeus densely rugose on a smooth background. Clypeus slightly concave, rather densely punctate on a finely coriaceous or smooth background ventrally, its apex slightly convex medially. Malar space index 0.4. Genal carina low ventrally, slightly bent sideways, joining the low oral carina at an acute angle. Genal index 0.2. Temple finely coriaceous and with fine rather dense punctation medially. Flagellum with 40-43 segments, slightly fusiform, 2<sup>nd</sup> segment  $1.7\times$ , shortest segment  $0.9-1.0\times$ , penultimate segment  $1.3\times$  as long as wide. Pronotum densely punctate on a smooth background laterally on the dorsal half, with longitudinal wrinkles ventrally. Mesoscutum and scutellum with rather dense or dense punctation on a smooth background. Scutellum with lateral carinae on the anterior half. Prescutellar groove für the greater part smooth. Prepectal

carina low, ventral part merging with the pleural part, the dorsal 0.4 of the latter obliterated. Transverse carina obliterated. Mesopleurum densely punctate on a smooth background. Speculum punctate posteriorly, smooth anteriorly. Depression in front of the speculum with distinct longitudinal wrinkles, which merge with the punctation anteriorly. Metapleurum very densely punctate on a smooth background. Pleural carina complete. Areolet large, narrowly sessile or short-stalked, receiving the 2<sup>nd</sup> recurrent vein slightly distad of the middle. Nervellus slightly reclivous, weakly intercepted. Nervellar index 0.7-0.8. Tibial spur index 0.5. Hind femur 3.8× as long as high. Hind tarsal claws long, with short pectinate teeth basally and medially. Propodeum extending to 0.4 of the hind coxae, distinctly and rather narrowly depressed, with short transverse striae in the longitudinal furrow, very densely punctate or rugose-punctate on a smooth background beside the furrow, carinae almost completely obliterated. Propodeal spiracle rather large, 2.9× as long as wide. Spiracular carina indistinct or replaced by several wrinkles. Spiracular index 0.5. 1<sup>st</sup> gastral tergite 3.6×, 2<sup>nd</sup> tergite 1.3× as long as wide. Petiole without glymmae, with slightly indicated narrow lateral areas, smooth in front of these areas. Petiolar suture fine, sometimes partly obliterated. 1<sup>st</sup> gastral sternite smooth. Thyridium oval. Thyridial index about 1.0. Epipleurum not separated from the 3<sup>rd</sup> gastral tergite, but a narrow lobe may be present anteriorly, the tergite with indistinct black lateral stripes well above the ventrolateral edge. Gaster distinctly compressed posteriorly. Ovipositor index 0.6.

Colour: Black. Maxillary palpus yellowish brown. Mandible yellowish red medially. Wings hyaline. Stigma medium brown medially. Front leg from the femur onwards yellowish red. Mid femur yellowish brown on the apical 0.7. Mid tibia and tarsus yellowish brown. Hind tibia yellowish brown or rarely dark brown medially, narrowly marked with dark brown or black basally and apically, sometimes not marked with brown or black. 2<sup>nd</sup> gastral tergite red on the posterior 0.7, rarely more or less completely black dorsally. 3<sup>rd</sup> and 4<sup>th</sup> tergites red. Pilosity whitish.

♂: Similar to the ♀.

**Material** (78♀♀, 53♂♂): Turkmeniya: Bol-Balkhan Mts. (Hinz/ZSM, PET). Uzbekistan: Samarkand. Kazakhstan: Alma-Ata (MOS), Arys, Dzhambul. Kirgiziya: Aravan near Osh (LIN), River Chatkal (PET), Talasskiy Alatau Mts., 1800-1900 m (LIN). Mongoliya: Töv Prov. (= Central Prov.): Kerulen (PET).

**Description.** ♀: Body length 11 mm. Temples strongly constricted behind the eyes, 0.7× as long as the width of an eye, tangential lines on eyes and temples intersect on the posterior half of the mesoscutum. Ocellar index 0.7. Frons slightly depressed, coriaceous and with very fine irregular wrinkles, with a distinct and slightly raised median longitudinal carina, without radial wrinkles. Antennal carina low, slightly widened to a very narrow crescent-shaped plate, the latter with fine transverse striae. Face and dorsal half of the clypeus coriaceous and densely punctate. Clypeus flat, finely coriaceous and with rather dense punctation ventrally, its apex slightly convex medially. Malar space index 0.4. Genal carina low and straight ventrally, joining the low oral carina at an acute angle. Genal index 0.7. Temple finely coriaceous and with very fine disperse punctation medially. Flagellum with 49-51 segments, filiform, the apical 0.3 attenuate, 2<sup>nd</sup> segment 1.8×, shortest segment 0.9×, penultimate segment 1.2× as long as wide. Pronotum densely rugose-punctate laterally on the dorsal 0.3, with longitudinal wrinkles ventrally. Mesoscutum and scutellum coriaceous and very densely punctate. Scutellum with lateral carinae on the anterior 0.2. Prescutellar groove almost completely smooth. Ventral part of the prepectal carina merging with the transverse carina, both carinae low. Pleural part of the prepectal carina completely obliterated. Pleural part of the prepectus densely rugose-punctate. Mesopleurum distinctly coriaceous and with rather dense or dense punctation. Speculum punctate posteriorly, coriaceous and dull anteriorly. Depression in front of the speculum dull, dorsally with short longitudinal wrinkles, which merge with the punctation anteriorly, ventrally coriaceous and granulate-strigose. Metapleurum finely and densely rugose-punctate or rugose. Pleural carina distinct. Areolet large, short-stalked, receiving the 2<sup>nd</sup> recurrent vein at or basad of the middle. Nervellus slightly inclivous, distinctly intercepted. Nervellar index 0.8. Tibial spur index 0.7. Hind femur 5.5× as long as high. Hind tarsal claws rather short, with short pectinate teeth basally and medially. Propodeum extending to 0.3 of the hind coxae, with a narrow shallow longitudinal furrow, with long transverse wrinkles in and beside the furrow, carinae almost completely obliterated. Propodeal spiracle large, 3.3× as long as wide. Spiracular carina narrow. Spiracular index 0.6. 1<sup>st</sup> gastral tergite 4.8×, 2<sup>nd</sup> tergite 1.7× as long as wide. Petiole without glymmae, with narrow lateral areas, smooth in front of these areas. Petiolar suture almost completely ob-

literated. 1<sup>st</sup> gastral sternite for the greater part smooth, with few transverse striae posteriorly. Thyridium elongate. Thyridial index about 1.0. Epipleurum separated from the 3<sup>rd</sup> gastral tergite, the crease marked with black. Epipleural index 0.6-0.7. Gaster distinctly compressed posteriorly. Ovipositor index 0.6.

Colour: Black. Maxillary palpus dark brown. Mandible broadly yellow medially. Wings hyaline. Stigma dark brown medially. Front leg from the tip of the coxa onwards yellowish red. Mid femur yellowish brown on the apical 0.2-0.5. Mid tibia and tarsus yellowish brown. Hind tibia yellowish brown, narrowly marked with dark brown basally. Hind tarsus dark brown. 2<sup>nd</sup> gastral tergite black dorsally and posteriorly, laterally marked with red in front of the posterior edge. 3<sup>rd</sup> and 4<sup>th</sup> tergites red, sometimes narrowly marked with black dorsally. 5<sup>th</sup> tergite completely black or marked with red anteriorly and laterally. Posterior gastral sternites red or brown. Pilosity whitish. ♂ unknown.

**Material** (2♀♀): Russia: Kuril Isl.: Kunashir (SAP). Japan: Honshu: Kamikochi near Norikura-dake (AEI).

#### *Dusona carinifrons* (Holmgren, 1860)

**Description.** ♀: Body length 14-17 mm. Temples strongly constricted behind the eyes, 0.8× as long as the width of an eye, tangential lines on eyes and temples intersect on the posterior half of the mesoscutum. Ocellar index 0.8. Frons scarcely depressed, coriaceous, densely rugose-punctate, with a distinct median longitudinal carina, which is raised medially, without radial wrinkles. Antennal carina low and narrow. Face and dorsal 0.7 of the clypeus coriaceous, densely rugose-punctate. Clypeus flat, coriaceous and densely punctate ventrally, its apex slightly convex medially. Malar space index 0.5. Genal carina low and rather straight ventrally, joining the slightly raised oral carina at an acute angle. Genal index 0.6. Temple coriaceous and with fine disperse punctation medially. Flagellum with 58-62 segments, filiform, the apical 0.3 distinctly attenuate, 2<sup>nd</sup> segment 1.4×, shortest segment 0.8×, penultimate segment 1.2× as long as wide. Pronotum densely rugose-punctate on a smooth background laterally on the dorsal half, with longitudinal wrinkles ventrally. Mesoscutum finely coriaceous, very densely punctate. Scutellum with rather dense or disperse punctation on an almost smooth background, with lateral carinae on the anterior 0.4. Prescutellar groove smooth medially, with distinct longitudinal striae

laterally. Ventral part of the prepectal carina merging with the transverse carina, both carinae slightly raised, the former not emarginate medially. Pleural part of the prepectal carina completely obliterated. Pleural part of the prepectus densely rugose-punctate on a smooth background. Mesopleurum with rather dense or dense punctation on a very finely coriaceous and shining background. Speculum punctate and with strong longitudinal striae posteriorly, finely coriaceous or granulate-strigose and rather shining anteriorly. Depression in front of the speculum with distinct longitudinal striae, which merge with the punctation anteriorly. Metapleurum densely rugose-punctate on a smooth background. Pleural carina distinct. Areolet large, pointed, receiving the 2<sup>nd</sup> recurrent vein at or slightly basad of the middle (Fig. 23). Nervellus almost vertical, weakly intercepted. Nervellar index 0.6. Tibial spur index 0.7. Hind femur 6.0× as long as high. Hind tarsal claws rather short, with distinct short pectinate teeth almost over their total length. Propodeum extending to 0.4 of the hind coxae, broadly and rather deeply depressed, sulcus with transverse wrinkles, costulae partly present, longitudinal carinae distinct medially and posteriorly (Fig. 32). Propodeal spiracle rather large, 3.2× as long as wide. Spiracular carina narrow. Spiracular index 0.5. 1<sup>st</sup> gastral tergite 4.8×, 2<sup>nd</sup> tergite 2.5× as long as wide. Petiole without glymmae or with very small and shallow glymmae at the anterior edge of narrow lateral areas, smooth in front of these areas. Petiolar suture complete. 1<sup>st</sup> gastral sternite coriaceous anteriorly, rugose medially, transversely striate posteriorly. Thyridium oval. Thyridial index 1.5-2.0. Epipleurum separated from the 3<sup>rd</sup> gastral tergite anteriorly, folded in or pendent as a very narrow rectangular lobe, the crease marked with black, a black lateral stripe divergent from the ventrolateral edge of the tergite posteriorly. Epipleural index 0.2-0.3. Gaster strongly compressed posteriorly. Ovipositor index 0.7.

Colour: Black. Maxillary palpus medium brown. Mandible broadly yellow medially. Tegula yellowish brown. Wings hyaline. Stigma medium brown medially. Front leg from the tip of the coxa onwards yellowish red. Mid femur yellowish red on the apical 0.3. Mid tibia yellowish red. Mid tarsus yellowish brown. Hind femur yellowish red on the apical 0.1. Hind tibia yellowish red. Hind tarsus medium brown. 2<sup>nd</sup> gastral tergite dorsally red on the posterior 0.1-0.2, laterally almost completely red. 3<sup>rd</sup> and 4<sup>th</sup> tergites red, sometimes the 3<sup>rd</sup> tergite marked with brown dorsally. 5<sup>th</sup> tergite red, sometimes marked with black posteriorly. Posterior tergites often narrowly marked

with red ventrolaterally, posterior sternites often red or marked with red. Pilosity whitish.

♂: Carinae of the propodeum somewhat stronger, costulae sometimes complete. Mid femur for the greater part yellowish-red. Posterior tergites and genital clasper black. In other characters similar to the ♀.

**Material** (11♀♀, 5♂♂): Russia: Altaysk Terr.: Gorno-Altaysk (MIN); Krasnoyarsk Terr.: Shushenskoye (MOS); Irkutsk Prov.: Irkutsk, Marituy on Lake Baykal; Chita Prov.: Adrianovka, Nerchinskii Zavod; Yevreyskiy A.O.: Amurzet; Khabarovsk Terr.: Khekh-tsir near Khabarovsk (PET). Kazakhstan: Alma-Ata (MOS), Borovoye near Kokchetav (PET). Kirgiziya: Terskey-Alatau Mts. (MOS).

### *Dusona carpathica* (Szépligeti, 1916)

This species is very similar to *D. angustifrons*, it differs from the latter in: Body slightly smaller. Flagellum slightly stouter. Ventral part of the prepectal carina merging with the transverse carina, both carinae slightly raised.

**Description.** ♀: Body length 6-8 mm. Temples distinctly constricted behind the eyes, 0.9× as long as the width of an eye, tangential lines on eyes and temples intersect on the postscutellum. Ocellar index 0.9. Frons not depressed, coriaceous, finely and densely rugose-punctate, with a fine median longitudinal carina, with short radial wrinkles, which extend to 0.3 the distance to the median ocellus. Antennal sockets rather close to each other. Antennal carina low and narrow, its rim slightly bent upwards. Face and dorsal half of the clypeus coriaceous and densely rugose-punctate. Clypeus flat, finely coriaceous and with rather dense punctation ventrally, its apex truncate medially. Malar space index 0.4. Genal carina low ventrally, slightly bent sideways and distinctly bent forwards, joining the oral carina at the base of the mandible at an almost right angle. Temple finely coriaceous and with very fine disperse punctation medially. Flagellum with 30-36 segments, slightly fusiform, 2<sup>nd</sup> segment 2.0×, shortest segment 0.8-0.9×, penultimate segment 0.9-1.0× as long as wide. Pronotum densely and finely rugose and punctate laterally on the dorsal 0.2, with longitudinal wrinkles ventrally. Mesoscutum coriaceous and very densely punctate. Scutellum coriaceous and densely punctate, with lateral carinae on the anterior 0.8. Prescutellar groove smooth medially, with longitudinal striae laterally. Ventral part of the prepectal carina merging with the

transverse carina, both carinae slightly raised, the former scarcely emarginate medially. Pleural part of the prepectal carina low, its dorsal 0.4 obliterated. Mesopleurum coriaceous, dull, densely punctate. Speculum coriaceous and granulate-strigose, with a small almost smooth and shining area ventrally. Depression in front of the speculum with distinct longitudinal striae, which merge with the punctation anteriorly. Metapleurum coriaceous, finely and densely rugose. Pleural carina complete. Areolet rather small, stalked, receiving the 2<sup>nd</sup> recurrent vein distinctly distad of the middle. Nervellus vertical or slightly reclivous, weakly intercepted. Nervellar index 0.7-0.8. Tibial spur index 0.7. Hind femur 4.8× as long as high. Hind tarsal claws short, with short pectinate teeth basally. Propodeum extending to 0.4 of the hind coxae, broadly and shallowly depressed, sulcus for the greater part irregularly wrinkled, partly with short transverse wrinkles, costulae partly present, longitudinal carinae for the greater part obliterated. Propodeal spiracle rather small, 2.7× as long as wide. Spiracular carina sometimes widened. Spiracular index 0.3. 1<sup>st</sup> gastral tergite 4.2×, 2<sup>nd</sup> tergite 1.8× as long as wide. Petiole with small glymmae at the anterior edge of narrow lateral areas, smooth in front of these areas. Petiolar suture partly obliterated. 1<sup>st</sup> gastral sternite smooth. Thyridium elongate. Thyridial index about 1.0. Epipleurum not separated from the 3<sup>rd</sup> gastral tergite, the latter with distinct black lateral stripes well above the ventrolateral edge. Gaster distinctly compressed posteriorly. Ovipositor index 0.7.

Colour: Black. Maxillary palpus dark brown to black. Mandible narrowly marked with yellow dorsally. Tegula yellowish brown to dark brown. Wings hyaline. Stigma yellowish brown medially. Front leg from the femur onwards yellowish red. Mid femur yellowish red on the apical 0.3 or completely yellowish red. Mid tibia yellowish red. Mid tarsus brown. Hind femur usually black, sometimes red or marked with red. Hind tibia yellowish red or yellowish brown medially, narrowly marked with brown or black basally, broadly marked with brown or black apically. Hind tarsus brown or black. 2<sup>nd</sup> gastral tergite red on the posterior 0.1-0.2 (rarely 0.3). 3<sup>rd</sup> tergite red, sometimes marked with brown dorsally. 4<sup>th</sup> tergite sometimes marked with red anteriorly. Pilosity whitish.

♂: Mandible broadly yellow medially. Front and mid legs from the trochanter onwards yellow or yellowish red, sometimes the tips of the coxae yellow. In other characters similar to the ♀ (also in the variability of the colour pattern).

**Material** (36♀, 3♂): Russia: Tomsk Prov.: Tomsk; Irkutsk Prov.: Irkutsk; Chita Prov.: Chita, Nerchinskii Zavod; Yakutsk A.S.S.R.: Olekminsk; Amur Prov.: Novorossiyska; Primorye: Roshchino on River Iman (PET); Magadan Prov.: Magadan, Debin (MOS); Kamchatka: Kozyrevsk. Kirgiziya: Tokmak (PET).

#### *Dusona caudator* Hinz, 1985

**Description.** ♀: Body length 11 mm. Temples strongly constricted behind the eyes, 0.8× as long as the width of an eye, tangential lines on eyes and temples intersect on the posterior half of the mesoscutum. Ocellar index 1.3. Frons slightly depressed, coriaceous, finely and densely rugose punctate, with a distinct median longitudinal carina, with short radial wrinkles. Antennal carina low and narrow. Face and dorsal 0.4 of the clypeus coriaceous and densely punctate. Clypeus flat, coriaceous and dispersely or rather densely punctate ventrally, its apex truncate medially. Malar space index 0.5. Genal carina low ventrally, slightly bent sideways, joining the slightly raised oral carina at an acute angle. Genal index 0.8. Temple finely coriaceous and with very fine and disperse punctation medially. Flagellum with 45-46 segments, filiform, the apical 0.2 attenuate, 2<sup>nd</sup> segment 1.3×, shortest segment 0.7×, penultimate segment 1.0× as long as wide. Pronotum coriaceous and densely punctate laterally on the dorsal 0.3, with longitudinal wrinkles ventrally. Mesoscutum and scutellum coriaceous, finely and densely punctate. Scutellum with lateral carinae on the anterior 0.2. Prescutellar groove smooth. Prepectal carina low, ventral part merging with the pleural part, the latter complete, joining the anterior edge of the mesopleurum. Transverse carina obliterated. Mesopleurum with rather dense or dense punctation on a slightly coriaceous and shining background. Speculum punctate posteriorly, slightly granulate-strigose and shining anteriorly. Depression in front of the speculum dorsally with distinct rather short longitudinal wrinkles, ventrally with fine longitudinal striae and wrinkles, which merge with the punctation anteriorly. Metapleurum finely and densely rugose, sometimes partly coriaceous and finely punctate. Pleural carina fine, indistinct and covered with wrinkles medially. Areolet large, short-stalked, receiving the 2<sup>nd</sup> recurrent vein at or basad of the middle. Nervellus slightly reclivous, distinctly intercepted. Nervellar index 0.7. Tibial spur index 0.7. Hind femur 4.6× as long as high. Hind tarsal claws long, with short pectinate teeth basally. Propodeum extending to 0.3 of the hind coxae, broadly and rather

deeply depressed, sulcus for the greater part irregularly wrinkled, with some short transverse wrinkles anteriorly, with some longitudinal wrinkles posteriorly, costulae and longitudinal carinae complete. Propodeal spiracle large, 2.2× as long as wide. Spiracular carina narrow and indistinct. Spiracular index 0.5. 1<sup>st</sup> gastral tergite 2.9×, 2<sup>nd</sup> tergite 1.5× as long as wide. Petiole with rather large glymmae, smooth in front of the glymmae. Petiolar suture fine, complete. 1<sup>st</sup> gastral sternite coriaceous. Thyridium almost circular. Thyridial index about 1.5. Epipleurum separated from the 3<sup>rd</sup> gastral tergite, the crease marked with black. Epipleural index 0.8. Gaster slightly compressed posteriorly. Ovipositor index 2.2.

**Colour:** Black. Mandible tinged with reddish brown medially. Wings hyaline. Stigma dark brown medially. Front femur reddish brown on the apical 0.3. Front tibia and tarsus reddish brown. Mid tibia dark reddish brown. 2<sup>nd</sup> gastral tergite red on the posterior 0.4. 3<sup>rd</sup> tergite red. 4<sup>th</sup> tergite marked with red anteriorly. Pilosity whitish.

♂: Frons with a rather fine median longitudinal carina. Flagellum less stout, 2<sup>nd</sup> segment 1.7×, shortest segment 0.9× as long as wide. Metapleurum coriaceous, finely and densely rugose and rugose-punctate. Propodeum with the sulcus rather narrowly and not deeply depressed, costulae and longitudinal carinae complete or almost complete. Glymmae rather small, but distinct. 2<sup>nd</sup> gastral tergite red on the posterior 0.2. 3<sup>rd</sup> and 4<sup>th</sup> tergites red, the 4<sup>th</sup> tergite with a small black mark dorsally. In other characters similar to the ♀.

**Material** (1♀, 2♂): Russia: Primorye: Roshchino on River Iman (Hinz/ZSM, PET).

#### *Dusona celator* Hinz, 1985

**Description.** ♀: Body length 14-16 mm. Temples strongly constricted behind the eyes, 0.7× as long as the width of an eye, tangential lines on eyes and temples intersect on the posterior half of the mesoscutum. Ocellar index 1.0. Frons slightly but distinctly depressed above the antennal carina, coriaceous and densely punctate dorsally, with a distinct median longitudinal carina, with long radial wrinkles, which almost reach the median ocellus. Antennal carina slightly but distinctly raised, its rim distinctly bent upwards (ear-like), forming a narrow crescent-shaped plate, the latter with fine transverse striae. Face and dorsal 0.7 of the clypeus coarsely and densely rugose-punctate. Clypeus flat, strongly and densely punctate on a finely coriaceous background ventrally, its apex trun-

cate medially. Malar space index 0.4. Genal carina low ventrally, straight or slightly bent sideways, joining the slightly raised oral carina at an acute or a right angle. Genal index 0.4. Temple finely coriaceous and with fine disperse punctation medially. Flagellum with 57-61 segments, filiform, the apical 0.3 attenuate, 2<sup>nd</sup> segment 1.4×, shortest segment 1.0×, penultimate segment 1.5× as long as wide. Pronotum densely rugose-punctate laterally on the dorsal half, with longitudinal wrinkles ventrally. Mesoscutum coriaceous, finely and densely punctate. Scutellum densely punctate on an almost smooth background, with lateral carinae on the anterior 0.3. Prescutellar groove with fine longitudinal striae. Prepectal carina low, ventral part merging with the pleural part, the latter distinct, almost complete, the dorsal 0.2 replaced by several wrinkles. Transverse carina obliterated. Mesopleurum strongly and densely punctate on a very finely coriaceous or smooth background. Speculum punctate posteriorly, coriaceous or granulate-strigose anteriorly. Depression in front of the speculum dorsally with distinct longitudinal striae, which more or less merge with the punctation anteriorly, ventrally finely coriaceous and shining. Metapleurum densely rugose and rugose-punctate, not coriaceous. Pleural carina distinct. Areolet large, short-stalked, receiving the 2<sup>nd</sup> recurrent vein slightly basad of the middle. Nervellus vertical, distinctly intercepted. Nervellar index 0.7. Tibial spur index 0.5. Hind femur 5.2× as long as high. Hind tarsal claws rather long, with short pectinate teeth basally. Propodeum extending to 0.3 of the hind coxae, broadly and deeply depressed, sulcus for the greater part or completely transversely wrinkled, costulae shortened, longitudinal carinae distinct posteriorly, more or less complete medially. Propodeal spiracle large, 3.2× as long as wide. Spiracular carina narrow. Spiracular index 0.4. 1<sup>st</sup> gastral tergite 4.0×, 2<sup>nd</sup> tergite 1.8× as long as wide. Petiole with distinct glymmae, smooth in front of the glymmae. Petiolar suture fine, partly obliterated. 1<sup>st</sup> gastral sternite smooth. Thyridium oval. Thyridial index about 1.0. Epipleurum separated from the 3<sup>rd</sup> gastral tergite anteriorly, the crease marked with black. Epipleural index 0.3. Gaster distinctly compressed posteriorly. Ovipositor index 0.5.

Colour: Black. Maxillary palpus dark brown. Mandible broadly yellowish red medially. Tegula dark brown. Wings slightly infuscate. Stigma light brown medially. Front trochanter and femur yellowish red. Front tibia and tarsus yellow. Mid femur yellowish brown on the apical 0.2. Mid tibia yellowish brown. Hind tibia black, rather narrowly marked with dark yellowish brown sub-

basally. 2<sup>nd</sup> gastral tergite narrowly tinged with red in front of the posterior edge. 3<sup>rd</sup> and 4<sup>th</sup> tergites red, the 4<sup>th</sup> marked with black posteriorly. Pilosity whitish.

♂: Tip of the front coxa yellowish red. In other characters similar to the ♀.

**Material** (4♀♀, 2♂♂): Russia: Chita Prov.: Adrianovka, Karymskaya (Hinz/ZSM), Urulyunguy E of Borzya; Primorye: Kiyevka (PET). North Korea: Kyongsong (SAW).

*Dusona chabarowski* Hinz & Horstmann,  
spec. nov.

This species was characterized by Hinz (1979: 216) under the name *D. bicoloripes*. It is similar to *D. bicoloripes* (see under this name) and *D. stragifex*. Specimens without raised points on the frons differ from *D. stragifex* in the less strongly striate depression in front of the speculum and the less strongly sculptured propodeum, but the differentiation may be difficult. Whereas *D. bicoloripes* and *D. stragifex* both occur from Europe to Japan, *D. chabarowski* is only known from eastern Russia so far.

**Types.** Holotype (♀): Russia, Khabarovsk Terr., Khekhtsir near Khabarovsk, 20.6.1983 (PET). – Paratypes: 5♀♀, 3♂♂ same locality, 12.6.-4.7.1983 (3♀♀, 2♂♂ PET, 2♀♀, 1♂ Hinz/ZSM); 1♀, 1♂ Russia, Khabarovsk Terr., Troitskoye, 24.-28.6.1983 (PET); 2♀♀ Russia, Primorye, Anisimovka near Shkotovo, 17.-24.6.1979 (PET); 1♀ Russia, Primorye, Khasan, 3.7.1981 (PET); 1♀, 3♂♂ Russia, Primorye, Roshchino on River Iman, 29.5.-5.6.1966 (PET); 2♂♂ Russia, Primorye, Spassk Dalniy, 28.5.1985 (KIS).

**Description.** ♀: Body length 9-13 mm. Temples distinctly constricted behind the eyes, 0.8× as long as the width of an eye, tangential lines on eyes and temples intersect on the prescutellar groove. Ocellar index 1.2. Frons slightly depressed, coriaceous, partly with fine and dense punctation, with a fine median longitudinal carina, with short radial wrinkles, usually on either side with a distinct or indistinct raised point between the antennal socket and the eye, which may be completely obliterated. Antennal carina low and narrow. Face and dorsal 0.7 of the clypeus coriaceous and densely rugose-punctate. Clypeus flat, coriaceous and with rather dense punctation ventrally, its apex truncate medially. Malar space index 0.3. Genal carina low and straight ventrally, joining the slightly raised oral carina at an acute angle. Genal index 0.5.

Temple finely coriaceous and with fine disperse punctation medially. Flagellum with 46-55 segments, filiform, the apical 0.3 attenuate, 2<sup>nd</sup> segment 1.8×, shortest segment 0.9×, penultimate segment 1.2× as long as wide. Pronotum densely rugose-punctate laterally on the dorsal 0.4, with longitudinal wrinkles ventrally. Mesoscutum and scutellum coriaceous, very densely punctate. Scutellum with lateral carinae on the anterior 0.7. Prescutellar groove for the greater part smooth. Prepectal carina low, the ventral part merging with the pleural part, the latter almost joining the anterior edge of the mesopleurum. Transverse carina present anteriorly. Mesopleurum distinctly coriaceous, with rather dense or dense punctation. Speculum granulate-strigose, rather dull. Depression in front of the speculum granulate-strigose and with fine longitudinal striae, which often merge with a narrow coriaceous area without punctation anteriorly. Metapleurum coriaceous, finely and densely punctate or rugose-punctate. Pleural carina distinct. Areolet large, stalked, usually receiving the 2<sup>nd</sup> recurrent vein at the middle. Nervellus vertical or slightly inclivous, distinctly intercepted. Nervellar index 0.6-0.8. Tibial spur index 0.6. Hind femur 4.4× as long as high. Hind tarsal claws short, with distinct pectinate teeth basally. Propodeum extending to 0.3 of the hind coxae, broadly and not deeply depressed, sulcus for the greater part irregularly wrinkled, with a short median longitudinal bulge and at the same time with distinct long transverse striae posteriorly, costulae shortened, longitudinal carinae present posteriorly, obliterated medially. Propodeal spiracle large, 3.2× as long as wide. Spiracular carina narrow. Spiracular index 0.7. 1<sup>st</sup> gastral tergite 3.1×, 2<sup>nd</sup> tergite 1.7× as long as wide. Petiole with large glymmae, which are bordered by longitudinal carinae dorsally, petiole for the greater part smooth in front of the glymmae. Petiolar suture fine. 1<sup>st</sup> gastral sternite smooth medially, finely coriaceous anteriorly and posteriorly. Thyridium oval. Thyridial index about 1.5. Epipleurum separated from the 3<sup>rd</sup> gastral tergite, the crease marked with black. Epipleural index 0.7-0.8. Gaster distinctly compressed posteriorly. Ovipositor index 0.6.

Colour: Black. Maxillary palpus dark brown. Mandible narrowly tinged with reddish brown medially. Wings hyaline. Stigma medium brown to dark brown medially. Front femur marked with yellowish red dorsally and apically. Front tibia and tarsus yellow to yellowish brown. Mid femur yellowish brown on the apical 0.2. Mid tibia brown. 2<sup>nd</sup> gastral tergite red on the posterior 0.1-0.3. 3<sup>rd</sup> and 4<sup>th</sup> tergites red, often marked with black

dorsally (to a variable extent). Pilosity whitish.

♂: Longitudinal carinae of the propodeum sometimes present also medially. Maxillary palpus yellowish brown. Mandible broadly yellow medially. Front femur for the greater part yellowish red. 2<sup>nd</sup> gastral sometimes completely black dorsally, with narrow red marks laterally. 3<sup>rd</sup> and 4<sup>th</sup> tergites often black dorsally, broadly marked with red laterally. In other characters similar to the ♀.

*Dusona checkziri* Hinz & Horstmann,  
spec. nov.

**Types.** Holotype (♀): Russia, Khabarovsk Terr., Khekhtsir, near Khabarovsk, 14.6.1985 (PET). – Paratype: 1♀ same locality, 13.6.1985 (Hinz/ZSM).

**Description.** ♀: Body length 5-6 mm. Temples not much constricted behind the eyes, 0.9× as long as the width of an eye, tangential lines on eyes and temples intersect on the posterior edge of the propodeum. Ocellar index 1.1. Frons scarcely depressed, coriaceous, dull, with very fine disperse punctation, with a fine median longitudinal carina, with short radial wrinkles, which extend to 0.3 the distance to the median ocellus. Antennal carina low and narrow. Face and clypeus coriaceous, finely and densely punctate. Clypeus flat, its apex slightly convex medially. Malar space index 0.4. Genal carina low and straight ventrally, joining the slightly raised oral carina at an acute angle. Genal index 0.4. Temple finely coriaceous and with fine disperse punctation medially. Flagellum with 34-35 segments, filiform, the apical 0.1 slightly attenuate, 2<sup>nd</sup> segment 2.0×, shortest segment 0.9×, penultimate segment 0.9-1.0× as long as wide. Pronotum with fine punctation and fine longitudinal wrinkles laterally. Mesoscutum and scutellum coriaceous, finely and densely punctate. Scutellum with lateral carinae on the anterior 0.4. Prescutellar groove smooth or with some fine longitudinal striae. Prepectal carina low, the ventral part merging with the pleural part, the latter complete, joining the anterior edge of the mesopleurum. Transverse carina obliterated. Mesopleurum with rather dense or dense punctation on a coriaceous and dull background. Speculum finely coriaceous and granulate-strigose. Depression in front of the speculum with rather long longitudinal wrinkles, which merge with the punctation anteriorly. Metapleurum coriaceous and with fine irregular wrinkles. Pleural carina distinct. Areolet rather small, long-stalked, receiving the 2<sup>nd</sup> recur-

rent vein distad of the middle. Nervellus slightly inclivous, intercepted. Nervellar index 0.8. Tibial spur index 0.7. Hind femur 5.3× as long as high. Hind tarsal claws short, with long pectinate teeth basally and medially. Propodeum extending to the basal 0.3 of the hind coxae, slightly and broadly depressed, coriaceous and with fine irregular wrinkles in the sulcus, with some longitudinal wrinkles posteriorly. Propodeal spiracle small, 2.0× as long as wide. Spiracular carina narrow. Spiracular index 0.7. 1<sup>st</sup> gastral tergite 3.0×, 2<sup>nd</sup> tergite 1.1× as long as wide. Petiole with distinct glymmae, smooth in front of the glymmae. Petiolar suture partly obliterated. 1<sup>st</sup> gastral sternite for the greater part smooth, with fine transverse striae posteriorly. Thyridium oval. Thyridial index about 1.0. Epipleurum separated from the 3<sup>rd</sup> gastral tergite, the horizontal crease marked with black. Epipleural index 0.6-0.7. Gaster distinctly but not strongly compressed posteriorly. Ovipositor index 0.7.

Colour: Black. Maxillary palpus brown basally, yellow medially and apically. Mandible broadly yellow medially. Tegula yellowish. Wings hyaline. Stigma medium brown medially. Front leg from the trochanter onwards yellowish, the trochanter and femur tinged with yellowish brown. Mid leg from the apical 0.2 of the femur onwards yellowish. Hind tibia broadly light yellow medially, narrowly black basally, broadly black apically. Hind tarsus yellowish to yellowish brown. 2<sup>nd</sup> gastral tergite marked with red laterally. 3<sup>rd</sup> tergite broadly marked with red laterally. Pilosity whitish. ♂ unknown.

*Dusona chinensis* Horstmann, spec. nov.

**Holotype** (♀): China, Shaanxi Prov., Qinling Mts., Xunyangba, 1000-1300 m, 23.5.-13.6.1998 (LIN).

**Description.** ♀: Body length 9 mm. Temples distinctly constricted behind the eyes, 0.6× as long as the width of an eye, tangential lines on eyes and temples intersect on the prescutellar groove. Ocular index 0.6. Frons slightly depressed, coriaceous, with fine and rather dense or dense punctation, with narrow smooth areas ventrally, with a fine and partly obliterated median longitudinal carina, without radial wrinkles. Antennal carina narrow, slightly but distinctly raised, its rim bent upwards. Face and dorsal 0.6 of the clypeus densely rugose-punctate and rugose. Clypeus flat, finely coriaceous and with fine and rather dense punctation ventrally, its apex truncate medially. Malar

space index 0.3. Genal carina low ventrally, slightly bent forwards, joining the slightly raised oral carina close to the base of the mandible at an acute angle. Genal index 0.1. Temple finely coriaceous and with fine disperse punctation medially. Flagellum with 50 segments, filiform, the apical 0.3 attenuate, 2<sup>nd</sup> segment 2.2×, shortest segment 1.2×, penultimate segment 1.4× as long as wide. Pronotum densely rugose-punctate and rugose laterally on the dorsal 0.2, with longitudinal wrinkles ventrally. Mesoscutum coriaceous, very densely punctate. Scutellum densely rugose-punctate, with lateral carinae on its anterior 0.6. Prescutellar groove with fine longitudinal striae. Ventral part of the prepectal carina merging with the transverse carina, both carinae low, the former not emarginate medially. Pleural part of the prepectal carina very low, its ventral part complete but indistinct, its dorsal 0.3 covered with wrinkles. Mesopleurum finely coriaceous, distinctly and densely punctate. Speculum finely coriaceous, partly almost smooth. Depression in front of the speculum with rather long longitudinal striae, which merge with the punctation anteriorly. Metapleurum densely rugose. Pleural carina fine but distinct. Areolat rather small, long-stalked, receiving the 2<sup>nd</sup> recurrent vein slightly basad of the middle. Nervellus slightly reclivous, not intercepted. Tibial spur index 0.5. Hind femur 5.8× as long as high. Hind tarsal claws short, with short pectinate teeth basally and medially. Propodeum extending to the middle of the hind coxae, narrowly and not deeply depressed, almost without carinae, with transverse wrinkles almost over its total width. Propodeal spiracle rather large, 3.3× as long as wide. Spiracular carina narrow. Spiracular index 0.5. 1<sup>st</sup> gastral tergite 5.3×, 2<sup>nd</sup> tergite 2.9× as long as wide. Petiole with small and rather shallow glymmae at the anterior edge of indistinct narrow lateral areas, smooth in front of the glymmae. Petiolar suture for the greater part obliterated. 1<sup>st</sup> gastral sternite smooth. Thyridium elongate. Thyridial index about 1.5. Epipleurum not separated from the 3<sup>rd</sup> gastral tergite, the latter with distinct black lateral stripes, which are situated well above the ventrolateral edge of the tergite. Gaster distinctly compressed posteriorly. Ovipositor index 0.6.

Colour: Black. Maxillary palpus dark brown basally, yellow medially and apically. Mandible narrowly yellow medially and dorsally. Tegula yellowish brown to brown. Wings hyaline. Stigma blackish medially. Front leg from the trochanter onwards yellow, femur yellowish red. Mid femur reddish brown. Mid tibia and tarsus yellow. Hind tibia broadly yellowish brown medially, narrowly black basally and apically. 2<sup>nd</sup> gastral

tergite red on the posterior 0.1. Tergites from the 3<sup>rd</sup> onwards red, 3<sup>rd</sup> tergite distinctly tinged with brown dorsally, the posterior tergites indistinctly tinged with brown dorsally. Posterior gastral sternites red. Pilosity whitish.

♂ unknown.

### *Dusona circumcinctus* (Förster, 1868)

*Delopia nigrifemur* Sonan, 1929 (? syn.)

*Campoplegidea melanocerus* Uchida, 1932 (syn. nov.)

Townes (1984: 193 f.) studied the holotype (♂) of *Delopia nigrifemur* Sonan (from Taipei/Taiwan) and compared it with a ♂ in his collection from Kuandouchi/Taiwan (AEI). The identification of the taxon is based on this specimen. This synonymy is not beyond doubt, however, because the type of *D. nigrifemur* is published as having been bred from *Orgyia postica* (Walker, 1855) (Lymantriidae) (Sonan 1929: 418), whereas *Dusona circumcinctus* (Förster) was bred in northern Germany from *Cabera exanthemata* (Scopoli, 1763) and *C. pusaria* (Linnaeus, 1758) (Geometridae) (1♀, 7♂♂, leg. and coll. Hinz/ZSM). The holotype (♂) of *Campoplegidea melanocerus* Uchida from Anping/Taiwan (DEI) has recently been studied by the junior author.

**Description.** ♀: Body length 9-11 mm. Temples strongly constricted behind the eyes, 0.6× as long as the width of an eye, tangential lines on eyes and temples intersect on the posterior half of the mesoscutum. Ocellar index 0.7. Frons slightly depressed, coriaceous, finely punctate, with a fine median longitudinal carina, with short and indistinct radial wrinkles. Antennal carina low and narrow. Face and dorsal 0.7 of the clypeus coriaceous and densely rugose-punctate. Clypeus flat, finely coriaceous and with rather densely punctate ventrally, its apex truncate medially. Malar space index 0.3. Genal carina low ventrally, slightly bent sideways, joining the slightly raised oral carina at a right angle. Genal index 0.5. Temple finely coriaceous and with very fine disperse punctation medially. Flagellum with 45-50 segments, filiform, the apical 0.2 attenuate, 2<sup>nd</sup> segment 2.0×, shortest segment 1.0×, penultimate segment 1.2× as long as wide. Pronotum with longitudinal wrinkles, the dorsal 0.2 with additional punctures. Mesoscutum coriaceous and densely rugose-punctate. Scutellum coriaceous and rather densely punctate, with lateral carinae on the anterior 0.4-0.6. Prescutellar groove with distinct longitudinal striae. Ventral part of the prepectal carina merging

with the transverse carina, the former low, the latter low or somewhat raised, its rim sometimes bent upwards. Pleural part of the prepectal carina indistinct ventrally and distinct medially, its dorsal 0.4 obliterated. Mesopleurum distinctly and densely punctate on a finely coriaceous and shining background. Speculum with fine oblique striae. Depression in front of the speculum with long longitudinal striae, which merge with the punctation anteriorly. Metapleurum densely rugose or rugose-punctate. Pleural carina distinct. Areolet large, pointed or short-stalked, receiving the 2<sup>nd</sup> recurrent vein basad of the middle (Fig. 22). Nervellus vertical, distinctly intercepted. Nervellar index 0.7. Tibial spur index 0.6. Hind femur 5.0× as long as high. Hind tarsal claws short, with rather long pectinate teeth basally and medially. Propodeum extending to the middle of the hind coxae, rather broadly and rather shallowly depressed, sulcus coriaceous or with irregular wrinkles anteriorly, with long transverse wrinkles posteriorly, costulae complete, longitudinal carinae obliterated medially and anteriorly, present posteriorly (Fig. 33). Propodeal spiracle large, 4.0× as long as wide. Spiracular carina narrow. Spiracular index 0.2-0.4. 1<sup>st</sup> gastral tergite 5.3×, 2<sup>nd</sup> tergite 2.6× as long as wide. Petiole without glymmae or with very small glymmae at the anterior edge of narrow lateral areas, smooth in front of these areas. Petiolar suture fine, partly obliterated. 1<sup>st</sup> gastral sternite for the greater part smooth, with some transverse striae posteriorly. Thyridium elongate. Thyridial index about 1.0. Epipleurum not separated from the 3<sup>rd</sup> gastral tergite, the latter with distinct black lateral stripes well above the ventrolateral edge. Gaster strongly compressed posteriorly. Ovipositor index 0.7.

Colour: Black. Maxillary palpus yellow to yellowish brown. Mandible narrowly or broadly yellow medially. Tegula yellow or yellowish brown. Wings hyaline. Stigma dark brown medially. Tip of the front coxa sometimes marked with yellow. Front trochanter and femur yellowish red. Front tibia and tarsus yellow. Mid femur yellowish red on the apical 0.2. Mid tibia yellow. Mid tarsus brown. Hind tibia broadly yellowish brown or brown medially, narrowly black basally, sometimes narrowly marked with brown apically. 2<sup>nd</sup> gastral tergite black dorsally, to a variable extent marked with red laterally. 3<sup>rd</sup> and 4<sup>th</sup> tergites for the greater part red, narrowly marked with black dorsally. Posterior tergites for the greater part black, narrowly marked with red ventrolaterally. Posterior gastral sternites red or brown. Pilosity whitish.

♂: Similar to the ♀.

**Material** (13♀, 9♂): Russia: Chita Prov.: Chita, Kozlovo; Amur Prov.: Novorossiyska; Khabarovsk Terr.: Khekhtsir near Khabarovsk (PET); Primorye: Khasan (KIS), Spassk Dalniy (Hinz/ZSM, KIS, PET); Kuril Isl.: Dubovoye on Kunashir, Shikotan (PET). China: Shaanxi Prov.: Qinling Mts. (LIN). Japan: Hokkaido: Sapporo (AEI); Honshu: Sasayama (SAP).

*Dusona collaris* Hinz & Horstmann, spec. nov.

**Holotype** (♀): Russia, Yakutsk (HEL).

**Description.** ♀: Body length 7 mm. Temples distinctly constricted behind the eyes, 0.8× as long as the width of an eye, tangential lines on eyes and temples intersect on the scutellum. Ocellar index 0.8. Frons scarcely depressed, coriaceous and slightly wrinkled, without radial wrinkles, a median longitudinal carina slightly indicated. Antennal carina low and narrow. Face and dorsal half of the clypeus coriaceous, distinctly and very densely punctate. Clypeus flat, the ventral half finely coriaceous and finely and rather densely punctate, the apex slightly convex medially. Malar space index 0.5. Genal carina low ventrally, slightly bent sideways and forwards, joining the oral carina at the base of the mandible at a right angle. Temple finely coriaceous and with fine disperse punctation medially. Flagellum with 34 segments, filiform, the apical 0.2 attenuate, 2<sup>nd</sup> segment 2.3×, shortest segment 1.0×, penultimate segment 1.3× as long as wide. Pronotum with very dense punctation laterally on the dorsal 0.2, with longitudinal wrinkles ventrally. Mesoscutum and scutellum finely coriaceous and densely punctate. Scutellum with lateral carinae on its anterior half. Prescutellar groove smooth (partly destroyed). Ventral part of the prepectal carina joining the transverse carina, both carinae strongly raised, the former deeply emarginate medially. Pleural part of the prepectal carina low, the dorsal 0.3 obliterated. Mesopleurum finely coriaceous, distinctly and densely punctate. Speculum with fine oblique striae, a small ventral area smooth. Depression in front of the speculum with rather long longitudinal wrinkles, which merge with the punctation anteriorly. Metapleurum densely rugose-punctate. Pleural carina distinct. Areolet short-stalked, receiving the 2<sup>nd</sup> recurrent vein slightly basad of the middle. Nervellus slightly reclivous, indistinctly intercepted. Nervellar index 0.6. Tibial spur index 0.6. Hind femur 5.3× as long as high. Hind tarsal claws short, with short pectinate teeth basally. Propodeum extending to the middle of the hind coxae, broadly and rather deeply de-

pressed, almost without carinae, with short transverse wrinkles in the sulcus, in other parts with irregular wrinkles. Propodeal spiracle rather large, 2.7× as long as wide. Spiracular carina distinct, partly widened. Spiracular index 0.5. 1<sup>st</sup> gastral tergite 3.8×, 2<sup>nd</sup> tergite 1.6× as long as wide. Petiole without glymmae and lateral areas, smooth laterally. Petiolar suture almost completely obliterated. 1<sup>st</sup> gastral sternite for the greater part smooth, with fine transverse striae posteriorly. Thyridium oval. Thyridial index about 1.0. Epipleurum partly separated from the 3<sup>rd</sup> gastral tergite, the crease marked with black, black lateral stripes present, merging with the crease anteriorly, divergent from the ventrolateral edge posteriorly. Epipleural index 0.3. Gaster distinctly compressed posteriorly. Ovipositor index 0.5.

Colour: Black. Maxillary palpus yellowish red. Mandible narrowly yellowish medially. Wings hyaline. Stigma yellowish medially. Front leg from the trochanter onwards yellowish red. Mid femur and tibia yellowish red. Mid tarsus light brown. Hind femur reddish brown, indistinctly marked with brown basally. Hind tibia reddish brown, narrowly dark brown basally and apically. Hind tarsus dark brown. 2<sup>nd</sup> gastral tergite red on the posterior 0.7. 3<sup>rd</sup> and 4<sup>th</sup> tergites red. 5<sup>th</sup> tergite red anteriorly. Pilosity whitish.

♂ unknown.

*Dusona confusator* Hinz & Horstmann,  
spec. nov.

**Types.** Holotype (♀): Kazakhstan, Alma-Ata, 1500 m, 12.8.1957 (MOS). – Paratypes: 1♀ Kazakhstan, 15 km S Alma-Ata, 27.5.1994 (LIN); 1♂ Kirgiziya, Lake Issyk-Kul, 20 km W Cholpon-Ata, 22.5.1994 (LIN); 1♂ Kirgiziya, Alayskiy Mts., Gulcha, 2500 m, 15.7.1996 (Hinz/ZSM).

**Description.** ♀: Body length 9-11 mm. Temples distinctly constricted behind the eyes, 0.8× as long as the width of an eye, tangential lines on eyes and temples intersect on the prescutellar groove. Ocellar index 0.7. Frons not depressed, coriaceous, distinctly rugose-punctate, with a fine median longitudinal carina, with long radial wrinkles, which almost reach the median ocellus. Antennal carina low and narrow. Face and dorsal 0.8 of the clypeus very densely punctate on an almost smooth background. Clypeus flat, rather densely punctate ventrally, its apex truncate medially. Malar space index 0.4. Genal carina low and straight ventrally, joining the distinctly raised oral carina at an acute angle. Genal index 0.5. Temple coriaceous and

with rather dense punctation medially. Flagellum with 40-42 segments, filiform, the apical 0.8 slightly attenuate, 2<sup>nd</sup> segment 1.6×, shortest segment 1.0×, penultimate segment 1.1× as long as wide. Pronotum densely rugose-punctate laterally. Mesoscutum and scutellum finely coriaceous and densely punctate. Scutellum with lateral carinae on the anterior half. Prescutellar groove smooth or with some fine longitudinal striae. Prepectal carina low, the ventral part merging with the pleural part, the latter almost joining the anterior edge of the mesopleurum, its dorsal end covered with wrinkles. Transverse carina obliterated. Mesopleurum with very dense punctation on a finely coriaceous or almost smooth background, sometimes partly rugose. Speculum rugose-punctate and with longitudinal wrinkles. Depression in front of the speculum with short longitudinal wrinkles, which merge with the punctation anteriorly. Metapleurum with coarse and dense irregular wrinkles. Pleural carina fine, partly obliterated and covered with wrinkles. Areolet large, short-stalked, receiving the 2<sup>nd</sup> recurrent vein slightly basad of the middle. Nervellus slightly reclivous, weakly intercepted. Nervellar index 0.7. Tibial spur index 0.7. Hind femur 5.5× as long as high. Hind tarsal claws long, with distinctly pectinate teeth basally and medially. Propodeum extending to the middle of the hind coxae, slightly and broadly depressed, sulcus for the greater part irregularly wrinkled, sometimes with some short transverse wrinkles in the midline, costulae complete, longitudinal carinae partly indicated. Propodeal spiracle small, 3.0× as long as wide. Spiracular carina obliterated. Spiracular index 1.0. 1<sup>st</sup> gastral tergite 5.1×, 2<sup>nd</sup> tergite 2.3× as long as wide. Petiole without glymmae, with narrow lateral areas, which are bordered by carinae dorsally and ventrally, petiole with very fine sculpture or almost smooth in front of the lateral areas. Petiolar suture partly obliterated. 1<sup>st</sup> gastral sternite with fine transverse wrinkles, sometimes almost smooth medially. Thyridium elongate. Thyridial index about 1.5. Epipleurum not separated from the 3<sup>rd</sup> gastral tergite, the latter with distinct black lateral stripes well above the ventrolateral edge. Gaster distinctly compressed posteriorly. Ovipositor index 0.5.

Colour: Black. Maxillary palpus yellow. Mandible marked with yellow dorsally and medially. Tegula yellow. Wings slightly yellowish. Stigma yellowish brown medially. Front leg from the tip of the coxa onwards yellow. Mid leg from the trochanter onwards yellow. Hind tibia and tarsus yellow. Mid and hind tarsi marked with brown apically. Postpetiole sometimes marked with red posteriorly. 2<sup>nd</sup> gastral tergite yellowish red on the

posterior 0.8. 3<sup>rd</sup> and 4<sup>th</sup> tergites yellowish red. Pilosity whitish.

♂: Some parts of the mesopleurum densely rugose-punctate or rugose. Longitudinal carinae of the propodeum present medially and posteriorly, obliterated anteriorly. Mandible yellow with black teeth. Tip of the mid coxa yellow. In other characters similar to the ♀.

#### *Dusona constantineanui* Hinz, 1977

**Description.** ♀: Body length 8 mm. Temples distinctly constricted behind the eyes, 0.8× as long as the width of an eye, tangential lines on eyes and temples intersect on the scutellum. Ocellar index 0.8. Frons scarcely depressed, coriaceous, distinctly and densely punctate, with a fine median longitudinal carina, without radial wrinkles. Antennal carina low and narrow. Face and dorsal 0.7 of the clypeus coriaceous, densely rugose-punctate and rugose. Clypeus flat, finely coriaceous and distinctly and rather densely punctate ventrally, its apex almost truncate medially. Malar space index 0.5. Genal carina low and almost straight ventrally, joining the slightly but distinctly raised oral carina at an acute angle. Genal index 0.5. Temple finely coriaceous and with fine disperse punctation medially. Flagellum with 45-47 segments, filiform, the apical 0.3 distinctly attenuate, 2<sup>nd</sup> segment 2.2×, shortest segment 1.1×, penultimate segment 1.4× as long as wide. Pronotum densely rugose-punctate on a smooth background laterally on the dorsal 0.2, with longitudinal wrinkles ventrally. Mesoscutum coriaceous, very densely punctate. Scutellum finely coriaceous, rather densely punctate, with lateral carinae on the anterior half. Prescutellar groove smooth medially, with longitudinal striae laterally. Ventral part of the prepectal carina merging with the transverse carina, both carinae low. Pleural part of the prepectal carina obliterated. Pleural part of the prepectus densely punctate and rugose-punctate. Mesopleurum with distinct and rather dense or dense punctation on a smooth background. Speculum punctate posteriorly, smooth anteriorly. Depression in front of the speculum with strong longitudinal striae, which merge with the punctation anteriorly. Metapleurum very densely punctate or densely rugose-punctate on a smooth background. Pleural carina complete. Areolet rather large, short-stalked, receiving the 2<sup>nd</sup> recurrent vein distad of the middle. Nervellus distinctly reclivous, weakly intercepted. Nervellar index 0.5-0.6. Tibial spur index 0.6. Hind femur 4.5× as long as high. Hind tarsal claws short, with distinct

pectinate teeth basally and medially. Propodeum extending to 0.4 of the hind coxae, not depressed anteriorly and posteriorly, slightly and narrowly depressed medially, almost smooth in the midline anteriorly and medially, with short transverse or irregular wrinkles beside the shining midline, with long transverse striae posteriorly, carinae almost completely obliterated. Propodeal spiracle rather large, 2.7× as long as wide. Spiracular carina narrow. Spiracular index 0.3. 1<sup>st</sup> gastral tergite 3.7×, 2<sup>nd</sup> tergite 1.9× as long as wide. Petiole without glymmae, with weakly indicated narrow lateral areas, smooth in front of these areas. Petiolar suture for the greater part obliterated. 1<sup>st</sup> gastral sternite smooth. Thyridium elongate. Thyridial index about 1.0. Epipleurum not separated from the 3<sup>rd</sup> gastral tergite, the latter with distinct black lateral stripes well above the ventrolateral edge. Gaster distinctly compressed posteriorly. Ovipositor index 0.6.

Colour: Black. Maxillary palpus yellowish brown. Mandible broadly yellow medially. Flagellum light brown medially and apically. Tegula yellowish brown. Wings hyaline. Stigma yellowish brown to medium brown medially. Front trochanter sometimes marked with reddish brown. Front femur yellowish red. Front tibia and tarsus yellow, the tarsus marked with black apically. Mid femur yellowish red on the apical 0.3. Mid tibia yellow. Mid tarsus medium brown to dark brown. Hind tibia medially yellow to yellowish brown on the dorsal side, brown on the ventral side, narrowly black basally, broadly black apically. 2<sup>nd</sup> gastral tergite dorsally red on the posterior 0.1-0.2, laterally red on the posterior 0.4. 3<sup>rd</sup> tergite red, marked with black dorsally. 4<sup>th</sup> tergite red, sometimes tinged with brown or black dorsally. Pilosity whitish.

♂: Flagellum medium brown medially and apically. Front trochanter yellowish brown to reddish brown. Hind tibia medially broadly whitish yellow on the dorsal side, light brown on the ventral side, narrowly black basally, rather broadly black apically. Genital clasper black. In other characters similar to the ♀.

**Material** (4♀, 3♂♂): Russia: Yevreyskiy A.O.: Amurzet; Primorye: Dalnerechensk, Khasan (PET), Sikhotealin (MOS), Yakovlevka (MOS, PET). China: Heilongjiang Prov.: Charbin (= Harbin) (AEI).

**Description.** ♀: Body length 9-10 mm. Temples strongly constricted behind the eyes, 0.8× as long as the width of an eye, tangential lines on eyes and temples intersect on the posterior half of the mesoscutum. Ocellar index 1.0. Frons slightly depressed, coriaceous, with very fine punctation, with a fine median longitudinal carina, with short radial wrinkles. Antennal carina low and narrow, the rim slightly bent upwards. Face and dorsal 0.6 of the clypeus coriaceous, densely rugose-punctate. Clypeus slightly convex, coriaceous and rather densely punctate ventrally, its apex slightly convex medially. Malar space index 0.4. Genal carina low and straight ventrally, joining the low oral carina at an acute angle. Genal index 0.3. Temple finely coriaceous and with very fine disperse punctation medially. Flagellum with 45-51 segments, filiform, the apical half attenuate, 2<sup>nd</sup> segment 1.7×, shortest segment 0.9×, penultimate segment 1.5× as long as wide. Pronotum with longitudinal wrinkles, the dorsal 0.2 with additional punctures. Mesoscutum and scutellum coriaceous, densely punctate. Scutellum with lateral carinae on the anterior 0.6. Prescutellar groove smooth. Prepectal carina low, ventral part merging with the pleural part, the latter complete, joining the anterior edge of the mesopleurum. Transverse carina obliterated. Mesopleurum distinctly coriaceous, densely punctate. Speculum coriaceous and punctate posteriorly, finely granulate-strigose anteriorly. Depression in front of the speculum granulate-strigose and with fine longitudinal striae, which merge with the punctation or with a narrow coriaceous area without punctation anteriorly. Metapleurum coriaceous, very densely punctate. Pleural carina distinct. Areolet rather large, short-stalked, receiving the 2<sup>nd</sup> recurrent vein at or slightly distad of the middle. Nervellus recumbent, distinctly intercepted. Nervellar index 0.6. Tibial spur index 0.6. Hind femur 4.5× as long as high. Hind tarsal claws short, with distinct pectinate teeth basally. Propodeum extending to 0.3 of the hind coxae, broadly and distinctly depressed, with short transverse wrinkles anteriorly, sometimes with a coriaceous area without wrinkles anteriorly, with long transverse wrinkles posteriorly, carinae almost completely obliterated, sometimes the longitudinal carinae indicated medially and posteriorly. Propodeal spiracle large, 3.4× as long as wide. Spiracular carina widened. Spiracular index 0.2. 1<sup>st</sup> gastral tergite 3.7×, 2<sup>nd</sup> tergite 1.8× as long as wide. Petiole without glymmae or with very small glymmae, without narrow lateral areas, smooth in front of the glymmae. Petiolar su-

ture almost completely obliterated. 1<sup>st</sup> gastral sternite smooth. Thyridium oval. Thyridial index about 1.0. Epipleurum not separated from the 3<sup>rd</sup> gastral tergite, the latter with somewhat indistinct black lateral stripes well above the ventrolateral edge. Gaster distinctly compressed posteriorly. Ovipositor index 0.5.

Colour: Black. Maxillary palpus dark brown. Mandible dark reddish brown medially. Flagellum medium brown apically. Wings hyaline. Stigma light brown medially. Front femur reddish brown dorsally, black ventrally. Front tibia and tarsus yellow. Mid femur yellow on the apical 0.1. Mid tibia yellow. Hind tibia marked with whitish yellow subbasally on the dorsal side. 2<sup>nd</sup> gastral tergite dorsally black or marked with red on the posterior 0.2, the red marks more extended laterally. 3<sup>rd</sup> tergite red, sometimes tinged with brown. Pilosity whitish.

♂: Flagellum medium brown to dark brown apically. In other characters similar to the ♀.

**Material** (9♀, 7♂): Russia: Amur Prov. (HEL, PET); Yevreyskiy A.O.: Amurzet (PET); Primorye: Khasan (Hinz/ZSM, MOS, PET). Japan: Hokkaido: Ohnuma (AEI).

#### *Dusona conturmax* (Förster, 1868)

**Description.** ♀: Body length 8-9 mm. Temples distinctly constricted behind the eyes, 0.9× as long as the width of an eye, tangential lines on eyes and temples intersect on the postscutellum. Ocellar index 1.1. Frons slightly depressed, coriaceous, finely and dispersely punctate, with a fine median longitudinal carina, with short and indistinct radial wrinkles, the latter sometimes lacking. Antennal carina low and narrow. Face and dorsal half of the clypeus coriaceous and densely punctate. Clypeus flat, coriaceous and rather densely punctate ventrally, its apex slightly convex medially. Malar space index 0.3. Genal carina low ventrally, slightly bent sideways, joining the low oral carina at an acute angle. Genal index 0.1-0.2. Temple finely coriaceous and with fine disperse punctation medially. Flagellum with 41-43 segments, filiform, the apical 0.2 attenuate, 2<sup>nd</sup> segment 1.8×, shortest segment 0.9×, penultimate segment 1.0× as long as wide. Pronotum with punctures and fine longitudinal wrinkles laterally on the dorsal 0.2, with longitudinal wrinkles ventrally. Mesoscutum and scutellum coriaceous, dull, very densely punctate. Scutellum with lateral carinae on the anterior half. Prescutellar groove with fine longitudinal striae. Prepectal carina low, the

ventral part merging with the pleural part, the latter complete or almost complete, joining the anterior edge of the mesopleurum or its dorsal 0.2 replaced by several wrinkles. Transverse carina more or less obliterated. Mesopleurum with rather dense or dense punctation on a coriaceous and somewhat shining background. Speculum finely coriaceous, shining. Depression in front of the speculum with fine longitudinal wrinkles, which merge with the punctation anteriorly. Metapleurum coriaceous, finely and densely punctate, partly rugose. Pleural carina distinct. Areolet large, stalked, receiving the 2<sup>nd</sup> recurrent vein basad of the middle. Nervellus vertical, weakly intercepted. Nervellar index 0.8. Tibial spur index 0.5. Hind femur 4.6× as long as high. Hind tarsal claws short, with long pectinate teeth basally and medially. Propodeum extending to 0.4 of the hind coxae, rather broadly and deeply depressed, with short transverse wrinkles in the midline of the sulcus, in other parts irregularly wrinkled, carinae almost completely obliterated. Propodeal spiracle large, 3.0× as long as wide. Spiracular carina narrow. Spiracular index 0.3. 1<sup>st</sup> gastral tergite 3.9×, 2<sup>nd</sup> tergite 1.3× as long as wide. Petiole with distinct glymmae, which are bordered by longitudinal carinae dorsally, smooth in front of the glymmae. Petiolar suture partly obliterated. 1<sup>st</sup> gastral sternite coriaceous anteriorly, smooth medially, transversely striate posteriorly. Thyridium oval. Thyridial index about 1.0. Epipleurum separated from the 3<sup>rd</sup> gastral tergite anteriorly, the crease marked with black. Epipleural index 0.5. Gaster distinctly compressed posteriorly. Ovipositor index 0.7.

Colour: Black. Maxillary palpus yellowish brown. Mandible yellowish brown or dark brown medially. Tegula brownish black. Wings hyaline. Stigma yellowish medially. Front leg from the femur onwards yellowish red. Mid femur yellowish red on the apical 0.3. Mid tibia yellowish red. Mid tarsus brown. Hind tibia broadly yellowish brown medially, narrowly black basally, indistinctly tinged with brown apically. Hind tarsus dark brown. 2<sup>nd</sup> gastral tergite dorsally red on the posterior 0.3-0.5, the red marks more extended laterally. 3<sup>rd</sup> tergite red. 4<sup>th</sup> tergite marked with red anteriorly and/or ventrolaterally. Pilosity whitish.

♂: Propodeum not so broadly and not so deeply depressed, longitudinal carinae sometimes present medially and posteriorly. Maxillary palpus yellowish. Mandible broadly yellow medially. Tegula yellow or yellowish brown. Front trochanter yellowish red. Mid femur yellowish red. Front and mid tibiae and tarsi yellow. 4<sup>th</sup> gastral

tergite sometimes completely red. In other characters similar to the ♀.

**Material** (7♀, 2♂): Russia: Irkutsk Prov.; Chita Prov.: Klichka, Urulyunguy E of Borzya, Zabaykalsk (PET).

*Dusona coriacea* Horstmann, spec. nov.

**Holotype** (♂): Japan, Honshu, Norikura-dake, 2000 m, 30.7.1954 (AEI).

**Description.** ♂: Body length 13 mm. Temples strongly constricted behind the eyes, 0.7× as long as the width of an eye, tangential lines on eyes and temples intersect on the posterior half of the mesoscutum. Ocellar index 0.6. Frons slightly depressed above the antennal carina, coriaceous, very finely punctate, with a fine median longitudinal carina, with fine and short radial wrinkles. Antennal carina low and narrow. Face and dorsal 0.6 of the clypeus coriaceous and very densely punctate. Clypeus flat, coriaceous and rather densely punctate ventrally, its apex truncate medially. Malar space index 0.4. Genal carina low and straight ventrally, joining the low oral carina at an acute angle. Genal index 0.4. Temple finely coriaceous and with very fine disperse punctation medially. Flagellum with 49 segments, filiform, the apical 0.2 slightly attenuate, 2<sup>nd</sup> segment 1.7×, shortest segment 1.0×, penultimate segment 1.2× as long as wide. Pronotum coriaceous and densely rugose-punctate laterally on the dorsal 0.2, with longitudinal wrinkles ventrally. Mesoscutum coriaceous, finely and densely punctate. Scutellum coriaceous, finely and rather densely punctate, with lateral carinae on the anterior 0.6. Prescutellar groove smooth. Prepectal carina low, ventral part merging with the pleural part, the latter almost joining the anterior edge of the mesopleurum. Transverse carina partly indicated, low. Mesopleurum distinctly coriaceous, rather densely punctate. Speculum and depression in front of the speculum coriaceous, dull, in small parts granulate-strigose. Metapleurum coriaceous, finely and very densely punctate. Pleural carina distinct. Areolet large, long-stalked, receiving the 2<sup>nd</sup> recurrent vein slightly basad of the middle. Nervellus slightly inclivous, distinctly intercepted. Nervellar index 0.8. Tibial spur index 0.4. Hind femur 4.8× as long as high. Hind tarsal claws short, with short pectinate teeth basally. Propodeum extending to the basal 0.3 of the hind coxae, distinctly and rather narrowly depressed, the depression coriaceous and without wrinkles anteriorly, transversely wrinkled medi-

ally and posteriorly, costulae partly present, longitudinal carinae distinct medially and posteriorly, covered with wrinkles anteriorly. Propodeal spiracle rather large, 3.6× as long as wide. Spiracular carina indistinct and covered with wrinkles. Spiracular index about 0.3. 1<sup>st</sup> gastral tergite 4.6×, 2<sup>nd</sup> tergite 2.7× as long as wide. Petiole with deep and rather long glymmae, the latter bordered by a carina dorsally, petiole smooth in front of the glymmae. Petiolar suture fine, partly obliterated. 1<sup>st</sup> gastral sternite smooth. Thyridium elongate. Thyridial index about 1.0. Epipleurum separated from the 3<sup>rd</sup> gastral tergite, the crease slightly marked with black. Epipleural index 0.7. Gaster distinctly compressed posteriorly.

Colour: Black. Maxillary palpus brown basally, yellow apically. Mandible narrowly yellow dorsally and medially. Tegula yellowish brown. Wings hyaline. Stigma yellowish brown medially. Front trochanter and femur yellowish red. Front tibia and tarsus yellow. Mid leg from the apical 0.2 of the femur onwards yellow. Hind tibia dark yellowish brown medially, broadly black basally, very broadly black apically. 2<sup>nd</sup> gastral tergite red on the posterior 0.6. 3<sup>rd</sup> and 4<sup>th</sup> tergites red. 5<sup>th</sup> tergite narrowly marked with red ventrolaterally. Genital clasper black. Pilosity whitish.

♀ unknown.

*Dusona crassiventris* Horstmann, spec. nov.

**Holotype** (♀): North Korea, Wonsan, 29.8.1987 (SAW).

**Description.** ♀: Body length 17 mm. Temples strongly constricted behind the eyes, 0.7× as long as the width of an eye, tangential lines on eyes and temples intersect on the posterior half of the mesoscutum. Ocellar index 1.0. Frons distinctly depressed (but not funnel-like), coriaceous and densely punctate dorsally, with strong radial wrinkles in the depression ventrally, these wrinkles extending to half the distance to the median ocellus, without a median longitudinal carina. Antennal carina distinctly raised, its rim distinctly bent upwards and widened to a crescent-shaped transversely striate plate (ear-like) (Fig. 6). Face and dorsal 0.8 of the clypeus coarsely and very densely punctate and rugose-punctate. Clypeus flat, finely coriaceous and with rather fine punctures and wrinkles ventrally, its apex truncate medially. Malar space index 0.3. Genal carina low ventrally, slightly bent sideways, joining the slightly raised oral carina at an acute angle. Genal index 0.4. Temple with distinct and disperse or rather

dense punctation on a finely coriaceous and partly smooth background medially. Flagellum with 61 segments, filiform, the apical 0.4 distinctly attenuate, 2<sup>nd</sup> segment 1.5×, shortest segment 1.0×, penultimate segment 1.3× as long as wide. Pronotum with very dense punctation on a smooth background laterally on the dorsal 0.6, with wrinkles ventrally. Mesoscutum and scutellum strongly and densely punctate on a finely coriaceous background. Scutellum with lateral carinae on the anterior 0.3. Prescutellar groove with fine longitudinal striae. Prepectal carina low, ventral part merging with the pleural part, the latter almost joining the anterior edge of the mesopleurum. Transverse carina indicated anteriorly. Mesopleurum distinctly and very densely punctate on a smooth background. Speculum slightly granulate-strigose, shining. Depression in front of the speculum for the greater part with rather long longitudinal striae, which merge partly with the punctation, partly with a narrow area without punctation anteriorly. Metapleurum distinctly and very densely punctate on a smooth background. Pleural carina distinct. Areolet large, narrowly sessile, receiving the 2<sup>nd</sup> recurrent vein slightly basad of the middle. Nervellus slightly inclivous, distinctly intercepted. Nervellar index 0.75. Tibial spur index 0.5. Hind femur 4.7× as long as high. Hind tarsal claws short, with dense and rather long pectinate teeth almost over their total length. Propodeum extending to 0.3 of the hind coxae, broadly and distinctly but not deeply depressed, sulcus with long transverse wrinkles posteriorly, short transverse wrinkles medially, coriaceous and punctate without wrinkles anteriorly, costulae partly present, longitudinal carinae distinct, almost reaching the costulae. Propodeal spiracle large, 2.4× as long as wide. Spiracular carina narrow. Spiracular index 0.3. 1<sup>st</sup> gastral tergite 2.4×, 2<sup>nd</sup> tergite 1.7× as long as wide. Petiole with large and deep glymmae, smooth in front of the glymmae. Postpetiole 0.9× as long as wide, conspicuously rounded laterally. Petiolar suture fine, partly obliterated. 1<sup>st</sup> gastral sternite smooth. Thyridium oval. Thyridial index about 1.0. Epipleurum not separated from the 3<sup>rd</sup> gastral tergite, the latter without black lateral stripes. Gaster distinctly compressed posteriorly. Ovipositor index 0.5.

Colour: Black. Maxillary palpus brown basally, yellowish red medially and apically. Mandible broadly yellow medially. Wings slightly tinged with brown. Stigma dark yellowish brown medially. Front femur yellowish red dorsally and apically. Front tibia and tarsus yellow. Mid femur yellowish red on the apical 0.2. Mid tibia yellowish red. Mid tarsus blackish. Hind tibia blackish,

tinged with dark brown medially. 2<sup>nd</sup> gastral tergite dorsally red on the posterior 0.1, almost completely red laterally, the posterior edge black sublaterally. 3<sup>rd</sup> and 4<sup>th</sup> tergite narrowly black dorsally, broadly red laterally. Pilosity whitish.

♂ unknown.

#### *Dusona cultrator* (Gravenhorst, 1829)

**Description.** ♀: Body length 12-16 mm. Temples distinctly constricted behind the eyes, 0.9× as long as the width of an eye, tangential lines on eyes and temples intersect on the scutellum. Ocellar index 1.1. Frons slightly depressed, coriaceous, finely and densely punctate, with a distinct median longitudinal carina, with distinct radial wrinkles, which extend to half the distance to the median ocellus. Antennal carina low and narrow. Face and clypeus coriaceous, densely rugose-punctate. Clypeus flat, its apex truncate medially. Malar space index 0.4. Genal carina almost straight ventrally, slightly raised, joining the slightly raised oral carina at an acute angle. Genal index 0.2-0.3. Temple coriaceous and with fine disperse punctation medially. Flagellum with 53-58 segments, filiform, the apical 0.3 distinctly attenuate, 2<sup>nd</sup> segment 1.5×, shortest segment 0.9×, penultimate segment 1.4× as long as wide. Pronotum coriaceous and densely rugose-punctate laterally on the dorsal 0.3, with longitudinal wrinkles ventrally. Mesoscutum and scutellum coriaceous, dull, very densely punctate. Scutellum with lateral carinae on the anterior 0.3. Prescutellar groove smooth medially, with longitudinal striae laterally. Prepectal carina low, the ventral part merging with the pleural part, the latter complete, joining the anterior edge of the mesopleurum, sometimes the dorsal 0.1 indistinct. Transverse carina obliterated. Mesopleurum finely coriaceous, with fine rather dense or dense punctation. Speculum finely coriaceous and granulate-strigose, shining. Depression in front of the speculum with rather short longitudinal striae, which merge with the punctation anteriorly. Metapleurum coriaceous, finely and densely punctate. Pleural carina distinct. Areolet large, pointed or short-stalked, receiving the 2<sup>nd</sup> recurrent vein slightly basad of the middle. Nervellus vertical, distinctly intercepted. Nervellar index 0.7. Tibial spur index 0.6. Hind femur 4.8× as long as high. Hind tarsal claws rather long, with rather long pectinate teeth almost over their total length. Propodeum extending to 0.3 of the hind coxae, broadly and deeply depressed, sulcus transversely wrinkled, costulae almost complete, longitudinal carinae distinct posteriorly, sometimes indi-

cated medially. Propodeal spiracle rather large, 3.3× as long as wide. Spiracular carina narrow. Spiracular index 0.5. 1<sup>st</sup> gastral tergite 3.4×, 2<sup>nd</sup> tergite 1.2× as long as wide. Petiole with large glymmae, which are bordered by longitudinal carinae dorsally, smooth or with very fine longitudinal striae in front of the glymmae. Petiolar suture complete. 1<sup>st</sup> gastral sternite with very fine sculpture, shining, sometimes with transverse striae posteriorly. Thyridium oval. Thyridial index about 1.5. Epipleurum separated from the 3<sup>rd</sup> gastral tergite, the crease marked with black. Epipleural index 0.5-0.8. Gaster distinctly compressed posteriorly. Ovipositor index 0.7-0.8.

Colour: Black. Maxillary palpus yellowish red. Mandible broadly yellowish red medially. Wings hyaline. Stigma yellowish brown medially. Front leg from the tip of the coxa onwards yellowish red. Mid leg from the femur onwards yellowish red, the tarsus sometimes darkened. Hind femur red, sometimes marked with brown or black basally (to a variable extend). Hind tibia yellowish brown, sometimes narrowly marked with brown basally. Hind tarsus yellowish brown to brown. 2<sup>nd</sup> gastral tergite red on the posterior 0.3. 3<sup>rd</sup> tergite red on the anterior half or completely red. Pilosity whitish.

♂: Propodeum with complete costulae, often the longitudinal carinae present medially and posteriorly. Tegula yellowish brown to dark brown. Mid leg from the tip of the coxa onwards yellowish red. Hind tarsus for the greater part yellowish red, marked with dark brown apically. In other characters similar to the ♀.

**Material** (16♀♀, 4♂♂): Russia: Tomsk Prov.: Tomsk; Irkutsk Prov.: Irkutsk; Chita Prov.: Kalga; Khabarovk Terr.: Khekhtsir near Khabarovsk, Troitskoye; Primorye: Pogranichnyy, Roshchino, Vladivostok. Kazakhstan: Akmolinskiy, Chimkent, Yanvartsevo (PET). Kirgiziya: Chatkal (MOS), River Tyup (LIN). Japan: Hokkaido: Sapporo (SAP); Honshu: Kamikochi near Norikura-dake (AEI).

#### *Dusona detritor* Hinz & Horstmann, spec. nov.

**Types.** Holotype (♀): Russia, Kuril Isl., Kunashir, Mendeleyevo, 2.8.1981 (PET). – Paratypes: 1♂ Russia, Kuril Isl., Kunashir, Yuzhno-Kurilsk, 11.7.1973 (PET); 1♂ Japan, Honshu, Kamikochi, near Norikura-dake, 23.7.1954 (AEI).

**Description.** ♀: Body length 9-10 mm. Temples strongly constricted behind the eyes, 0.6× as long as the width of an eye, tangential lines on eyes and

temples intersect on the posterior half of the mesoscutum. Ocellar index 0.6. Frons slightly depressed, coriaceous, finely punctate, with a very fine median longitudinal carina, with short radial wrinkles. Antennal carina low and narrow. Face and dorsal half of the clypeus densely rugose-punctate. Clypeus flat, finely coriaceous and with fine rather dense punctation ventrally, its apex slightly convex medially. Malar space index 0.4. Genal carina low and rather straight ventrally, joining the slightly raised oral carina at an acute angle. Genal index 0.4. Temple finely coriaceous and with fine disperse punctation medially. Flagellum with 43-44 segments, filiform, the apical 0.2 attenuate, 2<sup>nd</sup> segment 2.3×, shortest segment 1.0×, penultimate segment 1.3× as long as wide. Pronotum with dense punctation laterally on the dorsal 0.2, with longitudinal wrinkles ventrally. Mesoscutum and scutellum coriaceous, very densely punctate. Scutellum with lateral carinae on the anterior half. Prescutellar groove smooth. Prepectal carina low, ventral part merging with the pleural part, the latter joining the anterior edge of the mesopleurum. Transverse carina obliterated. Mesopleurum finely coriaceous, distinctly and densely punctate. Speculum finely coriaceous, shining. Depression in front of the speculum with distinct longitudinal stiae, which merge with the punctation anteriorly. Metapleurum densely rugose. Pleural carina distinct. Areolet rather small, short-stalked, receiving the 2<sup>nd</sup> recurrent vein distad of the middle. Nervellus vertical, intercepted. Nervellar index 0.6. Tibial spur index 0.5. Hind femur 6.2× as long as high. Hind tarsal claws rather long, with distinct pectinate teeth almost over their total length. Propodeum extending to the middle of the hind coxae, scarcely depressed, slightly rugose-punctate and with some fine transverse wrinkles, Costulae complete, longitudinal carinae obliterated. Propodeal spiracle large, 4.3× as long as wide. Spiracular carina narrow. Spiracular index 0.3. 1<sup>st</sup> gastral tergite 5.4×, 2<sup>nd</sup> tergite 1.7× as long as wide (but the latter slightly deformed in the only available ♀). Petiole with small and shallow glymmae at the anterior edge of indistinct narrow lateral areas, smooth in front of the glymmae. Petiolar suture very fine. 1<sup>st</sup> gastral sternite smooth. Thyridium oval. Thyridial index about 3.0. Epipleurum separated from the 3<sup>rd</sup> gastral tergite, the crease marked with black. Epipleural index 0.6. Gaster distinctly compressed posteriorly. Ovipositor index 0.6.

Colour: Black. Maxillary palpus yellow. Mandible broadly marked with yellow medially. Tegula dark brown. Wings hyaline. Stigma dark brown medially. Front leg from the tip of the coxa on-

wards yellow to yellowish red. Mid leg from the apical 0.2 of the femur onwards yellow. Hind tibia dark yellowish brown, distinctly marked with black basally. 2<sup>nd</sup> gastral tergite marked with red laterally. 3<sup>rd</sup> gastral tergite black anteriorly, red posteriorly. Posterior tergites marked with black dorsally, broadly red laterally. Posterior sternites red. Pilosity whitish.

♂: Glymma partly obliterated. Petiolar suture distinct. Tegula yellowish brown to brown. Mid femur yellowish on the apical 0.4. Genital clasper red. In other characters similar to the ♀.

#### *Dusona dictor* Hinz, 1979

**Description.** ♀: Body length 8 mm. Temples distinctly constricted behind the eyes, 0.8× as long as the width of an eye, tangential lines on eyes and temples intersect on the scutellum. Ocellar index 0.8. Frons slightly depressed, coriaceous and finely rugose, with a fine median longitudinal carina, with short radial wrinkles. Antennal carina low and narrow. Face and dorsal 0.8 of the clypeus finely coriaceous and densely rugose-punctate. Clypeus slightly convex, coriaceous and with rather dense punctation ventrally, its apex truncate medially. Malar space index 0.3. Genal carina raised close to the junction with the also raised oral carina, forming a lopsided triangular pyramid, the tip of the latter shifted ventrally and situated behind the base of the mandible. Gena depressed close to the junction, the depression about half as deep as the width of the 2<sup>nd</sup> flagellar segment. Genal index about 0.5. Temple finely coriaceous and with very fine disperse punctation medially. Flagellum with 37-39 segments, filiform, the apical 0.2 slightly attenuate, 2<sup>nd</sup> segment 1.5×, shortest segment 0.8×, penultimate segment 0.9× as long as wide. Pronotum densely rugose-punctate laterally on the dorsal 0.3, with longitudinal wrinkles ventrally. Mesoscutum and scutellum coriaceous, very densely punctate. Scutellum with lateral carinae on the anterior 0.6. Prescutellar groove smooth medially, with few longitudinal striae laterally. Prepectal carina low, ventral part merging with the pleural part, the dorsal half of the latter obliterated. Transverse carina partly present. Mesopleurum distinctly coriaceous, dull, densely punctate. Speculum coriaceous, dull. Depression in front of the speculum with fine rather long longitudinal striae, which merge with the punctation anteriorly. Metapleurum finely and densely rugose and rugose-punctate, the wrinkles coriaceous. Pleural carina distinct. Areolet rather small, short-stalked, receiving the 2<sup>nd</sup> recurrent

vein distad of the middle. Nervellus slightly inclivous, distinctly intercepted. Nervellar index 0.8. Tibial spur index 0.7. Hind femur 5.2× as long as high. Hind tarsal claws short, with short pectinate teeth basally. Propodeum extending to 0.4 of the hind coxae, rather broadly and not deeply depressed, sulcus for the greater part irregularly wrinkled, with long transverse wrinkles posteriorly, costulae indistinct, longitudinal carinae indicated medially and posteriorly. Propodeal spiracle rather large, 3.2× as long as wide. Spiracular carina narrow. Spiracular index 0.4. 1<sup>st</sup> gastral tergite 3.6×, 2<sup>nd</sup> tergite 1.6× as long as wide. Petiole with distinct glymmae, which are bordered by longitudinal carinae dorsally, smooth in front of the glymmae. Petiolar suture for the greater part obliterated. 1<sup>st</sup> gastral sternite for the greater part smooth, with few transverse striae posteriorly. Thyridium elongate. Thyridial index about 1.0. Epipleurum not separated from the 3<sup>rd</sup> gastral tergite, 3<sup>rd</sup> tergite without black lateral stripes. Gaster distinctly compressed posteriorly. Ovipositor index 0.8.

Colour: Black. Maxillary palpus brown basally, yellowish red medially and apically. Mandible narrowly tinged with dark brown subapically. Tegula medium brown. Wings hyaline. Stigma medium brown medially. Front femur black ventrally and basally, yellowish red dorsally and apically. Front tibia and tarsus yellow. Mid femur narrowly marked with yellow apically. Mid tibia yellow. Mid tarsus yellowish brown. Hind tibia light yellow medially, narrowly black basally, broadly black apically. Hind tarsus dark brown. 2<sup>nd</sup> gastral tergite dorsally red on the posterior 0.2, laterally red on the posterior 0.4. 3<sup>rd</sup> tergite red. 4<sup>th</sup> tergite marked with red anteriorly. Pilosity whitish.

♂ unknown.

**Material** (3♀): Russia: Yevreyskiy A.O.: Amurzet; Kuril Isl.: Dubovoye on Kunashir (PET). Japan: Hokkaido: Jozankei (SAP).

#### *Dusona falcator* (Fabricius, 1775)

**Description.** ♀: Body length 18-20 mm. Temples slightly constricted behind the eyes, 0.7× as long as the width of an eye, tangential lines on eyes and temples intersect on the propodeum. Ocellar index 1.1. Frons slightly depressed, coriaceous, densely rugose-punctate, without a median longitudinal carina, with distinct radial wrinkles, which extend to 0.3 the distance to the median ocellus. Antennal carina low and narrow, the rim slightly

and indistinctly bent upwards. Face and dorsal 0.8 of the clypeus finely coriaceous, coarsely and densely rugose-punctate. Clypeus flat, finely coriaceous and rather densely punctate ventrally, its apex truncate medially. Malar space index 0.3. Genal carina straight ventrally, distinctly raised, joining the distinctly raised oral carina at an acute angle, the junction of both carinae not shifted ventrally. Gena slightly depressed close to that junction. Genal index 0.4. Temple finely coriaceous and with very fine disperse punctation medially. Flagellum with 65-67 segments, filiform, the apical 0.3 distinctly attenuate, 2<sup>nd</sup> segment 1.6×, shortest segment 1.0×, penultimate segment 1.5× as long as wide. Pronotum densely rugose-punctate laterally on the dorsal 0.4, with longitudinal wrinkles ventrally. Mesoscutum and scutellum coriaceous, rather densely or densely punctate. Scutellum with lateral carinae on the anterior 0.8. Prescutellar groove with fine longitudinal striae. Prepectal carina low, ventral part merging with the pleural part, the latter complete, joining the anterior edge of the mesopleurum. Transverse carina complete. Rarely the ventral part of the prepectal carina merging with the transverse carina, and the pleural part somewhat lower. Mesopleurum finely coriaceous, strongly and densely punctate. Speculum finely coriaceous, granulate-strigose, shining. Depression in front of the speculum with rather long longitudinal striae, which merge with the punctation anteriorly. Metapleurum densely rugose, the wrinkles coriaceous. Pleural carina complete. Areolet large, short-stalked, receiving the 2<sup>nd</sup> recurrent vein slightly basad of the middle. Nervellus distinctly inclivous, distinctly intercepted. Nervellar index 0.7. Tibial spur index 0.5. Hind femur 5.8× as long as high. Hind tarsal claws rather long, with very long pectinate teeth almost over their total length. Propodeum extending to 0.4 of the hind coxae, broadly and not deeply depressed, sulcus almost completely transversely wrinkled, costulae partly present, longitudinal carinae complete or almost complete. Propodeal spiracle large, 3.3× as long as wide. Spiracular carina narrow. Spiracular index 0.4. 1<sup>st</sup> gastral tergite 4.5×, 2<sup>nd</sup> tergite 2.5× as long as wide. Petiole with rather large glymmae, smooth in front of the glymmae. Petiolar suture almost completely obliterated. 1<sup>st</sup> gastral sternite smooth. Thyridium oval. Thyridial index 1.3. Epipleurum not separated from the 3<sup>rd</sup> gastral tergite, the latter without black lateral stripes. Gaster strongly compressed posteriorly. Ovipositor index 0.4.

Colour: Black. Maxillary palpus dark brown or black. Mandible marked with reddish brown medially. Tegula yellowish brown. Wings tinged

with yellow. Stigma yellowish brown medially. Front trochanter and femur yellowish red. Front tibia and tarsus yellow. Sometimes also the front coxa marked with yellow apically. Mid femur marked with yellow on the apical 0.3. Mid tibia yellow. Mid tarsus dark brown. Hind femur narrowly marked with yellow apically. Hind tibia completely yellow. Hind tarsus brownish black. 2<sup>nd</sup> gastral tergite dorsally yellow on the posterior 0.2, almost completely yellow laterally. 3<sup>rd</sup> and 4<sup>th</sup> tergites yellow. 5<sup>th</sup> tergite marked with yellow ventrolaterally. Pilosity whitish.

♂: Similar to the ♀.

**Material** (4♀♀, 1♂): Russia: Altaysk Terr. (MIN). Kazakhstan: Borovoye near Kokchetav (PET).

### *Dusona flagellator* (Fabricius, 1793)

This species is very similar to *D. inermis*, particularly in the shape of the genal carina. It differs from the latter in: Hind tibia less extensively marked with yellow. 2<sup>nd</sup> gastral tergite less extensively marked with red.

**Description.** ♀: Body length 7-9 mm. Temples distinctly constricted behind the eyes, 0.8× as long as the width of an eye, tangential lines on eyes and temples intersect on the prescutellar groove. Ocellar index 0.8. Frons not depressed, densely rugose, with a distinct median longitudinal carina, with distinct radial wrinkles, which extend to half the distance to the median ocellus. Antennal carina low and narrow. Face and dorsal 0.3 of the clypeus coriaceous, densely rugose-punctate and rugose. Clypeus flat, coriaceous and densely punctate ventrally, its apex slightly convex medially. Malar space index 0.4. Genal carina slightly but distinctly raised ventrally, distinctly bent forwards and sideways, joining the oral carina at the base of the mandible at a right angle. Temple finely coriaceous and with fine disperse punctation medially. Flagellum with 42-47 segments, filiform, the apical 0.2 attenuate, 2<sup>nd</sup> segment 2.4×, shortest segment 1.3×, penultimate segment 1.7× as long as wide. Pronotum coriaceous and densely rugose laterally on the dorsal 0.2, with longitudinal wrinkles ventrally. Mesoscutum and scutellum coriaceous, dull, very densely punctate. Scutellum with lateral carinae on the anterior 0.7. Prescutellar groove smooth. Ventral part of the prepectal carina merging with the transverse carina, both carinae strongly raised, the former deeply emarginate medially. Pleural part of the prepectal carina lower, its dorsal 0.2 replaced by several wrinkles.

Mesopleurum distinctly coriaceous, with rather dense or dense (rarely disperse) punctation. Speculum with fine oblique striae or granulate-strigose, rather dull. Depression in front of the speculum with distinct longitudinal striae, which merge with the punctation anteriorly. Metapleurum coriaceous, finely and densely rugose-punctate. Pleural carina distinct. Areolet rather large, short-stalked, receiving the 2<sup>nd</sup> recurrent vein almost at the middle. Nervellus distinctly reclivous, not intercepted or weakly intercepted. In the latter case nervellar index 0.7. Tibial spur index 0.6. Hind femur 5.1× as long as high. Hind tarsal claws short, with short pectinate teeth basally. Propodeum extending to the middle of the hind coxae, broadly and deeply depressed, sulcus with short transverse wrinkles in the midline, irregularly wrinkled in other parts, costulae obliterated, longitudinal carinae almost completely obliterated or slightly indicated medially and posteriorly. Propodeal spiracle rather small, 3.6× as long as wide. Spiracular carina narrow or partly widened. Spiracular index 0.3. 1<sup>st</sup> gastral tergite 4.5×, 2<sup>nd</sup> tergite 1.8× as long as wide. Petiole with small glymmae at the anterior edge of narrow lateral areas, glymmae sometimes obliterated, petiole smooth in front of these areas. Petiolar suture obliterated. 1<sup>st</sup> gastral sternite smooth. Thyridium oval. Thyridial index about 1.5. Epipleurum not separated from the 3<sup>rd</sup> gastral tergite, the latter with distinct black lateral stripes well above the ventrolateral edge. Gaster distinctly compressed posteriorly. Ovipositor index 0.7.

Colour: Black. Maxillary palpus yellowish brown. Mandible narrowly marked with reddish brown dorsally. Wings hyaline. Stigma yellowish medially. Front leg from the femur onwards yellowish red. Apical half of mid femur and mid tibia yellowish red. Hind tibia black, sometimes tinged with yellowish brown subbasally on the dorsal side. 2<sup>nd</sup> gastral tergite red on the posterior 0.3-0.4. 3<sup>rd</sup> and 4<sup>th</sup> tergites red, the 4<sup>th</sup> tergite sometimes marked with black dorsally. Pilosity whitish.

♂: Maxillary palpus yellow. Mandible broadly yellow medially. Tegula yellow. Front and mid legs from the tip of the coxa onwards yellowish red, sometimes the mid coxa completely black. Hind tibia whitish yellow medially, narrowly black basally, very broadly black apically (apical black ring extending over 0.3 of the tibia). In other characters similar to the ♀.

**Material** (14♀♀, 9♂♂): Russia: Altaysk Terr.: Gorno-Altaysk (MIN); Yakutsk A.S.S.R.: Bestyak; Amur Prov.: Svobodnyy; Primorye: Spassk Dalniy; Kamchatka: Kozyrevsk (PET). Kazakhstan: Alma-Ata,

Chimkent (MOS, PET). Kirgiziya: Kirgizskiy Mts. (LIN).

**Variety:** Body length 7 mm. Genal carina low ventrally. Flagellum with 39-41 segments. Material: 1♀, 1♂ Kazakhstan: Aksu-Dzhabagly, ESE of Chimkent (MOS, Hinz/ZSM). Probably these are small specimens of *D. flagellator*.

#### *Dusona flavitarsis* Horstmann, spec. nov.

The species is similar to *D. rossica* Hinz (described from European Russia). The latter differs in: Body length 13-14 mm. 56 flagellar segments. 4<sup>th</sup> gastral tergite red.

**Types.** Holotype (♂): Mongoliya, Sühbaatar Prov., Shiliin-Bogd uul Mts., 10.7.1971 (PET). – Paratypes: 1♂ same locality and date (Hinz/ZSM); 1♂ Russia, Chita Prov., Zabaykalsk, 21.6.1925 (PET).

**Description.** ♂: Body length 10-12 mm. Temples not much constricted behind the eyes, 0.8× as long as the width of an eye, tangential lines on eyes and temples intersect on the 1<sup>st</sup> gastral tergite. Ocellar index 1.2. Frons slightly depressed, densely rugose-punctate, with a fine and partly obliterated median longitudinal carina, with fine radial wrinkles, which extend to 0.3 the distance to the median ocellus. Antennal carina low and narrow. Face and dorsal 0.7 of the clypeus coriaceous, densely rugose-punctate. Clypeus flat, coriaceous and rather densely punctate ventrally, its apex slightly convex medially. Malar space index 0.5. Genal carina low and straight ventrally, joining the slightly raised oral carina at an acute angle. Genal index 0.5. Temple finely coriaceous and with fine rather dense punctation medially. Flagellum with 48-51 segments, filiform, the apical 0.3 attenuate, 2<sup>nd</sup> segment 1.5×, shortest segment 0.9×, penultimate segment 1.1× as long as wide. Pronotum very densely punctate on a smooth background laterally on the dorsal 0.3, with longitudinal wrinkles ventrally. Mesoscutum finely coriaceous, very densely punctate. Scutellum very densely punctate on a smooth background, with lateral carinae on the anterior 0.4. Prescutellar groove with longitudinal striae. Ventral part of the prepectal carina low, merging with either the pleural part or the transverse carina, pleural part almost joining the anterior edge of the mesopleurum. Transverse carina complete or obliterated posteriorly. Mesopleurum finely coriaceous, rather densely or densely punctate. Speculum slightly granulate-strigose anteriorly, distinctly punctate posteriorly. Depres-

sion in front of the speculum granulate-strigose and with fine longitudinal striae, which merge with the punctation anteriorly. Metapleurum finely coriaceous and densely punctate. Pleural carina distinct. Areolet rather large, short-stalked or pointed, receiving the 2<sup>nd</sup> recurrent vein at the middle. Nervellus vertical, weakly intercepted. Nervellar index 0.7. Tibial spur index 0.6. Hind femur 4.3× as long as high. Hind tarsal claws long, with short pectinate teeth basally. Propodeum extending to 0.3 of the hind coxae, broadly and not deeply depressed, transversely wrinkled in almost all parts of the sulcus, costulae and longitudinal carinae indicated, the latter obliterated anteriorly. Propodeal spiracle large, 2.9× as long as wide. Spiracular carina narrow. Spiracular index 0.5. 1<sup>st</sup> gastral tergite 3.1×, 2<sup>nd</sup> tergite 1.5× as long as wide. Petiole with rather large glymmae, smooth in front of the glymmae. Petiolar suture fine and partly obliterated. 1<sup>st</sup> gastral sternite smooth. Thyridium oval. Thyridial index about 1.0. Epipleurum separated from the 3<sup>rd</sup> gastral tergite anteriorly, the crease marked with black. Epipleural index 0.4-0.5. Gaster distinctly compressed posteriorly.

Colour: Black. Maxillary palpus yellowish red. Mandible broadly marked with yellow medially. Tegula yellowish brown. Wings hyaline. Stigma light yellowish brown. Front leg from the tip of the coxa onwards light yellowish red. Mid leg from the femur onwards light yellowish red. Hind tibia and hind tarsus light yellowish red, the tibia marked with light red apically. 2<sup>nd</sup> gastral tergite red on the posterior 0.2-0.4, the red marks more extended laterally. 3<sup>rd</sup> tergite red. 4<sup>th</sup> tergite narrowly red anteriorly.

♀ unknown.

#### *Dusona flavopicta* Horstmann, spec. nov.

**Types.** Holotype (♂): Russia, Kuril Isl., Kunashir, Tretyakovo, 13.6.1968 (PET). – Paratypes: 1♂ Russia, Primorye, Pozhiga SO of Dalnerechensk, 20.7.1983 (PET); 4♂♂ Japan, Hokkaido, Sounkyo, 18.6.1938 (AEL, 1♂ Hinz/ZSM); 1♂ Japan, Shikoku, Mt. Ishizuchi, 14.7.1933 (SAP).

**Description.** ♂: Body length 7-8 mm. Temples distinctly constricted behind the eyes, 0.7× as long as the width of an eye, tangential lines on eyes and temples intersect on the postscutellum. Ocellar index 0.9. Frons slightly depressed, coriaceous, finely rugose-punctate, without a distinct median longitudinal carina, without radial wrinkles. Antennal carina low and narrow. Face and dorsal 0.7

of the clypeus densely and finely rugose-punctate. Clypeus slightly concave, coriaceous and rather densely punctate ventrally, its apex truncate medially. Malar space index 0.4. Genal carina low ventrally, straight or slightly bent sideways, joining the slightly raised oral carina at an acute angle. Genal index 0.1-0.25. Temple finely coriaceous and with very fine disperse punctation medially. Flagellum with 40-44 segments, filiform, the apical 0.7 attenuate, 2<sup>nd</sup> segment 1.4×, shortest segment 1.0×, penultimate segment 1.3× as long as wide. Pronotum densely and finely rugose-punctate laterally on the dorsal 0.2, with longitudinal wrinkles ventrally. Mesoscutum and scutellum coriaceous and densely punctate. Scutellum with lateral carinae on the anterior 0.8. Prescutellar groove smooth medially, with fine longitudinal striae laterally. Prepectal carina low, ventral part merging with the pleural part, the latter covered with wrinkles on its dorsal 0.3. Transverse carina indicated anteriorly. Mesopleurum coriaceous, dull, distinctly and densely punctate. Speculum granulate-strigose, somewhat shining. Depression in front of the speculum with fine and long longitudinal wrinkles, which merge with the punctation anteriorly. Metapleurum densely and finely rugose. Pleural carina complete. Areolet rather small, long-stalked, receiving the 2<sup>nd</sup> recurrent vein distad of the middle. Nervellus vertical, weakly intercepted. Nervellar index 0.8-0.9. Tibial spur index 0.6. Hind femur 4.8× as long as high. Hind tarsal claws short, with short pectinate teeth basally. Propodeum extending to 0.3 of the hind coxae, slightly and rather narrowly depressed, costulae partly present, longitudinal carinae indicated medially and posteriorly, the area between the longitudinal carinae almost completely transversely wrinkled. Propodeal spiracle rather small, 3.6× as long as wide. Spiracular carina narrow. Spiracular index 0.5. 1<sup>st</sup> gastral tergite 4.5×, 2<sup>nd</sup> tergite 2.0× as long as wide. Petiole with small glymmae, these sometimes obliterated, smooth in front of the glymmae. Petiolar suture fine. 1<sup>st</sup> gastral sternite smooth anteriorly, with fine transverse striae posteriorly. Thyridium oval. Thyridial index about 2.0. Epipleurum not separated from the 3<sup>rd</sup> gastral tergite, the latter with distinct black lateral stripes well above the ventrolateral edge. Gaster distinctly compressed posteriorly.

Colour: Black. Maxillary palpus yellow. Mandible yellow with black teeth. Tegula yellow. Wings hyaline. Stigma light yellowish brown medially. Front and mid legs for the greater part yellow, coxae narrowly marked with black basally, femora yellowish red. Hind tibia yellowish brown, narrowly dark brown basally, narrowly

marked with brown apically. Hind tarsus medium brown to dark brown. 2<sup>nd</sup> gastral tergite red on the posterior 0.1-0.2, sometimes the red marks more extended laterally. 3<sup>rd</sup> and 4<sup>th</sup> tergite red, partly marked with black dorsally. Pilosity whitish, face with very dense pilosity.

♀ unknown.

### *Dusona fundator* (Hinz, 1990)

This species was mixed up with *D. stygia* by Hinz (1990: 262 ff.), one of the paratypes of *D. fundator* from Escorial/Spain (Hinz/ZSM) belonging to *D. stygia*. Both species differ from each other mainly in the sculpture of the propodeum (irregularly wrinkled in *D. fundator*, distinctly transversely wrinkled in *D. stygia*).

**Description.** ♀: Body length 9-10 mm. Temples slightly constricted behind the eyes, 0.9× as long as the width of an eye, tangential lines on eyes and temples intersect on the propodeum. Ocellar index 1.1. Frons scarcely depressed, coriaceous, finely and densely rugose-punctate, without or with an incomplete median longitudinal carina, with some radial wrinkles, which extend to half the distance to the median ocellus. Antennal carina low, its rim widened to a narrow and sometimes indistinct crescent-shaped plate dorsally, the latter with fine transverse striae. Face and dorsal 0.4 of the clypeus coriaceous, densely rugose-punctate. Clypeus flat, finely coriaceous and with rather dense punctation ventrally, its apex slightly convex medially. Malar space index 0.3. Genal carina low and straight ventrally, joining the slightly raised oral carina at an acute angle. Genal index 0.5. Temple finely coriaceous and with fine rather dense punctation medially. Flagellum with 48-52 segments, filiform, the apical 0.3 attenuate, 2<sup>nd</sup> segment 1.4×, shortest segment 0.9×, penultimate segment 1.1× as long as wide. Pronotum coriaceous and densely rugose-punctate laterally on the dorsal 0.4, with longitudinal wrinkles ventrally. Mesoscutum and scutellum coriaceous, very densely punctate. Scutellum with lateral carinae on the anterior 0.6. Prescutellar groove smooth medially, with fine longitudinal striae laterally. Prepectal carina low, ventral part merging with the pleural part, the dorsal 0.2-0.4 of the latter obliterated and replaced by wrinkles. Transverse carina obliterated. Mesopleurum densely or very densely punctate on a finely coriaceous and shining background. Speculum punctate posteriorly, finely coriaceous or granulate-strigose and shining anteriorly. Depression in front of the specu-

lum with longitudinal wrinkles and fine striae, which merge with the punctation anteriorly. Metapleurum densely rugose and rugose-punctate. Pleural carina distinct. Areolet rather large, pointed, receiving the 2<sup>nd</sup> recurrent vein basad of the middle. Nervellus slightly reclivous, weakly intercepted. Nervellar index 0.7. Tibial spur index 0.7. Hind femur 4.9× as long as high. Hind tarsal claws short, with short pectinate teeth basally and medially. Propodeum extending to 0.3 of the hind coxae, shallowly or not at all depressed, irregularly wrinkled, with a short median longitudinal keel and/or some longitudinal wrinkles posteriorly, carinae almost completely obliterated. Propodeal spiracle large, 3.3× as long as wide. Spiracular carina narrow, sometimes indistinct. Spiracular index 0.5-0.7. 1<sup>st</sup> gastral tergite 3.3×, 2<sup>nd</sup> tergite 1.6× as long as wide. Petiole with rather large or sometimes with small glymmae, which are bordered by longitudinal carinae dorsally, smooth in front of the glymmae. Petiolar suture fine, partly obliterated. 1<sup>st</sup> gastral sternite for the greater part smooth, with transverse striae posteriorly. Thyridium oval. Thyridial index about 1.0. Epipleurum of the 3<sup>rd</sup> gastral tergite present as a small and sometimes indistinct triangular lobe anteriorly, the latter pendent and not marked with black, the tergite with distinct black lateral stripes well above the ventrolateral edge. Gaster distinctly compressed posteriorly. Ovipositor index 0.6.

Colour: Black. Wings hyaline. Stigma brown medially. Front femur sometimes marked with red dorsally. Front tibia brownish. Mid tibia sometimes narrowly marked with yellowish brown basally. 2<sup>nd</sup> gastral tergite red on the posterior 0.2-0.3. 3<sup>rd</sup> tergite red. 4<sup>th</sup> tergite marked with red anteriorly or completely red. Pilosity whitish.

♂: Mandible narrowly marked with yellow dorsally. In other characters similar to the ♀.

**Material** (1♀, 1♂): Russia: Khabarovsk Terr.: Vysokogornyy (PET). Japan: Hokkaido: Tokachi-dake (SAP).

### *Dusona gastator* Hinz, 1985

**Description.** ♀: Body length 7-8 mm. Temples distinctly constricted behind the eyes, 0.9× as long as the width of an eye, tangential lines on eyes and temples intersect on the scutellum. Ocellar index 1.2. Frons scarcely depressed, coriaceous and finely rugose-punctate, with a very fine median longitudinal carina, without radial wrinkles. Antennal carina low and narrow. Face coriaceous, densely rugose and rugose-punctate. Clypeus slightly con-

vex, coriaceous, finely and densely punctate, its apex convex medially. Malar space index 0.8. Genal carina obliterated ventrally, not joining the oral carina, the latter slightly raised. Temple finely coriaceous and with fine disperse punctation medially. Flagellum with 35–36 segments, filiform, the apical 0.2 attenuate, 2<sup>nd</sup> segment 1.7×, shortest segment 1.1×, penultimate segment 1.6× as long as wide. Pronotum densely rugose-punctate laterally on the dorsal 0.2, with longitudinal wrinkles ventrally. Mesoscutum and scutellum coriaceous and very densely punctate. Scutellum with lateral carinae on the anterior half. Prescutellar groove with distinct longitudinal striae. Prepectal carina low, ventral part merging with the pleural part, the latter complete, joining the anterior edge of the mesopleurum. Transverse carina obliterated. Mesopleurum coriaceous, densely rugose and rugose-punctate. Speculum and depression in front of the speculum with long longitudinal striae, which merge with the punctation anteriorly. Metapleurum finely and densely rugose. Pleural carina distinct. Areolet small, stalked, receiving the 2<sup>nd</sup> recurrent vein slightly distad of the middle. Nervellus slightly reclivous, not intercepted. Tibial spur index 0.6. Hind femur 4.4× as long as high. Hind tarsal claws short, with short pectinate teeth basally. Propodeum extending to 0.3 of the hind coxae, shallowly and rather narrowly depressed, with short transverse wrinkles in the longitudinal furrow, irregularly wrinkled beside the furrow, area basalis and area superomedia bordered by carinae, the latter not bordered by a carina posteriorly, costulae partly present, longitudinal carinae present anteriorly and medially, partly indistinct or obliterated posteriorly (Fig. 31). Propodeal spiracle small, 1.7× as long as wide. Spiracular carina somewhat widened. Spiracular index 0.8. 1<sup>st</sup> gastral tergite 2.8×, 2<sup>nd</sup> tergite 1.5× as long as wide. Petiole without glymmae, with indistinct narrow lateral areas, smooth in front of these areas. Petiolar suture distinct. 1<sup>st</sup> gastral sternite smooth. Thyridium almost circular. Thyridial index about 2.0. Epipleurum separated from the 3<sup>rd</sup> gastral tergite, the crease marked with black. Epipleural index 0.9. Gaster slightly compressed posteriorly. Ovipositor index 0.5.

Colour: Black. Wings hyaline. Stigma dark brown medially. Front femur reddish brown on the apical 0.7. Front tibia and tarsus reddish brown. Mid tibia reddish brown. Mid tarsus brown. Hind tibia reddish brown, narrowly black basally and apically. 2<sup>nd</sup> gastral tergite red on the posterior 0.6. 3<sup>rd</sup> and 4<sup>th</sup> tergites red. 5<sup>th</sup> tergite sometimes marked with red anteriorly. Pilosity whitish.

♂ unknown.

**Material** (5♀): Russia: Irkutsk Prov.: Irkutsk (Hinz/ZSM); Kamchatka: Milkovo, Kozyrevsk. Mongolia: Hövsgöl Prov.: Tosontsegal (PET).

*Dusona gastroides* Horstmann, spec. nov.

**Holotype** (♂): Japan, Honshu, Kamikochi, near Norikura-dake, 24.7.1954 (AEI).

**Description.** ♂: Body length 11 mm. Temples strongly constricted behind the eyes, 0.7× as long as the width of an eye, tangential lines on eyes and temples intersect on the middle of the mesoscutum. Ocellar index 0.8. Frons slightly depressed above the antennal carinae, coriaceous, finely and dispersely punctate, with a fine median longitudinal carina on top of a slightly raised bulge, with short radial wrinkles. Antennal carina low, dorsally narrow, medially widened to a crescent-shaped plate. Face and dorsal half of the clypeus coriaceous, densely rugose-punctate. Clypeus flat, coriaceous and rather densely punctate ventrally, its apex truncate medially. Malar space index 0.4. Genal carina low and straight ventrally, joining the slightly raised oral carina at an acute angle. Genal index 0.5. Temple finely coriaceous and with fine disperse punctation medially. Flagellum with at least 42 segments (the apical segments broken off in the only available specimen), filiform, the apical 0.3 attenuate, 2<sup>nd</sup> segment 1.9×, shortest segment 1.0× as long as wide. Pronotum coriaceous and densely rugose-punctate laterally on the dorsal half, with longitudinal wrinkles ventrally. Mesoscutum and scutellum coriaceous, dull, densely punctate. Scutellum with lateral carinae on the anterior 0.2. Prescutellar groove for the greater part smooth. Prepectal carina low, ventral part merging with the pleural part, the latter complete, joining the anterior edge of the mesopleurum. Transverse carina obliterated. Mesopleurum finely coriaceous, dispersely punctate. Speculum coriaceous and granulate-strigose, shining. Depression in front of the speculum with fine long longitudinal striae, which merge with the punctation anteriorly. Metapleurum finely coriaceous and dispersely punctate centrally, rugose in other parts. Pleural carina complete. Areolet large, pointed, receiving the 2<sup>nd</sup> recurrent vein at the middle. Nervellus reclivous, intercepted. Nervellar index 0.6. Tibial spur index 0.6. Hind femur 5.3× as long as high. Hind tarsal claws rather long, with short pectinate teeth basally. Propodeum extending to the middle of the hind coxae, scarcely depressed, with complete costulae and almost complete longitudinal carinae, the rather narrow area between

the longitudinal carinae for the greater part irregularly wrinkled, with some longitudinal wrinkles posteriorly. Propodeal spiracle rather large, 3.0× as long as wide. Spiracular carina narrow. Spiracular index 0.5. 1<sup>st</sup> gastral tergite 5.1×, 2<sup>nd</sup> tergite 3.4× as long as wide. Petiole with rather large glymmae, which are bordered by longitudinal carinae dorsally, with very fine longitudinal striae in front of the glymmae. Petiolar suture partly obliterated. 1<sup>st</sup> gastral sternite partly coriaceous. Thyridium elongate. Thyridial index about 2.0. Epipleurum separated from the 3<sup>rd</sup> gastral tergite, the crease marked with black. Epipleural index 0.8. Gaster distinctly compressed posteriorly.

Colour: Black. Maxillary palpus yellow. Mandible broadly light yellow medially. Wings hyaline. Stigma medium brown medially. Front trochanter and femur yellowish red. Mid femur yellowish red on the apical 0.2. Front and mid tibiae and tarsi yellow. Hind tibia yellowish brown medially, narrowly black basally, broadly black apically. 2<sup>nd</sup> gastral tergite red on the posterior 0.3. Tergites and sternites from the 3<sup>rd</sup> segment onwards red. Genital clasper red. Pilosity whitish.

♀ unknown.

#### *Dusona genator* Hinz, 1979

The type material of this species is not homogeneous: The types from southern China (including the holotype) and from Japan are described in detail below. One paratype from Khasan/Primorye/Russia (MOS) belongs to *D. petiolatoides*. One paratype from River Amba-bira/Primorye/Russia (PET) differs from the holotype of *D. genator* in some details and is mentioned as a variety below.

**Description.** ♀: Body length 10-12 mm. Temples strongly constricted behind the eyes, 0.8× as long as the width of an eye, tangential lines on eyes and temples intersect on the middle of the mesoscutum. Ocellar index 0.7. Frons not depressed, coriaceous, finely rugose, with distinct radial wrinkles, which extend to 0.3 the distance to the median ocellus, without a median longitudinal carina. Antennal sockets large and close to each other. Antennal carina low and narrow. Face and dorsal 0.8 of the clypeus densely rugose and rugose-punctate. Clypeus slightly convex, scarcely coriaceous and rather densely punctate ventrally, its apex truncate or slightly convex medially. Malar space index 0.3. Genal carina slightly raised ventrally, straight or slightly bent forwards and sideways, joining the oral carina at the base of the mandible at an acute angle. Temple finely coria-

ceous and with fine rather dense or dense punctation medially. Flagellum with 55-56 segments, filiform, the apical 0.3 attenuate, 2<sup>nd</sup> segment 1.7×, shortest segment 1.1×, penultimate segment 1.2× as long as wide. Pronotum densely rugose-punctate laterally on the dorsal 0.3, with longitudinal wrinkles ventrally. Mesoscutum and scutellum finely coriaceous, very densely punctate. Scutellum with lateral carinae on the anterior 0.4. Prescutellar groove smooth medially, with fine longitudinal striae laterally. Ventral part of the prepectal carina merging with the transverse carina, both carinae distinctly raised, the former scarcely emarginate medially, the rim of the latter bent upwards. Median 0.3 of the pleural part of the prepectal carina present, the pleural part obliterated or replaced by several wrinkles dorsally and ventrally. Pleural part of the prepectus slightly depressed and with strong dorsoventral wrinkles. Mesopleurum very densely punctate on a smooth background, partly with wrinkles, especially in the lower posterior corner. Speculum very finely coriaceous, almost smooth, shining. Depression in front of the speculum with distinct longitudinal striae, which merge with the punctation anteriorly. Metapleurum densely rugose-punctate or rugose. Pleural carina distinct. Areolet rather large, pointed, receiving the 2<sup>nd</sup> recurrent vein almost at the middle. Nervellus almost vertical, not intercepted or weakly intercepted. In the latter case nervellar index 0.7-0.8. Tibial spur index 0.7. Hind femur 5,6× as long as high. Hind tarsal claws rather short, with few distinct pectinate teeth basally and medially. Propodeum extending to 0.4 of the hind coxae, not or almost not depressed, for the greater part irregularly wrinkled, often with transverse wrinkles posteriorly, costulae almost complete, longitudinal carinae present only posteriorly. Propodeal spiracle rather large, 3.4× as long as wide. Spiracular carina fine and narrow or indistinct. Spiracular index 0.5-0.7. 1<sup>st</sup> gastral tergite 5.3×, 2<sup>nd</sup> tergite 3.5× as long as wide. Petiole without glymmae, sometimes with indistinct narrow lateral areas, smooth laterally. Petiolar suture partly obliterated. 1<sup>st</sup> gastral sternite for the greater part smooth, with few transverse striae posteriorly. Thyridium elongate. Thyridial index 1.5-2.0. Epipleurum not separated from the 3<sup>rd</sup> gastral tergite, the latter with distinct black lateral stripes well above the ventrolateral edge. Gaster strongly compressed posteriorly. Ovipositor index 0.5.

Colour: Black. Maxillary palpus dark brown. Mandible narrowly marked with reddish brown medially. Wings hyaline. Stigma brownish black. Front femur black basally and ventrally, yellowish dorsally and apically. Front tibia and tarsus

yellowish brown. Mid femur yellowish on the apical 0.2. Mid tibia yellowish brown. Mid tarsus dark brown. 2<sup>nd</sup> gastral tergite completely black or red on the posterior 0.1. 3<sup>rd</sup> and 4<sup>th</sup> tergites red. 5<sup>th</sup> tergite sometimes narrowly marked with red anteriorly. Pilosity whitish.

♂: Maxillary palpus yellowish brown. Mandible broadly yellow medially. Front leg from the tip of the coxa onwards yellow, the femur brown ventrally. In other characters similar to the ♀.

**Material** (4♀, 1♂): Japan: Honshu: Kyoto (SAP). China: Fujian Prov. (= Fukien Prov.): Shaowu (AEL, Hinz/ZSM). The locality in southern China belongs to the Oriental region.

**Variety:** Ventral part of the prepectal carina and transverse carina rather low. Pleural part of the prepectus not depressed, densely rugose-punctate and without strong dorsoventral wrinkles. Petiole with narrow lateral areas. 4<sup>th</sup> gastral tergite for the greater part black, narrowly marked with red anteriorly. 5<sup>th</sup> tergite black. Material: 1♀ Russia, Primorye, mouth of River Amba-bira (PET). This ♀ differs remarkably from the material from southern China and Japan in the prepectus and the prepectal carina, but agrees well in most other characters. Its status is unknown.

### *Dusona glauca caliginosa* (Walley, 1940)

*Dusona latisulcor* Hinz, 1994 (syn. nov.)

In the eastern Palearctic Region, this is a variable and poorly defined taxon. It is similar to *D. remota*, but differs from the latter in: Hind tibia yellowish brown to black medially. 2<sup>nd</sup> gastral tergite with a dark brown or black posterior edge. 3<sup>rd</sup> and 4<sup>th</sup> tergites often marked with black.

**Description.** ♀: Body length 8-12 mm. Temples strongly constricted behind the eyes, 0.7× as long as the width of an eye, tangential lines on eyes and temples intersect on the posterior half of the mesoscutum. Ocellar index 0.6-0.8. Frons slightly depressed, coriaceous, finely rugose-punctate, with a fine and often incomplete median longitudinal carina, with short and indistinct radial wrinkles. Antennal carina low and narrow, the rim slightly bent upwards (inconspicuous). Face and dorsal 0.7 of the clypeus coriaceous, densely rugose and rugose-punctate. Clypeus flat, coriaceous and rather densely punctate ventrally, its apex truncate medially. Malar space index 0.4. Genal carina slightly raised ventrally, joining the distinctly raised oral carina at an acute angle. Genal index

0.6. Temple finely coriaceous and with fine disperse punctation medially. Flagellum with 40-48 segments, filiform, the apical 0.3 attenuate, 2<sup>nd</sup> segment 1.8×, shortest segment 1.0×, penultimate segment 1.1× as long as wide. Pronotum densely rugose-punctate laterally on the dorsal 0.2-0.4, with longitudinal wrinkles ventrally. Mesoscutum and scutellum coriaceous, dull, very densely punctate. Scutellum with lateral carinae on the anterior 0.5-0.8. Prescutellar groove smooth medially, with distinct longitudinal striae laterally. Prepectal carina low, ventral part merging with the pleural part, the dorsal 0.2 of the latter obliterated. Transverse carina obliterated or partly present. Mesopleurum distinctly coriaceous, densely punctate. Speculum coriaceous and granulate-strigose, rather dull. Depression in front of the speculum dorsally with long longitudinal striae, ventrally granulate-strigose and with few fine striae (variable), the striae merging with the punctation anteriorly. Metapleurum coriaceous, finely and densely rugose. Pleural carina strong. Areolet rather small, pointed or short-stalked, receiving the 2<sup>nd</sup> recurrent vein distinctly distad of the middle. Nervellus slightly inclivous, distinctly intercepted. Nervellar index 0.7. Tibial spur index 0.6. Hind femur 5.4× as long as high. Hind tarsal claws short, with short pectinate teeth basally and medially. Propodeum extending to 0.4 of the hind coxae, broadly and rather deeply depressed, with short transverse wrinkles anteriorly, with long transverse wrinkles and sometimes with a short median longitudinal keel posteriorly, in other parts irregularly wrinkled, costulae complete, longitudinal carinae distinct medially and posteriorly, almost reaching the costulae. Propodeal spiracle rather large, 3.0× as long as wide. Spiracular carina slightly widened. Spiracular index 0.3. 1<sup>st</sup> gastral tergite 4.4×, 2<sup>nd</sup> tergite 1.9× as long as wide. Petiole with distinct glymmae, smooth in front of the glymmae. Petiolar suture obliterated. 1<sup>st</sup> gastral sternite smooth. Thyridium oval. Thyridial index about 1.0. Epipleurum not separated from the 3<sup>rd</sup> gastral tergite, the latter with distinct black lateral stripes well above the ventrolateral edge. Gaster distinctly compressed posteriorly. Ovipositor index 0.5.

**Colour:** Black. Maxillary palpus dark brown. Mandible narrowly marked with yellow dorsally, often also medially. Wings hyaline. Stigma brown medially. Front leg from the femur onwards yellowish brown. Mid femur marked with yellowish brown on the apical 0.2. Mid tibia yellowish brown. Mid tarsus dark brown. Hind tibia yellowish brown to dark brown medially, narrowly black basally, broadly black apically. 2<sup>nd</sup> gastral tergite with a dark brown or black posterior edge, to a

variable extend marked with red in front of the posterior edge, sometimes completely black dorsally and marked with red only laterally. 3<sup>rd</sup> and 4<sup>th</sup> tergites red, to a variable extend marked with black, the 4<sup>th</sup> tergite sometimes completely black. 5<sup>th</sup> tergite sometimes narrowly marked with red ventrolaterally. Pilosity whitish.

♂: Propodeum not so broadly and rather shallowly depressed. Variability of the colour pattern similar to that of the ♀.

**Material** (16♀♀, 18♂♂): Russia: Irkutsk Prov.: Dakhnaya; Chita Prov.: Bukuka, Chita; Khabarovsk Terr.: Khekhtsir near Khabarovsk, Troitskoye; Primorye: Khasan (PET), Ussuriysk (KIS), Vladivostok (Hinz/ZSM); Magadan Prov.: Magadan (MOS); Kuril Isl.: Yuzhno-Kurilsk on Kunashir (PET). North Korea: Hyangsan (SAW). Japan: Hokkaido: Daisetu-zan (SAP), Maruyama (Hinz/ZSM, SAP); Honshu: Mt. Minoo in Osaka-fu (SAP), Nagano (OTT), Norikura-dake (AEI), Sasayama; Kyushu: Hiko-san (SAP).

**Variety:** Body length 7-10 mm. 37-44 flagellar segments. Longitudinal carinae of the propodeum often obliterated medially. Mandible black. Hind tibia black or tinged with dark brown medially on the dorsal side. Material (18♀♀, 2♂♂): Russia: Irkutsk Prov.: Lake Baykal; Khabarovsk Terr.: Vysokogorny (PET); Magadan Prov.: Magadan (MOS); Kamchatka: Atlasovo (PET), Kozyrevsk (Hinz/ZSM, PET), Milkovo; Kuril Isl.: Kurilsk on Iturup, Sernovodsk and Yuzhno-Kurilsk on Kunashir (PET). Japan: Hokkaido: Daisetu-zan (SAP), Sapporo (AEI). This variety might include small and dark specimens of *D. glauca caliginosa*.

### *Dusona graptor* Hinz, 1985

This species is rather variable, and its differentiation from *D. melanator*, *D. norikurae* or *D. rufovaricata* is difficult (see below). The association of the one ♂ with the ♀♀ is not beyond all doubt.

**Description.** ♀: Body length 8-10 mm. Temples strongly constricted behind the eyes, 0.7× as long as the width of an eye, tangential lines on eyes and temples intersect on the middle of the mesoscutum. Ocellar index 0.7. Frons slightly depressed, coriaceous, with fine irregular wrinkles, with a fine median longitudinal carina, without or with short radial wrinkles. Antennal carina low and narrow. Face and dorsal 0.7 of the clypeus coriaceous and very densely punctate. Clypeus flat, coriaceous and rather densely punctate ventrally, its apex truncate medially. Malar space index 0.25. Genal carina low and almost straight ventrally,

joining the low oral carina at an acute angle. Genal index 0.4. Temple finely coriaceous and with very fine disperse punctation medially. Flagellum with 44-47 segments, filiform, the apical 0.3 attenuate, 2<sup>nd</sup> segment 2.0×, shortest segment 0.9×, penultimate segment 1.0× as long as wide. Pronotum coriaceous and finely and densely rugose-punctate laterally on the dorsal 0.1, with longitudinal wrinkles ventrally. Mesoscutum and scutellum coriaceous and densely punctate. Scutellum with lateral carinae on the anterior 0.8. Prescutellar groove with few fine longitudinal striae. Prepectal carina low, ventral part merging with the pleural part, the latter complete, joining the anterior edge of the mesopleurum. Transverse carina obliterated. Mesopleurum distinctly coriaceous, with rather fine and rather dense punctation. Speculum coriaceous. Depression in front of the speculum granulate-strigose or with some fine longitudinal striae, which merge with a coriaceous area without punctation anteriorly. Metapleurum distinctly coriaceous, rather densely punctate. Pleural carina distinct. Areolet rather large, short-stalked, receiving the 2<sup>nd</sup> recurrent vein basad of the middle. Nervellus almost vertical, weakly intercepted. Nervellar index 0.8. Tibial spur index 0.5. Hind femur 4.8× as long as high. Hind tarsal claws short, with short pectinate teeth basally. Propodeum extending to 0.4 of the hind coxae, coriaceous, rather shining and almost not depressed anteriorly, slightly and rather narrowly depressed posteriorly, with fine transverse wrinkles in the longitudinal furrow, coriaceous and with irregular wrinkles beside the furrow, carinae almost completely obliterated. Propodeal spiracle rather large, 3.3× as long as wide. Spiracular carina narrow. Spiracular index 0.3. 1<sup>st</sup> gastral tergite 3.6×, 2<sup>nd</sup> tergite 1.6× as long as wide. Petiole with small but distinct glymmae, smooth in front of the glymmae. Petiolar suture fine. 1<sup>st</sup> gastral sternite smooth. Thyridium elongate. Thyridial index about 1.0. Epipleurum separated from the 3<sup>rd</sup> gastral tergite anteriorly, folded in or pendent as a narrow rectangular lobe, the crease (or bulge) marked with black, a black lateral stripe parallel with the crease in a very short distance anteriorly and divergent from the ventrolateral edge of the tergite posteriorly. Epipleural index 0.3. Gaster distinctly compressed posteriorly. Ovipositor index 0.6.

**Colour:** Black. Maxillary palpus yellowish red. Mandible broadly yellow medially. Tegula yellowish brown. Wings hyaline. Stigma light brown medially. Front leg from the tip of the coxa onwards yellowish brown. Sometimes front coxa black and front trochanter marked with black.

Mid femur yellowish brown on the apical 0.2. Mid tibia yellowish brown. Mid tarsus dark brown. Hind tibia dark yellowish brown medially, narrowly black basally, broadly black apically. 2<sup>nd</sup> gastral tergite dorsally red on the posterior 0.3, laterally red on the posterior 0.4-0.5. 3<sup>rd</sup> and 4<sup>th</sup> tergites red. 4<sup>th</sup> tergite sometimes narrowly marked with black dorsally. 5<sup>th</sup> tergite sometimes narrowly marked with red anteriorly. Pilosity whitish.

♂: Flagellum with 50 segments. Propodeum with the costulae and the longitudinal carinae partly present, the latter obliterated anteriorly. Tegula yellow. Front and mid legs from the tip of the coxa onwards yellow. Hind tibia light yellow medially. Postpetiole with small red marks laterally. 2<sup>nd</sup> gastral tergite almost completely red laterally. 4<sup>th</sup> tergite narrowly black dorsally (MOS). In other characters similar to the ♀. This ♂ is similar to *D. rufovariata*, but differs in: Longitudinal carinae of propodeum partly obliterated. 3<sup>rd</sup> gastral tergite completely red.

**Material** (8♀, 1♂): Russia: Yevreyskiy A.O.: Birobidzhan; Khabarovsk Terr.: Khabarovsk; Primorye: Pozhiga SO of Dalnerechensk (PET), Spassk Dalniy (Hinz/ZSM), Ussuriysk (PET), Vladivostok (MOS)

**Variety:** Tegula dark brown. 2<sup>nd</sup> gastral tergite black. 4<sup>th</sup> tergite marked with red only laterally. **Material:** 1♀ Russia, Khabarovsk Terr., Khekhtsir near Khabarovsk (PET). Probably this ♀ represents a dark variety of *D. graptor*. It differs from *D. norikurae* in: Metapleurum coriaceous and with fine punctation. Propodeum coriaceous and rather shining anteriorly. On the other hand, it differs from *D. melanator* in: Depression in front of the speculum granulate-strigose, with a coriaceous area without striae or punctation in front of the depression. 3<sup>rd</sup> gastral tergite almost completely red.

### *Dusona humilis* (Förster, 1868)

**Description.** ♀: Body length 6-8 mm. Temples distinctly constricted behind the eyes, 0.8× as long as the width of an eye, tangential lines on eyes and temples intersect on the postscutellum. Ocellar index 0.9. Frons slightly depressed, coriaceous, a punctation hardly visible, with a fine and incomplete median longitudinal carina, with short radial wrinkles. Antennal carina low and narrow. Face coriaceous, dull, finely and rather densely punctate, with some very fine wrinkles. Clypeus flat, coriaceous, dull, finely and dispersely punctate, its apex truncate medially. Malar space index 0.4. Genal carina almost straight and slightly raised ventrally, joining the distinctly raised oral carina

at an acute angle, the gena slightly depressed close to the junction. Genal index 0.3. Temple coriaceous and with very fine disperse punctation medially. Flagellum with 34-40 segments, filiform, the apical 0.2 slightly attenuate, 2<sup>nd</sup> segment 1.9×, shortest segment 0.9×, penultimate segment 1.1× as long as wide. Pronotum coriaceous and densely rugose-punctate laterally on the dorsal 0.4, with longitudinal wrinkles ventrally. Mesoscutum coriaceous, dull, finely and rather densely punctate. Scutellum coriaceous, finely and dispersely punctate, with lateral carinae on the anterior half. Prescutellar groove smooth medially, with fine longitudinal striae laterally. Prepectal carina low, ventral part merging with the pleural part, the latter complete, joining the anterior edge of the mesopleurum. Transverse carina low, often obliterated posteriorly. Mesopleurum coriaceous, dull, rather densely punctate. Speculum coriaceous, somewhat shining. Depression in front of the speculum granulate-strigose or with very fine longitudinal striae, which merge with a coriaceous area without punctation anteriorly. Metapleurum coriaceous, finely and densely punctate or rugose-punctate. Pleural carina complete. Areolet large, short-stalked, receiving the 2<sup>nd</sup> recurrent vein slightly distad of the middle. Nervellus slightly inclivous, weakly intercepted, its upper branch slightly bent inwards. Nervellar index 0.8-0.9. Tibial spur index 0.7. Hind femur 4.5× as long as high. Hind tarsal claws short, with short pectinate teeth basally. Propodeum extending to 0.3 of the hind coxae, broadly and not deeply depressed, sulcus coriaceous anteriorly, irregularly wrinkled and with a short longitudinal keel posteriorly, costulae partly present, longitudinal carinae almost completely obliterated. Propodeal spiracle rather large, 3.0× as long as wide. Spiracular carina narrow. Spiracular index 0.3. 1<sup>st</sup> gastral tergite 3.4×, 2<sup>nd</sup> tergite 1.3× as long as wide. Petiole with distinct glymmae, which are bordered by longitudinal carinae dorsally, smooth in front of the glymmae. Petiolar suture partly obliterated. 1<sup>st</sup> gastral sternite usually smooth, rarely with fine sculpture. Thyridium oval. Thyridial index about 2.0. Epi-pleurum not separated from the 3<sup>rd</sup> gastral tergite, the latter with distinct black lateral stripes well above the ventrolateral edge. Gaster distinctly compressed posteriorly. Ovipositor index 0.6.

**Colour:** Black. Maxillary palpus brownish black. Mandible narrowly marked with reddish brown dorsally and medially, sometimes completely black. Tegula dark brown. Wings hyaline. Stigma dark brown medially. Front leg from the femur onwards yellowish red, the femur marked with black ventrally. Mid femur yellowish red on

the apical 0.2. Mid tibia yellowish red. Mid tarsus dark brown. Hind tibia broadly dark yellowish brown medially, narrowly black basally, broadly black apically. 2<sup>nd</sup> gastral tergite dorsally red on the posterior 0.3, laterally red on the posterior 0.5. 3<sup>rd</sup> and 4<sup>th</sup> tergites red, the 4<sup>th</sup> tergite sometimes marked with black or completely black. Pilosity whitish.

♂: Front trochanter yellowish red. Front femur often completely red. In other characters similar to the ♀.

**Material** (10♀, 1♂): Russia: Chita Prov.: Karymskoye; Primorye: Ussuriysk (PET). Kirgiziya: Terskey Alatau Mts., 2000-2400 m (LIN). Japan: Hokkaido: Jozankei (AEI).

### *Dusona impressifrons* Hinz, 1979

**Description.** ♀: Body length 17-19 mm. Temples strongly constricted behind the eyes, 0.8× as long as the width of an eye, tangential lines on eyes and temples intersect on the posterior half of the mesoscutum. Ocellar index 1.1. Frons coriaceous and densely punctate dorsally, deeply depressed ventrally above the antennal carinae, coriaceous and finely and densely rugose in the depressions, with few distinct radial wrinkles, with a median longitudinal bulge between these depressions and with a fine median longitudinal carina on top of this bulge. Antennal carina strongly raised, the rim bent upwards (ear-like), at the same time with a dorsal projection (nose-like), with fine transverse striae on that projection. Face and dorsal half of the clypeus coriaceous, coarsely and densely punctate, partly rugose-punctate. Clypeus flat, coriaceous and finely and rather densely punctate ventrally, its apex truncate medially. Malar space index 0.3. Genal carina slightly raised and slightly bent forwards ventrally, joining the slightly raised oral carina at an acute angle. Gena narrowly depressed close to the junction. Genal index 0.3. Temple coriaceous and with fine rather dense punctation medially. Flagellum with 59 segments, filiform, the apical 0.4 distinctly attenuate, 2<sup>nd</sup> segment 1.6×, shortest segment 1.0×, penultimate segment 1.3× as long as wide. Pronotum finely and densely rugose-punctate laterally on the dorsal 0.4, with longitudinal wrinkles ventrally. Mesoscutum and scutellum coriaceous, densely or very densely punctate. Scutellum with strong lateral carinae on the anterior 0.2. Prescutellar groove with longitudinal striae. Ventral part of the prepectal carina merging with the transverse carina,

both carinae slightly raised. Pleural part of the prepectal carina low, its dorsal 0.3 obliterated. Mesopleurum finely coriaceous, distinctly and densely punctate. Speculum finely coriaceous and granulate-strigose. Depression in front of the speculum dorsally with fine longitudinal striae, which merge with the punctation anteriorly, the ventral 0.3 granulate-strigose. Metapleurum coriaceous, finely and densely rugose-punctate. Pleural carina strong. Areolet large, pointed, receiving the 2<sup>nd</sup> recurrent vein slightly distad of the middle. Nervellus slightly inclivous, distinctly intercepted. Nervellar index 0.7. Tibial spur index 0.5. Hind femur 5.4× as long as high. Hind tarsal claws short, with few distinct pectinate teeth. Propodeum extending to 0.3 of the hind coxae, distinctly and broadly depressed, sulcus with short transverse wrinkles anteriorly and medially, with long transverse wrinkles posteriorly, costulae partly present, longitudinal carinae present medially and posteriorly. Propodeal spiracle large, 3.5× as long as wide. Spiracular carina partly widened. Spiracular index 0.1-0.2. 1<sup>st</sup> gastral tergite 4.3×, 2<sup>nd</sup> tergite 1.6× as long as wide. Petiole with distinct glymmae, which are bordered by longitudinal carinae dorsally, with very fine longitudinal striae in front of the glymmae. Petiolar suture for the greater part obliterated. 1<sup>st</sup> gastral sternite for the greater part smooth, coriaceous anteriorly, with few transverse striae posteriorly. Thyridium oval. Thyridial index 1.5-2.0. Epipleurum separated from the 3<sup>rd</sup> gastral tergite anteriorly, the crease marked with black. Epipleural index 0.4-0.5. Gaster strongly compressed posteriorly. Ovipositor index 0.5.

Colour: Black. Maxillary palpus yellowish red. Mandible broadly yellow medially. Tegula yellowish brown. Wings slightly infusate. Stigma yellowish brown medially. Front leg from the tip of the coxa onwards yellowish brown, the femur marked with brown ventrally. Mid femur yellowish red apically or completely black. Mid tibia yellowish red. Mid tarsus brown. Hind tibia broadly yellow medially, narrowly black basally, broadly black apically. 2<sup>nd</sup> gastral tergite dorsally red on the posterior 0.1, laterally red on the posterior 0.3. 3<sup>rd</sup> and 4<sup>th</sup> tergites red, sometimes indistinctly tinged with black. Pilosity whitish.

♂: Spiracular index 0.4. Front femur yellowish brown. Mid femur yellowish brown dorsally, dark brown ventrally. In other characters similar to the ♀.

**Material** (2♀♀, 1♂): Japan: Hokkaido: Apoi-dake, Maruyama, Sapporo (SAP).

*Dusona inconspicua* Horstmann, spec. nov.

**Holotype** (♂): Japan, Hokkaido, locality unreadable, 21.11.1928 (SAP).

**Description.** ♂: Body length 10 mm. Temples distinctly constricted behind the eyes,  $0.7\times$  as long as the width of an eye, tangential lines on eyes and temples intersect on the postscutellum. Ocellar index 0.7. Frons slightly depressed, coriaceous, densely rugose-punctate, with a fine median longitudinal carina, with distinct radial wrinkles, which extend to half the distance to the median ocellus. Antennal carina low and narrow. Face and dorsal 0.6 of the clypeus very densely wrinkled, not visibly coriaceous. Clypeus flat, densely punctate on a smooth background ventrally, its apex truncate medially. Malar space index 0.5. Genal carina low and straight ventrally, joining the distinctly raised oral carina at an acute angle. Genal index 0.4. Temple finely coriaceous and with very fine disperse punctation medially. Flagellum with 43 segments, filiform, the apical 0.3 attenuate, 2<sup>nd</sup> segment  $1.7\times$ , shortest segment  $1.0\times$ , penultimate segment  $1.1\times$  as long as wide. Pronotum coriaceous and densely rugose-punctate laterally on the dorsal 0.3, with longitudinal wrinkles ventrally. Mesoscutum and scutellum coriaceous, densely punctate. Scutellum with lateral carinae on the anterior 0.6. Prescutellar groove with longitudinal striae. Prepectal carina low, ventral part merging with the pleural part, the dorsal 0.3 of the latter obliterated. Transverse carina indicated anteriorly. Mesopleurum finely coriaceous, distinctly and densely punctate. Speculum coriaceous and finely granulate-strigose. Depression in front of the speculum with fine longitudinal striae, which merge with the punctation anteriorly. Metapleurum densely rugose-punctate, not visibly coriaceous. Pleural carina strong. Areolet large, pointed, receiving the 2<sup>nd</sup> recurrent vein distinctly basad of the middle. Nervellus slightly inclivous, intercepted. Nervellar index 0.7. Tibial spur index 0.6. Hind femur  $5.8\times$  as long as high. Hind tarsal claws short, with short but distinct pectinate teeth basally and medially. Propodeum extending to 0.4 of the hind coxae, slightly and broadly depressed, the broad shallow sulcus for the greater part with strong irregular wrinkles, with some short transverse wrinkles anteriorly and a median longitudinal keel posteriorly, carinae almost complete, but partly covered with strong wrinkles. Propodeal spiracle small,  $2.6\times$  as long as wide. Spiracular carina narrow. Spiracular index 0.8. 1<sup>st</sup> gastral tergite  $4.8\times$ , 2<sup>nd</sup> tergite  $2.9\times$  as long as wide. Petiole with small and rather shallow glym-

mae, smooth in front of the glymmae. Petiolar suture obliterated. 1<sup>st</sup> gastral sternite smooth. Thyridium oval. Thyridial index about 1.0. Epipleurum of the 3<sup>rd</sup> gastral apparently tergite folded in anteriorly, the crease not marked with black, black lateral stripes not visible. Epipleural index about 0.2. Gaster strongly compressed posteriorly.

Colour: Black. Maxillary palpus brown basally, yellow medially and apically. Mandible narrowly marked with yellowish red dorsally and medially. Tegula yellowish red. Wings hyaline. Stigma medium brown medially. Front trochanter and femur yellowish red. Front tibia and tarsus yellow. Mid femur yellowish red on the apical 0.4. Mid tibia yellow. Mid tarsus yellowish brown. Hind tibia yellow medially, narrowly black basally, very broadly black apically. 2<sup>nd</sup> gastral tergite dorsally red on the posterior 0.2, broadly red laterally, the posterior edge slightly tinged with brown. 3<sup>rd</sup> and 4<sup>th</sup> tergites red. Pilosity whitish.

♀ unknown.

*Dusona indistinctor* Hinz, 1979

One paratype of this taxon from Tretyakovo on Kunashir/Kuril Isl./Russia (PET) belongs to *D. xenocampta*.

**Description.** ♀: Body length 11-12 mm. Temples strongly constricted behind the eyes,  $0.6\times$  as long as the width of an eye, tangential lines on eyes and temples intersect on the posterior half of the mesoscutum. Ocellar index 0.7. Frons slightly depressed, coriaceous, finely and rather densely punctate, with a fine and incomplete median longitudinal carina, with short radial wrinkles. Antennal carina low and narrow. Face and dorsal 0.7 of the clypeus coriaceous, densely and rather coarsely rugose. Clypeus flat, finely coriaceous and finely and dispersely punctate ventrally, its apex truncate medially. Malar space index 0.3. Genal carina low and straight ventrally, joining the slightly raised oral carina at an acute angle. Genal index 0.3. Temple finely coriaceous and with very fine disperse punctation medially. Flagellum with 50-53 segments, filiform, the apical 0.4 distinctly attenuate, 2<sup>nd</sup> segment  $1.9\times$ , shortest segment  $0.9\times$ , penultimate segment  $1.3\times$  as long as wide. Pronotum densely rugose-punctate laterally on the dorsal 0.1, with longitudinal wrinkles ventrally. Mesoscutum and scutellum coriaceous, dull, very densely punctate. Scutellum with lateral carinae on the anterior 0.7. Prescutellar groove almost completely smooth. Prepectal carina low, ventral part merging with the pleural part, the latter com-

plete, joining the anterior edge of the mesopleurum. Transverse carina obliterated. Mesopleurum coriaceous, rather dull, distinctly and rather densely punctate. Speculum punctate posteriorly, coriaceous anteriorly. Depression in front of the speculum coriaceous, with fine and short longitudinal striae, which merge with an area without punctation anteriorly. Metapleurum coriaceous, finely and densely punctate. Pleural carina distinct. Areolet large, short-stalked, receiving the 2<sup>nd</sup> recurrent vein at the middle. Nervellus slightly reclivous, distinctly intercepted. Nervellar index 0.7. Tibial spur index 0.6. Hind femur 5.0× as long as high. Hind tarsal claws short, with distinct pectinate teeth basally and medially. Propodeum extending to 0.3 of the hind coxae, broadly and deeply depressed, sulcus with long transverse wrinkles over its total breadth, carinae almost completely obliterated. Propodeal spiracle large, 3.1× as long as wide. Spiracular carina narrow. Spiracular index 0.2. 1<sup>st</sup> gastral tergite 4.0×, 2<sup>nd</sup> tergite 1.5× as long as wide. Petiole with rather small but distinct glymmae at the anterior edge of indistinct narrow lateral areas, smooth in front of these areas. Petiolar suture for the greater part obliterated. 1<sup>st</sup> gastral sternite smooth. Thyridium elongate. Thyridial index about 1.0. Epipleurum not separated from the 3<sup>rd</sup> gastral tergite, the latter with distinct black lateral stripes well above the ventrolateral edge. Gaster distinctly compressed posteriorly. Ovipositor index 0.5.

Colour: Black. Maxillary palpus yellow, sometimes brown basally. Mandible broadly yellow medially. Flagellum medium brown to dark brown apically. Tegula dark brown. Wings hyaline. Stigma yellowish brown medially. Front leg from the tip of the coxa onwards yellow, trochanter and femur marked with brown ventrally, sometimes coxa black and trochanter completely brown. Mid femur yellowish on the apical 0.2. Mid tibia yellowish brown. Mid tarsus dark brown. Hind tibia yellowish brown medially, narrowly black basally, broadly black apically. 2<sup>nd</sup> gastral tergite dorsally red on the posterior 0.2, almost completely red laterally. 3<sup>rd</sup> and 4<sup>th</sup> tergites red. 5<sup>th</sup> tergite sometimes marked with red ventrolaterally. Pilosity whitish.

♂: Longitudinal carinae of propodeum present medially and posteriorly. Tegula yellow. Flagellum black to its apex. Greater part of the front coxa and tip of the mid coxa yellow. Mid trochanter yellowish brown. Mid femur yellowish brown basally and ventrally, yellow dorsally and apically. Mid tibia and tarsus yellow. 5<sup>th</sup> gastral tergite for the greater part red. In other characters similar to the ♀.

**Material** (7♀♀, 2♂♂): Russia: Primorye: Nakhodka (PET), Ussuriysk (LIN, PET), Vladivostok (PET). Japan: Hokkaido: Jozankei (AEI, Hinz/ZSM); Honshu: Norikura-dake (AEI); Shikoku: Susaki (SAP). Hinz (1979: 224) mentions additional localities in Japan.

#### *Dusona inermis* (Förster, 1868)

**Description.** ♀: Body length 8-10 mm. Temples distinctly constricted behind the eyes, 0.7× as long as the width of an eye, tangential lines on eyes and temples intersect on the prescutellar groove. Ocellar index 0.5. Frons scarcely depressed, coriaceous, rugose-punctate, with a fine median longitudinal carina, with short radial wrinkles, which extend to 0.4 the distance to the median ocellus. Antennal carina low and narrow. Face and dorsal half of the clypeus coriaceous, densely rugose-punctate. Clypeus flat, finely coriaceous and rather densely punctate ventrally, its apex truncate medially. Malar space index 0.4. Genal carina slightly raised ventrally, slightly bent sideways and often also forwards, joining the oral carina at the base of the mandible almost at a right angle. Temple coriaceous and with fine disperse punctation medially. Flagellum with 42-43 segments, filiform, the apical 0.3 attenuate, 2<sup>nd</sup> segment 2.0×, shortest segment 0.9×, penultimate segment 1.1× as long as wide. Pronotum with longitudinal wrinkles laterally, with additional punctures on its dorsal 0.2. Mesoscutum and scutellum coriaceous, very densely punctate. Scutellum with lateral carinae on the anterior 0.6. Prescutellar groove for the greater part smooth. Ventral part of the prepectal carina merging with the transverse carina, both carinae distinctly but not very strongly raised, the former distinctly emarginate medially. Pleural part of the prepectal carina low, its dorsal 0.3 obliterated. Mesopleurum distinctly coriaceous, rather densely or densely punctate. Speculum coriaceous and granulate-strigose, scarcely shining. Depression in front of the speculum with fine longitudinal striae, which merge with the punctation anteriorly. Metapleurum coriaceous, finely and densely rugose. Pleural carina distinct. Areolet large, stalked, receiving the 2<sup>nd</sup> recurrent vein at or distad of the middle. Nervellus slightly reclivous, weakly intercepted. Nervellar index 0.8. Tibial spur index 0.7. Hind femur 5.3× as long as high. Hind tarsal claws short, with short pectinate teeth basally. Propodeum extending to 0.4 of the hind coxae, broadly and distinctly but not deeply depressed, sulcus for the greater part with long transverse wrinkles, carinae obliterated, the longitudinal carinae sometimes indicated medially and posterior-

ly. Propodeal spiracle rather large, 3.6× as long as wide. Spiracular carina narrow. Spiracular index 0.3. 1<sup>st</sup> gastral tergite 4.4×, 2<sup>nd</sup> tergite 2.1× as long as wide. Petiole with rather small glymmae at the anterior edge of narrow lateral areas, which may be obliterated, smooth in front of the glymmae. Petiolar suture partly obliterated. 1<sup>st</sup> gastral sternite smooth. Thyridium oval. Thyridial index about 2.0. Epipleurum not separated from the 3<sup>rd</sup> gastral tergite, the latter with distinct black lateral stripes well above the ventrolateral edge. Gaster distinctly compressed posteriorly. Ovipositor index 0.5.

Colour: Black. Maxillary palpus yellowish red. Mandible narrowly marked with yellowish red dorsally and medially. Tegula yellowish. Wings hyaline. Stigma medium brown medially. Front trochanter marked with yellow and brown. Front femur yellowish red. Front tibia and tarsus yellow. Mid femur yellow on the apical 0.3. Mid tibia yellow. Mid tarsus brown. Hind tibia light yellow medially, narrowly black basally, rather narrowly black apically (apical black ring extending over 0.1-0.2 of the tibia). 2<sup>nd</sup> gastral tergite red on the posterior 0.4-0.6. 3<sup>rd</sup> and 4<sup>th</sup> tergites red. 5<sup>th</sup> tergite sometimes marked with red anteriorly. Pilosity whitish.

♂: Flagellum with 44-46 segments. Longitudinal carinae of the propodeum often present medially. Maxillary palpus yellow. Mandible almost completely yellow. Front and mid legs from the tip of the coxa onwards yellow, the femora yellowish red. Colour pattern of the hind tibia as in the ♀. 2<sup>nd</sup> gastral tergite red on the posterior 0.3-0.4. In other characters similar to the ♀.

**Host:** *Semiothisa liturata* (Clerck, 1759) (Geometridae) (MIN).

**Material** (7♀♀, 4♂♂): Russia: Novosibirsk Prov.: Akademgorodok (PET); Altaysk Terr.: Volchikha (MIN); Irkutsk Prov.: Irkutsk; Chita Prov.: Chita, Karymskoye (PET).

### *Dusona infesta* (Förster, 1868)

**Description.** ♀: Body length 15-16 mm. Temples strongly constricted behind the eyes, 0.8× as long as the width of an eye, tangential lines on eyes and temples intersect on the posterior half of the mesoscutum. Ocellar index 0.9. Frons slightly depressed, coriaceous, densely rugose and rugose-punctate dorsally, with a fine and sometimes indistinct median longitudinal carina, with long and distinct radial wrinkles, which reach the median ocellus. Antennal carina slightly but distinctly raised, the rim distinctly bent upwards (ear-like), form-

ing a narrow crescent-shaped plate, the latter with fine transverse striae. Face and dorsal 0.6 of the clypeus coriaceous, densely rugose and rugose punctate. Clypeus flat, coriaceous and rather densely punctate ventrally, its apex truncate medially. Malar space index 0.4. Genal carina slightly raised ventrally, slightly bent sideways, joining the slightly raised oral carina almost at a right angle. Genal index 0.3. Temple finely coriaceous and with fine disperse punctation medially. Flagellum with 53-57 segments, filiform, the apical 0.3 distinctly attenuate, 2<sup>nd</sup> segment 1.9×, shortest segment 1.0×, penultimate segment 1.3× as long as wide. Pronotum densely rugose-punctate and with oblique and longitudinal wrinkles laterally. Mesoscutum and scutellum coriaceous, dull, very densely punctate. Scutellum with lateral carinae on the anterior 0.7. Prescutellar groove with longitudinal striae. Prepectal carina low, ventral part merging with the pleural part, the latter almost joining the anterior edge of the mesopleurum, the dorsal 0.1-0.2 replaced by several wrinkles. Transverse carina present anteriorly. Mesopleurum coriaceous, densely punctate. Speculum punctate posteriorly, coriaceous anteriorly, rather dull. Depression in front of the speculum granulate-strigose, with short longitudinal wrinkles on the dorsal half, which merge with the punctation or with a narrow coriaceous area without punctation anteriorly. Metapleurum coriaceous, densely rugose-punctate. Pleural carina distinct. Areolet large, short-stalked, receiving the 2<sup>nd</sup> recurrent vein at or basad of the middle. Nervellus distinctly inclivous, distinctly intercepted. Nervellar index 0.7-0.8 (Fig. 26). Tibial spur index 0.7. Hind femur 5.9× as long as high. Hind tarsal claws short, with distinct pectinate teeth basally and medially. Propodeum extending to 0.4 of the hind coxae, broadly and deeply depressed, sulcus almost completely with long transverse wrinkles, costulae partly present, longitudinal carinae strong medially and posteriorly. Propodeal spiracle rather large, 3.5× as long as wide. Spiracular carina narrow. Spiracular index 0.6. 1<sup>st</sup> gastral tergite 4.5×, 2<sup>nd</sup> tergite 1.9× as long as wide. Petiole with large glymmae, which are bordered by longitudinal carinae dorsally, almost smooth in front of the glymmae, sometimes with some short transverse striae anteriorly. Petiolar suture obliterated or partly present. 1<sup>st</sup> gastral sternite for the greater part smooth, sometimes with transverse striae posteriorly. Thyridium oval. Thyridial index about 1.5. Epipleurum separated from the 3<sup>rd</sup> gastral tergite anteriorly, the crease marked with black. Epipleural index 0.4-0.5. Gaster strongly compressed posteriorly. Ovipositor index 0.6.

Colour: Black. Maxillary palpus yellowish brown. Mandible broadly yellow medially. Tegula yellow. Wings hyaline. Stigma light brown medially. Front leg from the apical half of the coxa onwards yellow. Mid femur yellow on the apical 0.2-0.5. Mid tibia yellow. Mid tarsus yellowish brown. Hind tibia broadly yellow medially, narrowly black basally and apically. 2<sup>nd</sup> gastral tergite red on the posterior 0.4. 3<sup>rd</sup> and 4<sup>th</sup> tergites red. Pilosity whitish.

♂: Similar to the ♀. 1♂ from Hiko-san/Kyushu/Japan (SAP) is darker: Mandible narrowly marked with reddish brown medially. Tegula yellowish brown. Front coxa black.

**Material** (5♀♀, 1♂): Russia: Irkutsk Prov.: Irkutsk; Chita Prov.: Nerchinskiy Zavod (PET). Japan: Hokkaido: Sapporo (SAP); Honshu: Kamikochi near Norikura-dake, Nagano (AEL); Kyushu: Hiko-san (SAP).

### *Dusona infundibulum* Horstmann, spec. nov.

**Holotype** (♂): Japan, Shikoku, Kajigamori, 20.8.1952 (SAP).

**Description.** ♂: Body length 14 mm. Temples distinctly constricted behind the eyes, 0.8× as long as the width of an eye, tangential lines on eyes and temples intersect on the scutellum. Ocellar index 1.0. Frons coriaceous and densely punctate dorsally, with two very deep funnel-like depressions ventrally, distinctly rugose in these depressions, with a median longitudinal bulge, without a carina on top of this bulge. Antennal carina distinctly raised, its rim distinctly bent upwards (ear-like), with fine transverse striae on the rim. Face and dorsal 0.6 of the clypeus finely coriaceous, densely rugose-punctate. Clypeus flat, finely coriaceous and rather densely punctate ventrally, its apex truncate medially. Malar space index 0.4. Genal carina straight ventrally, distinctly raised, joining the raised oral carina at an acute angle, the tip of the junction not shifted ventrally. Genal index 0.3. Temple with distinct and rather dense or dense punctation on a very slightly coriaceous and partly smooth background medially. Flagellum with 56 segments, filiform, the apical 0.3 attenuate, 2<sup>nd</sup> segment 1.5×, shortest segment 1.0×, penultimate segment 1.3× as long as wide. Pronotum with very dense punctation on an almost smooth background laterally on the dorsal 0.6, with rather irregular wrinkles ventrally. Mesoscutum and scutellum very finely coriaceous, densely punctate. Scutellum with lateral carinae on the anterior 0.2. Prescutellar groove with distinct longitudinal

striae. Prepectal carina low, ventral part merging with the pleural part, the latter complete, joining the anterior edge of the mesopleurum. Transverse carina indicated anteriorly. Mesopleurum strongly and densely punctate on a smooth background. Speculum finely granulate-strigose, shining. Depression in front of the speculum with fine longitudinal striae, which merge with the punctation anteriorly. Metapleurum densely rugose-punctate on a smooth or almost smooth background. Pleural carina complete. Areolet large, short-stalked, receiving the 2<sup>nd</sup> recurrent vein distad of the middle. Nervellus distinctly inclivous, strongly intercepted. Nervellar index 0.8. Tibial spur index 0.7. Hind femur 5.9× as long as high. Hind tarsal claws short, with distinct pectinate teeth basally and medially. Propodeum extending to 0.4 of the hind coxae, rather broadly and not deeply depressed, sulcus with short transverse wrinkles anteriorly and medially, with long transverse wrinkles posteriorly, costulae partly present, longitudinal carinae slightly indicated medially, strongly developed posteriorly. Propodeal spiracle rather small, 3.1× as long as wide. Spiracular carina narrow. Spiracular index 0.4. 1<sup>st</sup> gastral tergite 4.4×, 2<sup>nd</sup> tergite 2.3× as long as wide. Petiole with large and somewhat elongated glymmae, for the greater part smooth in front of the glymmae, with some very fine longitudinal striae. Petiolar suture very fine, partly obliterated. 1<sup>st</sup> gastral sternite coriaceous anteriorly, smooth medially, transversely striate posteriorly. Thyridium elongate. Thyridial index about 1.5. Epipleurum separated from the 3<sup>rd</sup> gastral tergite, the crease marked with black. Epipleural index 0.8. Gaster distinctly compressed posteriorly.

Colour: Black. Maxillary palpus blackish. Wings distinctly tinged with brown. Stigma medium brown medially. Front femur reddish brown dorsally, black ventrally. Front tibia and tarsus reddish brown. Mid femur dark reddish brown dorsally, black ventrally. Mid tibia and tarsus dark reddish brown. Hind tibia dark reddish brown subbasally, narrowly black basally, very broadly black apically. Postpetiole narrowly marked with red laterally. 2<sup>nd</sup> gastral tergite black dorsally, red laterally. 3<sup>rd</sup> to 5<sup>th</sup> tergites narrowly black dorsally, broadly red laterally. Pilosity whitish.

♀ unknown.

*Dusona insignita* (Förster, 1868)

**Description.** ♀: Body length 10-11 mm. Temples slightly constricted behind the eyes, 0.9× as long as the width of an eye, tangential lines on eyes and temples intersect on the propodeum. Ocellar index 1.1. Frons slightly depressed, coriaceous and with fine rather dense punctation dorsally, coriaceous and almost without punctures ventrally, with a fine and partly obliterated median longitudinal carina, without radial wrinkles. Antennal carina low and narrow. Face and dorsal half of the clypeus coriaceous, densely rugose-punctate. Clypeus flat, coriaceous and dull, with fine disperse punctation ventrally, its apex truncate medially. Malar space index 0.3. Genal carina low and straight ventrally, joining the slightly raised oral carina at an acute angle. Genal index 0.4. Temple coriaceous and with very fine disperse punctation medially. Flagellum with 46-48 segments, filiform, the apical 0.3 distinctly attenuate, 2<sup>nd</sup> segment 1.6×, shortest segment 1.0×, penultimate segment 1.2× as long as wide. Pronotum finely and densely rugose laterally on the dorsal 0.3, with longitudinal wrinkles ventrally. Mesoscutum coriaceous, densely punctate. Scutellum finely coriaceous, rather densely or densely punctate, with lateral carinae on the anterior 0.5-0.7. Prescutellar groove for the greater part smooth. Prepectal carina low, the ventral part merging with the pleural part, the latter complete or almost complete, the dorsal 0.1 sometimes replaced by several wrinkles. Transverse carina present, low. Mesopleurum coriaceous, dull, rather densely or densely punctate. Speculum finely coriaceous, shining. Depression in front of the speculum granulate-strigose and with fine longitudinal striae, which merge with the punctation or with a narrow area without punctation anteriorly. Metapleurum coriaceous, dull, finely and rather densely punctate. Pleural carina complete. Areolet large, pointed or short-stalked, receiving the 2<sup>nd</sup> recurrent vein slightly distad of the middle. Nervellus inclivous, distinctly intercepted. Nervellar index 0.8. Tibial spur index 0.6. Hind femur 5.0× as long as high. Hind tarsal claws short, with short pectinate teeth basally. Propodeum extending to 0.3 of the hind coxae, deeply but not broadly depressed, the longitudinal furrow almost smooth anteriorly, and medially, transversely wrinkled posteriorly, costulae almost completely obliterated, longitudinal carinae present posteriorly, sometimes indicated medially. Propodeal spiracle rather large, 2.8× as long as wide. Spiracular carina narrow. Spiracular index 0.4. 1<sup>st</sup> gastral tergite 3.6×, 2<sup>nd</sup> tergite 1.4× as long as wide. Petiole with large

glymmae, which are bordered by longitudinal carinae dorsally, with a long row of short transverse striae or small pits in a long longitudinal furrow in front of the glymmae, often with some longitudinal striae ventrolaterally. Petiolar suture complete. 1<sup>st</sup> gastral sternite for the greater part smooth or with very fine sculpture. Thyridium oval. Thyridial index about 1.0. Epipleurum separated from the 3<sup>rd</sup> gastral tergite anteriorly, usually folded in, the crease marked with black, a black lateral stripe parallel with the crease in a short distance and divergent from the ventrolateral edge of the tergite posteriorly. Epipleural index 0.2. Gaster distinctly compressed posteriorly. Ovipositor index 0.7.

Colour: Black. Maxillary palpus dark brown. Mandible marked with yellowish red to reddish brown medially. Tegula dark brown. Wings hyaline. Stigma yellowish brown medially. Front leg from the femur onwards yellowish red. Mid femur black basally and ventrally, yellowish red dorsally and apically. Mid tibia yellowish red. Mid tarsus dark brown. Hind tibia yellowish brown medially, narrowly black basally, broadly black apically. 2<sup>nd</sup> gastral tergite dorsally completely black or red on the posterior 0.1-0.2, laterally red on the posterior 0.3-0.5. 3<sup>rd</sup> tergite red, sometimes tinged with black dorsally. 4<sup>th</sup> tergite completely black or marked with red anteriorly. Pilosity whitish.

♂: Propodeum with the longitudinal furrow sometimes for the greater part irregularly wrinkled, with transverse wrinkles posteriorly. Maxillary palpus yellowish red to brown. Mandible broadly yellowish red medially. Tegula yellowish brown. Front leg from the tip of the coxa onwards yellowish. Mid leg from the tip of the coxa or from the trochanter onwards yellowish. 2<sup>nd</sup> gastral tergite sometimes dorsally red on the posterior 0.3. 3<sup>rd</sup> and 4<sup>th</sup> tergites sometimes completely red or marked with black dorsally. In other characters similar to the ♀.

**Material** (3♀♀, 1♂): Russia: Primorye: Roshchino on River Iman. Kazakhstan: Alma-Ata (PET).

*Dusona iwatae* Hinz, 1994

**Description.** ♀: Body length 7 mm. Temples distinctly constricted behind the eyes, 0.7× as long as the width of an eye, tangential lines on eyes and temples intersect on the scutellum. Ocellar index 0.8. Frons scarcely depressed, coriaceous, finely and densely rugose-punctate, with a very fine and indistinct median longitudinal carina, with few

and indistinct radial wrinkles. Antennal carina low and narrow. Face and dorsal 0.3 of the clypeus coriaceous, finely and densely rugose-punctate. Clypeus slightly convex, finely and rather densely punctate ventrally, its apex slightly convex medially. Malar space index 0.4. Genal carina low and straight ventrally, joining the low oral carina at an acute angle. Genal index 0.4. Temple finely coriaceous and with fine disperse punctation medially. Flagellum with 27 segments, clavate subapically, broadest segment 1.7× as wide as the apical end of the 1<sup>st</sup> segment, 2<sup>nd</sup> segment 2.3×, shortest segment 0.8×, penultimate segment 0.9× as long as wide. Pronotum densely rugose-punctate laterally on the dorsal 0.1, with longitudinal wrinkles ventrally. Mesoscutum coriaceous, finely and densely punctate. Scutellum finely coriaceous, with fine disperse punctation, with lateral carinae on the anterior 0.3. Prescutellar groove smooth medially, with longitudinal striae laterally. Ventral part of the prepectal carina merging with the transverse carina, both carinae rather low. Pleural part of the prepectal carina low, complete, joining the anterior edge of the mesopleurum. Mesopleurum distinctly coriaceous, rather dull, finely and densely punctate. Speculum almost smooth, shining. Depression in front of the speculum for the greater part with distinct longitudinal striae, which merge with the punctation anteriorly, the ventral 0.2 almost smooth. Metapleurum coriaceous, finely and densely rugose-punctate. Pleural carina fine but complete. Areolet rather small, stalked, receiving the 2<sup>nd</sup> recurrent vein distinctly distad of the middle. Nervellus slightly reclivous, intercepted. Nervellar index 0.4. Tibial spur index 0.6. Hind femur 5.1× as long as high. Hind tarsal claws short, with distinct pectinate teeth basally. Propodeum extending to 0.3 of the hind coxae, slightly and broadly depressed, sulcus with long transverse wrinkles, costulae fine but complete, longitudinal carinae almost completely obliterated. Propodeal spiracle small, 2.0× as long as wide. Spiracular carina partly widened. Spiracular index 1.0. 1<sup>st</sup> gastral tergite 4.1×, 2<sup>nd</sup> tergite 1.5× as long as wide. Petiole with distinct long and narrow glymmae, which are bordered by longitudinal carinae dorsally, smooth in front of the glymmae. Petiolar suture complete. 1<sup>st</sup> gastral sternite for the greater part smooth, with few transverse striae posteriorly. Thyridium elongate. Thyridial index about 1.0. Epipleurum separated from the 3<sup>rd</sup> gastral tergite, the crease marked with black. Epipleural index 0.8. Gaster slightly compressed posteriorly. Ovipositor index 1.1.

Colour: Black. Maxillary palpus brown basally, yellow medially and apically. Mandible nar-

rowly marked with reddish brown medially. Wings hyaline. Stigma dark brown medially. Front leg from the apical end of the trochanter onwards yellow. Mid leg from the apical 0.3 of the femur onwards yellow. Hind tibia yellowish brown, narrowly black basally, not darkened apically. Hind tarsus dark brown dorsally, yellowish brown ventrally. 2<sup>nd</sup> gastral tergite dorsally red on the posterior 0.3, laterally red on the posterior 0.4. 3<sup>rd</sup> tergite red. 4<sup>th</sup> to 6<sup>th</sup> tergites broadly medium brown dorsally, marked with red ventrolaterally. 7<sup>th</sup> tergite red. Gastral sternites red. Pilosity whitish.

♂ unknown.

**Material** (1♀): Japan: Honshu: Sasayama (SAP).

### *Dusona japonica* (Cameron, 1906)

The holotype (♀) of *Campoplex japonicus* Cameron from Kobe/Honshu/Japan (NHM) has recently been studied by the junior author.

**Description.** ♀: Body length 10-13 mm. Temples distinctly constricted behind the eyes, 0.8× as long as the width of an eye, tangential lines on eyes and temples intersect on the scutellum. Ocellar index 1.0. Frons not depressed, coriaceous, rugose, without a median longitudinal carina, without or with rather short radial wrinkles, which extend to 0.2-0.4 the distance to the median ocellus. Antennal sockets close to each other. Antennal carina low and narrow. Face and dorsal 0.4 of the clypeus coriaceous, densely rugose-punctate. Clypeus flat or slightly concave, finely coriaceous and rather densely punctate ventrally, its apex truncate medially. Malar space index 0.6. Genal carina low and straight ventrally, joining the slightly raised oral carina at an acute angle. Genal index 0.6. Temple coriaceous and with fine dense punctation medially. Flagellum with 44-52 segments, filiform, the apical 0.2 slightly attenuate, 2<sup>nd</sup> segment 1.5×, shortest segment 0.9×, penultimate segment 1.3× as long as wide. Pronotum densely rugose-punctate laterally on the dorsal 0.2, with longitudinal wrinkles ventrally. Mesoscutum and scutellum finely coriaceous, very densely punctate. Scutellum with lateral carinae on the anterior half. Prescutellar groove smooth. Ventral part of prepectal carina merging with the transverse carina, both carinae low. Pleural part of the prepectal carina completely obliterated (Fig. 21). Pleural part of the prepectus densely rugose-punctate. Mesopleurum distinctly and densely punctate on a smooth background, sometimes with additional wrinkles or densely rugose-punctate. Speculum

finely granulate-strigose. Depression in front of the speculum with distinct rather short longitudinal striae, which merge with the punctation anteriorly. Metapleurum densely rugose. Pleural carina fine, sometimes covered with wrinkles. Areolet large, short-stalked, receiving the 2<sup>nd</sup> recurrent vein distinctly basad of the middle. Nervellus slightly inclivous or vertical, weakly intercepted. Nervellar index 0.7-0.8. Tibial spur index 0.7. Hind femur 5.8× as long as high. Hind tarsal claws long, with rather long pectinate teeth basally and medially. Propodeum extending to 0.4 of the hind coxae, not depressed or with a shallow and narrow longitudinal furrow, for the greater part irregularly wrinkled, with few short transverse wrinkles in the furrow (if the latter is present), with some longitudinal wrinkles posteriorly, carinae almost completely obliterated. Propodeal spiracle small, 3.0× as long as wide. Spiracular carina replaced by several wrinkles. Spiracular index 1.1. 1<sup>st</sup> gastral tergite 4.6×, 2<sup>nd</sup> tergite 1.9× as long as wide. Petiole without or with very small glymmae at the anterior edge of narrow lateral areas, smooth or with very fine sculpture in front of these areas. Petiolar suture fine, partly obliterated. 1<sup>st</sup> gastral sternite for the greater part smooth, with few transverse striae posteriorly. Thyridium oval. Thyridial index about 2.0. Epipleurum not separated from the 3<sup>rd</sup> gastral tergite, the latter with distinct black lateral stripes well above the ventrolateral edge. Gaster distinctly compressed posteriorly. Ovipositor index 0.5.

Colour: Black. Wings hyaline. Front femur dark brown on the apical 0.2. Front tibia dark brown. 2<sup>nd</sup> gastral tergite completely black or red on the posterior 0.1-0.2. 3<sup>rd</sup> and 4<sup>th</sup> tergites red. 5<sup>th</sup> tergite sometimes marked with red anteriorly. Pilosity whitish.

♂: Mandible broadly yellow medially. Front leg from the coxa onwards with a longitudinal yellow stripe anteriorly. Mid tibia sometimes tinged with brown. In other characters similar to the ♀.

**Material** (26♀♀, 18♂♂): Russia: Irkutsk Prov.: Dachnaya (Hinz/ZSM, PET), Lake Baykal (ZSM); Sakhalin: Tymovskoye. Uzbekistan: Kamashi (PET). Kazakhstan: Chimkent (MOS). Tadjhikistan: Dushanbe. Kirgiziya: Frunze (= Bishkek), Iski-Naukat (PET), Kirgizskiy Mts. (LIN, MOS, PET), Przhevalsk, River Chatkal (PET), Terskey Alatau Mts. (LIN, MOS), Yangibazar (LIN). Japan: Honshu: Nagano (OTT), Kobe (NHM), Sasayama (SAP), Yokohama (AEI, Hinz/ZSM); Kyushu: Unoshima (SAP).

**Variety:** Temples slightly constricted behind the eyes, 1.0× as long as the width of an eye, tangen-

tial lines on eyes and temples intersect on the propodeum. Material (3♀♀, 9♂♂): Russia: Tomsk Prov.: Tisul (PET); Irkutsk Prov.: Lake Baykal (Hinz/ZSM); Chita Prov.: Chita. Kazakhstan: Alma-Ata (PET). Tadjhikistan: Kulyab, Varzob (MOS). Kirgiziya: Przhevalsk (PET), Terskey Alatau Mts. (MOS). The status of this variety is unknown. Apparently it occurs only in central Asia. In one locality (Przhevalsk/Kirgiziya) it has been collected together with the nominate variety.

### *Dusona juvenilis* (Förster, 1868)

**Description.** ♀: Body length 7-9 mm. Temples slightly constricted behind the eyes, 0.8× as long as the width of an eye, tangential lines on eyes and temples intersect on the propodeum. Ocellar index 0.9. Frons scarcely depressed, coriaceous, finely and densely rugose-punctate, with a fine median longitudinal carina, with few short radial wrinkles. Antennal carina rather low and narrow. Face and dorsal 0.4 of the clypeus coriaceous, dull, finely and densely rugose-punctate. Clypeus flat, coriaceous and with fine disperse punctation ventrally, its apex slightly convex medially. Malar space index 0.5. Genal carina low, slightly bent sideways and distinctly bent forwards, joining the oral carina at the base of the mandible at a right angle. Temple finely coriaceous and with fine disperse punctation medially. Flagellum with 26-28 segments, slightly fusiform, 2<sup>nd</sup> segment 2.2×, shortest segment 0.7×, penultimate segment 0.9× as long as wide. Pronotum coriaceous and rugose-punctate laterally on the dorsal 0.2, with longitudinal wrinkles ventrally. Mesoscutum and scutellum coriaceous, dull, densely punctate. Scutellum with lateral carinae on the anterior half. Prescutellar groove with fine longitudinal striae. Ventral part of the prepectal carina merging with the transverse carina, both carinae distinctly raised, the former deeply emarginate medially and strongly raised submedially behind the front coxae (almost tongue-like). Pleural part of the prepectal carina for the greater part obliterated and replaced by wrinkles, sometimes present subdorsally. Mesopleurum finely coriaceous, somewhat shining, distinctly and densely punctate. Speculum finely coriaceous, rather shining. Depression in front of the speculum with with fine and long longitudinal striae, which merge with the punctation anteriorly. Metapleurum coriaceous, densely rugose or rugose-punctate. Pleural carina distinct. Areolet rather large, short-stalked, receiving the 2<sup>nd</sup> recurrent vein distad of the middle. Nervellus slightly inclivous, weakly intercepted. Nervellar index 0.8.

Tibial spur index 0.7. Hind femur 4.7× as long as high. Hind tarsal claws short, with distinct pectinate teeth basally and medially. Propodeum extending to 0.6-0.7 of the hind coxae, distinctly and rather broadly depressed, sulcus with rather short transverse wrinkles anteriorly, with long transverse wrinkles posteriorly, costulae complete and distinct, longitudinal carinae distinct posteriorly, more or less indicated medially. Propodeal spiracle rather small, 2.4× as long as wide. Spiracular carina narrow. Spiracular index 0.5. 1<sup>st</sup> gastral tergite 4.7×, 2<sup>nd</sup> tergite 2.2× as long as wide. Petiole without glymmae, with distinct narrow lateral areas, smooth in front of these areas. Petiolar suture fine and partly obliterated. 1<sup>st</sup> gastral sternite smooth. Thyridium elongate. Thyridial index about 1.0. Epipleurum not separated from the 3<sup>rd</sup> gastral tergite, the latter with indistinct black lateral stripes well above the ventrolateral edge. Gaster distinctly compressed posteriorly. Ovipositor index 1.3.

Colour: Black. Maxillary palpus yellowish red. Mandible rather narrowly marked with yellow dorsally and medially. Tegula yellow. Wings hyaline. Stigma yellowish brown medially. Front coxa and trochanter marked with yellow. Front femur, tibia and tarsus yellowish red, the femur sometimes darkened ventrally. Mid femur, tibia and tarsus yellowish red, the femur darkened ventrally, the tarsus darkened apically. Hind femur yellowish red, marked with black basally (to a variable extend), or completely black. Hind tibia broadly yellowish red medially, narrowly medium brown basally and apically, or broadly brown medially, narrowly black basally and apically. Hind tarsus yellowish red basally, black apically, or completely black. 2<sup>nd</sup> gastral tergite red on the posterior 0.2. 3<sup>rd</sup> tergite red, sometimes marked with black posteriorly (to a variable extend). Pilosity whitish.

♂: Flagellum with 30-32 segments, filiform, the apical 0.1 slightly attenuate, 2<sup>nd</sup> segment 1.9×, shortest segment 1.0×, penultimate segment 1.1× as long as wide. Propodeum extending to the middle of the hind coxae, longitudinal carinae sometimes distinct and almost complete. 2<sup>nd</sup> gastral tergite red on the posterior 0.1-0.2. 3<sup>rd</sup> tergite often red only anteriorly. In other characters similar to the ♀.

**Material** (5♀, 1♂): Russia: Altaysk Terr.: River Chulyshman (MIN); Irkutsk Prov.: Dachnaya; Yakutsk A.S.S.R.: Arangastakh Reserve. Kazakhstan: Borovoye near Kokchetav (PET).

**Description.** ♀: Body length 7 mm. Temples strongly constricted behind the eyes, 0.6× as long as the width of an eye, tangential lines on eyes and temples intersect on the middle of the mesoscutum. Ocellar index 0.7. Frons slightly depressed, coriaceous, finely and rather densely punctate, with a distinct median longitudinal carina on top of a low median longitudinal bulge, with few and indistinct radial wrinkles. Antennal carina low and narrow. Face and dorsal 0.8 of the clypeus coriaceous, densely rugose-punctate. Clypeus flat, coriaceous and rather densely punctate ventrally, its apex truncate medially. Malar space index 0.2. Genal carina low ventrally, slightly bent sideways, joining the low oral carina at an acute angle. Genal index 0.5. Temple finely coriaceous and with very fine disperse punctation medially. Flagellum with 41-43 segments, filiform, the apical 0.2 attenuate, 2<sup>nd</sup> segment 2.5×, shortest segment 1.3×, penultimate segment 1.7× as long as wide. Pronotum densely rugose-punctate laterally on the dorsal 0.1, with longitudinal wrinkles ventrally. Mesoscutum and scutellum coriaceous, finely and densely punctate. Scutellum with lateral carinae on the anterior 0.6. Prescutellar groove with fine longitudinal striae. Ventral part of the prepectal carina merging with the transverse carina, the former low, the latter slightly raised. Pleural part of the prepectal carina obliterated and replaced by some short wrinkles. Pleural part of the prepectus densely rugose-punctate on a finely coriaceous and shining background. Mesopleurum distinctly coriaceous, with distinct rather dense punctation. Speculum finely coriaceous. Depression in front of the speculum with distinct rather long longitudinal striae, which merge with the punctation anteriorly. Metapleurum coriaceous, finely and densely rugose-punctate. Pleural carina fine but distinct. Areolet large, pointed or short-stalked, receiving the 2<sup>nd</sup> recurrent vein at the middle. Nervellus slightly reclivous, weakly intercepted. Nervellar index 0.7. Tibial spur index 0.5. Hind femur 4.9× as long as high. Hind tarsal claws short, with short pectinate teeth basally. Propodeum extending to the middle of the hind coxae, almost not depressed, coriaceous or with short transverse wrinkles anteriorly, with long transverse wrinkles posteriorly, carinae almost completely obliterated. Propodeal spiracle rather large, 3.0× as long as wide. Spiracular carina narrow. Spiracular index 0.4. 1<sup>st</sup> gastral tergite 4.7×, 2<sup>nd</sup> tergite 2.8× as long as wide. Petiole without glymmae, with slightly indicated narrow lateral areas, smooth in front of these areas. Petiolar suture

obliterated. 1<sup>st</sup> gastral sternite smooth. Thyridium elongate. Thyridial index about 1.0. Epipleurum not separated from the 3<sup>rd</sup> gastral tergite, the latter with distinct black lateral stripes well above the ventrolateral edge. Gaster distinctly compressed posteriorly. Ovipositor index 0.6.

Colour: Black. Maxillary palpus yellow. Mandible broadly yellowish brown medially. Flagellum for the greater part medium brown. Tegula yellow. Wings hyaline. Stigma medium brown medially. Front and mid legs yellow, front coxa black basally, mid coxa black basally and medially. Hind trochanter yellow. Hind femur reddish brown. Hind tibia yellow medially, narrowly medium brown basally, broadly medium brown apically. Hind tarsus yellowish brown. 2<sup>nd</sup> gastral tergite dorsally red on the posterior 0.1, laterally red on the posterior 0.3. 3<sup>rd</sup> tergite red, dorsally marked with black anteriorly. 4<sup>th</sup> and 5<sup>th</sup> tergites red. 6<sup>th</sup> and 7<sup>th</sup> tergites dark brown dorsally, broadly marked with red ventrolaterally. Gastral sternites red. Pilosity whitish.

♂ unknown.

**Material** (2♀): Russia: Primorye: Khasan (Hinz/ZSM, PET).

#### *Dusona lamellifer* Hinz, 1994

**Description.** ♀: Body length 8 mm. Temples strongly constricted behind the eyes, 0.8× as long as the width of an eye, tangential lines on eyes and temples intersect on the posterior half of the mesoscutum. Ocellar index 0.7. Frons not depressed, densely rugose-punctate, with distinct but short radial wrinkles, a fine median longitudinal carina scarcely indicated. Antennal carina low and narrow. Face and dorsal 0.8 of the clypeus coriaceous and densely rugose. Clypeus flat, coriaceous and densely punctate ventrally, its apex truncate medially. Malar space index 0.4. Genal carina and oral carina very strongly raised close to the junction of both carinae, forming a lopsided triangular pyramid, the tip of the latter shifted ventrally and situated behind the base of the mandible. Gena deeply depressed close to the junction, the depression about as deep as the width of the 2<sup>nd</sup> flagellar segment. Temple finely coriaceous and with very fine disperse punctation medially. Flagellum with 38 segments, filiform, the apical 0.2 slightly attenuate, 2<sup>nd</sup> segment 1.7×, shortest segment 0.9×, penultimate segment 1.0× as long as wide. Pronotum coriaceous and densely rugose-punctate laterally on the dorsal 0.3, with longitudinal wrinkles ventrally. Mesoscutum and scutel-

lum coriaceous and very densely punctate. Scutellum with lateral carinae on the anterior 0.8. Prescutellar groove for the greater part smooth, with few longitudinal striae laterally. Prepectal carina low, ventral part merging with the pleural part, the latter almost complete, the dorsal 0.1-0.2 replaced by several wrinkles. Transverse carina obliterated. Mesopleurum distinctly coriaceous, rather densely or densely punctate. Speculum finely coriaceous. Depression in front of the speculum with fine rather long longitudinal striae, which merge with the punctation anteriorly. Metapleurum densely rugose-punctate. Pleural carina distinct. Areolet short-stalked, receiving the 2<sup>nd</sup> recurrent vein slightly distad of the middle. Nervellus slightly inclivous, distinctly intercepted. Nervellar index 0.8. Tibial spur index 0.6. Hind femur 5.1× as long as high. Hind tarsal claws short, with short pectinate teeth basally. Propodeum extending to the middle of the hind coxae, broadly and not deeply depressed, for the greater part irregularly wrinkled, with few short transverse wrinkles in the midline, costulae obliterated, longitudinal carinae weakly indicated medially and posteriorly. Propodeal spiracle rather small, 3.3× as long as wide. Spiracular carina partly widened. Spiracular index about 0.3. 1<sup>st</sup> gastral tergite 3.8×, 2<sup>nd</sup> tergite 1.7× as long as wide. Petiole without glymmae, with narrow lateral areas, smooth in front of these areas. Petiolar suture almost completely obliterated. 1<sup>st</sup> gastral sternite for the greater part smooth, with transverse striae posteriorly. Thyridium oval. Thyridial index about 1.0. Epipleurum not separated from the 3<sup>rd</sup> gastral tergite, the latter with distinct black lateral stripes well above the ventrolateral edge. Gaster distinctly compressed posteriorly. Ovipositor index 0.7.

Colour: Black. Maxillary palpus dark brown basally, yellowish brown medially and apically. Mandible narrowly marked with reddish brown subapically. Wings hyaline. Stigma dark brown medially. Front leg from the femur onwards light reddish brown, the femur marked with dark brown ventrally. Mid femur marked with yellowish brown on the apical 0.2. Mid tibia yellowish brown. Mid tarsus yellowish brown to brown. Hind tibia whitish yellow dorsally, brown ventrally, narrowly black basally, broadly black apically. 2<sup>nd</sup> gastral tergite red on the posterior 0.3. 3<sup>rd</sup> and 4<sup>th</sup> tergites red, the 4<sup>th</sup> tergite tinged with black dorsally. Pilosity whitish.

♂ unknown.

**Material** (1♀): Japan: Honshu: Nikko (AEI).

*Dusona leptogaster* (Holmgren, 1860)

**Description.** ♀: Body length 7-8 mm. Temples distinctly constricted behind the eyes, 0.7× as long as the width of an eye, tangential lines on eyes and temples intersect on the postscutellum. Ocellar index 0.7. Frons slightly depressed, coriaceous, with very fine and disperse punctation, with a fine median longitudinal carina, with fine or indistinct radial wrinkles. Antennal carina low and narrow. Face and dorsal half of the clypeus coriaceous and with very fine and dense punctation. Clypeus slightly concave, coriaceous and with fine disperse punctation ventrally, its apex truncate medially. Malar space index 0.6. Genal carina low ventrally, slightly bent sideways, joining the slightly raised oral carina at an acute angle. Genal index 0.5. Temple finely coriaceous and with fine rather dense punctation medially. Flagellum with 38-42 segments, filiform, the apical 0.2 attenuate, 2<sup>nd</sup> segment 2.3×, shortest segment 1.0×, penultimate segment 1.2× as long as wide. Pronotum with fine longitudinal wrinkles, almost not punctate. Mesoscutum coriaceous, dull, with very fine and rather dense punctation, in some parts finely rugose-punctate. Scutellum coriaceous, densely rugose-punctate, with lateral carinae on the anterior 0.4. Prescutellar groove smooth medially, with longitudinal striae laterally. Prepectal carina low, ventral part merging with the pleural part, the latter complete, joining the anterior edge of the mesopleurum. Transverse carina obliterated. Mesopleurum densely rugose centrally, coriaceous and with fine rather dense punctation ventrally. Speculum coriaceous, rather dull dorsally, shining ventrally. Depression in front of the speculum dorsally with short longitudinal wrinkles, which merge with the punctation anteriorly, the ventral 0.3 with fine wrinkles and shining. Metapleurum densely rugose. Pleural carina distinct. Areolet small, short-stalked, receiving the 2<sup>nd</sup> recurrent vein far distad of the middle. Nervellus almost vertical, weakly intercepted. Nervellar index 0.7-0.8. Tibial spur index 0.6. Hind femur 5.7× as long as high. Hind tarsal claws short, with long pectinate teeth basally. Propodeum extending to the middle of the hind coxae, scarcely depressed, with complete costulae and longitudinal carinae, for the greater part transversely wrinkled between the longitudinal carinae, with few longitudinal carinae posteriorly. Propodeal spiracle small, 2.8× as long as wide. Spiracular carina narrow. Spiracular index 0.6. 1<sup>st</sup> gastral tergite 4.0×, 2<sup>nd</sup> tergite 1.8× as long as wide. Petiole without glymmae, with narrow lateral areas, sometimes with very small and shallow pits at the anterior edge of the

lateral areas, with very fine longitudinal striae in front of these areas. Petiolar suture fine, complete. 1<sup>st</sup> gastral sternite for the greater part coriaceous, with transverse striae posteriorly. Thyridium elongate. Thyridial index about 2.0. Epipleurum separated from the 3<sup>rd</sup> gastral tergite, the crease marked with black. Epipleural index 0.9. Gaster distinctly compressed posteriorly. Ovipositor index 0.5.

Colour: Black. Maxillary palpus yellow. Mandible broadly yellow medially. Wings hyaline. Stigma dark brown medially. Front leg from the trochanter onwards yellowish red. Mid femur yellowish brown on the apical 0.2. Mid tibia and tarsus yellowish brown. Hind tibia black, slightly tinged with dark brown. 2<sup>nd</sup> gastral tergite red on the posterior 0.2. 3<sup>rd</sup> to 5<sup>th</sup> tergites red. Pilosity whitish.

♂: Tegula yellow. Front and mid legs from the tip of the coxa onwards yellowish red. Hind tibia dark yellowish brown. In other characters similar to the ♀.

**Material** (10♀♀, 2♂♂): Russia: Irkutsk Prov.: Dakhnaya; Kuril Isl.: Alekhino on Kunashir, Krabozavodsk on Shikotan (PET). Japan: Honshu: Kamikochi near Norikura-dake (AEI).

*Dusona levibasis* Horstmann, spec. nov.

**Holotype** (♂): Russia, Primorye, Spassk Dalniy, 8.7. 1961 (MOS).

**Description.** ♂: Body length 10 mm. Temples strongly constricted behind the eyes, 0.6× as long as the width of an eye, tangential lines on eyes and temples intersect on the posterior half of the mesoscutum. Ocellar index 0.7. Frons slightly depressed, coriaceous, densely rugose-punctate, with an indistinct and partly obliterated median longitudinal carina, with short radial wrinkles, which extend to 0.3 the distance to the median ocellus. Antennal carina low and narrow. Face and dorsal 0.7 of the clypeus coriaceous, very densely punctate and rugose-punctate. Clypeus flat, finely coriaceous and with rather dense punctation ventrally, its apex truncate medially. Malar space index 0.3. Genal carina straight ventrally, slightly raised, joining the slightly raised oral carina at an acute angle. Genal index 0.3. Temple fine coriaceous and with very fine disperse punctation medially. Flagellum with 52 segments, filiform, the apical 0.2 attenuate, 2<sup>nd</sup> segment 1.6×, shortest segment 1.0×, penultimate segment 1.4× as long as wide. Pronotum finely coriaceous and densely rugose-punctate laterally on the dorsal 0.2, with

longitudinal wrinkles ventrally. Mesoscutum and scutellum coriaceous, densely punctate. Scutellum with lateral carinae on the anterior 0.7. Prescutellar groove smooth medially, with fine longitudinal striae laterally. Prepectal carina low, the ventral part merging with the pleural part, the dorsal 0.2 of the latter obliterated. Transverse carina indicated anteriorly. Mesopleurum distinctly coriaceous, rather densely or densely punctate. Speculum granulate-strigose, scarcely shining. Depression in front of the speculum with fine longitudinal striae, which merge with a coriaceous area without punctuation anteriorly. Metapleurum coriaceous, densely punctate. Pleural carina distinct. Areolet large, narrowly sessile, receiving the 2<sup>nd</sup> recurrent vein slightly distad of the middle. Nervellus slightly reclivous, distinctly intercepted. Nervellar index 0.7. Tibial spur index 0.5. Hind femur 4.5× as long as high. Hind tarsal claws short, with short pectinate teeth basally. Propodeum extending to 0.3 of the hind coxae, deeply and rather narrowly depressed, the longitudinal furrow coriaceous anteriorly, with transverse striae medially and posteriorly, carinae almost completely obliterated. Propodeal spiracle large, 3.0× as long as wide. Spiracular carina partly widened. Spiracular index 0.5. 1<sup>st</sup> gastral tergite 3.7×, 2<sup>nd</sup> tergite 1.8× as long as wide. Petiole with distinct glymmae, smooth in front of the glymmae. Petiolar suture obliterated. 1<sup>st</sup> gastral sternite smooth. Thyridium oval. Thyridial index about 1.5. Epipleurum pendent as a small triangular lobe anteriorly at the ventrolateral edge of the 3<sup>rd</sup> gastral tergite, the latter with distinct black lateral stripes well above the ventrolateral edge. Gaster distinctly compressed posteriorly.

Colour: Black. Maxillary palpus yellow. Mandible broadly yellow medially. Tegula yellowish brown. Wings hyaline. Stigma yellowish brown medially. Front leg from the tip of the coxa onwards yellow, the femur yellowish red. Mid femur yellowish brown dorsally, black ventrally. Mid tibia yellow, Mid tarsus yellow basally, yellowish brown medially and apically. Hind tibia broadly yellow medially, narrowly black basally, rather narrowly medium brown apically. Hind tarsus dark brown. 2<sup>nd</sup> gastral tergite dorsally red on the posterior 0.2, for the greater part red laterally, the posterior edge marked with dark brown. 3<sup>rd</sup> and 4<sup>th</sup> tergites red. Pilosity whitish.

♀ unknown.

**Description.** ♀: Body length 7-8 mm. Temples distinctly constricted behind the eyes, 0.6× as long as the width of an eye, tangential lines on eyes and temples intersect on the prescutellar groove. Ocellar index 0.9. Frons scarcely depressed, coriaceous, finely and densely rugose-punctate, with a distinct median longitudinal carina, with distinct radial wrinkles, which extend to half the distance to the median ocellus. Antennal carina low and narrow. Face and dorsal 0.7 of the clypeus coriaceous, densely rugose-punctate. Clypeus slightly convex, coriaceous and with rather dense punctuation ventrally, its apex slightly convex medially. Malar space index 0.4. Genal carina low ventrally, slightly bent forwards and sideways, joining the oral carina at the base of the mandible at a right angle. Temple finely coriaceous and with very fine disperse punctuation medially. Flagellum with 38-42 segments, filiform, the apical 0.2 slightly attenuate, 2<sup>nd</sup> segment 2.3×, shortest segment 1.1×, penultimate segment 1.2× as long as wide. Pronotum densely rugose-punctate laterally on the dorsal 0.2, with longitudinal wrinkles ventrally. Mesoscutum and scutellum coriaceous, finely and densely punctate. Scutellum with lateral carinae on the anterior 0.8. Prescutellar groove with few fine longitudinal striae. Ventral part of the prepectal carina merging with the transverse carina, both carinae strongly raised, the former deeply emarginate medially. Pleural part of the prepectal carina obliterated ventrally and dorsally, the median 0.4 present. Mesopleurum distinctly coriaceous, rather densely or densely punctate. Speculum and depression in front of the speculum with long longitudinal striae, which merge with the punctuation anteriorly. Metapleurum finely and densely rugose-punctate. Pleural carina distinct. Areolet rather small, long-stalked, receiving the 2<sup>nd</sup> recurrent vein slightly distad of the middle. Nervellus slightly reclivous, weakly intercepted. Nervellar index 0.7. Tibial spur index 0.6. Hind femur 4.4× as long as high. Hind tarsal claws short, with distinct pectinate teeth basally. Propodeum extending to 0.4 of the hind coxae, deeply and rather narrowly depressed, with short and indistinct transverse wrinkles in the longitudinal furrow, with distinct transverse wrinkles posteriorly, irregularly wrinkled beside the furrow, carinae almost completely obliterated. Propodeal spiracle small, 2.7× as long as wide. Spiracular carina narrow. Spiracular index 0.3. 1<sup>st</sup> gastral tergite 4.0×, 2<sup>nd</sup> tergite 1.8× as long as wide. Petiole without glymmae or narrow lateral areas, smooth laterally. Petiolar suture partly obliterated.

ed. 1<sup>st</sup> gastral sternite smooth. Thyridium elongate. Thyridial index about 1.0. Epipleurum not separated from the 3<sup>rd</sup> gastral tergite, the latter with fine black lateral stripes well above the ventrolateral edge. Gaster distinctly compressed posteriorly. Ovipositor index 0.6.

Colour: Black. Maxillary palpus dark brown. Wings hyaline. Stigma yellowish brown medially. Front femur yellowish red on the apical half. Front and mid tibiae and tarsi yellowish red. 2<sup>nd</sup> gastral tergite red on the posterior 0.1. 3<sup>rd</sup> tergite marked with red on the anterior half. Pilosity whitish.

♂: Propodeum with distinct transverse wrinkles in the longitudinal furrow. Maxillary palpus reddish brown. Hind tibia sometimes whitish sub-basally on the dorsal side. 3<sup>rd</sup> gastral tergite sometimes completely red. 4<sup>th</sup> tergite sometimes marked with red anteriorly. In other characters similar to the ♀.

**Material** (2♀♀, 3♂♂): Russia: Chita Prov.: Nerchinskii Zavod (PET); Khabarovsk Terr.: Khekhtsir near Khabarovsk (Hinz/ZSM, PET); Primorye: Roshchino on River Iman (PET), Pozhiga SO of Dalnerechensk (Hinz/ZSM).

#### *Dusona linearis* Horstmann, spec. nov.

**Holotype** (♂): Japan, Hokkaido, Apoi-dake, 7.7. 1957 (SAP).

**Description.** ♂: Body length 15 mm. Temples distinctly constricted behind the eyes, 0.9× as long as the width of an eye, tangential lines on eyes and temples intersect on the scutellum. Ocellar index 1.0. Frons coriaceous and densely punctate dorsally, deeply depressed ventrally, coriaceous without radial wrinkles in the depression, with a distinct narrow median longitudinal bulge and with a partly obliterated fine longitudinal carina on top of this bulge. Antennal carina strongly raised, the rim bent upwards (ear-like), at the same time with a distinct dorsal projection (nose-like) and with fine transverse striae on the projection. Face and dorsal 0.6 of the clypeus coriaceous, densely rugose-punctate. Clypeus flat, coriaceous and with disperse or rather dense punctation ventrally, its apex slightly convex medially. Malar space index 0.5. Genal carina low and almost straight ventrally, joining the distinctly raised oral carina at an acute angle. Genal index 0.5. Temple finely coriaceous and with fine rather dense punctation medially. Flagellum with 60 segments, filiform, the apical 0.3 attenuate, 2<sup>nd</sup> segment 1.4×, shortest segment 1.0×, penultimate segment 1.2× as long

as wide. Pronotum finely coriaceous and densely rugose-punctate laterally on the dorsal 0.4, with longitudinal wrinkles ventrally. Mesoscutum and scutellum coriaceous, dull, densely punctate. Scutellum with lateral carinae on the anterior 0.3. Prescutellar groove with longitudinal striae. Prepectal carina low, ventral part merging with the pleural part, the latter complete, joining the anterior edge of the mesopleurum. Transverse carina indicated anteriorly. Mesopleurum finely coriaceous, with distinct and rather dense or dense punctation. Speculum and depression in front of the speculum coriaceous, without wrinkles. Metapleurum coriaceous, dull, finely and densely punctate. Pleural carina strong. Areolet large, short-stalked, receiving the 2<sup>nd</sup> recurrent vein at the middle. Nervellus slightly inclivous, distinctly intercepted. Nervellar index 0.7. Tibial spur index 0.6. Hind femur 5.6× as long as high. Hind tarsal claws rather long, with some short pectinate teeth basally. Propodeum extending to 0.4 of the hind coxae, broadly and deeply depressed, with transverse wrinkles in the sulcus, costulae complete, longitudinal carinae almost complete, obliterated only anteriorly. Propodeal spiracle rather small, 2.5× as long as wide. Spiracular carina narrow. Spiracular index 0.6. 1<sup>st</sup> gastral tergite 4.3×, 2<sup>nd</sup> tergite 1.9× as long as wide. Petiole with rather large glymmae at the anterior edge of narrow lateral areas, with very fine sculpture in front of the glymmae and with some transverse wrinkles anteriorly. Petiolar suture almost complete. 1<sup>st</sup> gastral sternite coriaceous anteriorly, transversely striate posteriorly. Thyridium oval. Thyridial index about 1.5. Epipleurum separated from the 3<sup>rd</sup> gastral tergite, the crease not marked with black, but the tergite with black lateral stripes well above the ventrolateral edge. Epipleural index 0.6. Gaster strongly compressed posteriorly.

Colour: Black. Maxillary palpus dark brown. Mandible narrowly marked with yellow dorsally. Tegula yellowish brown. Wings slightly darkened. Stigma medium brown medially. Front trochanter yellowish brown. Front femur, tibia and tarsus yellowish red. Mid femur yellowish red on the apical 0.3. Mid tibia yellow. Hind tibia yellow, narrowly black basally and apically. 2<sup>nd</sup> gastral tergite red on the posterior 0.2. 3<sup>rd</sup> and 4<sup>th</sup> tergites red. Pilosity whitish.

♀ unknown.

*Dusona lividariae* Hinz, 1963

**Description.** ♀: Body length 11-12 mm. Temples strongly constricted behind the eyes, 0.7× as long as the width of an eye, tangential lines on eyes and temples intersect on the posterior part of the mesoscutum. Ocellar index 0.7. Frons scarcely depressed, for the greater part rugose, with a distinct median longitudinal carina, with few short radial wrinkles. Antennal carina slightly raised (inconspicuously) and narrow. Face and clypeus densely rugose. Clypeus flat, with a narrow almost smooth area above the apex, the latter slightly convex medially. Malar space index 0.3. Genal carina strongly raised close to the junction with the also raised oral carina, forming a lopsided triangular pyramid, the tip of the latter shifted ventrally and situated behind the base of the mandible. Gena deeply depressed close to the junction, the depression about as deep as the width of the 2<sup>nd</sup> flagellar segment. Genal index about 0.8. Temple coriaceous and with distinct rather dense or dense punctation medially. Flagellum with 49-51 segments, filiform, the apical 0.3 attenuate, 2<sup>nd</sup> segment 1.4×, shortest segment 0.7×, penultimate segment 0.9× as long as wide. Pronotum very densely punctate on a smooth background laterally on the dorsal 0.6, with longitudinal wrinkles ventrally. Mesoscutum and scutellum densely rugose-punctate, partly with a smooth background. Scutellum with lateral carinae on the anterior half. Prescutellar groove with fine longitudinal wrinkles. Ventral part of the prepectal carina merging with the transverse carina, both carinae distinctly raised, the former distinctly emarginate medially. Pleural part of the prepectal carina obliterated ventrally and dorsally, the median 0.3 present. Mesopleurum strongly and densely punctate on a smooth background. Speculum punctate posteriorly, with oblique wrinkles anteriorly. Depression in front of the speculum with distinct longitudinal striae, which merge with the punctation anteriorly. Metapleurum distinctly and densely rugose, the wrinkles smooth. Pleural carina strong. Areolet large, short-stalked, receiving the 2<sup>nd</sup> recurrent vein distad of the middle. Nervellus almost vertical, distinctly intercepted. Nervellar index 0.7. Tibial spur index 0.7. Hind femur 5.1× as long as high. Hind tarsal claws long, with strong pectinate teeth almost over their total length. Propodeum extending to 0.6 of the hind coxae, broadly and not deeply depressed, for the greater part irregularly wrinkled, with transverse wrinkles posteriorly, carinae almost completely obliterated. Propodeal spiracle large, 2.9× as long as wide. Spiracular carina narrow. Spiracular in-

dex 0.4. 1<sup>st</sup> gastral tergite 5.1×, 2<sup>nd</sup> tergite 1.9× as long as wide. Petiole without glymmae, often with narrow lateral areas, smooth laterally. Petiolar suture for the greater part obliterated. 1<sup>st</sup> gastral sternite smooth. Thyridium oval. Thyridial index about 1.0. Epipleurum not separated from the 3<sup>rd</sup> gastral tergite, the latter with distinct or indistinct black lateral stripes well above the ventrolateral edge. Gaster distinctly compressed posteriorly. Ovipositor index 0.7.

Colour: Black. Maxillary palpus yellow. Mandible narrowly marked with yellow dorsally and medially. Flagellum light brown apically. Tegula yellow. Wings hyaline. Stigma yellowish brown medially. Front leg from the trochanter onwards yellow. Mid leg from the femur onwards yellow. Hind tibia completely yellow. Hind tarsus dark brown. 2<sup>nd</sup> gastral tergite black, with small lateral yellow marks posteriorly. 3<sup>rd</sup> tergite yellow. 4<sup>th</sup> tergite marked with yellow on the anterior 0.7. Pilosity whitish.

♂: Flagellum brown to black apically. Tip of the front coxa, mid trochanter and hind tarsus yellow. In other characters similar to the ♀.

**Material** (4♀♀, 2♂♂): Tadzhikistan: Pamir Mts., 4000 m. Kirgiziya: Ferganskiy Mts. (MOS), Issykata (PET), Sosnovka, 1500-1800 m (LIN).

*Dusona longicauda* (Uchida, 1928)

This is a rather variable species.

**Description.** ♀: Body length 9-12 mm. Temples strongly constricted behind the eyes, 0.7× as long as the width of an eye, tangential lines on eyes and temples intersect on the posterior half of the mesoscutum. Ocellar index 0.7. Frons slightly depressed, coriaceous, finely and densely punctate, with a fine median longitudinal carina, with distinct radial wrinkles, which extend to half the distance to the median ocellus. Antennal carina low and narrow. Face and dorsal 0.3 of the clypeus coriaceous, densely punctate. Clypeus flat, coriaceous and rather densely punctate ventrally, its apex truncate medially. Malar space index 0.4. Genal carina low and rather straight ventrally, joining the scarcely raised oral carina at an acute angle. Genal index 0.5. Temple finely coriaceous and with very fine disperse punctation medially. Flagellum with 40-48 segments, filiform, the apical 0.3 attenuate, 2<sup>nd</sup> segment 2.3×, shortest segment 1.0×, penultimate segment 1.5× as long as wide. Pronotum coriaceous and densely rugose-punctate laterally on the dorsal 0.2, with longitudinal wrinkles ven-

trally. Mesoscutum and scutellum coriaceous, dull, densely punctate. Scutellum with lateral carinae on the anterior 0.2. Prescutellar groove with very fine sculpture. Prepectal carina low, ventral part merging with the pleural part, the latter complete, joining the anterior edge of the mesopleurum. Transverse carina obliterated. Mesopleurum finely coriaceous, with rather fine and rather dense punctation. Speculum coriaceous, granulate-strigose. Depression in front of the speculum with distinct rather short longitudinal striae, which merge with the punctation anteriorly. Metapleurum coriaceous, densely rugose. Pleural carina distinct. Areolet large, pointed or short-stalked, receiving the 2<sup>nd</sup> recurrent vein basad of the middle. Nervellus reclivous, distinctly intercepted. Nervellar index 0.6. Tibial spur index 0.6. Hind femur 5.9× as long as high. Hind tarsal claws rather long, with distinct pectinate teeth basally and medially. Propodeum extending to the middle of the hind coxae, slightly and rather narrowly depressed, with transverse wrinkles between the longitudinal carinae, costulae and longitudinal carinae often complete and distinct, sometimes partly indistinct. Propodeal spiracle large, 3.8× as long as wide. Spiracular carina narrow or widened. Spiracular index 0.3. 1<sup>st</sup> gastral tergite 5.4×, 2<sup>nd</sup> tergite 2.5× as long as wide (in some specimens gastral tergites shorter: 1<sup>st</sup> tergite 4.1×, 2<sup>nd</sup> tergite 1.4× as long as wide). Petiole with distinct glymmae, smooth or with very fine sculpture in front of the glymmae. Petiolar suture fine, sometimes partly obliterated. 1<sup>st</sup> gastral sternite finely coriaceous, with fine transverse striae posteriorly. Thyridium elongate. Thyridial index 1.0-1.5. Epipleurum separated from the 3<sup>rd</sup> gastral tergite, the crease marked with black. Epipleural index 0.8. Gaster strongly compressed posteriorly. Ovipositor index 1.4.

Colour: Black. Maxillary palpus yellowish brown. Mandibel broadly yellow medially. Wings hyaline. Stigma dark brown medially. Front leg from the femur onwards yellowish brown, the femur marked with brown ventrally. Mid femur yellowish brown on the apical 0.2. Mid tibia and tarsus yellowish brown. Hind tibia blackish, sometimes tinged with yellowish brown medially on the dorsal side. 2<sup>nd</sup> gastral tergite red on the posterior 0.3. 3<sup>rd</sup> and 4<sup>th</sup> tergites red, sometimes marked with black dorsally. Pilosity whitish.

♂: Maxillary palpus yellow. Front and mid tibiae and tarsi yellow. Hind tibia sometimes distinctly marked with yellowish brown subbasally. 2<sup>nd</sup> gastral tergite red on the posterior 0.1-0.2. 5<sup>th</sup> to 7<sup>th</sup> tergites sometimes with large and distinct yellow dorsal marks anteriorly (these marks some-

times covered by the preceding tergites and invisible). In other characters similar to the ♀.

**Material** (18♀, 11♂): Russia: Khabarovsk Terr.: Bikin (PET), Khekhtsir near Khabarovsk (Hinz/ZSM, PET), Troitskoye; Primorye: Khasan, Zarubino; Sakhalin: Ozerskiy (PET). Japan: Hokkaido: Moiwai, Sapporo, Teine (SAP); Honshu: Asaka (OTT), Kamikochi near Norikura-dake (AEI), Kyoto, Mt. Oginosen in Tottori-ken, Mt. Shirago in Hyogo-ken (SAP), Nagano (OTT), Tokyo, Yokohama (AEI). The species also occurs in the Oriental region: China, Fukien Prov. (= Fujian Prov.), Shaowu, 1200-1500 m (5♀, 1♂ AEI, 1♀ Hinz/ZSM).

*Dusona longigena* Horstmann, spec. nov.

**Holotype** (♂): Kazakhstan, Ketmen Mts., 2100 m, 14.6.1998 (LIN).

**Description.** ♂: Body length 13 mm. Temples distinctly but not strongly constricted behind the eyes, 1.0× as long as the width of an eye, tangential lines on eyes and temples intersect on the anterior part of the propodeum. Ocellar index 1.0. Frons not depressed, coriaceous, densely rugose-punctate, without a median longitudinal carina, with short radial wrinkles. Antennal carina low and narrow dorsally, but the antennal sockets widened in dorsomedian direction, with fine circular striae on the inner side, both antennal carinae almost touching each other medially. Face and clypeus finely coriaceous, very densely punctate. Clypeus flat, its apex convex medially. Malar space index 0.7. Genal carina low and almost straight ventrally, joining the distinctly raised oral carina at an acute angle. Genal index 0.5. Temple finely coriaceous and with fine very dense punctation medially. Flagellum with 47-48 segments, filiform, the apical 0.3 attenuate, 2<sup>nd</sup> segment 1.3×, shortest segment 0.9×, penultimate segment 1.3× as long as wide. Pronotum densely rugose-punctate on a smooth background laterally on the dorsal 0.2, with fine irregular and longitudinal wrinkles ventrally. Mesoscutum densely punctate on a finely coriaceous or almost smooth background. Scutellum densely rugose-punctate, with lateral carinae on the anterior 0.4. Prescutellar groove almost smooth. Prepectal carina low, ventral part joining the transverse carina, the former not emarginate medially, the latter low. Pleural part of the prepectal carina completely obliterated. Pleural part of the prepectus with dense punctation on a smooth background, without wrinkles. Mesopleurum with distinct and dense punctation on a smooth background. Speculum for the greater part

with fine oblique striae, the ventral 0.2 finely coriaceous and shining. Depression in front of the speculum with fine and short longitudinal wrinkles, which merge with the punctation anteriorly. Metapleurum densely rugose. Pleural carina fine, complete. Areolet large, short-stalked, receiving the 2<sup>nd</sup> recurrent vein distinctly basad of the middle. Nervellus slightly inclivous, weakly intercepted. Nervellar index 0.8. Tibial spur index 0.8. Hind femur 5.7× as long as high. Hind tarsal claws long and rather large, with short pectinate teeth basally. Propodeum extending to 0.4 of the hind coxae, not depressed, almost without carinae, with fine irregular wrinkles. Propodeal spiracle small, 3.6× as long as wide. Spiracular carina obliterated. Spiracular index 1.2. 1<sup>st</sup> gastral tergite 4.9×, 2<sup>nd</sup> tergite 2.4× as long as wide. Petiole without glymmae, narrow lateral areas scarcely indicated, smooth in front of these areas. Petiolar suture for the greater part obliterated. 1<sup>st</sup> gastral sternite for the greater part smooth, with fine transverse striae posteriorly. Thyridium elongate. Thyridial index about 1.5. Epipleurum not separated from the 3<sup>rd</sup> gastral tergite, the latter with black lateral stripes well above the ventrolateral edge. Gaster distinctly compressed posteriorly.

Colour: Black. Mandible narrowly yellowish brown dorsally and medially. Wings hyaline. Stigma black medially. Legs completely black. 2<sup>nd</sup> gastral tergite red on the posterior 0.1. 3<sup>rd</sup> and 4<sup>th</sup> tergites red, the 4<sup>th</sup> narrowly tinged with black posteriorly. Pilosity whitish, hairs conspicuously long.

♀ unknown.

*Dusona longistilus* Horstmann, spec. nov.

**Holotype** (♂): Japan, Honshu, Tokyo, 8.5.1961 (OTT).

**Description.** ♂: Body length 7 mm. Temples distinctly constricted behind the eyes, 0.6× as long as the width of an eye, tangential lines on eyes and temples intersect on the scutellum. Ocellar index 1.0. Frons not depressed, coriaceous, finely and dispersely punctate, partly with fine irregular wrinkles, with a fine median longitudinal carina, with short radial wrinkles. Antennal sockets close to each other. Antennal carina low and narrow. Face and dorsal 0.3 of the clypeus coriaceous, finely and densely punctate. Clypeus flat, coriaceous, with disperse or rather dense punctation ventrally, its apex slightly convex medially. Malar space index 0.4. Genal carina low and almost straight ventrally, joining the slightly raised oral

carina at an acute angle. Genal index 0.3. Temple finely coriaceous and with very fine disperse punctation medially. Flagellum with 35 segments, filiform, the apical 0.3 slightly attenuate, 2<sup>nd</sup> segment 2.0×, shortest segment 1.3×, penultimate segment 1.3× as long as wide. Pronotum densely rugose-punctate laterally on the dorsal 0.2, with longitudinal wrinkles ventrally. Mesoscutum coriaceous, finely and densely punctate. Scutellum coriaceous, rather densely punctate, with lateral carinae on the anterior 0.3. Prescutellar groove smooth. Prepectal carina low, ventral part joining the pleural part, the dorsal 0.3 of the latter obliterated. Transverse carina indicated. Mesopleurum distinctly coriaceous, densely punctate. Speculum granulate-strigose, somewhat shining. Depression in front of the speculum with fine and short longitudinal wrinkles, which merge with a narrow coriaceous area without punctation anteriorly. Metapleurum coriaceous, finely and densely rugose-punctate and rugose. Pleural carina distinct. Areolet large, pointed, receiving the 2<sup>nd</sup> recurrent vein distad of the middle. Nervellus distinctly inclivous, weakly intercepted. Nervellar index 0.8. Tibial spur index 0.7. Hind femur 5.7× as long as high. Hind tarsal claws short, with short pectinate teeth basally. Propodeum extending to the middle of the hind coxae, with a narrow and shallow longitudinal furrow, with short transverse wrinkles in the furrow, irregularly wrinkled in other parts, with some longitudinal wrinkles posteriorly, carinae almost completely obliterated. Propodeal spiracle small, 2.0× as long as wide. Spiracular carina narrow. Spiracular index 1.0. 1<sup>st</sup> gastral tergite 5.2×, 2<sup>nd</sup> tergite 1.5× as long as wide (the latter perhaps somewhat widened as a consequence of the mounting process). Petiole with small but distinct glymmae, conspicuously narrowed behind the glymmae, the latter situated at the anterior edge of narrow lateral areas, petiole smooth in front of the glymmae. Petiolar suture fine. 1<sup>st</sup> gastral sternite for the greater part smooth, with fine transverse striae posteriorly. Thyridium oval. Thyridial index about 1.5. Epipleurum not separated from the 3<sup>rd</sup> gastral tergite, the latter with black lateral stripes well above the ventrolateral edge. Gaster distinctly compressed posteriorly.

Colour: Black. Maxillary palpus yellow. Mandible broadly marked with yellow medially. Tegula yellow. Wings hyaline. Stigma dark brown medially. Front leg from the tip of the coxa onwards yellowish red. Mid leg from the trochanter onwards yellowish red, the trochanter marked with brown. Hind femur for the greater part reddish brown, tinged with dark brown basally, dorsally

and apically. Hind tibia black, tinged with dark brown medially. Hind tarsus brownish black. 2<sup>nd</sup> gastral tergite red on the posterior 0.7. 3<sup>rd</sup> and 4<sup>th</sup> tergites red. Pilosity whitish.

♀ unknown.

#### *Dusona mactatoides* Hinz 1994

**Description.** ♀: Body length 15-17 mm. Temples distinctly constricted behind the eyes, 0.8× as long as the width of an eye, tangential lines on eyes and temples intersect on the scutellum. Ocellar index 1.0. Frons deeply depressed above the antennal carinae, coriaceous and with fine rather dense punctation dorsally, coriaceous and with distinct rather long radial wrinkles in the depressions, the wrinkles extending to half the distance to the median ocellus, with a cone-like projection between the antennal sockets, which merges with a distinct median longitudinal bulge dorsally. Antennal carina strongly raised, the rim bent upwards (ear-like) and at the same time with a dorsal projection (nose-like), with fine transverse striae on the rim and on the projection. Face and dorsal 0.4 of the clypeus coriaceous, densely punctate. Clypeus flat, coriaceous and rather densely punctate ventrally, its apex truncate medially. Malar space index 0.4. Genal carina low and rather straight ventrally, joining the slightly raised oral carina at an acute angle. Genal index 0.5. Temple finely coriaceous and with fine disperse punctation medially. Flagellum with 56-62 segments, filiform, the apical 0.3 distinctly attenuate, 2<sup>nd</sup> segment 1.6×, shortest segment 1.0×, penultimate segment 1.4× as long as wide. Pronotum coriaceous and with fine very dense punctation laterally on the dorsal 0.3, with longitudinal wrinkles ventrally. Mesoscutum and scutellum coriaceous, finely and densely punctate. Scutellum with lateral carinae on the anterior 0.3. Prescutellar groove with fine and dense longitudinal striae. Prepectal carina low, ventral part merging with the pleural part, the latter complete, joining the anterior edge of the mesopleurum. Transverse carina obliterated. Mesopleurum finely coriaceous, with rather dense or dense punctation. Speculum coriaceous, somewhat shining. Depression in front of the speculum for the greater part coriaceous, without striae, sometimes with some short irregular wrinkles dorsally. Metapleurum coriaceous, densely punctate, partly rugose-punctate. Pleural carina distinct. Areolet large, pointed or short-stalked, receiving the 2<sup>nd</sup> recurrent vein at or basad of the middle. Nervellus vertical, distinctly intercepted. Nervellar index 0.7. Tibial spur index

0.5. Hind femur 5.5× as long as high. Hind tarsal claws rather long, with short pectinate teeth basally. Propodeum extending to 0.4 of the hind coxae, broadly and rather deeply depressed, sulcus for the greater part with transverse wrinkles, costulae and longitudinal carinae almost complete. Propodeal spiracle rather small, 4.0× as long as wide. Spiracular carina narrow. Spiracular index 0.5. 1<sup>st</sup> gastral tergite 4.3×, 2<sup>nd</sup> tergite 2.2× as long as wide. Petiole with rather large glymmae, smooth in front of the glymmae. Petiolar suture fine, partly obliterated. 1<sup>st</sup> gastral sternite with fine sculpture, with transverse striae posteriorly. Thyridium oval. Thyridial index about 1.5. Epipleurum separated from the 3<sup>rd</sup> gastral tergite anteriorly, folded in or folded back secondarily and pendent (sometimes inconspicuous), the crease (or bulge) not marked with black, a black lateral stripe situated well above the ventrolateral edge. Epipleural index 0.2-0.3. Gaster strongly compressed posteriorly. Ovipositor index 0.5.

Colour: Black. Maxillary palpus dark brown to black. Tegula dark brown. Wings slightly infuscate. Stigma medium brown medially. Front leg from the femur onwards yellowish red. Mid femur yellowish red on the apical 0.2. Mid tibia yellowish red. Hind tibia broadly yellow medially, narrowly black basally and apically. 2<sup>nd</sup> gastral tergite red on the posterior 0.2. 3<sup>rd</sup> and 4<sup>th</sup> tergites red. Pilosity whitish.

♂: Dorsal 0.2 of the pleural part of the prepectal carina sometimes replaced by several wrinkles. Front trochanter yellowish red. In other characters similar to the ♀.

**Material** (4♀♀, 2♂♂): Russia: Kuril Isl.: Volcano Golvovina on Kunashir (PET), Volcano Tata on Kunashir, 1887 m (dead in the ash at the edge of the crater) (Hinz/ZSM, MOS).

#### *Dusona mactator* (Förster, 1868)

**Description.** ♀: Body length 16-18 mm. Temples distinctly constricted behind the eyes, 0.8× as long as the width of an eye, tangential lines on eyes and temples intersect on the prescutellar groove. Ocellar index 1.0. Frons distinctly depressed ventrally, coriaceous, finely and rather densely punctate dorsally, with distinct radial wrinkles in the depression, the wrinkles extending to half the distance to the median ocellus, with a fine and indistinct median longitudinal carina. Antennal carina distinctly raised, with a dorsal projection (nose-like), with fine transverse striae on the projection. Face and dorsal half of the clypeus coriaceous,

densely punctate. Clypeus flat, coriaceous and with rather dense punctation ventrally, its apex truncate medially. Malar space index 0.5. Genal carina low and straight ventrally, joining the distinctly raised oral carina at an acute angle. Gena slightly depressed close to the junction. Genal index 0.5. Temple finely coriaceous and with fine disperse punctation medially. Flagellum with 59-63 segments, filiform, the apical half distinctly attenuate, 2<sup>nd</sup> segment 1.4×, shortest segment 1.0×, penultimate segment 1.2× as long as wide. Pronotum finely coriaceous and finely and densely rugose-punctate laterally on the dorsal 0.4, with longitudinal wrinkles ventrally. Mesoscutum and scutellum coriaceous, dull, very densely punctate. Scutellum with lateral carinae on the anterior 0.3. Prescutellar groove with fine longitudinal striae. Prepectal carina low, ventral part merging with the pleural part, the latter almost complete, the dorsal 0.2 replaced by several wrinkles. Transverse carina present only anteriorly. Mesopleurum finely coriaceous, distinctly and rather densely punctate. Speculum coriaceous, shining. Depression in front of the speculum for the greater part coriaceous, without striae, with few short wrinkles dorsally. Metapleurum coriaceous, finely and densely rugose and rugose-punctate. Pleural carina distinct. Areolet large, short-stalked, receiving the 2<sup>nd</sup> recurrent vein distinctly basad of the middle. Nervellus slightly inclivous, strongly intercepted. Nervellar index 0.7. Tibial spur index 0.6. Hind femur 5.5× as long as high. Hind tarsal claws rather long, with short pectinate teeth basally. Propodeum extending to 0.4 of the hind coxae, distinctly and rather broadly depressed, sulcus for the greater part with transverse wrinkles, costulae and longitudinal carinae almost complete, but partly covered with wrinkles. Propodeal spiracle rather small, 4.5× as long as wide. Spiracular carina narrow. Spiracular index 0.4. 1<sup>st</sup> gastral tergite 4.7×, 2<sup>nd</sup> tergite 2.2× as long as wide. Petiole with distinct but rather small glymmae, smooth in front of the glymmae. Petiolar suture almost completely obliterated. 1<sup>st</sup> gastral sternite for the greater part smooth, with transverse striae posteriorly. Thyridium oval. Thyridial index about 1.5. Epipleurum separated from the 3<sup>rd</sup> gastral tergite anteriorly, folded in or folded back secondarily and pendent (sometimes inconspicuous), the crease (or bulge) not marked with black, a black lateral stripe situated well above the ventrolateral edge. Epipleural index 0.2-0.3. Gaster strongly compressed posteriorly. Ovipositor index 0.6.

Colour: Black. Maxillary palpus dark brown. Mandible narrowly marked with yellow dorsally and medially. Tegula yellow. Wings hyaline. Stig-

ma light brown medially. Front leg from the tip of the coxa onwards yellowish red, tibia and tarsus yellow. Mid femur yellowish red on the apical half. Mid tibia yellowish brown to brown. Hind femur yellowish red on the apical 0.1. Hind tibia broadly yellow medially, narrowly and indistinctly marked with brown basally and apically. Mid and hind tarsi dark brown. 2<sup>nd</sup> gastral tergite red on the posterior 0.3. 3<sup>rd</sup> and 4<sup>th</sup> tergites red. 5<sup>th</sup> tergite sometimes narrowly marked with red anteriorly. Pilosity whitish.

♂: Petiolar suture complete. 1<sup>st</sup> gastral sternite with fine sculpture. In other characters similar to the ♀.

**Material** (1♂): Japan: Hokkaido: Apoi-dake (SAP).

#### *Dusona maruyamae* Hinz, 1994

**Description.** ♀: Body length 8-9 mm. Temples slightly constricted behind the eyes, 0.9× as long as the width of an eye, tangential lines on eyes and temples intersect on the propodeum. Ocellar index 1.1. Frons slightly depressed, coriaceous, partly with fine punctures, with a fine and partly obliterated median longitudinal carina, with few short radial wrinkles. Antennal carina low and narrow. Face and dorsal 0.4 of the clypeus coriaceous, finely rugose and finely punctate. Clypeus flat or slightly convex, coriaceous and very finely and rather densely punctate ventrally, with a narrow smooth area in front of the apex, the latter slightly convex medially. Malar space index 0.3. Genal carina low and straight ventrally, joining the slightly raised oral carina at an acute angle. Genal index 0.3. Temple finely coriaceous and with very fine disperse punctation medially. Flagellum with 32-36 segments, slightly fusiform, 2<sup>nd</sup> segment 1.8×, shortest segment 0.8×, penultimate segment 0.9× as long as wide. Pronotum coriaceous and finely and densely rugose-punctate laterally on the dorsal 0.4, with longitudinal wrinkles ventrally. Mesoscutum and scutellum coriaceous, dull, with fine rather dense or dense punctation. Scutellum with lateral carinae on the anterior 0.4. Prescutellar groove almost completely smooth. Prepectal carina low, ventral part merging with the pleural part, the dorsal 0.1-0.2 of the latter replaced by several wrinkles. Transverse carina obliterated. Mesopleurum with distinct and rather dense or dense punctation on a finely coriaceous and shining background. Speculum punctate posteriorly, very finely coriaceous and shining anteriorly. Depression in front of the speculum not coriaceous, with fine longitudinal striae, which merge with

the punctation anteriorly. Metapleurum very densely punctate, partly rugose-punctate, on a very finely coriaceous and shining background. Pleural carina complete. Areolet rather small, short-stalked, receiving the 2<sup>nd</sup> recurrent vein distad of the middle. Nervellus slightly inclivous, weakly intercepted. Nervellar index 0.7-0.8. Tibial spur index 0.5. Hind femur 4.7× as long as high. Hind tarsal claws short, with distinct pectinate teeth basally and medially. Propodeum extending to 0.3 of the hind coxae, shallowly depressed, for the greater part irregularly wrinkled, coriaceous and somewhat shining anteriorly, with some longitudinal wrinkles posteriorly, carinae for the greater part obliterated. Propodeal spiracle rather small, 2.0× as long as wide. Spiracular carina widened. Spiracular index 0.5. 1<sup>st</sup> gastral tergite 3.3×, 2<sup>nd</sup> tergite 1.3× as long as wide. Petiole with distinct but rather small glymmae, smooth in front of the glymmae. Petiolar suture fine, complete. 1<sup>st</sup> gastral sternite for the greater part smooth, with few transverse striae posteriorly. Thyridium oval. Thyridial index about 1.0. Epipleurum separated from the 3<sup>rd</sup> gastral tergite, the crease marked with black. Epipleural index 0.6-0.7. Gaster distinctly compressed posteriorly. Ovipositor index 0.8.

Colour: Black. Maxillary palpus dark brown basally, yellow medially and apically. Mandible broadly yellow medially. Tegula yellowish brown. Wings hyaline. Stigma yellowish brown. Front leg from the femur onwards yellowish red, the femur marked with black basally. Mid femur yellowish red on the apical 0.2. Mid tibia and tarsus yellowish red. Hind tibia broadly dark yellowish brown or dark brown medially, narrowly black basally, scarcely darkened apically. Hind tarsus dark brown. 2<sup>nd</sup> gastral tergite dorsally red on the posterior 0.2, laterally red on the posterior 0.5. 3<sup>rd</sup> and 4<sup>th</sup> tergites red. 5<sup>th</sup> to 7<sup>th</sup> tergites black dorsally, broadly red ventrolaterally (almost half red in lateral view). Gastral sternites red. Pilosity whitish.

♂ unknown.

**Material** (3♀): Russia: Khabarovsk Terr.: Khekhtsir near Khabarovsk (PET); Sakhalin: Novoaleksandrovsk (Hinz/ZSM). Japan: Hokkaido: Maruyama (SAP).

#### *Dusona maruyamator* Hinz, 1979

**Description.** ♀: Body length 6-7 mm. Temples slightly constricted behind the eyes, 0.8× as long as the width of an eye, tangential lines on eyes and temples intersect on the propodeum. Ocellar index 1.0. Frons scarcely depressed, coriaceous, dull, finely and densely rugose-punctate, with a fine

and partly obliterated median longitudinal carina, without radial wrinkles. Antennal carina low and narrow. Face and dorsal 0.4 of the clypeus coriaceous, finely and densely rugose-punctate. Clypeus almost flat, coriaceous and with very fine disperse or rather dense punctation ventrally, with a narrow smooth area in front of the apex, the latter slightly convex medially. Malar space index 0.3. Genal carina low and straight ventrally, joining the low oral carina at an acute angle. Genal index 0.2. Temple finely coriaceous and with very fine disperse punctation medially. Flagellum with 34-38 segments, filiform, the apical 0.2 slightly attenuate, 2<sup>nd</sup> segment 2.3×, shortest segment 0.9×, penultimate segment 1.2× as long as wide. Pronotum coriaceous and with fine and dense punctation laterally on the dorsal 0.3, with longitudinal wrinkles ventrally. Mesoscutum coriaceous, rather dull, densely punctate. Scutellum coriaceous, slightly shining, rather densely punctate, with lateral carinae on the anterior 0.3. Prescutellar groove smooth. Prepectal carina low, ventral part merging with the pleural part, the latter almost complete or complete, the dorsal 0.1-0.2 sometimes replaced by several wrinkles. Transverse carina obliterated. Mesopleurum distinctly coriaceous, with rather fine and rather dense or dense punctation. Speculum very finely coriaceous, shining. Depression in front of the speculum with fine and long longitudinal striae, which merge with the punctation anteriorly. Metapleurum coriaceous, finely and densely punctate. Pleural carina distinct. Areolet rather small, pointed, receiving the 2<sup>nd</sup> recurrent vein distad of the middle. Nervellus inclivous, weakly intercepted. Nervellar index 0.8. Tibial spur index 0.7. Hind femur 4.8× as long as high. Hind tarsal claws short, with distinct pectinate teeth basally and medially. Propodeum extending to 0.3 of the hind coxae, almost not depressed, coriaceous, dull, partly very finely rugose, with some longitudinal wrinkles posteriorly, carinae almost completely obliterated. Propodeal spiracle rather small, 2.1× as long as wide. Spiracular carina narrow. Spiracular index 0.8. 1<sup>st</sup> gastral tergite 3.5×, 2<sup>nd</sup> tergite 1.6× as long as wide. Petiole with distinct glymmae, smooth in front of the glymmae. Petiolar suture fine, complete. 1<sup>st</sup> gastral sternite for the greater part smooth, with few transverse striae posteriorly. Thyridium elongate. Thyridial index about 2.0. Epipleurum separated from the 3<sup>rd</sup> gastral tergite, the crease marked with black. Epipleural index 0.8-0.9. Gaster distinctly compressed posteriorly. Ovipositor index 0.6.

Colour: Black. Maxillary palpus yellowish red. Mandible broadly yellow medially. Flagellum for

the greater part medium brown. Tegula yellow. Wings hyaline. Stigma yellowish brown medially. Front leg from the trochantellus onwards yellow, the femur marked with black basally. Mid femur yellow on the apical 0.2. Mid tibia and tarsus yellow. Hind tibia dark yellowish brown subbasally, narrowly black basally, very broadly black apically (black apical ring extending over 0.3 of the tibia). 2<sup>nd</sup> gastral tergite red on the posterior 0.1. 3<sup>rd</sup> to 7<sup>th</sup> tergites black dorsally, broadly red ventrolaterally (often about half red in lateral view). Gastral sternites red. Pilosity whitish.

♂: Flagellum with 36-42 segments, light brown ventrally, dark brown dorsally. Front and mid legs from the tip of the coxa onwards yellow. Hind trochanter and base of hind femur yellow. Hind tibia yellowish brown medially, narrowly black basally, broadly black apically. Genital clasper reddish brown. In other characters similar to the ♀.

**Material** (22♀♀, 22♂♂): Russia: Khabarovsk Terr.: Khekhtsir near Khabarovsk; Primorye: Barabash, Khasan, Kiyevka (PET), Plastun (KIS, PET), Roshchino on River Iman, Sokolovka, Ussuriysk, Vladivostok; Kuril Isl.: Golovnino and Sernovodsk on Kunashir, Malokurilsk on Shikotan (PET). Japan: Hokkaido: Maruyama (Hinz/ZSM, SAP), Sapporo (AEI); Honshu: Nagano (Hinz/ZSM, OTT).

#### *Dusona matsumurae* (Uchida, 1928)

**Description.** ♀: Body length 16-17 mm. Temples strongly constricted behind the eyes, 0.8× as long as the width of an eye, tangential lines on eyes and temples intersect on the posterior half of the mesoscutum. Ocellar index 1.2. Frons very deeply depressed above the antennal carinae (funnel-like), coriaceous and densely punctate dorsally, with distinct radial wrinkles in the depressions, the wrinkles extending to half the distance to the median ocellus, with a median longitudinal bulge between the depressions. Antennal carina distinctly raised, the rim bent upwards (ear-like), forming a narrow smooth crescent-shaped plate. Face and dorsal 0.6 of the clypeus coriaceous, coarsely and very densely punctate. Clypeus slightly concave, coriaceous and rather densely punctate ventrally, its apex truncate medially. Malar space index 0.4. Genal carina low ventrally, slightly bent sideways, joining the distinctly raised oral carina at an acute angle. Genal index 0.6. Temple finely coriaceous and with fine but distinct disperse or rather dense punctation medially. No ♀ with complete antennae available (flagellum of ♂ see below).

Pronotum coriaceous and finely and densely rugose-punctate laterally on the dorsal half, with longitudinal wrinkles ventrally. Mesoscutum and scutellum coriaceous, dull, with dense or very dense punctation. Scutellum with lateral carinae on the anterior 0.3. Prescutellar groove with fine longitudinal striae. Prepectal carina low, ventral part merging with the pleural part, the latter complete, joining the anterior edge of the mesopleurum. Transverse carina obliterated. Mesopleurum with disperse or rather dense punctation on a finely coriaceous and shining background. Speculum punctate posteriorly, finely coriaceous and shining anteriorly. Depression in front of the speculum dorsally with distinct longitudinal striae, which merge with the punctation anteriorly, the ventral 0.3-0.6 coriaceous, without striae. Metapleurum coriaceous, very densely punctate. Pleural carina distinct. Areolet large, short-stalked, receiving the 2<sup>nd</sup> recurrent vein at or basad of the middle. Nervellus inclivous, strongly intercepted. Nervellar index 0.7. Tibial spur index 0.6. Hind femur 6.3× as long as high. Hind tarsal claws rather short, with short pectinate teeth basally and medially. Propodeum extending to 0.4 of the hind coxae, rather broadly and rather deeply depressed, sulcus for the greater part with transverse wrinkles, costulae partly present, longitudinal carinae almost complete. Propodeal spiracle large, 3.2× as long as wide. Spiracular carina narrow. Spiracular index 0.4. 1<sup>st</sup> gastral tergite about 4.6×, 2<sup>nd</sup> tergite 2.3× as long as wide. Petiole with distinct glymmae, smooth or with very fine sculpture in front of the glymmae, sometimes with few transverse striae basally. Petiolar suture fine, complete or partly obliterated. 1<sup>st</sup> gastral sternite coriaceous anteriorly, smooth medially, transversely striate posteriorly. Thyridium oval. Thyridial index about 2.0. Epipleurum not separated from the 3<sup>rd</sup> gastral tergite, the latter without black lateral stripes. Gaster strongly compressed posteriorly. Ovipositor index 0.5.

Colour: Black. Maxillary palpus dark brown. Mandible narrowly marked with dark brown medially. Tegula dark brown. Wings slightly infuscate. Stigma light brown medially. Front femur yellow on the apical 0.6. Front tibia and tarsus yellow. Mid femur yellow on the apical 0.2. Mid tibia yellow. Mid tarsus brown. Hind tibia yellowish brown medially, narrowly brown basally, broadly brown apically. 2<sup>nd</sup> gastral tergite dorsally black or red on the posterior 0.3, for the greater part red laterally. 3<sup>rd</sup> and 4<sup>th</sup> tergites red, sometimes narrowly marked with black dorsally. Pilosity whitish, sometimes pilosity of the face partly light brown.

♂: Flagellum with 69 segments, filiform, the apical 0.2 distinctly attenuate, 2<sup>nd</sup> segment 1.4×, shortest segment 0.9×, penultimate segment 1.4× as long as wide. Sulcus of the propodeum for the greater part irregularly wrinkled. Mesopleurum densely punctate on a smooth background. In other characters similar to the ♀.

**Material** (6♀♀, 1♂): Russia: Amur Prov.: Novorossiyska (PET); Primorye: Okeanskaya near Vladivostok (Hinz/ZSM), Kamen-Rybolov on Lake Khanka (PET). Japan: Hokkaido: Sapporo (SAP); Honshu: Kamikochi near Norikura-dake (AEI), Karuizawa (HEL).

### *Dusona melanator* Hinz, 1985

*Dusona melanator* Hinz, 1994

Hinz (1985: 305 f., 1994: 34) described this species twice (see introduction). The descriptions are almost identical, but the type series are different. The holotype (♀) of the 1994 description from Sahmanbe on Etorofu (= Iturup/Kuril Isl./Russia) was apparently unavailable in 1985; it is lost now. The paratype (♂) of the 1994 description (also from Etorofu = Iturup) (SAP) is mentioned as paratype in the 1985 description; it is still preserved. The holotype (♀) of the 1985 description from Kamenushka (SE of Ussuriysk/Primorye/Russia) (PET) has recently been studied by the junior author.

**Description.** ♀: Body length 7-9 mm. Temples distinctly constricted behind the eyes, 0.8× as long as the width of an eye, tangential lines on eyes and temples intersect on the prescutellar groove. Ocellar index 0.8. Frons slightly depressed, coriaceous, finely and densely rugose-punctate, with a fine median longitudinal carina, with few short radial wrinkles. Antennal carina low and narrow. Face and dorsal 0.7 of the clypeus coriaceous, densely rugose-punctate. Clypeus flat, coriaceous and rather densely punctate ventrally, its apex slightly convex or truncate medially. Malar space index 0.4. Genal carina low and almost straight ventrally, joining the slightly raised oral carina at an acute angle. Genal index 0.4. Temple finely coriaceous and with very fine disperse punctation medially. Flagellum with 38-43 segments, filiform, the apical 0.3 slightly attenuate, 2<sup>nd</sup> segment 2.0×, shortest segment 1.0×, penultimate segment 1.0× as long as wide. Pronotum densely rugose-punctate laterally on the dorsal 0.1, with longitudinal wrinkles ventrally. Mesoscutum and scutellum coriaceous, densely punctate. Scutellum with lateral carinae on the anterior 0.3. Prescutellar groove

almost smooth. Prepectal carina low, ventral part merging with the pleural part, the latter almost complete, the dorsal 0.1-0.2 replaced by several wrinkles. Transverse carina obliterated. Mesopleurum distinctly coriaceous, densely punctate. Speculum finely coriaceous and granulate-strigose, shining. Depression in front of the speculum with fine but distinct longitudinal striae, which merge with the punctation anteriorly. Metapleurum distinctly coriaceous, densely punctate. Pleural carina distinct. Areolet rather large, pointed, receiving the 2<sup>nd</sup> recurrent vein at the middle. Nervellus slightly inclivous, weakly intercepted. Nervellar index 0.7. Tibial spur index 0.6. Hind femur 4.6× as long as high. Hind tarsal claws short, with short pectinate teeth basally and medially. Propodeum extending to 0.3 of the hind coxae, slightly and rather narrowly depressed, coriaceous anteriorly, irregularly wrinkled medially, with some distinct longitudinal wrinkles posteriorly, costulae partly present, area superomedia sometimes delimited laterally, longitudinal carinae obliterated medially and sometimes also posteriorly. Propodeal spiracle rather small, 2.6× as long as wide. Spiracular carina narrow. Spiracular index 0.7. 1<sup>st</sup> gastral tergite 3.2×, 2<sup>nd</sup> tergite 1.1× as long as wide. Petiole with rather small glymmae, which are bordered by longitudinal carinae dorsally, smooth in front of the glymmae. Petiolar suture very fine. 1<sup>st</sup> gastral sternite for the greater part smooth, with transverse striae posteriorly. Thyridium oval. Thyridial index about 1.0. Epipleurum separated from the 3<sup>rd</sup> gastral tergite anteriorly, folded in or folded back secondarily and pendent as a narrow rectangular lobe, the crease or bulge marked with black (inconspicuous). Epipleural index 0.3-0.4. Gaster distinctly compressed posteriorly. Ovipositor index 0.6.

Colour: Black. Maxillary palpus yellowish brown. Mandible broadly yellow medially. Tegula dark brown. Wings hyaline. Stigma medium brown medially. Front leg from the femur onwards yellowish red. Mid femur yellowish red on the apical 0.2. Mid tibia and tarsus yellowish red. Hind tibia yellow medially, narrowly black basally, broadly black apically. Hind tarsus dark brown. 2<sup>nd</sup> gastral tergite black or laterally tinged with red in front of the black posterior edge. 3<sup>rd</sup> tergite usually black dorsally, dark red laterally (to a variable extent), sometimes completely black. 4<sup>th</sup> to 7<sup>th</sup> tergites sometimes narrowly marked with red ventrolaterally. Gastral sternites black. Pilosity whitish.

♂: Front trochanter yellowish red. Mid femur yellow dorsally, dark brown ventrally. Gaster sometimes completely black. In other characters similar to the ♀.

**Material** (12♀, 3♂): Russia: Khabarovsk Terr.: Khekhtsir near Khabarovsk (Hinz/ZSM, PET), Troitskoye; Primorye: Kamenushka (PET), Roshchino on River Iman (Hinz/ZSM, PET); Kuril Isl: Sahmanbe on Iturup (SAP).

### *Dusona memorator* Hinz, 1994

**Description.** ♀: Body length 9-10 mm. Temples strongly constricted behind the eyes, 0.7× as long as the width of an eye, tangential lines on eyes and temples intersect on the posterior half of the mesoscutum. Ocellar index 0.8. Frons scarcely depressed, finely coriaceous and finely rugose, with a distinct median longitudinal carina, with fine rather long radial wrinkles, which extend to 0.5-0.8 the distance to the median ocellus. Antennal carina low and narrow. Face and dorsal 0.6 of the clypeus coriaceous, densely rugose and rugose-punctate. Clypeus slightly concave, coriaceous and dispersely punctate ventrally, its apex slightly convex medially. Malar space index 0.4. Genal carina low and straight ventrally, joining the low oral carina at an acute angle. Genal index 0.4. Temple coriaceous and with fine rather dense punctation medially. Flagellum with 45-46 segments, filiform, the apical 0.3 distinctly attenuate, 2<sup>nd</sup> segment 2.3×, shortest segment 1.1×, penultimate segment 1.3× as long as wide. Pronotum coriaceous and with very dense punctation laterally on the dorsal 0.4, with longitudinal wrinkles ventrally. Mesoscutum and scutellum coriaceous, dull, densely or very densely punctate. Scutellum with lateral carinae on the anterior 0.3. Prescutellar groove smooth medially, with fine longitudinal striae laterally. Prepectal carina low, ventral part merging with the pleural part, the latter complete, joining the anterior edge of the mesopleurum. Transverse carina obliterated. Mesopleurum distinctly coriaceous, distinctly and very densely punctate. Speculum punctate posteriorly, coriaceous and granulate-strigose anteriorly, rather dull. Depression in front of the speculum for the greater part with rather strong short longitudinal wrinkles, which merge with the punctation anteriorly, the ventral 0.2-0.3 finely granulate-strigose. Metapleurum finely and densely rugose. Pleural carina distinct. Areolet small, stalked, receiving the 2<sup>nd</sup> recurrent vein distinctly distad of the middle. Nervellus inclivous, distinctly intercepted. Nervellar index 0.8. Tibial spur index 0.6. Hind femur 6.1× as long as high. Hind tarsal claws short, with distinct pectinate teeth basally and medially. Propodeum extending to 0.3 of the hind coxae, not deeply and rather narrowly depressed,

with transverse and irregular wrinkles in the longitudinal furrow, costulae partly present, longitudinal carinae distinct and complete. Propodeal spiracle small, 2.4× as long as wide. Spiracular carina narrow, sometimes replaced by several wrinkles. Spiracular index 1.0. 1<sup>st</sup> gastral tergite 4.4×, 2<sup>nd</sup> tergite 2.3× as long as wide. Petiole with distinct and rather elongate glymmae, with fine longitudinal striae in front of the glymmae, with some transverse wrinkles anteriorly. Petiolar suture fine, partly obliterated. 1<sup>st</sup> gastral sternite finely coriaceous. Thyridium elongate. Thyridial index about 1.0. Epipleurum separated from the 3<sup>rd</sup> gastral tergite, the crease marked with black. Epipleural index 0.7-0.8. Gaster distinctly compressed posteriorly. Ovipositor index 0.5.

Colour: Black. Maxillary palpus dark brown. Mandible tinged with brown medially. Wings hyaline. Stigma dark brown. Front leg from the femur onwards yellowish red, the femur marked with black basally and ventrally. Mid femur marked with yellowish red on the apical 0.2. Mid tibia yellowish red. 2<sup>nd</sup> gastral tergite red on the posterior 0.1-0.2. 3<sup>rd</sup> and 4<sup>th</sup> tergites red, 4<sup>th</sup> tergite narrowly marked with black dorsally. 5<sup>th</sup> tergite broadly marked with red ventrolaterally. Subgenital plate reddish. Pilosity whitish.

♂ unknown.

**Material** (3♀): Russia: Yevreyskiy A.O.: Birobidzhan (Hinz/ZSM); Primorye: Situkha (PET). Japan: Honshu: Mt. Azumayama (SAP).

### *Dusona mercator* (Fabricius, 1793)

*Campoplex oxyacanthae* Boie, 1855 (**syn. nov.**)

*Campoplex mesoxanthus* Förster, 1868 (**syn. nov.**)

Hinz (1972: 46) was not sure of this synonymy, because the head, the prothorax and greater parts of the legs are missing in the holotype of *Ichneumon mercator* Fabricius, and because he did not have material of related species with him, when he studied the type in the Copenhagen museum. The junior author compared the holotype with material of all species of the relevant species group (Hinz 1977: 51) in coll. Hinz. Although head characters cannot be studied, the position of the black lateral stripes on the sides of the 2<sup>nd</sup> gastral tergite (see below) is distinctive. The name *Ichneumon mercator* is not a nomen oblitum under the Code (article 23.9), because the conditions of articles 23.9.1.1 and 23.9.6 are not met (Yu & Horstmann 1997: 149; Horstmann 2001: 27). On the other hand, the identification of *Campoplex oxyacanthae* Boie is

questionable, because its type is lost, and because the species described here is not a parasitoid of *Allophytes oxyacanthae* (Linnaeus, 1758) (Noctuidae) as published by Boie (1855: 104), but was bred by Hinz from *Colotois pennaria* (Linnaeus, 1761) (Geometridae) (2♀, 1♂ from Hannover/Germany in coll. Hinz/ZSM) and *Comptosia opacaria* (Hübner, 1819) (Geometridae) (1♀, 1♂ from Barcelona/Spain in coll. Hinz/ZSM). Either Boie was wrong about the host association of his material, or Holmgren (1872: 60) misinterpreted the species described by Boie. *C. oxyacanthae* Boie is interpreted here as a senior synonym of *C. mesoxanthus* Förster (Holmgren, l. c.), a taxon represented by a lectotype (Hinz 1962: 4).

**Description.** ♀: Body length 11-13 mm. Temples distinctly constricted behind the eyes, 0.9× as long as the width of an eye, tangential lines on eyes and temples intersect on the precutellar groove. Ocellar index 0.7. Frons scarcely depressed, coriaceous, densely rugose-punctate, with a distinct median longitudinal carina, with short radial wrinkles. Antennal carina low and narrow. Face and dorsal 0.7 of the clypeus coriaceous, densely rugose-punctate. Clypeus flat, coriaceous and rather densely punctate ventrally, its apex almost truncate medially. Malar space index 0.3. Genal carina almost straight ventrally, strongly raised, joining the strongly raised oral carina at an acute angle, forming a lopsided triangular pyramid, the tip of the latter shifted ventrally and situated behind the base of the mandible (Fig. 12). Gena deeply depressed close to the junction, the depression 0.8× as deep as the width of the 2<sup>nd</sup> flagellar segment. Genal index 0.4. Temple finely coriaceous and with very fine disperse punctation medially. Flagellum with 53-55 segments, filiform, the apical 0.3 distinctly attenuate, 2<sup>nd</sup> segment 1.6×, shortest segment 0.8×, penultimate segment 1.1× as long as wide. Pronotum coriaceous and densely rugose-punctate laterally on the dorsal 0.3, with longitudinal wrinkles ventrally. Mesoscutum and scutellum finely coriaceous, very densely punctate. Scutellum with lateral carinae on the anterior 0.4. Precutellar groove smooth medially, with longitudinal striae laterally. Ventral part of the prepectal carina merging with the transverse carina, both carinae distinctly raised, the former rather narrowly and shallowly emarginate medially. Pleural part of the prepectal carina low, the dorsal 0.2 replaced by several wrinkles. Mesopleurum with rather dense or dense punctation on a very finely coriaceous or smooth background, usually with longitudinal wrinkles ventrally in the posterior corner. Speculum very finely coriaceous, shin-

ing. Depression in front of the speculum with distinct longitudinal striae, which merge with the punctation anteriorly. Metapleurum densely rugose, partly with longitudinal wrinkles. Pleural carina strong. Areolet large, pointed or short-stalked, receiving the 2<sup>nd</sup> recurrent vein almost at the middle. Nervellus slightly inclivous, distinctly intercepted. Nervellar index 0.7. Tibial spur index 0.7. Hind femur 5.5-6.3× as long as high. Hind tarsal claws short, with long pectinate teeth basally and medially. Propodeum extending to 0.4 of the hind coxae, broadly and deeply depressed, sulcus almost completely with transverse wrinkles, costulae partly present, longitudinal carinae strong and usually almost complete. Propodeal spiracle rather large, 3.1× as long as wide. Spiracular carina narrow or partly widened. Spiracular index 0.4. 1<sup>st</sup> gastral tergite 4.7×, 2<sup>nd</sup> tergite 2.0× as long as wide. Petiole without glymmae, with narrow lateral areas, smooth in front of these areas. Petiolar suture partly obliterated. 1<sup>st</sup> gastral sternite for the greater part smooth, with fine transverse striae posteriorly. Thyridium circular. Thyridial index about 2.0. Epipleurum separated from the 2<sup>nd</sup> gastral tergite (as in all species of *Dusona* studied here), the crease slightly marked with black, with a black lateral stripe almost parallel with the crease in a short distance (black lateral stripes separate from the ventrolateral creases of the 2<sup>nd</sup> tergite lacking in related species). Epipleurum not separated from the 3<sup>rd</sup> gastral tergite, the latter without black lateral stripes (Fig. 43). Gaster strongly compressed posteriorly. Ovipositor index 0.7.

Colour: Black. Maxillary palpus yellowish brown. Mandible narrowly marked with yellowish red dorsally and medially. Tegula yellowish brown. Wings hyaline. Stigma medium brown medially. Front trochanter usually brown dorsally, yellow ventrally. Front femur yellowish red, sometimes marked with brown basally. Front tibia and tarsus yellow. Mid femur yellow on the apical 0.2. Mid tibia yellow. Mid tarsus brown, the basitarsus yellowish brown. Hind tibia yellow. Hind tarsus blackish. 2<sup>nd</sup> gastral tergite dorsally yellow on the posterior 0.2, laterally yellow on the posterior 0.5, sometimes completely yellow laterally. 3<sup>rd</sup> tergite yellow. 4<sup>th</sup> tergite marked with yellow anteriorly (to a variable extent). Pilosity whitish.

♂: Maxillary palpus yellowish red. Mandible almost completely yellow. Tegula yellow. Front and mid legs from the tip of the coxa onwards yellow, the femora yellowish red. In other characters similar to the ♀.

**Material** (2♀): Russia: Irkutsk Prov.: Angarsk (MOS), Irkutsk (PET).

*Dusona meridionator* Aubert, 1960 (stat. nov.)

*Dusona kyushui* Hinz, 1994 (syn. nov.)

This is a variable and poorly defined species. Aubert (1960: 63) described *D. meridionator* as a subspecies of *D. tenuis*. It differs from the latter in: Genal carina not obliterated ventrally. Ventral part of the prepectal carina not strongly raised. Propodeum with short transverse striae in the narrow longitudinal furrow only. In *D. meridionator*, the colour pattern of the hind tibia (used as distinguishing character by Aubert) is variable. The types of *D. meridionator* (Aubert/LAU) and the holotype of *D. kyushui* from Hiko-san/Kyushu/Japan (SAP) have recently been studied by the junior author.

**Description.** ♀: Body length 8-9 mm. Temples distinctly constricted behind the eyes, 0.7× as long as the width of an eye, tangential lines on eyes and temples intersect on the scutellum. Ocellar index 0.6-0.9. Frons not depressed, coriaceous, densely rugose-punctate and rugose, with a fine median longitudinal carina, with short radial wrinkles, which extend to 0.2-0.4 the distance to the median ocellus. Antennal sockets rather close to each other. Antennal carina low, narrow or widened to a smooth crescent-shaped plate dorsally (the shape of the latter variable). Face and dorsal half of the clypeus coriaceous, densely rugose-punctate and rugose. Clypeus flat, finely coriaceous and rather densely or densely punctate ventrally, its apex slightly convex medially. Malar space index 0.3. Genal carina low ventrally, slightly bent sideways, joining the slightly raised oral carina almost at a right angle. Genal index 0.25-0.4. Temple finely coriaceous and with fine rather dense punctation medially. Flagellum with 43-46 segments, filiform, the apical 0.3 attenuate, 2<sup>nd</sup> segment 1.7×, shortest segment 1.0×, penultimate segment 1.2× as long as wide. Pronotum densely rugose-punctate laterally on the dorsal 0.3, with longitudinal wrinkles ventrally. Mesoscutum coriaceous, very densely punctate. Scutellum densely rugose-punctate, with lateral carinae on the anterior 0.7. Prescutellar groove smooth medially, with distinct short longitudinal striae laterally. Ventral part of the prepectal carina either low, merging with the pleural part, the dorsal 0.2 of the latter obliterated and covered with wrinkles, or slightly raised, merging with the also slightly raised transverse carina, the

pleural part lower, its dorsal 0.4 obliterated. Transverse carina either more or less obliterated or more or less raised (these characters variable). Mesopleurum distinctly coriaceous, distinctly and densely punctate. Speculum punctate posteriorly, granulate-strigose and with fine oblique striae anteriorly. Depression in front of the speculum with fine longitudinal striae, which merge with the punctation anteriorly. Metapleurum coriaceous, very densely punctate, partly rugose-punctate. Pleural carina distinct. Areolet rather small, short-stalked, receiving the 2<sup>nd</sup> recurrent vein distad of the middle. Nervellus distinctly reclivous, weakly intercepted. Nervellar index 0.6-0.7. Tibial spur index 0.6. Hind femur 5.0× as long as high. Hind tarsal claws short, with short pectinate teeth basally. Propodeum extending to 0.6 of the hind coxae, deeply and rather narrowly depressed, with short transverse striae in the longitudinal furrow, irregularly wrinkled beside the furrow, carinae almost completely obliterated (Fig. 34). Propodeal spiracle rather large, 3.0× as long as wide. Spiracular carina widened. Spiracular index 0.3-0.5. 1<sup>st</sup> gastral tergite 5.0×, 2<sup>nd</sup> tergite 2.1× as long as wide. Petiole without glymmae, narrow lateral areas weakly indicated (by a coriaceous sculpture), petiole smooth in front of these areas. Petiolar suture for the greater part obliterated. 1<sup>st</sup> gastral sternite smooth. Thyridium elongate. Thyridial index 1.0-1.5. Epipleurum not separated from the 3<sup>rd</sup> gastral tergite, the latter with distinct black lateral stripes well above the ventrolateral edge. Gaster distinctly compressed posteriorly. Ovipositor index 0.5.

Colour: Black. Maxillary palpus dark brown basally, yellowish brown or dark brown apically. Mandible black or tinged with reddish brown medially. Tegula yellowish brown to black. Wings hyaline. Stigma medium brown or dark brown medially. Front femur yellowish red. Front tibia and tarsus yellow. Apical 0.2 of the mid femur yellowish red. Mid tibia yellow. Mid tarsus dark brown. Hind tibia black, sometimes whitish subbasally on the dorsal side (to a variable extent). 2<sup>nd</sup> gastral tergite red on the posterior 0.3-0.5. 3<sup>rd</sup> and 4<sup>th</sup> tergites red. 5<sup>th</sup> tergite sometimes marked with red anteriorly. Pilosity whitish.

♂: Maxillary palpus yellowish brown. Mandible broadly yellow medially. Tegula yellow. Front leg from the tip of the coxa onwards yellow or yellowish red. Mid femur sometimes completely yellowish red. Hind tibia distinctly whitish subbasally on the dorsal side. 4<sup>th</sup> gastral tergite sometimes marked with black posteriorly. In other characters similar to the ♀.

**Material** (6♀, 1♂): Russia: Chita Prov.: Urulyunguy near Borzya (Hinz/ZSM, PET). Kazakhstan: Aksu-Dzhabagly ESE of Chimkent (PET). Kirgiziya: Ala-Archa River in the Kirgizskiy Mts., 1650 m (LIN), Arabyik River in the Talasskiy Alatau Mts., 2050-3250 m (Hinz/ZSM). Japan: Kyushu: Hiko-san (SAP). The 3♀ from Urulyunguy are paratypes of *D. micrator*.

**Variety:** Temples scarcely constricted behind the eyes, 0.8-0.9× as long as the width of an eye, tangential lines on eyes and temples intersect on the apex of the gaster. Flagellum with 47 segments. Prepectal carina low, ventral part merging with the pleural part, the dorsal 0.1 of the latter replaced by several wrinkles. Transverse carina present anteriorly, obliterated posteriorly. Material: 2♂♂ Mongoliya, Arhangay Prov., Bugat (1♂ Hinz/ZSM, 1♂ PET). The status of these ♂♂ is unknown.

*Dusona meritor* Hinz & Horstmann, spec. nov.

**Types.** Holotype (♀): Russia, Primorye, Andreyevka, near Khasan, 27.8.1983 (PET). – Paratypes: 1♀ Russia, Kuril Isl., Kunashir, Tretyakovo, 5.8. 1973 (Hinz/ZSM); 1♀ Japan, Honshu, Kanagawa, Chigasaki, 18.5. 1933 (AEI).

**Description.** ♀: Body length 8-9 mm. Temples strongly constricted behind the eyes, 0.6× as long as the width of an eye, tangential lines on eyes and temples intersect on the posterior half of the mesoscutum. Ocellar index 0.6. Frons slightly depressed, coriaceous, finely and densely rugose-punctate, with a fine median longitudinal carina, with short radial wrinkles, which extend to 0.3 the distance to the median ocellus. Antennal carina low and narrow. Face and dorsal 0.7 of the clypeus densely rugose-punctate. Clypeus flat, finely coriaceous and rather densely punctate ventrally, its apex truncate medially. Malar space index 0.4. Genal carina low and almost straight ventrally, joining the distinctly raised oral carina at an acute angle. Genal index 0.4. Temple finely coriaceous and with fine disperse punctation medially. Flagellum with 42-43 segments, filiform, the apical 0.8 slightly attenuate, 2<sup>nd</sup> segment 2.2×, shortest segment 0.9×, penultimate segment 1.0× as long as wide. Pronotum densely rugose-punctate laterally on the dorsal 0.2, with longitudinal wrinkles ventrally. Mesoscutum and scutellum coriaceous, very densely punctate. Scutellum with lateral carinae on the anterior 0.7. Prescutellar groove smooth. Prepectal carina low, the ventral part merging with the pleural part and with the transverse car-

ina. Ventral part not emarginate medially, pleural part distinct ventrally and medially, its dorsal 0.4 obliterated. Transverse carina distinct, its rim bent upwards. Pleural part of the prepectus slightly depressed above the transverse carina. Mesopleurum coriaceous, densely punctate. Speculum coriaceous, dull. Depression in front of the speculum with distinct longitudinal striae, which merge with the punctation anteriorly. Metapleurum densely rugose. Pleural carina distinct. Areolet large, short-stalked, receiving the 2<sup>nd</sup> recurrent vein distinctly basad of the middle. Nervellus reclivous, weakly intercepted. Nervellar index 0.6. Tibial spur index 0.6. Hind femur 5.1× as long as high. Hind tarsal claws rather short, with distinct pectinate teeth basally and medially. Propodeum extending to 0.4 of the hind coxae, scarcely depressed, with short transverse wrinkles in the shallow and narrow longitudinal furrow, irregularly wrinkled beside the furrow, sometimes with longitudinal wrinkles posteriorly, costulae fine but complete, longitudinal carinae present only posteriorly. Propodeal spiracle large, 3.7× as long as wide. Spiracular carina more or less indistinct. Spiracular index 0.2-0.4. 1<sup>st</sup> gastral tergite 4.6×, 2<sup>nd</sup> tergite 2.5× as long as wide. Petiole with very small and shallow glymmae at the anterior edge of narrow lateral areas, with very fine sculpture or smooth in front of the glymmae. Petiolar suture for the greater part obliterated. 1<sup>st</sup> gastral sternite für the greater part smooth, with fine transverse striae posteriorly. Thyridium elongate. Thyridial index about 1.5. Epipleurum not separated from the 3<sup>rd</sup> gastral tergite, the latter with distinct black lateral stripes well above the ventrolateral edge. Gaster distinctly compressed posteriorly. Ovipositor index 0.6.

**Colour:** Black, Maxillary palpus yellow. Mandible almost completely yellow. Tegula dark brown. Wings hyaline. Stigma dark brown medially. Front leg from the tip of the coxa onwards yellowish, trochanter marked with brown, femur medium brown ventrally. Mid leg from the apical 0.1 of the femur onwards yellowish. Hind tibia blackish, marked with dark brown medially on the dorsal side. In one paratype, the front coxa and trochanter are black, and the mid tibia and tarsus are dark brown. 2<sup>nd</sup> gastral tergite marked with red laterally. 3<sup>rd</sup> and 4<sup>th</sup> tergites red, the 3<sup>rd</sup> tergite dorsally marked with black anteriorly. Hind tergites marked with red posteriorly. Hind sternites red. Pilosity whitish.

♂ unknown.

### *Dusona micrator* Hinz, 1979

The type material of this species is not homogeneous. The holotype (♀) from Kamikochi near Norikura-dake/Honshu/Japan (AEI) and paratypes (5♀) from the same locality, from Sapporo/Hokkaido/Japan (both AEI), Nopporo/Hokkaido/Japan, Nikishiro on Kunashir/Kuril Isl./Russia (both SAP) and Yuzhno-Kurilsk on Kunashir/Kuril Isl./Russia (PET) belong to *D. micrator*. 3♀ from Urulyunguy/Chita Prov./Russia (Hinz/ZSM, PET) belong to *D. meridionator*, 1♀ from Sernovodsk on Kunashir/Kuril Isl./Russia (PET) belongs to *D. schikotani*, and 1♀ from Sapporo/Hokkaido/Japan (SAP) is placed as a variety to *D. obtutor*.

**Description.** ♀: Body length 7-8 mm. Temples distinctly constricted behind the eyes, 0.7× as long as the width of an eye, tangential lines on eyes and temples intersect on the scutellum. Ocellar index 0.7. Frons scarcely depressed, coriaceous, densely rugose-punctate, with a fine and partly obliterated median longitudinal carina, with short and indistinct radial wrinkles. Antennal carina low and narrow. Face and dorsal 0.8 of the clypeus coriaceous, densely rugose-punctate. Clypeus flat, coriaceous and rather densely punctate ventrally, its apex truncate medially. Malar space index 0.4. Genal carina low and straight ventrally, sometimes slightly bent forwards, joining the low oral carina at an acute angle. Genal index 0.2-0.3. Temple finely coriaceous and with very fine disperse punctation medially. Flagellum with 40-44 segments, filiform, the apical 0.3 slightly attenuate, 2<sup>nd</sup> segment 2.3×, shortest segment 1.0×, penultimate segment 1.1-1.2× as long as wide. Pronotum densely rugose-punctate laterally on the dorsal 0.3, with longitudinal wrinkles ventrally. Mesoscutum and scutellum coriaceous, dull, very densely punctate. Scutellum with lateral carinae on the anterior 0.7. Prescutellar groove smooth medially, with fine longitudinal striae laterally. Prepectal carina low, ventral part merging with the pleural part, the dorsal 0.3 of the latter obliterated. Transverse carina more or less obliterated (Fig. 17). Mesopleurum distinctly coriaceous, densely or very densely punctate. Speculum punctate posteriorly, granulate-strigose and shining anteriorly. Depression in front of the speculum granulate-strigose and with fine short longitudinal wrinkles, which merge with the punctation anteriorly. Metapleurum coriaceous, dull, finely and densely rugose. Pleural carina fine but complete. Areolet rather large, stalked, receiving the 2<sup>nd</sup> recurrent vein distad of the middle. Nervellus almost verti-

cal, distinctly intercepted. Nervellar index 0.6-0.7. Tibial spur index 0.5. Hind femur 5.6× as long as high. Hind tarsal claws short, with few short pectinate teeth basally. Propodeum extending to 0.4 of the hind coxae, scarcely depressed, for the greater part irregularly wrinkled, sometimes with some short transverse wrinkles in the midline, with some longitudinal wrinkles posteriorly, carinae almost completely obliterated. Propodeal spiracle rather small, 4.5× as long as wide. Spiracular carina narrow, sometimes indistinct. Spiracular index about 0.5. 1<sup>st</sup> gastral tergite 4.4×, 2<sup>nd</sup> tergite 2.1× as long as wide. Petiole smooth laterally, without glymmae or narrow lateral areas. Petiolar suture fine, partly obliterated. 1<sup>st</sup> gastral sternite for the greater part smooth or finely coriaceous, with fine transverse striae posteriorly. Thyridium elongate. Thyridial index about 1.5. Epipleurum not separated from the 3<sup>rd</sup> gastral tergite, the latter with distinct black lateral stripes well above the ventrolateral edge. Gaster distinctly compressed posteriorly. Ovipositor index 0.5.

Colour: Black. Maxillary palpus dark brown basally, medium brown apically. Mandible narrowly tinged with reddish brown subapically. Wings hyaline. Stigma light brown or medium brown medially. Front femur yellowish red on the apical half. Front tibia and tarsus yellowish red. Mid tibia and tarsus dark brown. Hind tibia blackish, sometimes tinged with brown subbasally. 2<sup>nd</sup> gastral tergite red on the posterior 0.1-0.2. 3<sup>rd</sup> and 4<sup>th</sup> tergites red. Pilosity whitish.

♂ unknown.

**Material** (6♀): Russia: Kuril Isl.: Nikishiro on Kunashir (SAP), Yuzhno-Kurilsk on Kunashir (PET). Japan: Hokkaido: Nopporo (SAP), Sapporo; Honshu: Kamikochi near Norikura-dake (AEI).

### *Dusona minor* (Provancher, 1879)

The population from central Asia described here differs from material of this rather variable species described from North America by its dark color (legs, gaster). It might represent a separate subspecies.

**Description.** ♀: Body length 6-7 mm. Temples slightly constricted behind the eyes, 0.8× as long as the width of an eye, tangential lines on eyes and temples intersect on the propodeum. Ocellar index 0.9. Frons scarcely depressed, coriaceous, finely and densely rugose-punctate, with a fine median longitudinal carina, with short radial wrinkles. Antennal carina low and narrow, the rim slightly

bent upwards. Face and dorsal 0.6 of the clypeus finely and densely rugose. Clypeus flat, coriaceous and with fine dense punctation ventrally, its apex truncate medially. Malar space index 0.5. Genal carina low ventrally, slightly bent sideways and forwards, joining the oral carina at the base of the mandible at a right angle. Temple finely coriaceous and with fine disperse punctation medially. Flagellum with 32-36 segments, slightly fusiform, 2<sup>nd</sup> segment 2.0×, shortest segment 1.0×, penultimate segment 1.3× as long as wide. Pronotum finely and densely rugose-punctate laterally on the dorsal 0.2, with longitudinal wrinkles ventrally. Hind corner of pronotum produced to a flange, which projects about as far as the tegula and which is rounded dorsally and excavated ventrally. Mesoscutum and scutellum coriaceous, finely and densely punctate. Scutellum with lateral carinae on the anterior 0.8. Prescutellar groove smooth. Prepectal carina low, ventral part merging with the pleural part or with the transverse carina, the latter somewhat raised. Pleural part of the prepectal carina low, its dorsal 0.2 indistinct or obliterated. Mesopleurum coriaceous, densely punctate. Speculum coriaceous and finely granulate-strigose, a small ventral part almost smooth. Depression in front of the speculum with distinct longitudinal striae, which merge with the punctation anteriorly. Metapleurum finely and densely rugose or rugose-punctate. Pleural carina distinct. Areolet rather small, long-stalked, receiving the 2<sup>nd</sup> recurrent vein distad of the middle. Nervellus vertical, indistinctly intercepted. Nervellar index 0.8. Tibial spur index 0.6. Hind femur 4.7× as long as high. Hind tarsal claws short, with short pectinate teeth basally. Propodeum extending to the middle of the hind coxae, broadly and distinctly but not deeply depressed, sulcus more irregularly wrinkled anteriorly, transversely wrinkled posteriorly, costulae complete, longitudinal carinae almost completely obliterated. Propodeal spiracle small, 2.3× as long as wide. Spiracular carina narrow. Spiracular index 0.5. 1<sup>st</sup> gastral tergite 4.0×, 2<sup>nd</sup> tergite 2.0× as long as wide. Petiole with rather small but distinct glymmae at the anterior edge of indistinct narrow lateral areas, smooth in front of the glymmae. Petiolar suture partly obliterated. 1<sup>st</sup> gastral sternite smooth. Thyridium oval. Thyridial index about 1.5. Epipleurum not separated from the 3<sup>rd</sup> gastral tergite, the latter with distinct black lateral stripes well above the ventrolateral edge. Gaster distinctly compressed posteriorly. Ovipositor index 0.7.

Colour: Black. Wings hyaline. Stigma light brown medially. Front leg from the apical 0.6 of the femur onwards yellowish brown. 2<sup>nd</sup> gastral

tergite black or red on the posterior 0.1. 3<sup>rd</sup> and 4<sup>th</sup> tergites red, the 4<sup>th</sup> sometimes marked with black posteriorly. Pilosity whitish.

♂: Projection at the hind corner of pronotum slightly longer than the tegula. Mandible marked with yellowish brown medially. Tegula yellowish brown to black. Front leg from the tip of the coxa onwards yellowish red. Mid tibia and tarsus yellowish brown to brown. In other characters similar to the ♀.

**Material** (4♀, 2♂♂): Kazakhstan: 20 km N of Kegen (LIN). Kirgiziya: Kashkasu River S of Frunze (= Bishkek), 1700 m (PET, Hinz/ZSM), Lake Sary Chelek in Dzhangii-Dzhol Distr., 1850-1900 m (LIN).

**Variety:** Projection at the hind corner of pronotum slightly shorter than the tegula. Sulcus of propodeum with rather short transverse wrinkles and with one or two short longitudinal wrinkles posteriorly. Mid tibia yellowish. Hind tibia dark yellowish brown medially, narrowly black basally, broadly black apically. 3<sup>rd</sup> gastral tergite sometimes marked with black dorsally. 4<sup>th</sup> tergite marked with black dorsally or completely black. Material: 2♂♂ Russia, Khabarovsk Terr., Khekh-tsir, near Khabarovsk (1♂ PET, 1♂ Hinz/ZSM); 1♂ Russia, Yevreyskaya A.O., Londoko (PET). These ♂♂ are intermediary between *D. angustifrons* and *D. minor* in the shape of the hind corner of pronotum and intermediary between populations of *D. minor* from central Asia and North America in the colour of the legs. Their status is unknown.

#### *Dusona minor* Horstmann, spec. nov.

**Holotype** (♀): Russia, Primorye, Spassk Dalniy, 11.9. 1985 (Hinz/ZSM).

**Description.** ♀: Body length 6 mm. Temples distinctly constricted behind the eyes, 0.7× as long as the width of an eye, tangential lines on eyes and temples intersect on the scutellum. Ocellar index 0.8. Frons not depressed, coriaceous, densely rugose-punctate, with a fine median longitudinal carina, without radial wrinkles. Antennal sockets rather close to each other. Antennal carina low, dorsally widened to a smooth crescent-shaped plate. Face and dorsal 0.4 of the clypeus coriaceous, densely rugose-punctate. Clypeus flat, coriaceous and dispersely punctate ventrally, its apex truncate medially. Malar space index 0.3. Genal carina low and almost straight, joining the low oral carina at an acute angle. Genal index about 0.1. Temple finely coriaceous and with very fine disperse punctation medially. Flagellum with 32

segments, slightly fusiform, 2<sup>nd</sup> segment 2.3×, shortest segment 0.9×, penultimate segment 1.1× as long as wide. Pronotum with longitudinal wrinkles, partly also with punctation. Mesoscutum and scutellum coriaceous, densely punctate. Scutellum with lateral carinae on the anterior 0.4. Prescutellar groove destroyed. Prepectal carina low, ventral part merging with the transverse carina, the latter slightly raised, the pleural part present ventrally and medially, its dorsal 0.3 obliterated. Mesopleurum finely coriaceous, almost smooth, rather densely punctate. Speculum coriaceous and granulate-strigose, shining. Depression in front of the speculum with fine and long longitudinal striae, which merge with the punctation anteriorly. Metapleurum densely rugose and rugose-punctate, the wrinkles smooth. Pleural carina fine. Areolet rather large, pointed, receiving the 2<sup>nd</sup> recurrent vein distad of the middle. Nervellus inclivous, distinctly intercepted. Nervellar index 0.8. Tibial spur index 0.7. Hind femur 5.2× as long as high. Hind tarsal claws short, with short pectinate teeth basally. Propodeum extending to 0.6 of the hind coxae, not depressed, irregularly wrinkled, almost without carinae, with a median longitudinal keel posteriorly. Propodeal spiracle small, 2.5× as long as wide. Spiracular carina narrow. Spiracular index 0.4. 1<sup>st</sup> gastral tergite 5.5×, 2<sup>nd</sup> tergite 2.1× as long as wide. Petiole without distinct glymmae, with distinct narrow lateral areas, smooth in front of these areas. Petiolar suture partly obliterated. 1<sup>st</sup> gastral sternite smooth. Thyridium elongate. Thyridial index about 2.0. Epipleurum not separated from the 3<sup>rd</sup> gastral tergite, the latter without black lateral stripes. Gaster slightly compressed posteriorly. Ovipositor index 0.7.

Colour: Black. Maxillary palpus yellowish brown. Wings hyaline. Stigma medium brown medially. Front femur yellowish red. Front tibia and tarsus yellow. Mid femur yellowish red on the apical half. Mid tibia and tarsus yellow. Hind tibia dark yellowish brown medially and apically, narrowly dark brown basally. Hind tarsus dark brown dorsally, yellowish brown ventrally. 2<sup>nd</sup> gastral tergite red on the posterior 0.2, the red marks more extended laterally. 3<sup>rd</sup> and 4<sup>th</sup> tergites red. 5<sup>th</sup> tergite laterally marked with red anteriorly. Pilosity whitish.

♂ unknown.

*Dusona momoi* Hinz & Horstmann, spec. nov.

**Types.** Holotype (♀): Japan, Hokkaido, Sapporo, 20.6.1958 (SAP). – Paratypes: 1♀ Japan, Hokkaido, Sapporo, Maruyama, 8.6.1958 (Hinz/ZSM); 1♀ Japan, Honshu, Sasayama, 10.5.1954 (SAP); 1♂ Japan, Hokkaido, Sapporo, Maruyama, 4.6.1957 (SAP); 1♂ Russia, Primorye, Sikhote-Alin, 10.6.1929 (MOS); 1♂ Russia, Primorye, Kamenushka, SE of Ussuriysk, 7.6.1979 (PET); 1♂ Russia, Primorye, Ussuriysk, 19.6.1983 (Hinz/ZSM).

**Description.** ♀: Body length 11–13 mm. Temples strongly constricted behind the eyes, 0.8× as long as the width of an eye, tangential lines on eyes and temples intersect on the posterior half of the mesoscutum. Ocellar index 1.0. Frons slightly depressed, coriaceous, densely rugose-punctate, with a fine median longitudinal carina, with short radial wrinkles, which extend to 0.3 the distance to the median ocellus. Antennal carina low and narrow. Face and clypeus densely rugose-punctate. Clypeus flat, its apex truncate medially. Malar space index 0.3. Genal carina low and straight ventrally, joining the scarcely raised oral carina at an acute angle. Genal index 0.3. Temple finely coriaceous and with fine disperse punctation medially. Flagellum with 47–50 segments, filiform, the apical 0.2 distinctly attenuate, 2<sup>nd</sup> segment 1.5×, shortest segment 0.9×, penultimate segment 1.1× as long as wide. Pronotum with very dense punctation laterally on the dorsal 0.6, with longitudinal wrinkles ventrally. Mesoscutum and scutellum densely punctate on a finely coriaceous or smooth background. Scutellum with lateral carinae on the anterior 0.6. Prescutellar groove with fine short longitudinal striae or almost smooth. Prepectal carina low, the ventral part merging with the pleural part, the latter almost joining the anterior edge of the mesopleurum. Transverse carina obliterated. Mesopleurum densely punctate on a finely coriaceous or partly smooth background. Speculum partly smooth. Depression in front of the speculum with distinct longitudinal wrinkles dorsally and medially, the latter merging with the punctation anteriorly, with very fine striae or almost smooth ventrally. Metapleurum densely rugose-punctate, the wrinkles smooth. Pleural carina distinct. Areolet large, short-stalked, receiving the 2<sup>nd</sup> recurrent vein at or basad of the middle. Nervellus slightly inclivous, distinctly intercepted. Nervellar index 0.8. Tibial spur index 0.6. Hind femur 5.6× as long as high. Hind tarsal claws short, with short pectinate teeth basally and medially. Propodeum extending to 0.4 of the hind coxae, scarcely and rather broadly depressed, for

the greater part irregularly wrinkled, with some transverse wrinkles and with a short median longitudinal keel posteriorly, almost without carinae. Propodeal spiracle large, 3.2× as long as wide. Spiracular carina often indistinct or replaced by several wrinkles. Spiracular index 0.3. 1<sup>st</sup> gastral tergite 3.8×, 2<sup>nd</sup> tergite 1.9× as long as wide. Petiole with large glymmae, which are bordered by longitudinal carinae dorsally and ventrally, with fine longitudinal striae in front of the glymmae and with some distinct transverse wrinkles anteriorly. Petiolar suture indicated or complete. 1<sup>st</sup> gastral sternite for the greater part smooth, with fine transverse striae posteriorly. Thyridium elongate. Thyridial index about 1.0. Epipleurum separated from the 3<sup>rd</sup> gastral tergite, the crease marked with black. Epipleural index 0.8. Gaster distinctly compressed posteriorly. Ovipositor index 0.6.

Colour: Black. Maxillary palpus yellow. Mandible broadly yellow medially. Wings scarcely darkened or hyaline. Stigma medium brown medially. Front trochanter, tibia and tarsus yellow, the trochanter marked with brown. Front femur yellowish red. Mid leg from the apical 0.3 of the femur onwards yellowish red. Hind tibia yellowish brown, narrowly dark brown basally, scarcely darkened apically. 2<sup>nd</sup> gastral tergite dorsally black or red on the posterior 0.1, broadly marked with red laterally. Gaster from the 3<sup>rd</sup> tergite onwards narrowly marked with black dorsally, broadly red laterally. Gastral sternites red. Pilosity whitish.

♂: Propodeum with the longitudinal carinae partly indicated. Tegula yellowish brown to black. Tips of the front and mid coxae and front and mid trochanters yellow. Front and mid femora yellowish red. Genital clasper red. In other characters similar to the ♀.

**Variety:** Costulae complete. Front coxa broadly marked with yellow apically. Hind tibia broadly marked with brown apically. Material: 1♀ Russia, Primorye, Roshchino, on River Iman (PET). Probably this ♀ belongs to *D. momoi*.

#### *Dusona montana* (Roman, 1929)

**Description.** ♀: Body length 10-12 mm. Temples strongly constricted behind the eyes, 0.6× as long as the width of an eye, tangential lines on eyes and temples intersect on the posterior half of the mesoscutum. Ocellar index 0.6. Frons slightly depressed, coriaceous, partly with fine disperse punctation, with a distinct median longitudinal carina, with fine and short radial wrinkles. Antennal carina low and narrow. Face and dorsal 0.2 of the clypeus

coriaceous, finely and densely rugose and rugose-punctate. Clypeus almost flat, coriaceous and with fine rather dense punctation ventrally, its apex truncate or slightly convex medially. Malar space index 0.3. Genal carina low and straight ventrally, joining the scarcely raised oral carina at an acute angle (Fig. 8 and 13). Genal index 0.4. Temple finely coriaceous and with very fine disperse punctation medially. Flagellum with 43-45 segments, filiform, the apical 0.2 attenuate, 2<sup>nd</sup> segment 2.5×, shortest segment 1.0×, penultimate segment 1.4× as long as wide. Pronotum coriaceous and densely rugose-punctate laterally on the dorsal 0.2, with longitudinal wrinkles ventrally. Mesoscutum and scutellum coriaceous, dull, densely or very densely punctate. Scutellum with lateral carinae on the anterior 0.2. Prescutellar groove smooth. Prepectal carina low, ventral part merging with the pleural part, the latter complete, joining the anterior edge of the mesopleurum. Transverse carina complete or almost complete (Fig. 16). Mesopleurum finely coriaceous, densely punctate. Speculum finely coriaceous, shining. Depression in front of the speculum with short and distinct longitudinal wrinkles, which merge with the punctation anteriorly. Metapleurum finely and densely rugose-punctate. Pleural carina complete. Areolet rather large, stalked, receiving the 2<sup>nd</sup> recurrent vein distad of the middle. Nervellus slightly inclivous, distinctly intercepted. Nervellar index 0.6-0.7. Tibial spur index 0.6. Hind femur 5.9× as long as high. Hind tarsal claws rather long, with distinct pectinate teeth almost over their total length. Propodeum extending to the middle of the hind coxae, scarcely or not at all depressed, for the greater part with transverse wrinkles, sometimes partly with irregular wrinkles, costulae partly present, longitudinal carinae for the greater part obliterated or complete. Propodeal spiracle large, 4.0× as long as wide. Spiracular carina narrow or widened. Spiracular index 0.2-0.4. 1<sup>st</sup> gastral tergite 4.6×, 2<sup>nd</sup> tergite 2.4× as long as wide. Petiole smooth laterally, without glymmae or with very small and shallow furrows at the anterior edge of narrow lateral areas. Petiolar suture fine. 1<sup>st</sup> gastral sternite smooth or partly coriaceous, sometimes with fine transverse wrinkles posteriorly. Thyridium oval. Thyridial index about 2.0. Epipleurum separated from the 3<sup>rd</sup> gastral tergite, the crease marked with black. Epipleural index 0.7-0.8. Gaster distinctly compressed posteriorly. Ovipositor index 0.9

Colour: Black. Maxillary palpus dark brown basally, yellow medially and apically. Mandible broadly yellow medially. Tegula brown. Wings hyaline. Stigma dark brown medially. Front leg

from the tip of the coxa onwards yellowish red. Mid femur yellowish red on the apical 0.3. Mid tibia and tarsus yellowish red. Hind tibia dark yellowish brown, narrowly black basally, not darkened apically. 2<sup>nd</sup> gastral tergite dorsally red on the posterior 0.2-0.3, laterally red on the posterior 0.5. 3<sup>rd</sup> and 4<sup>th</sup> tergites red, sometimes marked with black dorsally. 5<sup>th</sup> to 7<sup>th</sup> tergites sometimes narrowly marked with red ventrolaterally. Gaster sternites sometimes red. Pilosity whitish.

♂ similar to the ♀.

**Material** (4♀♀): Russia: Kuril Isl.: Volcano Golovnina on Kunashir (PET). Japan: Honshu: Mt. Minoo in Osaka-fu; Shikoku: Teragawa (SAP).

### *Dusona myrtilia* (Desvignes, 1856)

**Description.** ♀: Body length 11-13 mm. Temples slightly constricted behind the eyes, 0.8× as long as the width of an eye, tangential lines on eyes and temples intersect on the petiole. Ocellar index 1.0. Frons slightly depressed, coriaceous, finely and densely punctate, with a fine median longitudinal carina, without radial wrinkles. Antennal carina low and narrow. Face and dorsal 0.3 of the clypeus finely coriaceous, finely and densely rugose-punctate. Clypeus flat, finely and densely punctate ventrally, with a narrow smooth area above the apex, the latter truncate medially. Malar space index 0.3. Genal carina low and straight ventrally, joining the slightly raised oral carina at an acute angle. Genal index 0.25-0.3. Temple finely coriaceous and with very fine disperse punctation medially. Flagellum with 45-46 segments, filiform, the apical 0.3 attenuate, 2<sup>nd</sup> segment 1.4×, shortest segment 0.8×, penultimate segment 1.2× as long as wide. Pronotum coriaceous and finely and densely rugose-punctate laterally on the dorsal 0.4, with longitudinal wrinkles ventrally. Mesoscutum coriaceous, very densely punctate. Scutellum coriaceous, rather densely punctate, with lateral carinae on the anterior 0.4. Prescutellar groove almost completely smooth. Prepectal carina low, ventral part merging with the pleural part, the latter complete, joining the anterior edge of the mesopleurum. Transverse carina obliterated. Mesopleurum distinctly and densely or rather densely punctate on a finely coriaceous and rather shining background. Speculum for the greater part smooth. Depression in front of the speculum dorsally with fine longitudinal striae, which merge with the punctation anteriorly, the ventral half coriaceous and granulate-strigose. Metapleurum

coriaceous, densely punctate and rugose-punctate. Pleural carina strong. Areolet large, pointed, receiving the 2<sup>nd</sup> recurrent vein at or slightly distad of the middle. Nervellus vertical, strongly intercepted. Nervellar index 0.7. Tibial spur index 0.7. Hind femur 4.6× as long as high. Hind tarsal claws short, with distinct pectinate teeth almost over their total length. Propodeum extending to 0.4 of the hind coxae, broadly and not deeply depressed, irregularly wrinkled, with a longitudinal keel posteriorly, carinae complete or almost complete, partly covered with wrinkles. Propodeal spiracle rather large, 3.7× as long as wide. Spiracular carina widened. Spiracular index 0.3. 1<sup>st</sup> gastral tergite 3.2×, 2<sup>nd</sup> tergite 2.1× as long as wide. Petiole with distinct glymmae, which are bordered by longitudinal carinae dorsally, smooth in front of the glymmae. Petiolar suture fine. 1<sup>st</sup> gastral sternite smooth or with very fine sculpture, with transverse striae posteriorly. Thyridium oval. Thyridial index about 2.0. Epipleurum separated from the 3<sup>rd</sup> gastral tergite, the crease marked with black. Epipleural index 0.8. Gaster distinctly compressed posteriorly. Ovipositor index 0.7.

Colour: Black. Maxillary palpus yellow. Mandible almost completely yellow. Tegula yellow. Wings hyaline. Stigma yellowish brown medially. Front trochanter marked with yellow. Front femur yellowish red, narrowly marked with brown basally. Front tibia and tarsus yellow. Mid femur yellow on the apical 0.2. Mid tibia and tarsus yellow. Hind tibia whitish yellow medially, narrowly black basally, broadly black apically. Hind tarsus yellowish brown. Pilosity whitish.

♂: Propodeum with some short transverse wrinkles anteriorly and medially. Front and mid legs almost completely yellow, the coxae marked with black basally. In other characters similar to the ♀.

**Material** (6♀♀, 4♂♂): Russia: Irkutsk Prov.: Lake Baykal; Primorye: Benevskoye, Kiyevka, Plastun (PET). Japan: Shikoku: Ehime (SAP).

### *Dusona nanus* Horstmann, spec. nov.

The species is similar to *D. parva*, it differs from the latter in: Propodeum coarsely wrinkled, its longitudinal carinae indicated. Glymmae lacking, but narrow lateral areas present. Gaster less extensively marked with red.

**Holotype** (♂): Russia, Khabarovsk Terr., Vysokogornyy, 13.7.1983 (PET).

**Description.** ♂: Body length 5 mm. Temples slightly constricted behind the eyes, 0.8× as long as the width of an eye, tangential lines on eyes and temples intersect on the propodeum. Ocellar index 1.1. Frons slightly depressed, coriaceous, finely and densely punctate, with fine radial wrinkles, which extend to half the distance to the median ocellus, the median longitudinal carina indistinct. Antennal carina low and narrow, its rim slightly bent upwards. Face and dorsal 0.8 of the clypeus coriaceous, finely and densely rugose-punctate and rugose. Clypeus flat, coriaceous and rather densely punctate ventrally, its apex truncate medially. Malar space index 0.5. Genal carina low and straight ventrally, joining the distinctly raised oral carina at an acute angle. Genal index 0.5. Temple finely coriaceous and with very fine disperse punctation medially. Flagellum with 34 segments, filiform, almost not attenuate apically, 2<sup>nd</sup> segment 1.3×, shortest segment 0.9×, penultimate segment 1.0× as long as wide. Pronotum coriaceous and densely rugose-punctate laterally on the dorsal 0.3, with longitudinal wrinkles ventrally. Mesoscutum and scutellum coriaceous, densely punctate. Scutellum with lateral carinae on the anterior 0.6. Prescutellar groove for the greater part smooth. Prepectal carina low, ventral part merging with the pleural part, the latter indistinct, its dorsal 0.3 obliterated. Transverse carina indistinct. Mesopleurum coriaceous, dull, finely and rather densely punctate. Speculum finely coriaceous. Depression in front of the speculum with fine longitudinal wrinkles, which merge with the punctation anteriorly. Metapleurum coriaceous, finely and densely punctate. Pleural carina complete. Areolet rather large, stalked, receiving the 2<sup>nd</sup> recurrent vein distad of the middle. Nervellus distinctly inclivous, distinctly intercepted. Nervellar index 0.8. Tibial spur index 0.7. Hind femur 4.8× as long as high. Hind tarsal claws short, with short pectinate teeth basally. Propodeum extending to 0.3 of the hind coxae, broadly but not deeply depressed, rather coarsely and irregularly wrinkled, costulae partly present, longitudinal carinae indicated medially, but covered with wrinkles. Propodeal spiracle small, 2.3× as long as wide. Spiracular carina narrow. Spiracular index 0.7. 1<sup>st</sup> gastral tergite 3.1×, 2<sup>nd</sup> tergite 1.6× as long as wide. Petiole without glymmae, with narrow lateral areas, which are bordered by carinae dorsally and ventrally, smooth in front of these areas. Petiolar suture fine. 1<sup>st</sup> gastral sternite for the greater part smooth, with fine transverse striae posteriorly. Thyridium circular. Thyridial index about 1.0. Epipleurum not separated from the 3<sup>rd</sup> gastral tergite, the latter with rather indistinct black later-

al stripes well above the ventrolateral edge. Gaster distinctly compressed posteriorly.

Colour: Black. Maxillary palpus dark brown basally, yellow medially and apically. Tegula dark yellowish brown. Wings hyaline. Stigma yellow medially. Front leg from the tip of the coxa onwards yellow, the coxa marked with brown. Mid leg from the apical 0.2 of the femur onwards yellow. Hind tibia broadly yellow medially, narrowly marked with dark brown basally, rather broadly marked with dark brown apically. Hind tarsus dark brown. 2<sup>nd</sup> gastral tergite dorsally red on the posterior 0.1, laterally red on the posterior 0.3. 3<sup>rd</sup> tergite narrowly black dorsally, broadly red laterally. 4<sup>th</sup> tergite laterally with broad red markings anteriorly. Pilosity whitish.

♀ unknown.

*Dusona nebulosa* Horstmann, spec. nov.

**Types.** Holotype (♂): Russia, Primorye, Spassk Dalniy, 26.8.1981 (PET). – Paratype: 1♂ Russia, Caucasus, Karachayevo-Cherkesskaya A.O., Arkhyz, 2.7.1976 (Hinz/ZSM).

**Description.** ♂: Body length 8 mm. Temples distinctly constricted behind the eyes, 0.7× as long as the width of an eye, tangential lines on eyes and temples intersect on the scutellum. Ocellar index 0.6. Frons slightly depressed, coriaceous, with fine rather dense punctation, with a fine median longitudinal carina, with short radial wrinkles. Antennal carina low and narrow. Face and dorsal half of the clypeus coriaceous, densely rugose-punctate. Clypeus flat, finely coriaceous and rather densely punctate ventrally, its apex truncate medially. Malar space index 0.3. Genal carina low and straight ventrally, joining the slightly raised oral carina at an acute angle. Genal index 0.6. Temple finely coriaceous and with very fine disperse punctation medially. Flagellum with 46-47 segments, filiform, the apical 0.2 attenuate, 2<sup>nd</sup> segment 1.7×, shortest segment 1.0×, penultimate segment 1.4× as long as wide. Pronotum coriaceous and densely rugose-punctate laterally on the dorsal 0.3, with longitudinal wrinkles ventrally. Mesoscutum and scutellum coriaceous, densely punctate. Scutellum with lateral carinae on the anterior 0.7. Prescutellar groove with few fine longitudinal striae. Prepectal carina low, ventral part merging with the pleural part, the dorsal 0.4 of the latter obliterated. Transverse carina present only anteriorly. Mesopleurum coriaceous, distinctly and densely punctate. Speculum finely granulate-strigose, shining. Depression in front of the speculum granu-

late-strigose, partly with very fine longitudinal striae, which merge with a coriaceous area without punctuation anteriorly. Metapleurum coriaceous, finely and densely punctate. Pleural carina complete. Areolet rather small, long-stalked, receiving the 2<sup>nd</sup> recurrent vein basad of the middle. Nervellus vertical, weakly intercepted, nervellar index 0.7 (in the holotype), or inclivous, distinctly intercepted, nervellar index 0.8 (in the paratype). Tibial spur index 0.6. Hind femur 4.7× as long as high. Hind tarsal claws short, with short pectinate teeth basally. Propodeum extending to 0.4 of the hind coxae, broadly but not deeply depressed, the sulcus coriaceous anteriorly, transversely wrinkled posteriorly, fine costulae present, longitudinal carinae indicated medially. Propodeal spiracle rather large, 3.0× as long as wide. Spiracular carina narrow. Spiracular index 0.3. 1<sup>st</sup> gastral tergite 4.8×, 2<sup>nd</sup> tergite 2.2× as long as wide. Petiole without glymmae or with very small and shallow glymmae at the anterior edge of narrow lateral areas, smooth in front of these areas. Petiolar suture fine. 1<sup>st</sup> gastral sternite für the greater part with fine irregular wrinkles, with fine transverse striae posteriorly. Thyridium oval. Thyridial index about 1.0. Epipleurum not separated from the 3<sup>rd</sup> gastral tergite, the latter with black lateral stripes well above the ventrolateral edge. Gaster distinctly compressed posteriorly.

Colour: Black. Maxillary palpus yellow. Mandible broadly yellow medially. Tegula yellow to yellowish brown. Wings hyaline. Stigma dark brown medially. Front and mid legs from the tip of the coxa onwards yellow, the femora yellowish red. Hind tibia broadly yellowish brown medially, narrowly black basally, rather narrowly dark brown apically. 2<sup>nd</sup> gastral tergite red on the posterior 0.1. 3<sup>rd</sup> and 4<sup>th</sup> tergites red, sometimes tinged with black dorsally.

♀ unknown.

*Dusona nervellator* Horstmann, spec. nov.

**Holotype** (♂): Russia, Primorye, Yakovlevka, 28. 6.1927 (PET).

**Description.** ♂: Body length 12 mm. Temples distinctly constricted behind the eyes, 0.8× as long as the width of an eye, tangential lines on eyes and temples intersect on the prescutellar groove. Ocular index 0.8. Frons slightly depressed, coriaceous, densely rugose-punctate, with a fine and partly obliterated median longitudinal carina, with short radial wrinkles. Antennal carina low and narrow. Face and dorsal half of the clypeus coriaceous,

densely rugose-punctate. Clypeus flat, coriaceous and with rather dense punctuation ventrally, its apex truncate medially. Malar space index 0.5. Genal carina low and straight ventrally, joining the scarcely raised oral carina at an acute angle. Genal index 0.2. Temple finely coriaceous and with very fine disperse punctuation medially. Flagellum with 52 segments, filiform, the apical 0.3 attenuate, 2<sup>nd</sup> segment 2.0×, shortest segment 1.0×, penultimate segment 1.4× as long as wide. Pronotum coriaceous and densely rugose-punctate laterally on the dorsal half, with longitudinal wrinkles ventrally. Mesoscutum and scutellum coriaceous, dull, with very dense punctuation. Scutellum with lateral carinae on the anterior 0.7. Prescutellar groove smooth. Prepectal carina low, ventral part merging with the pleural part, the latter distinct and complete, joining the anterior edge of the mesopleurum. Transverse carina low, complete. Mesopleurum distinctly coriaceous, distinctly and densely punctate. Speculum punctate posteriorly, granulate-strigose anteriorly. Depression in front of the speculum granulate-strigose, with few longitudinal wrinkles dorsally, the latter merging with a coriaceous area without punctuation anteriorly. Metapleurum distinctly coriaceous, rather densely or densely punctate. Pleural carina distinct. Areolet large, short-stalked, receiving the 2<sup>nd</sup> recurrent vein slightly basad of the middle. Nervellus reclivous, intercepted. Nervellar index 0.4. Tibial spur index 0.5. Hind femur 4.5× as long as high. Hind tarsal claws rather short, with distinct pectinate teeth basally. Propodeum extending to 0.3 of the hind coxae, not depressed, for the greater part finely coriaceous, with fine disperse punctuation and with very fine irregular wrinkles, shining, with few short transverse wrinkles posteriorly, almost without carinae. Propodeal spiracle large, 5.0× as long as wide. Spiracular carina narrow. Spiracular index 0.3. 1<sup>st</sup> gastral tergite 3.0×, 2<sup>nd</sup> tergite 1.7× as long as wide. Petiole with rather large glymmae, smooth in front of the glymmae. Petiolar suture almost completely obliterated. 1<sup>st</sup> gastral sternite smooth. Thyridium elongate. Thyridial index about 1.0. Epipleurum not separated from the 3<sup>rd</sup> gastral tergite, the latter with fine black lateral stripes well above the ventrolateral edge. Gaster distinctly compressed posteriorly.

Colour: Black. Maxillary palpus dark brown basally, yellowish medially and apically. Mandible broadly yellow medially. Tegula yellow. Wings hyaline. Stigma yellow medially. Front leg from the tip of the coxa onwards yellow, the femur yellowish red. Mid femur yellowish red on the apical 0.3. Mid tibia yellow. Mid tarsus yellowish

brown. Hind tibia rather narrowly yellow medially, rather broadly black basally and on the apical 0.4. 2<sup>nd</sup> gastral tergite dorsally red on the posterior 0.2, laterally red on the posterior 0.3. 3<sup>rd</sup> and 4<sup>th</sup> tergites red, the 4<sup>th</sup> marked with black on its posterior 0.3. Pilosity whitish.

♀ unknown.

### *Dusona nidulator* (Fabricius, 1804)

**Description.** ♀: Body length 12-13 mm. Temples distinctly constricted behind the eyes, 0.9× as long as the width of an eye, tangential lines on eyes and temples intersect on the scutellum. Ocellar index 1.1. Frons slightly depressed, coriaceous, densely rugose-punctate, with a fine and partly obliterated median longitudinal carina, with short and indistinct radial wrinkles. Antennal carina low and narrow. Face and dorsal 0.6 of the clypeus coriaceous, densely rugose-punctate. Clypeus flat, coriaceous and rather densely punctate ventrally, its apex slightly convex medially. Malar space index 0.5. Genal carina low and almost straight ventrally, joining the slightly raised oral carina at an acute angle. Genal index 0.6. Temple finely coriaceous and with fine disperse punctation medially. Flagellum with 50-52 segments, filiform, the apical 0.3 distinctly attenuate, 2<sup>nd</sup> segment 1.4×, shortest segment 0.9×, penultimate segment 1.2× as long as wide. Pronotum rather shining, rugose-punctate and with fine longitudinal wrinkles laterally on the dorsal 0.3, with longitudinal wrinkles ventrally. Mesoscutum and scutellum finely and rather densely punctate on a finely coriaceous and shining background. Scutellum with lateral carinae on the anterior 0.1. Prescutellar groove smooth. Prepectal carina low, ventral part merging with the pleural part, the latter complete, joining the anterior edge of the mesopleurum. Transverse carina for the greater part obliterated. Mesopleurum rather densely or densely punctate on a slightly coriaceous and shining background. Speculum punctate posteriorly, finely granulate-strigose or with fine oblique striae and shining anteriorly. Depression in front of the speculum with short longitudinal wrinkles, which merge with the punctation anteriorly. Metapleurum rather coarsely and densely rugose on a smooth background. Pleural carina complete or partly covered with wrinkles. Areolet large, pointed or short-stalked, receiving the 2<sup>nd</sup> recurrent vein at or slightly basad of the middle. Nervellus reclivous, distinctly intercepted. Nervellar index 0.6. Tibial spur index 0.7. Hind femur 4.7× as long as high. Hind tarsal claws long, with distinct pec-

tinat teeth basally and medially. Propodeum extending to 0.3 of the hind coxae, broadly and not deeply depressed, sulcus for the greater part irregularly wrinkled, sometimes with few short transverse wrinkles, often with some longitudinal wrinkles posteriorly, costulae and longitudinal carinae complete or almost complete, usually strong. Propodeal spiracle large, 2.6× as long as wide. Spiracular carina indistinct or obliterated. Spiracular index 0.5. 1<sup>st</sup> gastral tergite 2.6×, 2<sup>nd</sup> tergite 1.2× as long as wide. Petiole with large glymmae, which are bordered by strong longitudinal carinae dorsally, usually with a long row of distinct short transverse wrinkles in front of the glymmae (Fig. 35), rarely with distinct irregular wrinkles instead. Petiolar suture complete. 1<sup>st</sup> gastral sternite for the greater part coriaceous, with transverse striae posteriorly. Thyridium oval. Thyridial index about 0.5. Epipleurum separated from the 3<sup>rd</sup> gastral tergite, the crease marked with black. Epipleural index 0.7-0.8 (Fig. 39). Gaster distinctly compressed posteriorly. Ovipositor index 0.5.

Colour: Black. Maxillary palpus dark brown. Wings slightly tinged with yellow. Stigma yellowish brown medially. Front trochanter marked with yellowish red. Front femur, tibia and tarsus yellowish red. Mid femur completely yellowish red or marked with black basally. Mid tibia and tarsus yellowish red. Hind tibia for the greater part yellowish red, not darkened basally, narrowly black apically (the black ring about as long as the greatest width of the tibia). 2<sup>nd</sup> gastral tergite red on the posterior 0.1-0.3. 3<sup>rd</sup> and 4<sup>th</sup> tergites red. Pilosity of most parts of the head dark brown, of the thorax and propodeum light brown.

♂: Propodeum scarcely depressed. Maxillary palpus medium brown to light brown apically. Mandible tinged with brown medially. Wings sometimes hyaline. Pilosity of the head sometimes light brown. In other characters similar to the ♀.

**Material** (2♂♂): Russia: Irkutsk Prov.: Dachnaya (PET). Kazakhstan: Kolovertnyy (MOS).

### *Dusona nigridens* Horstmann, spec. nov.

Hinz (1994: 32) assigned the holotype (♂) of *D. nigridens* with some doubts to *D. nubilator* (♀). But *D. nigridens* differs from the latter in: Frons with a very fine median longitudinal carina. Metapleurum coriaceous and very densely punctate. Propodeum without transverse striae. Petiole smooth in front of the glymmae. Mandible black.

2<sup>nd</sup> gastral tergite dorsally red posteriorly. Posterior gastral tergites and sternites black.

**Holotype** (♂): Japan, Honshu, Mt. Takao near Hachioji/Tokyo, 16.4.1936 (AEI). This type is at the same time a paratype of *D. nubilator*.

**Description.** ♂: Body length 12 mm. Temples slightly constricted behind the eyes, 0.8× as long as the width of an eye, tangential lines on eyes and temples intersect on the propodeum. Ocellar index 0.8. Frons slightly depressed, coriaceous, finely rugose, very finely and dispersely punctate, with a very fine and partly obliterated median longitudinal carina, without radial wrinkles. Antennal carina low and narrow. Face and dorsal 0.4 of the clypeus coriaceous, very densely punctate. Clypeus flat, coriaceous and rather densely punctate ventrally, its apex truncate medially. Malar space index 0.4. Genal carina low and straight ventrally, joining the slightly raised oral carina at an acute angle. Genal index 0.4. Temple finely coriaceous and with very fine disperse punctation medially. Flagellum with 52 segments, filiform, the apical 0.3 distinctly attenuate, 2<sup>nd</sup> segment 1.7×, shortest segment 1.0×, penultimate segment 1.3× as long as wide. Pronotum densely punctate dorsolaterally in the posterior corner, with longitudinal wrinkles ventrally. Mesoscutum and scutellum coriaceous, dull, very densely punctate. Scutellum with lateral carinae on the anterior 0.4. Prescutellar groove for the greater part smooth, with few longitudinal wrinkles laterally. Prepectal carina low, ventral part merging with the pleural part, the dorsal 0.2 of the latter obliterated. Transverse carina obliterated. Mesopleurum distinctly coriaceous, densely punctate. Speculum coriaceous and granulate-strigose. Depression in front of the speculum with fine and long longitudinal striae, which merge with the punctation anteriorly. Metapleurum coriaceous, very densely punctate. Pleural carina strong. Areolet rather large, stalked, receiving the 2<sup>nd</sup> recurrent vein distinctly basad of the middle. Nervellus slightly inclivous, distinctly intercepted. Nervellar index 0.8. Tibial spur index 0.7. Hind femur 5.3× as long as high. Hind tarsal claws short, with short pectinate teeth basally. Propodeum extending to 0.3 of the hind coxae, scarcely depressed, for the greater part irregularly wrinkled, with some longitudinal wrinkles posteriorly, costulae and longitudinal carinae for the greater part obliterated. Propodeal spiracle large, 2.7× as long as wide. Spiracular carina narrow. Spiracular index 0.5. 1<sup>st</sup> gastral tergite 4.2×, 2<sup>nd</sup> tergite 2.3× as long as wide. Petiole with large glymmae, which are bordered by

longitudinal carinae dorsally, smooth in front of the glymmae. Petiolar suture complete. 1<sup>st</sup> gastral sternite for the greater part smooth, with transverse striae posteriorly. Thyridium oval. Thyridial index about 1.0. Epipleurum separated from the 3<sup>rd</sup> gastral tergite anteriorly and folded in, the crease marked with black. Epipleural index 0.3. Gaster strongly compressed posteriorly.

Colour: Black. Maxillary palpus brownish black. Wings hyaline. Stigma brownish black medially. Front femur reddish brown dorsally, black ventrally. Front tibia and tarsus yellowish red. Mid tibia yellowish red. Mid tarsus dark brown. Hind tibia yellowish red, narrowly marked with brown basally and apically. 2<sup>nd</sup> gastral tergite dorsally red on the posterior 0.2, laterally for the greater part red. 3<sup>rd</sup> to 5<sup>th</sup> tergites red, indistinctly tinged with brown dorsally.

♀ unknown.

*Dusona nigridorsum* Horstmann, spec. nov.

**Types.** Holotype (♀): Kazakhstan, Leninogorsk, Ivanovskiy Mts., 13.8.1983 (PET). – Paratype: 1♂ Russia, Kuril Isl., Kunashir, Mendeleyevo, 2.8.1981 (PET).

**Description.** ♀: Body length 8 mm. Temples strongly constricted behind the eyes, 0.7× as long as the width of an eye, tangential lines on eyes and temples intersect on the middle of the mesoscutum. Ocellar index 0.9. Frons slightly depressed, coriaceous, finely and densely rugose-punctate, with a fine median longitudinal carina, with short radial wrinkles. Antennal carina low and narrow. Face and dorsal half of the clypeus coriaceous, densely rugose-punctate. Clypeus flat, coriaceous and rather densely punctate ventrally, its apex truncate medially. Malar space index 0.4. Genal carina low and straight ventrally, joining the distinctly raised oral carina at an acute angle. Genal index 0.4. Temple finely coriaceous and with very fine disperse punctation medially. Flagellum with 48-49 segments, filiform, the apical 0.3 distinctly attenuate, 2<sup>nd</sup> segment 1.7×, shortest segment 1.0×, penultimate segment 1.4× as long as wide. Pronotum coriaceous and densely rugose-punctate laterally on the dorsal 0.4, with longitudinal wrinkles ventrally. Mesoscutum and scutellum coriaceous, densely punctate. Scutellum with lateral carinae on the anterior 0.6. Prescutellar groove smooth. Prepectal carina low, ventral part merging with the pleural part, the latter distinct, joining or almost joining the anterior edge of the mesopleurum. Transverse carina indicated ante-

*Dusona nigrina* Horstmann, spec. nov.

**Holotype** (♀): Russia, Primorye, Spassk Dalniy, 27.6.1985 (PET).

**Description.** ♀: Body length 6 mm. Temples distinctly constricted behind the eyes,  $0.6\times$  as long as the width of an eye, tangential lines on eyes and temples intersect on the scutellum. Ocellar index 1.0. Frons slightly depressed, coriaceous, very finely and rather densely punctate, with a very fine median longitudinal carina, with short and indistinct radial wrinkles. Antennal carina low and narrow. Face coriaceous, dull, with fine and indistinct punctation and with fine wrinkles. Clypeus somewhat rounded, coriaceous, dull, with fine rather dense punctation, its apex truncate medially. Malar space index 0.3. Genal carina low and straight ventrally, joining the scarcely raised oral carina at an acute angle. Genal index 0.3. Temple finely coriaceous and with very fine disperse punctation medially. Flagellum with 31 segments, filiform, the apical 0.2 slightly attenuate, 2<sup>nd</sup> segment  $2.4\times$ , shortest segment  $1.0\times$ , penultimate segment  $1.0\times$  as long as wide. Pronotum granulate-strigose and with fine punctures laterally on the dorsal 0.2, with longitudinal wrinkles ventrally. Mesoscutum coriaceous, dull, finely and densely punctate. Scutellum coriaceous, with very fine punctures, with lateral carinae on the anterior 0.3. Prescutellar groove for the greater part smooth. Prepectal carina low, ventral part merging with the pleural part, the latter complete, somewhat indistinct dorsally. Transverse carina indicated anteriorly. Mesopleurum coriaceous, dull, with fine and disperse or rather dense punctation. Speculum partly smooth, strongly shining. Depression in front of the speculum with fine longitudinal striae, which merge with the punctation anteriorly. Metapleurum coriaceous, with fine rather dense punctation. Pleural carina distinct. Areolet small, stalked, receiving the 2<sup>nd</sup> recurrent vein distinctly distad of the middle. Nervellus distinctly inclivous, weakly intercepted. Nervellar index 0.8. Tibial spur index 0.5. Hind femur  $3.7\times$  as long as high. Hind tarsal claws short, with few long pectinate teeth basally and medially. Propodeum extending to 0.3 of the hind coxae, rather narrowly depressed only medially, not depressed anteriorly and posteriorly, coriaceous anteriorly and medially, with distinct transverse wrinkles posteriorly, costulae indicated, longitudinal carinae almost completely obliterated. Propodeal spiracle rather small,  $1.8\times$  as long as wide. Spiracular carina partly widened. Spiracular index 0.5. 1<sup>st</sup> gastral tergite  $3.7\times$ , 2<sup>nd</sup> tergite  $1.5\times$  as long as wide. Petiole with small but

riorly. Mesopleurum distinctly coriaceous, with rather fine and rather dense or dense punctation. Speculum coriaceous, rather dull. Depression in front of the speculum coriaceous, with very fine longitudinal striae or short wrinkles dorsally. Metapleurum finely and densely punctate on a finely coriaceous and shining background. Pleural carina distinct. Areolet large, stalked, receiving the 2<sup>nd</sup> recurrent vein basad of the middle. Nervellus vertical, weakly intercepted. Nervellar index 0.8. Tibial spur index 0.6. Hind femur  $4.9\times$  as long as high. Hind tarsal claws short, with distinct pectinate teeth basally and medially. Propodeum extending to 0.3 of the hind coxae, rather broadly and not deeply depressed, the sulcus for the greater part finely and irregularly wrinkled, with distinct transverse wrinkles posteriorly, costulae partly present, longitudinal carinae indicated medially and posteriorly, obliterated anteriorly. Propodeal spiracle rather small,  $4.6\times$  as long as wide. Spiracular carina narrow. Spiracular index 0.2. 1<sup>st</sup> gastral tergite  $3.9\times$ , 2<sup>nd</sup> tergite  $1.7\times$  as long as wide. Petiole with large glymmae, which are bordered by longitudinal carinae dorsally, smooth in front of the glymmae. Petiolar suture obliterated. 1<sup>st</sup> gastral sternite smooth. Thyridium oval. Thyridial index about 1.5. Epipleurum indicated as a small triangular lobe anteriorly on the ventrolateral edge of the 3<sup>rd</sup> gastral tergite, epipleurum pendent in the ♀ holotype (but apparently folded in in the ♂ paratype), the crease not marked with black, the tergite with distinct black lateral stripes well above the ventrolateral edge (Fig. 41). Epipleural index about 0.2. Gaster distinctly compressed posteriorly. Ovipositor index 0.7.

Colour: Black. Maxillary palpus dark brown, tinged with yellowish brown apically. Mandible narrowly marked with yellow dorsally and medially. Wings hyaline. Stigma dark brown medially. Front femur yellowish red, marked with black ventrally. Front tibia and tarsus yellow. Mid femur yellowish red on the apical 0.2. Mid tibia and tarsus dark yellowish brown. Hind tibia blackish, marked with dark yellowish brown medially on the dorsal side. 3<sup>rd</sup> gastral tergite narrowly black dorsally, broadly marked with red laterally. 4<sup>th</sup> tergite broadly black dorsally, half red in lateral view. Posterior sternites dark brown. Pilosity whitish.

♂: 2<sup>nd</sup> gastral tergite marked with red laterally. 5<sup>th</sup> tergite narrowly marked with red laterally. Posterior sternites and genital clasper reddish brown. In other characters similar to the ♀.

distinct glymmae, smooth in front of the glymmae. Petiolar suture almost complete. 1<sup>st</sup> gastral sternite smooth. Thyridium oval. Thyridial index about 2.0. Epipleurum separated from the 3<sup>rd</sup> gastral tergite, the crease marked with black. Epipleural index 0.7. Gaster somewhat compressed posteriorly. Ovipositor index 0.8.

Colour: Black. Maxillary palpus yellow. Mandible almost completely yellow. Tegula yellow. Wings hyaline. Stigma light brown medially. Front and mid legs from the trochanter onwards yellow, the mid trochanter marked with black, the femora yellowish red. Hind tibia whitish yellow medially, narrowly black basally, broadly black apically. Hind tarsus for the greater part dark brown, marked with yellowish brown basally. Pilosity whitish.

♂ unknown.

*Dusona nigrotibialis* Horstmann, spec. nov.

**Holotype** (♀): China, Hebei Prov., Qilaotu Shan Mts., N of Chengde, 1600 m, 1.6.2000 (LIN).

**Description.** ♀: Body length 7 mm. Temples strongly constricted behind the eyes, 0.9× as long as the width of an eye, tangential lines on eyes and temples intersect on the scutellum. Ocellar index 1.0. Frons slightly depressed, coriaceous, partly with very fine wrinkles, with a fine and partly obliterated median longitudinal carina, with few short radial wrinkles. Antennal carina low and narrow. Face and dorsal half of the clypeus coriaceous, finely and densely rugose-punctate. Clypeus slightly rounded, coriaceous and rather densely punctate ventrally, its apex truncate medially. Malar space index 0.3. Genal carina low and straight ventrally, joining the low oral carina at an acute angle. Genal index 0.3. Temple finely coriaceous and with very fine disperse punctation medially. Flagellum with 35 segments, slightly fusiform, 2<sup>nd</sup> segment 1.8×, shortest segment 0.8×, penultimate segment 1.0× as long as wide. Pronotum coriaceous and with fine wrinkles laterally on the dorsal 0.3, with longitudinal wrinkles ventrally. Mesoscutum and scutellum coriaceous, densely punctate. Scutellum with lateral carinae on the anterior 0.4. Prescutellar groove smooth. Prepectal carina low, ventral part merging with the pleural part, the latter complete, joining the anterior edge of the mesopleurum. Transverse carina present anteriorly, low. Mesopleurum coriaceous, with fine and rather dense or dense punctation. Speculum finely coriaceous, shining. Depression in front of the speculum with fine and long longi-

tudinal striae, which merge with the punctation anteriorly. Metapleurum coriaceous, with fine irregular wrinkles, partly finely rugose-punctate. Pleural carina distinct. Areolet rather large, pointed, receiving the 2<sup>nd</sup> recurrent vein distinctly distad of the middle. Nervellus inclivous, distinctly intercepted. Nervellar index 0.7. Tibial spur index 0.6. Hind femur 4.7× as long as high. Hind tarsal claws short, with distinct pectinate teeth basally and medially. Propodeum extending to 0.3 of the hind coxae, rather broadly and not deeply depressed, the rather shallow sulcus for the greater part coriaceous and with some fine irregular wrinkles, with distinct longitudinal wrinkles posteriorly, carinae almost completely obliterated. Propodeal spiracle rather large, 2.2× as long as wide. Spiracular carina widened. Spiracular index 0.4. 1<sup>st</sup> gastral tergite 3.2×, 2<sup>nd</sup> tergite 1.6× as long as wide. Petiole with large glymmae, which are bordered by longitudinal carinae dorsally, smooth in front of the glymmae. Petiolar suture almost complete. 1<sup>st</sup> gastral sternite smooth. Thyridium indistinct, oval. Thyridial index about 1.0. Epipleurum separated from the 3<sup>rd</sup> gastral tergite, the crease marked with black. Epipleural index 0.6. Gaster distinctly compressed posteriorly. Ovipositor index 0.8.

Colour: Black. Maxillary palpus brown basally, yellow medially and apically. Mandible broadly yellow medially. Wings hyaline. Stigma yellowish brown medially. Front femur black basally and ventrally, yellowish brown dorsally and apically. Front tibia and tarsus yellow. Mid tibia and tarsus yellowish brown. 2<sup>nd</sup> gastral tergite red on the posterior 0.2. 3<sup>rd</sup> tergite for the greater part red, dorsally marked with black posteriorly. Pilosity whitish.

♂ unknown.

*Dusona nitidipleuris* Horstmann, spec. nov.

The species is similar to *D. variator*, it differs from the latter in: Mesopleurum and metapleurum less strongly sculptured and more shining. Propodeum without a medium longitudinal keel posteriorly. Red markings on the gaster more extended.

**Holotype** (♀): Russia, Primorye, Ussuriysk, 6. 1929 (MOS).

**Description.** ♀: Body length 9 mm. Temples slightly constricted behind the eyes, 0.8× as long as the width of an eye, tangential lines on eyes and temples intersect on the propodeum. Ocellar index 0.9. Frons scarcely depressed, coriaceous, fine-

ly and densely punctate, with short radial wrinkles, a median longitudinal carina weakly indicated by some wrinkles. Antennal carina low and narrow. Face and dorsal 0.6 of the clypeus coriaceous, finely and densely rugose-punctate. Clypeus flat, coriaceous and rather densely punctate ventrally, its apex almost truncate medially. Malar space index 0.4. Genal carina low and almost straight ventrally, joining the slightly raised oral carina at an acute angle. Genal index 0.5. Temple finely coriaceous and with very fine disperse punctation medially. Flagellum with at least 42 segments (both flagellar tips broken off in the only available specimen), filiform, the apical 0.3 attenuate, 2<sup>nd</sup> segment 1.7×, shortest segment 0.9× as long as wide. Pronotum with dense and irregular wrinkles laterally on the dorsal 0.4, with longitudinal wrinkles ventrally. Mesoscutum coriaceous, densely rugose-punctate. Scutellum finely coriaceous, densely punctate, with lateral carinae on the anterior 0.4. Prescutellar groove almost smooth medially, with longitudinal striae laterally. Prepectal carina low, ventral part merging with the pleural part, the latter almost joining the anterior edge of the mesopleurum. Transverse carina obliterated. Mesopleurum finely and rather densely punctate on a finely coriaceous and shining background. Speculum coriaceous and finely granulate-strigose, somewhat shining. Depression in front of the speculum with distinct rather short longitudinal striae, which merge with the punctation anteriorly. Metapleurum finely rugose, with very fine sculpture and shining centrally. Pleural carina complete. Areolet rather large, short-stalked, receiving the 2<sup>nd</sup> recurrent vein distad of the middle. Nervellus slightly inclivous, distinctly intercepted. Nervellar index 0.8. Tibial spur index 0.7. Hind femur 4.5× as long as high. Hind tarsal claws short, with distinct pectinate teeth basally. Propodeum extending to 0.4 of the hind coxae, scarcely depressed, for the greater part with fine irregular wrinkles, rather shining, with distinct transverse wrinkles posteriorly, carinae almost completely obliterated. Propodeal spiracle rather large, 3.5× as long as wide. Spiracular carina narrow. Spiracular index 0.4. 1<sup>st</sup> gastral tergite 3.0×, 2<sup>nd</sup> tergite 2.0× as long as wide. Petiole with distinct glymmae, which are bordered by longitudinal carinae dorsally, smooth in front of the glymmae. Petiolar suture partly obliterated. 1<sup>st</sup> gastral sternite for the greater part smooth, with fine transverse striae posteriorly. Thyridium oval. Thyridial index about 2.0. Epipleurum not separated from the 3<sup>rd</sup> gastral tergite, the latter with distinct black lateral stripes well above the ventrolateral edge. Gaster distinctly compressed posteriorly. Ovipositor index 0.5.

Colour: Black. Maxillary palpus dark brown. Mandible narrowly tinged with brown medially. Wings hyaline. Stigma medium brown medially. Front femur yellowish red, marked with black ventrally. Front tibia and tarsus yellow. Mid femur yellow on the apical 0.2. Mid tibia yellow, darkened ventrally. Mid tarsus dark brown. 2<sup>nd</sup> gastral tergite red on the posterior 0.3. 3<sup>rd</sup> and 4<sup>th</sup> tergites red. Pilosity whitish.

♂ unknown.

*Dusona norikurae* Hinz & Horstmann,  
spec. nov.

This is a variable and poorly defined species.

**Types.** Holotype (♀): Japan, Honshu, Norikuradake, 2000 m, 30.7.1954 (AEI). – Paratypes: 1♀ same locality, 2200 m, 29.7.1954 (Hinz/ZSM); 1♀ Japan, Hokkaido, Gorinzawa, 24.6.1944 (SAP); 1♀ Russia, Primorye, Ussuriysk, 17.7.1981 (PET); 1♀ Russia, Chita Prov., Nerchinskii Zavod, 20.7.1975 (PET); 2♂♂ Japan, Honshu, Tachikawa, 2.5.1931 (1♂ AEI, 1♂ Hinz/ZSM); 1♂ Japan, Hokkaido, Sapporo, Maruyama, 28.6.1957 (SAP); 1♂ Russia, Khabarovsk Terr., Khekhtsir, near Khabarovsk, 4.7.1983 (PET).

**Description.** ♀: Body length 8-12 mm. Temples strongly constricted behind the eyes, 0.7× as long as the width of an eye, tangential lines on eyes and temples intersect on the posterior half of the mesoscutum. Ocellar index 0.8. Frons slightly depressed, coriaceous, finely rugose-punctate, with a fine median longitudinal carina, with short radial wrinkles, which extend to 0.3 the distance to the median ocellus. Antennal carina very low and narrow. Face and dorsal 0.6 of the clypeus densely rugose-punctate. Clypeus flat, coriaceous and dispersely punctate ventrally, its apex truncate medially. Malar space index 0.3. Genal carina low and rather straight ventrally, joining the scarcely raised oral carina at an acute angle. Genal index 0.4. Temple finely coriaceous and with fine disperse punctation medially. Flagellum with 43-49 segments, filiform, the apical 0.3 distinctly attenuate, 2<sup>nd</sup> segment 1.9×, shortest segment 1.0×, penultimate segment 1.3× as long as wide. Pronotum densely rugose-punctate laterally on the dorsal 0.2, with longitudinal wrinkles ventrally. Mesoscutum and scutellum coriaceous, densely punctate. Scutellum with lateral carinae on the anterior 0.6. Prescutellar groove smooth or with fine longitudinal wrinkles. Prepectal carina low, ventral part merging with the pleural part, the

latter complete, joining the anterior edge of the mesopleurum. Transverse carina obliterated. Mesopleurum distinctly coriaceous, densely or rather densely punctate. Speculum granulate-strigose, shining. Depression in front of the speculum with fine and long longitudinal striae, which merge with the punctuation anteriorly, or almost completely coriaceous without striae. Metapleurum with fine and dense irregular wrinkles or densely rugose-punctate. Pleural carina distinct. Areolet large, short-stalked, receiving the 2<sup>nd</sup> recurrent vein basad of the middle. Nervellus slightly inclivous, intercepted. Nervellar index 0.7. Tibial spur index 0.6. Hind femur 5.8× as long as high. Hind tarsal claws rather long, with distinct pectinate teeth basally and medially. Propodeum extending to 0.4 of the hind coxae, distinctly and rather broadly depressed, sulcus for the greater part irregularly wrinkled and dull, with some transverse wrinkles posteriorly, costulae and longitudinal carinae obliterated or partly indicated. Propodeal spiracle large, 2.6× as long as wide. Spiracular carina narrow. Spiracular index 0.3. 1<sup>st</sup> gastral tergite 4.1×, 2<sup>nd</sup> tergite 2.3× as long as wide. Petiole with distinct and rather large glymmae, finely coriaceous or almost smooth in front of the glymmae. Petiolar suture indicated. 1<sup>st</sup> gastral sternite for the greater part smooth, with short transverse striae posteriorly. Thyridium oval. Thyridial index about 2.0. Epipleurum separated from the 3<sup>rd</sup> gastral tergite anteriorly, either folded in or pendent as a narrow rectangular lobe, with a black lateral stripe parallel with the ventrolateral edge in a short distance. Epipleural index 0.2. Gaster distinctly compressed posteriorly. Ovipositor index 0.5.

Colour: Black. Maxillary palpus brownish black. Wings hyaline. Stigma medium brown medially. Front femur yellowish red dorsally. Front tibia and tarsus yellowish red. Mid femur tinged with brown apically. Mid tibia yellowish brown. Hind tibia blackish, sometimes tinged with dark brown medially. 2<sup>nd</sup> gastral tergite dorsally black, laterally marked with red subapically, sometimes almost completely black. 3<sup>rd</sup> and 4<sup>th</sup> tergites red. 5<sup>th</sup> tergite narrowly marked with red anteriorly. Pilosity whitish.

♂: Maxillary palpus dark brown basally, yellowish brown apically. Tip of the front coxa and front trochanter yellow or black. Mid femur marked with yellow. Mid tibia yellow. 3<sup>rd</sup> and 4<sup>th</sup> gastral tergites sometimes marked with black dorsally. In other characters similar to the ♀.

So far, the holotype (♀) is the only known specimen belonging to this species. One paratype (♀) could not be located. The other paratype (♂) is described as a separate species (*D. nigridens*). *D. nubilator* is similar to *D. peptor*, it differs from the latter in: Temples shorter and more constricted behind the eyes. Wings hyaline. Gaster less extensively marked with red.

**Description.** ♀: Body length 12 mm. Temples distinctly constricted behind the eyes, 0.8× as long as the width of an eye, tangential lines on eyes and temples intersect on the scutellum. Ocellar index 0.9. Frons slightly depressed, coriaceous, finely and densely rugose-punctate, with a distinctly raised median longitudinal carina, with short radial wrinkles. Antennal carina low and narrow. Face and dorsal half of the clypeus coriaceous, finely and densely rugose-punctate. Clypeus flat, coriaceous and dispersely or rather densely punctate ventrally, its apex truncate medially. Malar space index 0.4. Genal carina low and straight ventrally, joining the slightly raised oral carina at an acute angle. Genal index 0.4. Temple finely coriaceous and with very fine disperse punctuation medially. Flagellum with 50 segments, filiform, the apical 0.2 distinctly attenuate, 2<sup>nd</sup> segment 1.8×, shortest segment 1.0×, penultimate segment 1.4× as long as wide. Pronotum densely rugose-punctate laterally on the dorsal 0.2, with longitudinal wrinkles ventrally. Mesoscutum coriaceous, very densely punctate. Scutellum coriaceous, dispersely or rather densely punctate, with lateral carinae on the anterior half. Prescutellar groove with fine longitudinal striae. Prepectal carina low, ventral part merging with the pleural part, the latter complete, joining the anterior edge of the mesopleurum. Transverse carina present anteriorly. Mesopleurum distinctly coriaceous, distinctly and densely punctate. Speculum coriaceous and granulate-strigose, shining. Depression in front of the speculum with fine and long longitudinal striae, which merge with the punctuation anteriorly. Metapleurum densely and finely rugose. Pleural carina strong. Areolet rather large, short-stalked, receiving the 2<sup>nd</sup> recurrent vein slightly basad of the middle. Nervellus distinctly inclivous, distinctly intercepted. Nervellar index 0.8. Tibial spur index 0.7. Hind femur 5.3× as long as high. Hind tarsal claws short, with distinct pectinate teeth basally and medially. Propodeum extending to 0.3 of the hind coxae, not deeply depressed, sulcus narrow anteriorly, broad posteriorly, more

irregularly wrinkled anteriorly and medially, distinctly transversely wrinkles posteriorly, costulae partly present, longitudinal carinae distinct medially and posteriorly. Propodeal spiracle large,  $2.9\times$  as long as wide. Spiracular carina narrow. Spiracular index 0.5. 1<sup>st</sup> gastral tergite  $3.3\times$ , 2<sup>nd</sup> tergite  $1.5\times$  as long as wide. Petiole with large glymmae, which are bordered by longitudinal carinae dorsally, finely coriaceous in front of the glymmae, with dorsolateral longitudinal carinae and some distinct transverse wrinkles anteriorly. Petiolar suture almost complete. 1<sup>st</sup> gastral sternite coriaceous anteriorly, smooth medially, transversely striate posteriorly. Thyridium oval. Thyridial index about 2.0. Epipleurum separated from the 3<sup>rd</sup> gastral tergite anteriorly and folded in, a black lateral stripe parallel with the crease in a short distance anteriorly, divergent from the ventrolateral edge of the tergite posteriorly. Epipleural index 0.2. Gaster distinctly compressed posteriorly. Ovipositor index 0.5.

Colour: Black. Maxillary palpus black basally, yellowish brown apically. Mandible broadly marked with yellowish brown medially. Wings hyaline. Stigma dark brown medially. Front trochanter brown, marked with black. Front femur yellowish red, marked with dark brown ventrally. Front tibia and tarsus yellow. Mid femur yellowish red dorsally, black ventrally. Mid tibia yellowish. Mid tarsus medium to dark brown. Hind tibia yellowish brown medially, narrowly marked with black basally, rather broadly marked with dark brown apically (the dark apical mark being broader dorsally than ventrally). 2<sup>nd</sup> gastral tergite black dorsally, narrowly marked with red laterally. 3<sup>rd</sup> and 4<sup>th</sup> tergites red, tinged with brown dorsally. 5<sup>th</sup> tergite red, marked with black dorsally. Posterior tergites for the greater part black, narrowly marked with red ventrolaterally. Posterior gastral sternites reddish brown, marked with black. Pilosity whitish.

♂ unknown.

**Material** (1♀): Japan: Honshu: Sasayama (SAP).

### *Dusona obliterated* (Holmgren, 1872)

**Description.** ♀: Body length 14-17 mm. Temples strongly constricted behind the eyes,  $0.7\times$  as long as the width of an eye, tangential lines on eyes and temples intersect on the posterior half of the mesoscutum. Ocellar index 1.0. Frons slightly depressed, coriaceous and rather densely punctate dorsally, finely coriaceous and rather shining ventrally, with a fine and partly obliterated median

longitudinal carina, with distinct radial wrinkles, which extend to 0.3 the distance to the median ocellus. Antennal carina low, the rim slightly bent upwards and slightly transversely striate. Face and dorsal 0.7 of the clypeus coriaceous, coarsely and densely punctate. Clypeus almost flat, coriaceous and rather densely punctate ventrally, its apex truncate medially. Malar space index 0.3. Genal carina slightly raised and slightly bent sideways ventrally, joining the slightly raised oral carina at an acute angle. Gena slightly depressed close to the junction (a variable character). Genal index 0.4. Temple finely coriaceous and with very fine disperse punctation medially. Flagellum with 59-66 segments, filiform, the apical 0.4 distinctly attenuate, 2<sup>nd</sup> segment  $1.5\times$ , shortest segment  $0.9\times$ , penultimate segment  $1.6\times$  as long as wide. Pronotum coriaceous and densely rugose-punctate laterally on the dorsal 0.3, with longitudinal wrinkles ventrally. Mesoscutum and scutellum coriaceous, dull, rather densely or densely punctate. Scutellum with lateral carinae on the anterior 0.7. Prescutellar groove smooth medially, with fine longitudinal striae laterally. Prepectal carina low, ventral part merging with the pleural part, the latter almost complete, the dorsal 0.1-0.2 often replaced by several wrinkles. Transverse carina complete or partly obliterated. Mesopleurum rather densely or densely punctate on a finely coriaceous and shining background. Speculum finely coriaceous, rather shining. Depression in front of the speculum dorsally with fine longitudinal striae, which merge with the punctation anteriorly, the ventral 0.4 granulate-strigose. Metapleurum densely rugose, sometimes coriaceous and very densely punctate. Pleural carina distinct. Areolet large, pointed, receiving the 2<sup>nd</sup> recurrent vein slightly basad of the middle. Nervellus almost vertical, strongly intercepted. Nervellar index 0.7. Tibial spur index 0.5. Hind femur  $5.5\times$  as long as high. Hind tarsal claws short, with distinct pectinate teeth basally and medially. Propodeum extending to 0.4 of the hind coxae, broadly and deeply depressed, sulcus coriaceous in the midline, with irregular or transverse wrinkles at the sides, with some transverse wrinkles posteriorly, costulae partly obliterated, longitudinal carinae obliterated anteriorly and medially, strong posteriorly. Propodeal spiracle large,  $4.0\times$  as long as wide. Spiracular carina narrow. Spiracular index 0.3. 1<sup>st</sup> gastral tergite  $4.6\times$ , 2<sup>nd</sup> tergite  $2.0\times$  as long as wide. Petiole with distinct glymmae, smooth in front of the glymmae. Petiolar suture partly obliterated. 1<sup>st</sup> gastral sternite smooth. Thyridium oval. Thyridial index about 1.5. Epipleurum not separated from the 3<sup>rd</sup> gastral tergite, the latter without

black lateral stripes. Gaster strongly compressed posteriorly. Ovipositor index 0.5.

Colour: Black. Maxillary palpus yellowish brown. Mandible yellow medially. Tegula yellowish brown. Wings hyaline. Stigma yellowish brown medially. Tip of front coxa yellow. Front trochanter and femur yellowish red. Front tibia and tarsus for the greater part yellow. Mid femur yellowish red on the apical 0.3. Mid tibia yellow. Mid tarsus brown. Hind femur yellowish red on the apical 0.2. Hind tibia yellow, marked with red apically. Hind tarsus dark brown. 2<sup>nd</sup> gastral tergite dorsally black or red on the posterior 0.2, almost completely red laterally. 3<sup>rd</sup> and 4<sup>th</sup> tergites light red. 5<sup>th</sup> tergite marked with light red anteriorly and/or ventrolaterally. Posterior gastral sternites marked with red. Pilosity whitish.

♂: Longitudinal carinae of propodeum sometimes present medially. 3<sup>rd</sup> and 4<sup>th</sup> gastral tergites sometimes marked with black dorsally. In other characters similar to the ♀.

**Material** (2♀): Russia: Irkutsk Prov.: Lake Baykal, Irkutsk (PET).

*Dusona obscurator* Horstmann, spec. nov.

**Types.** Holotype (♂): Russia, Primorye, Vladivostok, 23.6.1985 (PET). – Paratype: 1♂ Russia, Primorye, Pozhiga SO of Dalnerechensk, 25.7.1983 (Hinz/ZSM).

**Description.** ♂: Body length 10-11 mm. Temples strongly constricted behind the eyes, 0.7× as long as the width of an eye, tangential lines on eyes and temples intersect on the posterior half of the mesoscutum. Ocellar index 0.8. Frons slightly depressed, coriaceous, finely and densely rugose-punctate, with a fine median longitudinal carina, with short radial wrinkles. Antennal carina low and narrow. Face and dorsal 0.7 of the clypeus coriaceous, finely and densely rugose-punctate. Clypeus flat, coriaceous and rather densely punctate ventrally, its apex truncate medially. Malar space index 0.4. Genal carina low and rather straight ventrally, joining the distinctly raised oral carina at an acute angle. Genal index 0.7. Temple finely coriaceous and with very fine disperse punctation medially. Flagellum with 46-48 segments, filiform, the apical 0.2 attenuate, 2<sup>nd</sup> segment 2.0×, shortest segment 1.0-1.1×, penultimate segment 1.5× as long as wide. Pronotum densely rugose-punctate laterally on the dorsal 0.3, with longitudinal wrinkles ventrally. Mesoscutum and scutellum coriaceous, densely punctate. Scutellum with lateral carinae

on the anterior 0.3. Prescutellar groove almost smooth. Prepectal carina low, ventral part merging with the pleural part, the latter distinctly joining the anterior edge of the mesopleurum. Transverse carina indicated anteriorly. Mesopleurum finely but distinctly coriaceous, densely punctate. Speculum granulate-strigose. Depression in front of the speculum with fine longitudinal striae and wrinkles, which merge with the punctation anteriorly. Metapleurum coriaceous, densely rugose-punctate. Pleural carina strong. Areolet large, short-stalked, receiving the 2<sup>nd</sup> recurrent vein slightly distad of the middle. Nervellus slightly reclivous, distinctly intercepted. Nervellar index 0.7. Tibial spur index 0.7. Hind femur 5.1× as long as high. Hind tarsal claws short, with short pectinate teeth basally. Propodeum extending to 0.3 of the hind coxae, slightly and rather narrowly depressed, for the greater part with rather fine irregular wrinkles, with some longitudinal wrinkles posteriorly, costulae and longitudinal carinae complete. Propodeal spiracle rather large, 2.9× as long as wide. Spiracular carina narrow. Spiracular index 0.6. 1<sup>st</sup> gastral tergite 3.7×, 2<sup>nd</sup> tergite 2.0× as long as wide. Petiole with distinct glymmae, which are bordered by longitudinal carinae dorsally, with some fine longitudinal wrinkles in front of the glymmae, with some transversal wrinkles anteriorly. Petiolar suture distinct. 1<sup>st</sup> gastral sternite coriaceous and dull anteriorly, transversely striate posteriorly. Thyridium oval. Thyridial index about 1.0. Epipleurum separated from the 3<sup>rd</sup> gastral tergite, the crease marked with black. Epipleural index 0.9. Gaster distinctly compressed posteriorly.

Colour: Black. Mandible completely black or narrowly marked with yellowish brown dorsally. Wings hyaline. Stigma medium brown medially. Front leg from the femur onwards yellowish red, femur marked with dark brown ventrally. Mid femur yellowish brown on the apical 0.2. Mid tibia yellowish brown. 2<sup>nd</sup> gastral tergite reddish brown on the posterior 0.1. 3<sup>rd</sup> tergite broadly black dorsally, about half reddish brown in lateral view. 4<sup>th</sup> tergite tinged with brown laterally. Pilosity whitish.

♀ unknown.

*Dusona obscuripes* Horstmann, spec. nov.

**Holotype** (♂): Russia, Kamchatka, Dalniy, 50 km W of Yelizovo, 2.8.1967 (PET).

**Description.** ♂: Body length 9 mm. Temples distinctly constricted behind the eyes, 0.8× as long as the width of an eye, tangential lines on eyes and temples intersect on the scutellum. Ocellar index 0.7. Frons not depressed, coriaceous, densely rugose-punctate, with a distinct and slightly raised median longitudinal carina, with short and indistinct radial wrinkles. Antennal carina low and narrow. Face and dorsal 0.7 of the clypeus coriaceous, densely rugose. Clypeus flat, finely coriaceous and densely punctate ventrally, its apex truncate medially. Malar space index 0.5. Genal carina low ventrally, slightly bent sideways and forwards, joining the oral carina at the base of the mandible almost at a right angle. Temple finely coriaceous and with very fine disperse punctation medially. Flagellum with 39 segments, filiform, the apical 0.2 distinctly attenuate, 2<sup>nd</sup> segment 1.7×, shortest segment 1.0×, penultimate segment 1.4× as long as wide. Pronotum densely rugose-punctate laterally on the dorsal 0.3, with longitudinal wrinkles ventrally. Mesoscutum coriaceous, very densely punctate. Scutellum densely rugose-punctate, with lateral carinae on the anterior 0.4. Prescutellar groove with fine longitudinal striae. Ventral part of the prepectal carina merging with the transverse carina, both carinae rather low. Pleural part of the prepectal carina obliterated dorsally and ventrally, the median 0.3 present as a wrinkle. Mesopleurum very densely punctate, partly rugose, on a finely coriaceous or almost smooth background. Speculum and depression in front of the speculum with long longitudinal striae and wrinkles, which merge with the punctation anteriorly. Metapleurum distinctly irregularly wrinkled. Pleural carina partly indistinct and covered with wrinkles. Areolet rather large, short-stalked, receiving the 2<sup>nd</sup> recurrent vein distinctly distad of the middle. Nervellus distinctly inclivous, intercepted. Nervellar index 0.7. Tibial spur index 0.7. Hind femur 5.3× as long as high. Hind tarsal claws short, with short pectinate teeth basally. Propodeum extending to 0.6 of the hind coxae, distinctly but narrowly and not deeply depressed, with short transverse wrinkles in the narrow longitudinal furrow, coarsely and irregularly wrinkled beside the furrow, costulae almost complete, median longitudinal carinae present anteriorly, covered with wrinkles medially and posteriorly, lateral longitudinal carinae present. Propodeal spiracle small, 1.8× as long as wide. Spiracular

carina narrow and indistinct. Spiracular index 0.7. 1<sup>st</sup> gastral tergite 5.4×, 2<sup>nd</sup> tergite 2.7× as long as wide. Petiole without glymmae or narrow lateral areas, smooth laterally. Petiolar suture for the greater part obliterated. 1<sup>st</sup> gastral sternite for the greater part smooth, with transverse striae posteriorly. Thyridium elongate. Thyridial index about 1.5. Epipleurum not separated from the 3<sup>rd</sup> gastral tergite, the latter with distinct black lateral stripes well above the ventrolateral edge. Gaster distinctly compressed posteriorly.

Colour: Black. Maxillary palpus medium brown basally, yellowish brown medially and apically. Mandible broadly yellow medially. Wings hyaline. Stigma dark brown medially. Front femur dark reddish brown dorsally and apically. Front tibia and tarsus dark yellowish brown. 2<sup>nd</sup> gastral tergite red on the posterior 0.1. 3<sup>rd</sup> and 4<sup>th</sup> tergites red, partly tinged with dark brown. Pilosity whitish.

♀ unknown.

*Dusona obtutor* Hinz, 1994

This species is not well understood. The association of the sexes is not beyond all doubt.

**Description.** ♀: Body length 10 mm. Temples strongly constricted behind the eyes, 0.6× as long as the width of an eye, tangential lines on eyes and temples intersect on the middle of the mesoscutum. Ocellar index 0.4. Frons slightly depressed, coriaceous, finely and densely rugose-punctate, with a fine median longitudinal carina, with few indistinct radial wrinkles. Antennal carina low and narrow. Face and dorsal 0.4 of the clypeus coriaceous, finely and densely rugose-punctate. Clypeus slightly concave, finely coriaceous and rather densely punctate ventrally, its apex truncate or slightly concave medially. Malar space index 0.3. Genal carina low and straight ventrally, joining the distinctly raised oral carina at an acute angle. Genal index 0.4. Temple finely coriaceous and with fine disperse punctation medially. Flagellum with 43 segments, filiform, the apical 0.3 attenuate, 2<sup>nd</sup> segment 2.6×, shortest segment 1.2×, penultimate segment 1.4× as long as wide. Pronotum densely rugose-punctate laterally on the dorsal 0.3, with longitudinal wrinkles ventrally. Mesoscutum and scutellum coriaceous, very densely punctate. Scutellum with lateral carinae on the anterior 0.7. Prescutellar groove with longitudinal striae. Prepectal carina low, ventral part merging with the pleural part, the dorsal 0.3 of the latter obliterated. Transverse carina present only anteri-

only. Mesopleurum coriaceous, dull, very densely punctate. Speculum finely granulate-strigose, shining. Depression in front of the speculum dorsally with distinct longitudinal striae, the ventral 0.2 with very fine striae, the striae merging with the punctation anteriorly. Metapleurum densely rugose. Pleural carina distinct. Areolet rather small, stalked, receiving the 2<sup>nd</sup> recurrent vein slightly distad of the middle. Nervellus slightly reclivous, weakly intercepted. Nervellar index 0.7. Tibial spur index 0.5. Hind femur 5.2× as long as high. Hind tarsal claws short, with short pectinate teeth basally. Propodeum extending to the middle of the hind coxae, distinctly but not deeply and rather narrowly depressed, sulcus for the greater part with transverse wrinkles, costulae complete, longitudinal carinae present medially and posteriorly, obliterated anteriorly. Propodeal spiracle large, 4.6× as long as wide. Spiracular carina partly widened. Spiracular index 0.4. 1<sup>st</sup> gastral tergite 4.4×, 2<sup>nd</sup> tergite 2.1× as long as wide. Petiole without glymmae, with indistinct narrow lateral areas, with very fine longitudinal striae in front of these areas, partly smooth. Petiolar suture for the greater part obliterated. 1<sup>st</sup> gastral sternite for the greater part with very fine sculpture, with few transverse striae posteriorly. Thyridium elongate. Thyridial index 1.3. Epipleurum not separated from the 3<sup>rd</sup> gastral tergite, the latter with distinct black lateral stripes well above the ventrolateral edge. Gaster distinctly compressed posteriorly. Ovipositor index 0.5.

Colour: Black. Maxillary palpus medium brown, partly marked with yellow. Mandible narrowly marked with yellowish brown dorsally. Wings hyaline. Stigma dark brown medially. Front femur marked with yellowish brown on the apical 0.3. Front tibia and tarsus yellowish brown. Mid leg brownish black, the tibia marked with yellow basally and apically. 2<sup>nd</sup> gastral tergite red on the posterior 0.1. 3<sup>rd</sup> tergite red. 4<sup>th</sup> and 5<sup>th</sup> tergites marked with red anteriorly. Pilosity whitish.

♂: Body length 9 mm. Flagellum with 41-42 segments, 2<sup>nd</sup> segment 1.8×, shortest segment 1.1×, penultimate segment 1.4× as long as wide. Metapleurum coriaceous and very densely punctate. Propodeum rather shallowly depressed. Propodeal spiracle 3.0× as long as wide. Spiracular carina narrow. Spiracular index 0.6. Maxillary palpus yellow. Mandible broadly yellow medially. Front leg from the tip of the coxa onwards yellowish red. Mid femur yellowish brown on the apical 0.3. Mid tibia yellowish brown. 2<sup>nd</sup> gastral tergite completely black dorsally. 3<sup>rd</sup> tergite narrowly marked with black dorsally. In other characters similar to the ♀. The differences from the ♀ might be interpreted as sexual differences.

**Material** (1♀, 2♂♂): Japan: Honshu: Kamikochi near Norikura-dake (AEI), Kyoto (SAP), Norikura-dake, 1500 m (Hinz/ZSM).

**Variety:** Body length 7 mm. Flagellum with 39 segments. Glymmae present, but small and shallow. 3<sup>rd</sup> and 4<sup>th</sup> gastral tergites completely red. Material: 1♀ Japan, Hokkaido, Sapporo (SAP). This ♀ is a paratype of *D. micrator*. Its status is unknown.

#### *Dusona okadai* (Uchida, 1942)

**Description.** ♀: Body length 11-13 mm. Temples distinctly constricted behind the eyes, 0.9× as long as the width of an eye, tangential lines on eyes and temples intersect on the scutellum. Ocellar index 1.0. Frons deeply depressed above the antennal carinae, densely rugose-punctate dorsally, almost smooth and with some distinct radial wrinkles in the depressions, with a distinct median longitudinal bulge between the depressions and with a distinct longitudinal carina on top of this bulge. Antennal carina strongly raised, with a strong dorsal projection (nose-like) and with fine transverse striae on this projection. Face and clypeus densely rugose-punctate and rugose. Clypeus flat, its apex slightly convex medially. Malar space index 0.3. Genal carina low and almost straight ventrally, joining the slightly raised oral carina at an acute angle. Genal index 0.6. Temple finely coriaceous and with rather dense punctation medially. Flagellum with 56-60 segments, filiform, the apical 0.3 distinctly attenuate, 2<sup>nd</sup> segment 1.4×, shortest segment 0.9×, penultimate segment 1.4× as long as wide. Pronotum densely rugose-punctate on a smooth background laterally on the dorsal 0.3, with longitudinal wrinkles ventrally. Mesoscutum and scutellum densely rugose-punctate on a finely coriaceous and shining background. Scutellum partly with a smooth background, with lateral carinae on the anterior 0.8. Prescutellar groove with distinct longitudinal striae. Prepectal carina low, ventral part merging with the pleural part, the latter almost complete, the dorsal 0.1-0.2 replaced by several wrinkles. Transverse carina present anteriorly. Mesopleurum densely punctate on a smooth background. Speculum very finely coriaceous, partly smooth, strongly shining. Depression in front of the speculum with distinct and long longitudinal striae, which merge with the punctation anteriorly. Metapleurum densely rugose-punctate, partly rugose. Pleural carina distinct. Areolet rather small, pointed, receiving the 2<sup>nd</sup> recurrent vein at the middle. Nervellus almost vertical, distinctly intercepted. Nervellar index 0.7.

Tibial spur index 0.6. Hind femur 5.0× as long as high. Hind tarsal claws short, with short pectinate teeth basally and medially. Propodeum extending to the middle of the hind coxae, rather broadly and deeply depressed, sulcus for the greater part with transverse wrinkles, costulae obliterated, longitudinal carinae strong posteriorly, obliterated medially and anteriorly. Propodeal spiracle large, 4.9× as long as wide. Spiracular carina narrow. Spiracular index 0.2. 1<sup>st</sup> gastral tergite 4.8×, 2<sup>nd</sup> tergite 2.0× as long as wide. Petiole with narrow lateral areas, without glymmae or with small and shallow glymmae at the anterior edge of the lateral areas, smooth in front of these areas. Petiolar suture obliterated. 1<sup>st</sup> gastral sternite for the greater part smooth, with transverse striae posteriorly. Thyridium elongate. Thyridial index about 1.0. Epipleurum not separated from the 3<sup>rd</sup> gastral tergite, the latter with distinct black lateral stripes well above the ventrolateral edge. Gaster strongly compressed posteriorly. Ovipositor index 0.7.

Colour: Black. Maxillary palpus dark brown. Mandible narrowly marked with yellowish red dorsally and medially. Tegula yellowish brown. Wings hyaline. Stigma medium brown medially. Front leg from the femur onwards yellow, the femur marked with brown ventrally. Mid femur marked with yellow on the apical 0.2. Mid tibia yellow, marked with brown apically. Mid tarsus light brown. Hind tibia whitish yellow subbasally, narrowly black basally, very broadly black apically (black apical ring extending over 0.4 of the tibia). 2<sup>nd</sup> gastral tergite dorsally red on the apical 0.1, laterally red on the apical 0.4. 3<sup>rd</sup> and 4<sup>th</sup> tergites red. Pilosity whitish.

♂: 4<sup>th</sup> gastral tergite red only anteriorly. In other characters similar to the ♀.

**Material** (2♀♀, 4♂♂): Russia: Yevreyskiy A.O.: Amurzet (PET); Primorye: Khasan (KIS). China: Liaoning Prov.: Kaigen (= Kaiyuan) (SAP). South Korea: Suigen (= Suwon) (SAP).

### *Dusona opaca* (Thomson, 1887)

This species is similar to *D. opacoides*, it differs from the latter in: Body larger. Flagellum stouter. Temple rather densely punctate. Areolet larger. Propodeal spiracle longer. Glymma smaller.

**Description.** ♀: Body length 9-10 mm. Temples distinctly constricted behind the eyes, 0.9× as long as the width of an eye, tangential lines on eyes and temples intersect on the postscutellum. Ocellar index 1.0. Frons scarcely depressed, coriaceous,

finely and densely rugose-punctate, with a distinct median longitudinal carina, with short radial wrinkles. Antennal carina low and narrow. Face and dorsal half of the clypeus coriaceous, densely rugose-punctate. Clypeus flat, coriaceous and rather densely punctate ventrally, its apex slightly convex medially. Malar space index 0.6. Genal carina low and straight ventrally, joining the distinctly raised oral carina at an acute angle. Genal index 0.4. Temple coriaceous and with fine rather dense or dense punctation medially. Flagellum with 43-47 segments, the apical 0.2 attenuate, 2<sup>nd</sup> segment 1.8×, shortest segment 1.0×, penultimate segment 1.2× as long as wide. Pronotum densely rugose-punctate laterally on the dorsal 0.3, with longitudinal wrinkles ventrally. Mesoscutum and scutellum coriaceous, densely or very densely punctate. Scutellum with lateral carinae on the anterior 0.8. Prescutellar groove with fine longitudinal striae. Prepectal carina low, ventral part merging with the pleural part, the dorsal 0.3 of the latter replaced by several wrinkles. Transverse carina more or less obliterated (Fig. 18). Mesopleurum coriaceous, dull, densely punctate. Speculum coriaceous, dull. Depression in front of the speculum with rather short longitudinal wrinkles, which merge with the punctation anteriorly. Metapleurum densely rugose. Pleural carina complete. Areolet rather large, short-stalked, receiving the 2<sup>nd</sup> recurrent vein almost at the middle. Nervellus almost vertical, weakly intercepted. Nervellar index 0.6-0.7. Tibial spur index 0.8. Hind femur 5.0× as long as high. Hind tarsal claws long, with short pectinate teeth basally and medially. Propodeum extending to 0.4 of the hind coxae, broadly and not deeply depressed, sulcus for the greater part irregularly wrinkled, with short transverse wrinkles in the midline and with long transverse wrinkles posteriorly, carinae almost completely obliterated. Propodeal spiracle rather large, 4.0× as long as wide. Spiracular carina replaced by several wrinkles. Spiracular index 0.6. 1<sup>st</sup> gastral tergite 3.8×, 2<sup>nd</sup> tergite 1.7× as long as wide. Petiole with very small or indistinct glymmae at the anterior edge of indistinct narrow lateral areas, smooth in front of these areas. Petiolar suture almost completely obliterated. 1<sup>st</sup> gastral sternite for the greater part smooth, with fine transverse striae posteriorly. Thyridium oval. Thyridial index about 1.5. Epipleurum not separated from the 3<sup>rd</sup> gastral tergite, the latter with distinct black lateral stripes well above the ventrolateral edge. Gaster distinctly compressed posteriorly. Ovipositor index 0.5.

Colour: Black. Mandible narrowly yellowish brown medially. Wings hyaline. Stigma yellowish

brown medially. Front femur black basally and ventrally, yellowish red dorsally and apically. Front tibia and tarsus yellowish red. Mid femur yellowish red on the apical 0.3. Mid tibia yellowish red. Mid tarsus brown. Hind tibia dark yellowish brown, narrowly black basally, almost not darkened apically. Hind tarsus for the greater part brownish black, the basitarsus yellowish brown ventrally. 2<sup>nd</sup> gastral tergite red on the posterior 0.3. 3<sup>rd</sup> and 4<sup>th</sup> tergites red, rarely darkened dorsally. Pilosity whitish.

♂: Maxillary palpus yellow. Mandible broadly yellow medially. Front leg from the tip of the coxa onwards yellowish red. Mid femur often completely yellowish red. Hind basitarsus sometimes completely yellowish brown. In other characters similar to the ♀.

**Material** (10♀♀, 5♂♂): Russia: Altaysk Terr.: Lake Teletskoye (MOS); Irkutsk Prov.: Dachnaya, Irkutsk (PET); Chita Prov.: Chita. Kazakhstan: Alma-Ata (MOS).

#### *Dusona opacoides* Hinz, 1985

**Description.** ♀: Body length 7 mm. Temples distinctly constricted behind the eyes, 0.8× as long as the width of an eye, tangential lines on eyes and temples intersect on the postscutellum. Ocellar index 1.0. Frons scarcely depressed, coriaceous, finely and densely rugose-punctate, with a fine median longitudinal carina, with fine but distinct radial wrinkles, which extend to 0.4 the distance to the median ocellus. Antennal carina low and narrow. Face and dorsal half of the clypeus coriaceous, densely rugose. Clypeus flat, finely coriaceous and with rather dense or disperse punctation ventrally, its apex truncate medially. Malar space index 0.4. Genal carina low and rather straight ventrally, joining the low oral carina at an acute angle. Genal index 0.4. Temple finely coriaceous and with very fine disperse punctation medially. Flagellum with 39-40 segments, filiform, the apical 0.2 slightly attenuate, 2<sup>nd</sup> segment 2.6×, shortest segment 1.0×, penultimate segment 1.4× as long as wide. Pronotum densely rugose laterally on the dorsal 0.2, with longitudinal wrinkles ventrally. Mesoscutum coriaceous, dull, very densely punctate. Scutellum coriaceous, dull, rather densely punctate, with lateral carinae on the anterior 0.8. Prescutellar groove smooth medially, with longitudinal striae laterally. Prepectal carina low, ventral part merging with the pleural part, the dorsal 0.2 of the latter replaced by several wrinkles. Transverse carina obliterated. Meso-

pleurum distinctly coriaceous, rather densely or densely punctate. Speculum punctate posteriorly, coriaceous and granulate-strigose anteriorly, rather dull. Depression in front of the speculum with fine longitudinal striae or wrinkles, which merge with the punctation anteriorly. Metapleurum densely rugose. Pleural carina complete. Areolet rather small, long-stalked, receiving the 2<sup>nd</sup> recurrent vein distinctly distad of the middle. Nervellus slightly inclivous, weakly intercepted. Nervellar index 0.8. Tibial spur index 0.7. Hind femur 4.9× as long as high. Hind tarsal claws short, with short pectinate teeth basally. Propodeum extending to 0.4 of the hind coxae, distinctly but rather narrowly and not deeply depressed, with short transverse wrinkles in the longitudinal furrow, irregularly wrinkled beside the furrow, carinae almost completely obliterated. Propodeal spiracle rather small, 2.5× as long as wide. Spiracular carina narrow, sometimes indistinct. Spiracular index 0.8. 1<sup>st</sup> gastral tergite 3.6×, 2<sup>nd</sup> tergite 1.6× as long as wide. Petiole with small glymmae at the anterior edge of narrow lateral areas, smooth in front of the glymmae. Petiolar suture for the greater part obliterated. 1<sup>st</sup> gastral sternite smooth. Thyridium oval. Thyridial index about 1.0. Epipleurum not separated from the 3<sup>rd</sup> gastral tergite, the latter with distinct black lateral stripes divergent from the ventrolateral edge. Gaster distinctly compressed posteriorly. Ovipositor index 0.6.

**Colour:** Black. Maxillary palpus dark brown basally, yellowish brown medially and apically. Mandible narrowly reddish brown medially. Wings hyaline. Stigma medium brown medially. Front and mid legs from the femur onwards yellowish red, the femora narrowly marked with brown basally. Hind tibia broadly yellowish brown medially, narrowly medium brown basally and apically. Hind tarsus medium brown, basitarsus for the greater part yellowish brown. 2<sup>nd</sup> gastral tergite red on the posterior 0.2-0.3. 3<sup>rd</sup> and 4<sup>th</sup> tergites red. Pilosity whitish.

♂ unknown.

**Material** (3♀♀): Russia: Yakutsk A.S.S.R.: Yakutsk (MOS); Khabarovsk Terr.: Khekhtsir near Khabarovsk (Hinz/ZSM); Kamchatka: Volcano Uzon (PET).

*Dusona papator* Hinz & Horstmann, spec. nov.

**Holotype** (♀): Russia, Chita Prov., Kozlovo, 17.7.1975 (PET).

**Description.** ♀: Body length 7 mm. Temples strongly constricted behind the eyes,  $0.6\times$  as long as the width of an eye, tangential lines on eyes and temples intersect on the posterior half of the mesoscutum. Ocellar index 0.7. Frons slightly depressed, coriaceous, finely and densely rugose-punctate, without a median longitudinal carina and without radial wrinkles. Antennal carina low and narrow. Face coriaceous, finely and densely rugose. Clypeus small, distinctly rounded, coriaceous, finely punctate, with fine irregular wrinkles, its apex distinctly convex. Malar space index 1.1. Genal carina low and almost straight ventrally, joining the slightly raised oral carina at an acute angle. Genal index 0.3. Temple finely coriaceous and finely and rather densely rugose-punctate medially. Flagellum with 40 segments, filiform, the apical 0.2 slightly attenuate, 2<sup>nd</sup> segment  $1.9\times$ , shortest segment  $1.0\times$ , penultimate segment  $1.2\times$  as long as wide. Pronotum coriaceous and densely rugose-punctate laterally on the dorsal 0.2, with longitudinal wrinkles ventrally. Mesoscutum and scutellum coriaceous, finely and densely punctate. Scutellum with lateral carinae on the anterior 0.1. Prescutellar groove smooth. Prepectal carina low, ventral part merging with the pleural part, the latter distinctly joining the anterior edge of the mesopleurum. Transverse carina obliterated. Mesopleurum distinctly coriaceous, densely punctate, partly rugose-punctate. Speculum finely coriaceous and granulate-strigose. Depression in front of the speculum with short longitudinal wrinkles, which merge with the punctation anteriorly. Metapleurum coriaceous, finely and densely rugose-punctate. Pleural carina distinct. Areolet small, short-stalked, receiving the 2<sup>nd</sup> recurrent vein distinctly distad of the middle. Nervellus distinctly reclivous, not intercepted. Tibial spur index 0.7. Hind femur  $5.1\times$  as long as high. Hind tarsal claws short, with short pectinate teeth basally. Propodeum extending to 0.2 of the hind coxae, not depressed, the anterior lateral areas finely coriaceous, other parts irregularly wrinkled, with some short longitudinal wrinkles posteriorly, costulae complete, longitudinal carinae indicated medially and posteriorly. Propodeal spiracle small,  $1.6\times$  as long as wide. Spiracular carina narrow. Spiracular index 1.1. 1<sup>st</sup> gastral tergite  $2.4\times$ , 2<sup>nd</sup> tergite  $1.1\times$  as long as wide. Petiole with distinct glammae, which are bordered by longitudinal carinae dorsally, smooth in front of

the glymmae. Petiolar suture distinct. 1<sup>st</sup> gastral sternite finely coriaceous anteriorly and medially, transversely striate posteriorly. Thyridium almost circular. Thyridial index 0.8. Epipleurum separated from the 3<sup>rd</sup> gastral tergite, the crease not marked with black. Epipleural index 0.9. Gaster distinctly compressed posteriorly. Ovipositor index 0.4.

Colour: Black. Wings slightly tinged with brown. Stigma brownish black medially. Front leg from the apical 0.3 of the femur onwards dark reddish brown. Mid tibia and tarsus dark brown. Hind tibia black, slightly tinged with brown medially. 2<sup>nd</sup> gastral tergite dorsally red on the posterior 0.4, the red marks more extended laterally. 3<sup>rd</sup> and 4<sup>th</sup> tergites red. 5<sup>th</sup> tergite narrowly marked with red anteriorly. Pilosity whitish.

♂ unknown.

*Dusona parva* Horstmann, spec. nov.

**Holotype** (♂): Russia, Khabarovsk Terr., Khekh-tsir, near Khabarovsk, 4.7.1983 (PET).

**Description.** ♂: Body length 6 mm. Temples slightly constricted behind the eyes,  $0.8\times$  as long as the width of an eye, tangential lines on eyes and temples intersect on the propodeum. Ocellar index 1.1. Frons slightly depressed, coriaceous, finely and densely rugose-punctate, with a fine median longitudinal carina, with short radial wrinkles. Antennal carina low and narrow. Face and dorsal 0.8 of the clypeus coriaceous, finely and densely rugose-punctate. Clypeus slightly concave, coriaceous and densely punctate ventrally, its apex slightly convex medially. Malar space index 0.5. Genal carina low and straight ventrally, joining the strongly raised oral carina at an acute angle. Genal index 0.5. Temple finely coriaceous and with fine disperse punctation medially. Flagellum with 35 segments, filiform, the apical 0.3 attenuate, 2<sup>nd</sup> segment  $1.6\times$ , shortest segment  $0.9\times$ , penultimate segment  $1.0\times$  as long as wide. Pronotum densely rugose-punctate laterally on the dorsal 0.4, with longitudinal wrinkles ventrally. Mesoscutum and scutellum coriaceous, densely punctate. Scutellum with lateral carinae on the anterior 0.7. Prescutellar groove smooth. Prepectal carina low, ventral part merging with the pleural part, the dorsal 0.4 of the latter obliterated. Transverse carina indicated anteriorly. Mesopleurum distinctly coriaceous, densely punctate. Speculum finely coriaceous, shining. Depression in front of the speculum with fine and long longitudinal striae, which merge with the punctation anterior-

ly. Metapleurum coriaceous, finely and densely rugose-punctate. Pleural carina distinct. Areolet large, short-stalked, receiving the 2<sup>nd</sup> recurrent vein slightly distad of the middle. Nervellus slightly inclivous, weakly intercepted. Nervellar index 0.8. Tibial spur index 0.7. Hind femur 5.0× as long as high. Hind tarsal claws short, with short pectinate teeth basally. Propodeum extending to 0.4 of the hind coxae, slightly and broadly depressed, for the greater part with distinct irregular wrinkles, with some longitudinal wrinkles posteriorly, carinae almost completely obliterated. Propodeal spiracle rather large, 3.2× as long as wide. Spiracular carina narrow. Spiracular index 0.5. 1<sup>st</sup> gastral tergite 3.4×, 2<sup>nd</sup> tergite 2.0× as long as wide. Petiole with distinct glymmae, which are bordered by longitudinal carinae dorsally, smooth in front of the glymmae. Petiolar suture almost completely obliterated. 1<sup>st</sup> gastral sternite for the greater part smooth, with fine transverse striae posteriorly. Thyridium large, almost circular. Thyridial index 0.7. Epipleurum not separated from the 3<sup>rd</sup> gastral tergite, the latter with distinct black lateral stripes well above the ventrolateral edge. Gaster distinctly compressed posteriorly.

Colour: Black. Maxillary palpus dark brown basally, yellow medially and apically. Mandible narrowly marked with yellow dorsally and medially. Tegula dark yellowish brown. Wings hyaline. Stigma yellowish brown medially. Tip of front coxa and front trochanter and femur yellowish red. Front tibia and tarsus yellow. Mid femur yellowish red on the apical 0.3. Mid tibia and tarsus yellow. Hind tibia whitish yellow medially, narrowly black basally, broadly black apically. 2<sup>nd</sup> gastral tergite red on the posterior half. 3<sup>rd</sup> and 4<sup>th</sup> tergites red. Pilosity whitish.

♀ unknown.

*Dusona parvicavata* Horstmann, spec. nov.

**Types.** Holotype (♂): Russia, Buryatiya, Zakamensk, 30.6.1971 (PET). – Paratype: 1♂ Russia, Primorye, Chuguyevsk, 3.6.1985 (Hinz/ZSM).

**Description.** ♂: Body length 11 mm. Temples distinctly constricted behind the eyes, 0.8× as long as the width of an eye, tangential lines on eyes and temples intersect on the prescutellar groove. Ocellar index 0.8-1.0. Frons slightly depressed, coriaceous, finely and densely punctate, with a distinct median longitudinal carina, with distinct radial wrinkles, which extend to 0.3 the distance to the median ocellus. Antennal carina slightly raised, its rim slightly bent upwards, the crescent-shaped

rim with fine transverse striae. Face and dorsal 0.6 of the clypeus coriaceous, densely rugose-punctate. Clypeus flat, finely coriaceous and rather densely punctate ventrally, its apex truncate medially. Malar space index 0.4. Genal carina low and straight ventrally, joining the slightly raised oral carina at an acute angle. Genal index 0.2. Temple finely coriaceous and with very fine disperse punctuation medially. Flagellum with 49-50 segments, filiform, the apical 0.3 distinctly attenuate, 2<sup>nd</sup> segment 1.5×, shortest segment 1.0×, penultimate segment 1.2× as long as wide. Pronotum coriaceous and densely rugose-punctate laterally on the dorsal 0.4, with longitudinal wrinkles ventrally. Mesoscutum and scutellum coriaceous, densely punctate. Scutellum with lateral carinae on the anterior 0.7. Prescutellar groove with longitudinal striae. Prepectal carina low, ventral part merging with the pleural part, the latter almost joining the anterior edge of the mesopleurum, the upper 0.1-0.2 covered with wrinkles. Transverse carina complete or obliterated posteriorly. Mesopleurum coriaceous, dull, distinctly and densely punctate. Speculum coriaceous, dull. Depression in front of the speculum granulate-strigose and with short longitudinal striae, which merge with a narrow coriaceous area without punctuation anteriorly. Metapleurum coriaceous, densely punctate or rugose-punctate. Pleural carina distinct. Areolet rather large, pointed, receiving the 2<sup>nd</sup> recurrent vein distinctly distad of the middle. Nervellus vertical, distinctly intercepted. Nervellar index 0.7. Tibial spur index 0.4-0.5. Hind femur 5.4× as long as high. Hind tarsal claws rather short, with short pectinate teeth basally and medially. Propodeum extending to 0.3 of the hind coxae, broadly and not deeply depressed, sulcus for the greater part with rather coarse transverse wrinkles or irregular wrinkles, costulae and longitudinal carinae present, but partly covered with wrinkles, longitudinal carinae obliterated anteriorly. Propodeal spiracle large, 2.8× as long as wide. Spiracular carina narrow. Spiracular index 0.4. 1<sup>st</sup> gastral tergite 4.1×, 2<sup>nd</sup> tergite 2.0× as long as wide. Petiole with small glymmae at the anterior edge of narrow lateral areas, smooth in front of the glymmae. Petiolar suture fine. 1<sup>st</sup> gastral sternite for the greater part with fine transverse striae in the holotype, smooth anteriorly and transversely striate posteriorly in the paratype. Thyridium almost circular. Thyridial index about 2.0. Epipleurum not separated from the 3<sup>rd</sup> gastral tergite, the latter with fine black lateral stripes well above the ventrolateral edge. Gaster distinctly compressed posteriorly.

Colour: Black. Maxillary palpus dark brown

basally and medially, yellowish brown apically. Mandible broadly yellow medially. Tegula brown. Wings hyaline. Stigma brown medially. Front leg from the tip of the coxa onwards yellow, the femur yellowish red. Mid femur yellowish red on the apical 0.2. Mid tibia yellow. Mid tarsus dark brown. Hind tibia yellow medially, narrowly black basally, broadly black apically. 2<sup>nd</sup> gastral tergite with a dark brown or black posterior edge, dorsally slightly or not at all marked with red, laterally broadly marked with red in front of the posterior edge. 3<sup>rd</sup> and 4<sup>th</sup> tergites red, partly marked with black dorsally. Pilosity whitish.

♀ unknown.

*Dusona peptor* Hinz & Horstmann, spec. nov.

**Types.** Holotype (♀): Russia, Primorye, Ussuriysk, 24.6.1981 (PET). – Paratype: 1♀ Russia, Primorye, Roshchino, on River Iman, 15.6.1966 (Hinz/ZSM).

**Description.** ♀: Body length 14 mm. Temples slightly constricted behind the eyes, 0.9× as long as the width of an eye, tangential lines on eyes and temples intersect on the petiole. Ocellar index 0.8. Frons slightly depressed, coriaceous and finely and densely punctate dorsally, finely coriaceous ventrally, with a fine median longitudinal carina, with distinct radial wrinkles, which extend to 0.3 the distance to the median ocellus. Antennal carina low and narrow. Face and dorsal 0.6 of the clypeus coriaceous, densely rugose-punctate. Clypeus flat, coriaceous and rather densely punctate ventrally, its apex truncate medially. Malar space index 0.4. Genal carina low and almost straight ventrally, joining the slightly raised oral carina at an acute angle. Genal index 0.25. Temple finely coriaceous and with fine disperse punctation medially. Flagellum with 53-55 segments, filiform, the apical 0.2 distinctly attenuate, 2<sup>nd</sup> segment 1.7×, shortest segment 0.9×, penultimate segment 1.1× as long as wide. Pronotum coriaceous and densely rugose-punctate laterally on the dorsal half, with longitudinal wrinkles ventrally. Mesoscutum coriaceous, very densely punctate. Scutellum coriaceous, densely punctate, with lateral carinae on the anterior 0.6. Prescutellar groove smooth. Prepectal carina low, ventral part merging with the pleural part, the latter covered with some wrinkles dorsally, almost joining the anterior edge of the mesopleurum. Transverse carina obliterated. Mesopleurum distinctly coriaceous, with strong and rather dense or dense punctation.

Speculum finely granulate-strigose. Depression in front of the speculum with fine longitudinal striae, which merge with a narrow coriaceous area without punctation anteriorly. Metapleurum coriaceous, finely and densely punctate. Pleural carina distinct. Areolet large, pointed, receiving the 2<sup>nd</sup> recurrent vein basad of the middle. Nervellus slightly inclivous, distinctly intercepted, the upper branch bent inwards. Nervellar index 0.7. Tibial spur index 0.7. Hind femur 5.0× as long as high. Hind tarsal claws short, with short pectinate teeth basally. Propodeum extending to 0.3 of the hind coxae, rather broadly and not deeply depressed, the sulcus for the greater part irregularly wrinkled, with transverse wrinkles posteriorly, costulae partly present, longitudinal carinae almost complete, but somewhat indistinct. Propodeal spiracle large, 3.4× as long as wide. Spiracular carina narrow. Spiracular index 0.4-0.5. 1<sup>st</sup> gastral tergite 3.3×, 2<sup>nd</sup> tergite 1.4× as long as wide. Petiole with large glymmae, which are bordered by longitudinal carinae dorsally, with very fine sculpture in front of the glymmae, with some transverse wrinkles anteriorly. Petiolar suture indistinct or obliterated. 1<sup>st</sup> gastral sternite for the greater part smooth, with short transverse striae posteriorly. Thyridium oval. Thyridial index about 1.0. Epipleurum separated from the 3<sup>rd</sup> gastral tergite anteriorly, pendent as a triangular lobe, a black lateral stripe parallel with the horizontal bulge in a short distance anteriorly, divergent from the ventrolateral edge of the tergite posteriorly. Epipleural index 0.2. Gaster distinctly compressed posteriorly. Ovipositor index 0.6.

Colour: Black. Maxillary palpus dark brown basally, yellowish red medially and apically. Mandible broadly yellow medially. Wings slightly tinged with brown. Stigma dark brown medially. Front trochanter and femur yellowish red, marked with black ventrally. Front tibia and tarsus yellowish brown. Mid femur yellowish brown on the apical 0.3. Mid tibia yellowish brown. Mid tarsus dark brown. Hind tibia yellowish brown medially, narrowly black basally, broadly black apically. 2<sup>nd</sup> gastral tergite black dorsally, broadly marked with red laterally, the posterior edge marked with black. Tergites and sternites from the 3<sup>rd</sup> onwards red, 3<sup>rd</sup> and 4<sup>th</sup> tergites narrowly marked with black dorsally, the posterior tergites more broadly marked with black dorsally (but for the greater part red in lateral view). Pilosity whitish.

♂ unknown.

*Dusona perditator* Hinz, 1994

**Description.** ♀: Body length 18 mm. Temples strongly constricted behind the eyes, 0.8× as long as the width of an eye, tangential lines on eyes and temples intersect on the posterior half of the mesoscutum. Ocellar index 0.7. Frons slightly depressed, coriaceous, finely and densely rugose-punctate, with a fine and partly obliterated median longitudinal carina, with short radial wrinkles. Antennal carina low and narrow, the rim slightly bent upwards. Face and clypeus densely rugose-punctate on a finely coriaceous background. Clypeus flat, its apex truncate medially. Malar space index 0.4. Genal carina low and straight ventrally, joining the distinctly raised oral carina at an acute angle. Genal index 0.5. Temple finely coriaceous and with rather dense or dense punctation medially. Flagellum with 64 segments, filiform, the apical half distinctly attenuate, 2<sup>nd</sup> segment 1.6×, shortest segment 1.0×, penultimate segment 1.4× as long as wide. Pronotum densely rugose-punctate laterally on the dorsal 0.2, with longitudinal wrinkles ventrally. Mesoscutum and scutellum coriaceous, densely rugose-punctate. Scutellum with lateral carinae on the anterior half. Prescutellar groove with distinct longitudinal striae. Ventral part of the prepectal carina merging with the transverse carina, the former low, the latter somewhat raised. Pleural part of the prepectal carina obliterated. Pleural part of the prepectus rugose-punctate. Mesopleurum dispersely or rather densely punctate on a very finely coriaceous or smooth background. Speculum finely granulate-strigose dorsally, smooth ventrally. Depression in front of the speculum with distinct long longitudinal striae, which merge with the punctation anteriorly. Metapleurum finely and densely rugose-punctate, with some longitudinal wrinkles anteriorly. Pleural carina complete. Areolet large, narrowly sessile, receiving the 2<sup>nd</sup> recurrent vein almost at the middle. Nervellus vertical, strongly intercepted. Nervellar index 0.6. Tibial spur index 0.7. Hind femur 5.3× as long as high. Hind tarsal claws rather long, with distinct pectinate teeth almost over their total length. Propodeum extending to 0.4 of the hind coxae, narrowly and not deeply depressed, with long transverse wrinkles in almost all parts, costulae complete, longitudinal carinae present only posteriorly. Propodeal spiracle large, 2.9× as long as wide. Spiracular carina narrow. Spiracular index 0.3. 1<sup>st</sup> gastral tergite 5.2×, 2<sup>nd</sup> tergite 2.2× as long as wide. Petiole without glymmae, with narrow lateral areas, smooth in front of these areas. Petiolar suture fine, partly obliterated. 1<sup>st</sup> gastral sternite smooth. Thyridium

oval. Thyridial index about 1.5. Epipleurum separated from the 3<sup>rd</sup> gastral tergite anteriorly, pendent as a small triangular lobe, a distinct black lateral stripe parallel with the ventrolateral edge in a short distance anteriorly, divergent from the latter posteriorly. Epipleural index 0.2. Gaster distinctly compressed posteriorly. Ovipositor index 0.6.

Colour: Black. Mandible broadly yellow medially. Wings hyaline. Stigma dark brown medially. Front trochanter marked with brown. Front femur yellowish brown, marked with black ventrally. Front tibia and tarsus yellowish brown. Mid femur yellowish brown on the apical 0.2. Mid tibia yellowish brown. Mid tarsus brown. Hind tibia yellowish brown, slightly and narrowly darkened basally. Hind tarsus dark brown. 2<sup>nd</sup> gastral tergite dorsally black, laterally marked with red in front of the black posterior edge. 3<sup>rd</sup> and 4<sup>th</sup> tergites red, tinged with brown dorsally. 5<sup>th</sup> tergite marked with red laterally. Gastral sternites red or reddish brown. Pilosity whitish.

♂ unknown.

**Material** (1♀): Russia: Kuril Isl.: Volcano Mendeleyeva on Kunashir (PET).

*Dusona perditor* (Förster, 1868)

**Description.** ♀: Body length 12 mm. Temples strongly constricted behind the eyes, 0.8× as long as the width of an eye, tangential lines on eyes and temples intersect on the posterior half of the mesoscutum. Ocellar index 1.0. Frons slightly depressed, coriaceous, finely and densely punctate, with a fine median longitudinal carina, with indistinct radial wrinkles. Antennal carina low and narrow. Face and dorsal 0.6 of the clypeus coriaceous, densely rugose-punctate and rugose. Clypeus flat, coriaceous and rather densely punctate ventrally, its apex truncate medially. Malar space index 0.5. Genal carina low ventrally, slightly bent sideways, joining the slightly raised oral carina almost at a right angle. Genal index 0.4. Temple finely coriaceous and with fine disperse punctation medially. Flagellum with 47-49 segments, filiform, the apical 0.3 attenuate, 2<sup>nd</sup> segment 1.6×, shortest segment 1.0×, penultimate segment 1.1× as long as wide. Pronotum coriaceous and densely rugose-punctate laterally on the dorsal 0.2, with longitudinal wrinkles ventrally. Mesoscutum and scutellum coriaceous, densely rugose-punctate. Scutellum with lateral carinae on the anterior 0.4. Prescutellar groove smooth medially, with longitudinal striae laterally. Ventral part of the prepec-

tal carina merging with the transverse carina, the former low, the latter slightly raised. Pleural part of the prepectal carina for the greater part obliterated, present as a short wrinkle medially. Pleural part of the prepectus rugose-punctate and with wrinkles. Mesopleurum densely punctate on a finely coriaceous and shining background. Speculum granulate-strigose or with very fine and long oblique striae, sometimes shining. Depression in front of the speculum with rather short longitudinal striae or wrinkles, which merge with the punctation anteriorly. Metapleurum densely rugose. Pleural carina fine, sometimes partly indistinct and covered with wrinkles. Areolet large, pointed, receiving the 2<sup>nd</sup> recurrent vein almost at the middle. Nervellus slightly inclivous, distinctly intercepted. Nervellar index 0.7. Tibial spur index 0.7. Hind femur 5.8× as long as high. Hind tarsal claws rather long, with long pectinate teeth almost over their total length. Propodeum extending to 0.4 of the hind coxae, broadly but not deeply depressed, with long transverse wrinkles in almost all parts, costulae partly present, longitudinal carinae present posteriorly and sometimes also medially. Propodeal spiracle small, 2.4× as long as wide. Spiracular carina obliterated or replaced by several wrinkles. Spiracular index 1.0. 1<sup>st</sup> gastral tergite 4.7×, 2<sup>nd</sup> tergite 2.6× as long as wide. Petiole without or with small and shallow glymmae, sometimes with narrow lateral areas, smooth in front of these glymmae or lateral areas. Petiolar suture fine, partly obliterated. 1<sup>st</sup> gastral sternite smooth. Thyridium oval. Thyridial index about 1.5. Epipleurum separated from the 3<sup>rd</sup> gastral tergite anteriorly, folded in or folded back secondarily and pendent as a narrow rectangular lobe, a black lateral stripe on the crease or parallel with it in a short distance anteriorly, divergent from the ventrolateral edge posteriorly. Epipleural index 0.2-0.3 (Fig. 40). Gaster distinctly compressed posteriorly. Ovipositor index 0.6.

Colour: Black. Maxillary palpus dark brown basally, yellowish brown medially and apically. Mandible narrowly marked with reddish brown dorsally. Tegula dark brown. Wings hyaline. Stigma brownish black medially. Front femur yellowish red. Front tibia and tarsus yellow. Mid femur yellow on the apical 0.3. Mid tibia and tarsus yellow, the tarsus darkened apically. Hind tibia broadly yellowish brown medially, narrowly medium brown basally and apically. 2<sup>nd</sup> gastral tergite dorsally black, laterally red on the posterior 0.6, sometimes the posterior edge dark brown. 3<sup>rd</sup> and 4<sup>th</sup> tergites narrowly black dorsally, broadly red laterally. 5<sup>th</sup> tergite laterally marked with red anteriorly. Pilosity whitish.

♂: Sometimes pleural carina and spiracular carina complete. Mandible marked with brown medially. Tegula medium brown. Sometimes tip of the front coxa and front trochanter yellowish brown. In other characters similar to the ♀.

**Material** (5♀♀, 1♂): Russia: Irkutsk Prov.: Irkutsk; Chita Prov.: Chita; Khabarovsk Terr.: locality unreadable; Kuril Isl.: Dubovoye on Kunashir (PET).

*Dusona petiolatoides* Hinz & Horstmann,  
spec. nov.

**Types.** Holotype (♀): Russia, Primorye, Kedrovaya Pad Reserve, near Khasan, 2.8.1963 (MOS). – Paratypes: 1♀ same locality, 12.8.1963 (MOS) (This paratype is at the same time a paratype of *D. genator.*); 1♀ Russia, Primorye, Nakhodka, 20.8.1985 (Hinz/ZSM); 1♂ same locality as the holotype, 2.8.1963 (MOS); 1♂ Russia, Primorye, Vladivostok, 5.8.1984 (Hinz/ZSM).

**Description.** ♀: Body length 10-11 mm. Temples strongly constricted behind the eyes, 0.8× as long as the width of an eye, tangential lines on eyes and temples intersect on the posterior half of the mesoscutum. Ocellar index 0.8. Frons not depressed, coriaceous, distinctly rugose-punctate, with short radial wrinkles, the median longitudinal carina almost obliterated. Antennal sockets close to each other. Antennal carina low, its rim slightly bent upwards. Face and clypeus coriaceous, densely rugose-punctate. Clypeus flat, its ventral half densely punctate medially, its apex truncate medially. Malar space index 0.5. Genal carina low and straight ventrally, joining the slightly raised oral carina at an acute angle. Genal index 0.2. Temple finely and rather densely or densely punctate on an almost smooth background medially. Flagellum with 53-56 segments, filiform, the apical 0.3 distinctly attenuate, 2<sup>nd</sup> segment 1.9×, shortest segment 1.0×, penultimate segment 1.4× as long as wide. Pronotum for the greater part densely rugose-punctate laterally, the wrinkles smooth, with longitudinal wrinkles only in the anterior furrow. Mesoscutum and scutellum finely coriaceous, densely punctate. Scutellum with lateral carinae on the anterior 0.4. Prescutellar groove smooth. Prepectal carina low, ventral part merging with the transverse carina, the latter slightly raised. Pleural part of the prepectal carina obliterated dorsally and ventrally, the median 0.3 present. Mesopleurum densely punctate on a finely coriaceous and partly smooth background. Speculum with fine oblique striae. Depression in front of the

speculum with distinct short longitudinal striae, which merge with the punctuation anteriorly. Metapleurum densely rugose. Pleural carina distinct. Areolet large, narrowly sessile, receiving the 2<sup>nd</sup> recurrent vein distad of the middle. Nervellus slightly reclivous, not intercepted or weakly intercepted. In the latter case nervellar index 0.7. Tibial spur index 0.7. Hind femur 5.3× as long as high. Hind tarsal claws rather long, with distinct pectinate teeth basally and medially. Propodeum extending to the middle of the hind coxae, slightly depressed, the broad and shallow sulcus for the greater part irregularly wrinkled, with transverse wrinkles posteriorly, costulae obliterated, longitudinal carinae indicated medially and posteriorly. Propodeal spiracle large, 3.0× as long as wide. Spiracular carina obliterated. Spiracular index 0.4. 1<sup>st</sup> gastral tergite 4.5×, 2<sup>nd</sup> tergite 2.2× as long as wide. Petiole without glymmae, with indistinct narrow lateral areas (indicated by a coriaceous surface), smooth in front of these areas. Petiolar suture partly obliterated. 1<sup>st</sup> gastral sternite smooth. Thyridium oval. Thyridial index about 2.0. Epipleurum not separated from the 3<sup>rd</sup> gastral tergite, the latter with distinct black lateral stripes well above the ventrolateral edge. Gaster strongly compressed posteriorly. Ovipositor index 0.5.

Colour: Black. Mandible black, tinged with dark brown medially. Wings hyaline. Stigma medium brown medially. Front femur yellowish brown dorsally or completely black. Front tibia yellowish brown. Front tarsus dark brown. Mid tibia dark brown or black. 2<sup>nd</sup> gastral tergite red on the posterior 0.1. 3<sup>rd</sup> tergite red, sometimes marked with black dorsally. 4<sup>th</sup> tergite sometimes narrowly marked with red anteriorly. Pilosity whitish.

♂: Mandible narrowly marked with yellow dorsally and medially. 2<sup>nd</sup> gastral tergite completely black. 3<sup>rd</sup> tergite marked with red only laterally. In other characters similar to the ♀.

#### *Dusona petiolator* (Fabricius, 1804)

**Description.** ♀: Body length 8-10 mm. Temples distinctly constricted behind the eyes, 0.9× as long as the width of an eye, tangential lines on eyes and temples intersect on the prescutellar groove. Ocular index 0.8. Frons not depressed, coriaceous, densely rugose-punctate, without a median longitudinal carina, with short radial wrinkles. Antennal sockets close to each other. Antennal carina low and narrow. Face and dorsal 0.3 of the clypeus coriaceous, finely and densely rugose and rugose-punctate. Clypeus flat, coriaceous and finely and rather densely punctate ventrally, its apex trun-

cate medially. Malar space index 0.5. Genal carina straight ventrally, slightly raised, joining the distinctly raised oral carina at an acute angle. Genal index 0.25. Temple coriaceous and with fine dense punctuation medially. Flagellum with 42-45 segments, filiform, the apical 0.2 attenuate, 2<sup>nd</sup> segment 1.4×, shortest segment 0.8×, penultimate segment 1.0× as long as wide. Pronotum densely rugose laterally on the dorsal 0.3, with longitudinal wrinkles ventrally. Mesoscutum coriaceous, rather dull, densely rugose-punctate. Scutellum densely rugose-punctate on a finely coriaceous and shining background, with lateral carinae on the anterior half. Prescutellar groove with fine longitudinal striae. Ventral part of the prepectal carina merging with transverse carina, the former low, scarcely emarginate medially, the latter slightly raised. Pleural part of the prepectal carina partly obliterated, the ventral and median part or only the median 0.3 present (Fig. 20), rarely also the median part replaced by several wrinkles. Pleural part of the prepectus rugose-punctate and with wrinkles. Mesopleurum densely rugose-punctate and partly rugose on a smooth or finely coriaceous and shining background. Speculum with fine oblique striae. Depression in front of the speculum with distinct rather short longitudinal striae, which merge with the punctuation anteriorly. Metapleurum densely rugose. Pleural carina fine. Areolet large, pointed, receiving the 2<sup>nd</sup> recurrent vein at or slightly distad of the middle. Nervellus slightly inclivous, weakly intercepted. Nervellar index 0.7-0.8. Tibial spur index 0.7. Hind femur 5.3× as long as high. Hind tarsal claws short, with short pectinate teeth basally and medially. Propodeum extending to 0.4 of the hind coxae, distinctly and rather narrowly depressed, for the greater part transversely wrinkled, costulae partly present, longitudinal carinae for the greater part obliterated. Propodeal spiracle small, 3.3× as long as wide. Spiracular carina obliterated. Spiracular index 1.0. 1<sup>st</sup> gastral tergite 4.9×, 2<sup>nd</sup> tergite 1.7× as long as wide. Petiole without glymmae, with indistinct narrow lateral areas, smooth in front of these areas. Petiolar suture almost completely obliterated. 1<sup>st</sup> gastral sternite for the greater part smooth, with fine transverse striae posteriorly. Thyridium oval. Thyridial index about 3.0. Epipleurum not separated from the 3<sup>rd</sup> gastral tergite, a black lateral stripe weakly indicated or lacking. Gaster distinctly compressed posteriorly. Ovipositor index 1.4.

Colour: Black. Mandible narrowly marked with yellowish brown medially. Wings hyaline. Stigma brownish black medially. Front femur yellowish brown dorsally. Front tibia yellowish

brown. Front tarsus brown. Mid tibia medium brown to dark brown. 2<sup>nd</sup> gastral tergite completely black or red on the posterior 0.1. 3<sup>rd</sup> tergite red. 4<sup>th</sup> tergite black or marked with red anteriorly. Pilosity whitish.

♂: Sometimes temples less strongly constricted, tangential lines on eyes and temples intersect on the propodeum. Propodeum less strongly depressed, partly with irregular wrinkles. Mandible rather broadly yellow medially. Sometimes front coxa and front trochanter marked with yellow. In other characters similar to the ♀.

**Material** (36♀♀, 11♂♂): Russia: Novosibirsk Prov.: Novosibirsk; Altaysk Terr.: Volchikha (MIN); Irkutsk Prov.: Gora Cherskogo; Chita Prov.: Adrianovka, Chita, Lake Ivan, Kalga, Klichka, Kurort Darasun, Urulyunguy E of Borzya; Amur Prov.: Novorossiyska; Khabarovsk Terr.: Khekhtsir near Khabarovsk; Kamchatka: Kamaki; Kuril isl: Golovno on Kunashir, Malokurilsk on Shikotan (PET). Kirgiziya: Alayskiy Mts. (PAR), Issykata (PET). The species is known also from Sakhalin/Russia and Hokkaido/Japan (Townes et al. 1965: 289).

**Variety:** 2<sup>nd</sup> gastral tergite red on the posterior 0.3. 3<sup>rd</sup> and 4<sup>th</sup> tergites red. **Material:** 1♀ Kirgiziya, Alayskiy Mts., Nookatsky, Kirghiz-Ata River, 2150-2500 m (LIN). This specimen may represent an individual variation.

*Dusona petitor* Hinz & Horstmann, spec. nov.

**Types.** Holotype (♀): Russia, Chita Prov., Olovyanaya, 9.7.1971 (PET). – Paratype: 1♀ Russia, Yakutsk, 12.-13.7.1927 (Hinz/ZSM).

**Description.** ♀: Body length 8-9 mm. Temples distinctly constricted behind the eyes, 0.7× as long as the width of an eye, tangential lines on eyes and temples intersect on the prescutellar groove. Ocellar index 0.6. Frons scarcely depressed, coriaceous, densely rugose-punctate and rugose, with a fine median longitudinal carina, with short and indistinct radial wrinkles. Antennal carina low and narrow. Face and dorsal 0.6 of the clypeus densely rugose-punctate. Clypeus flat, coriaceous and rather densely or dispersely punctate ventrally, its apex slightly convex medially. Malar space index 0.3. Genal carina low ventrally, slightly bent sideways and forwards, joining the oral carina at the base of the mandible at a right angle. Temple finely coriaceous and with fine disperse punctation medially. Flagellum with 42-44 segments, filiform, the apical 0.3 attenuate, 2<sup>nd</sup> segment 1.9×,

shortest segment 1.0×, penultimate segment 1.3× as long as wide. Pronotum densely rugose-punctate laterally on the dorsal 0.2, with longitudinal wrinkles ventrally. Mesoscutum and scutellum coriaceous, very densely punctate. Scutellum with lateral carinae on the anterior 0.7. Prescutellar groove with fine longitudinal striae. Ventral part of the prepectal carina merging with the transverse carinae, both carinae raised, the former distinctly emarginate medially. Pleural part of the prepectal carina lower, slightly raised ventrally, low medially, the dorsal 0.3 obliterated. Mesopleurum distinctly coriaceous, rather densely or densely punctate. Speculum finely coriaceous and granulate-strigose. Depression in front of the speculum with distinct longitudinal striae, which merge with the punctation anteriorly. Metapleurum coriaceous, densely rugose-punctate. Pleural carina distinct. Areolet large, short-stalked, receiving the 2<sup>nd</sup> recurrent vein slightly distad of the middle. Nervellus distinctly reclinous, not intercepted or weakly intercepted. In the latter case nervellar index 0.6-0.7. Tibial spur index 0.6. Hind femur 4.9× as long as high. Hind tarsal claws short, with distinct pectinate teeth basally. Propodeum extending to the middle of the hind coxae, broadly and distinctly but not deeply depressed, sulcus almost completely transversely wrinkled, costulae and longitudinal carinae partly indicated or almost completely obliterated. Propodeal spiracle large, 3.5× as long as wide. Spiracular carina partly widened. Spiracular index 0.3. 1<sup>st</sup> gastral tergite 4.2×, 2<sup>nd</sup> tergite 2.0× as long as wide. Petiole with small glymmae at the anterior edge of indistinct narrow lateral areas, smooth in front of the glymmae. Petiolar suture for the greater part obliterated. 1<sup>st</sup> gastral sternite smooth. Thyridium oval. Thyridial index about 1.5. Epipleurum not separated from the 3<sup>rd</sup> gastral tergite, the latter with distinct black lateral stripes well above the ventrolateral edge. Gaster distinctly compressed posteriorly. Ovipositor index 0.6.

**Colour:** Black. Maxillary palpus dark brown basally, yellow medially and apically. Mandible narrowly marked with yellowish red dorsally and medially. Tegula yellowish brown with a dark brown mark. Wings hyaline. Stigma medium brown medially. Front leg from the femur onwards yellowish red. Mid femur yellowish red on the apical 0.3. Mid tibia yellowish red. Mid tarsus dark. Hind tibia yellowish brown medially, narrowly black basally, broadly black apically. 2<sup>nd</sup> gastral tergite red on the posterior 0.3. 3<sup>rd</sup> and 4<sup>th</sup> tergites red. Pilosity whitish.

♂ unknown.

*Dusona pictator* Hinz & Horstmann, spec. nov.

This is a variable and poorly defined species.

**Types.** Holotype (♀): Russia, Khabarovsk Terr., Khekhtsir, near Khabarovsk, 13.6.1985 (PET). – Paratypes: 1♀ Russia, Primorye, Vladivostok, 6.-10.6.1912 (Hinz/ZSM); 1♀ Japan, Hokkaido, Sapporo, Maruyama, 20.6.1958 (SAP); 1♂ Russia, Kuril Isl., Kunashir, Golovnino, 10.6.1973 (PET).

**Description.** ♀: Body length 8-10 mm. Temples distinctly constricted behind the eyes, 0.7× as long as the width of an eye, tangential lines on eyes and temples intersect on the prescutellar groove. Ocellar index 0.9. Frons slightly depressed, coriaceous, finely and densely rugose-punctate, with short radial wrinkles, the median longitudinal carina fine and partly obliterated. Antennal carina low and narrow. Face and clypeus coriaceous, finely and very densely punctate. Clypeus flat, its apex truncate medially, the rim thick and smooth. Malar space index 0.3. Genal carina low and straight ventrally, joining the distinctly raised oral carina at an acute angle. Genal index 0.2-0.3. Temple coriaceous and with fine disperse punctation medially. Flagellum with 41-44 segments, filiform, the apical 0.2 distinctly attenuate, 2<sup>nd</sup> segment 1.9×, shortest segment 0.9×, penultimate segment 1.2× as long as wide. Pronotum densely rugose-punctate laterally on the dorsal 0.4, with longitudinal wrinkles ventrally. Mesoscutum and scutellum coriaceous, rather densely or densely punctate. Scutellum with lateral carinae on the anterior 0.3. Prescutellar groove smooth or with few longitudinal striae. Prepectal carina low, ventral part merging with the pleural part, the latter complete, joining the anterior edge of the mesopleurum. Transverse carina obliterated. Mesopleurum finely coriaceous, rather densely or densely punctate. Speculum finely granulate-strigose, shining. Depression in front of the speculum with distinct longitudinal striae dorsally and medially, the latter merging with the punctation anteriorly, finely granulate-strigose and shining ventrally. Metapleurum coriaceous and densely punctate (in the holotype) or with very dense punctation on an almost smooth background (in the ♀♀ paratypes). Pleural carina distinct. Areolet rather small, pointed, receiving the 2<sup>nd</sup> recurrent vein at or distad of the middle. Nervellus slightly inclivous, intercepted. Nervellar index 0.7-0.8. Tibial spur index 0.7. Hind femur 4.7× as long as high. Hind tarsal claws short, with distinct pectinate teeth basally and medially. Propodeum extending to 0.3 of the hind

coxae, scarcely depressed, irregularly wrinkled anteriorly and medially, with some longitudinal wrinkles posteriorly, carinae almost completely obliterated. Propodeal spiracle rather large, 2.5× as long as wide. Spiracular carina indistinct. Spiracular index 0.3. 1<sup>st</sup> gastral tergite 2.9×, 2<sup>nd</sup> tergite 1.4× as long as wide. Petiole with distinct glymmae, which are bordered by longitudinal carinae dorsally and ventrally, smooth in front of the glymmae. Petiolar suture complete. 1<sup>st</sup> gastral sternite for the greater part smooth, with some transverse striae posteriorly. Thyridium oval. Thyridial index about 2.0. Epipleurum separated from the 3<sup>rd</sup> gastral tergite, the crease marked with black. Epipleural index 0.7. Gaster not strongly compressed posteriorly. Ovipositor index 0.7.

Colour: Black. Maxillary palpus dark brown. Mandible sometimes tinged with brown medially. Wings hyaline. Stigma light brown medially. Front femur yellowish red, sometimes darkened ventrally. Front tibia and tarsus yellow. Mid femur sometimes yellowish brown on the apical 0.2. Mid tibia yellowish brown or brown. Hind tibia blackish (in the ♀♀ paratypes) or tinged with yellowish brown medially (in the holotype). 2<sup>nd</sup> gastral tergite completely black dorsally or marked with red on the posterior 0.1, sometimes with broad red marks laterally. The following tergites red laterally, marked with black dorsally (to a varying extent), sometimes the 3<sup>rd</sup> or 4<sup>th</sup> tergite completely red, the 6<sup>th</sup> tergite half red in lateral view. Gaster sternites red. Pilosity whitish.

♂: Body length 8 mm. Flagellum with 44 segments. Metapleurum with very dense punctation on a smooth background. Propodeum with the longitudinal carinae present medially and posteriorly. Tegula yellowish brown. Front and mid tibiae and tarsi yellow. Hind tibia dark yellowish brown medially, narrowly black basally, broadly black apically. Genital clasper reddish brown. In other characters similar to the ♀. The association of the only known ♂ with the ♀♀ is not certain.

**Variety:** Body length 7-9 mm. Flagellum with 40-43 segments. Propodeum sometimes with transverse wrinkles posteriorly. Mandible marked with yellow medially. Tegula yellowish. 2<sup>nd</sup> gastral tergite dorsally red on the posterior 0.2-0.3, the red marks more extended laterally. The following tergites for the greater part red, narrowly marked with black dorsally. Material: 2♀♀ Russia, Primorye, Posyet (1♀ PET, 1♀ Hinz/ZSM); 1♀ Russia, Primorye, Khasan (PET). These ♀♀ may or may not belong to *D. pictator*.

*Dusona pineticola sibirica* Hinz, 1985

**Description.** ♀: Body length 11-14 mm. Temples distinctly constricted behind the eyes, 0.9× as long as the width of an eye, tangential lines on eyes and temples intersect on the prescutallar groove. Ocellar index 0.5. Frons distinctly depressed, coriaceous, finely and densely rugose-punctate dorsally, with short radial wrinkles in the depressions, with a rather low median longitudinal bulge and a median longitudinal carina on its top. Antennal carina distinctly raised, with a strong transversely striate projection dorsally (nose-like) (Fig. 7). Face and dorsal 0.3 of the clypeus coriaceous, densely rugose-punctate. Clypeus slightly concave, coriaceous and rather densely punctate ventrally, its apex slightly convex medially. Malar space index 0.5. Genal carina low and straight ventrally, joining the distinctly raised oral carina at an acute angle. Genal index 0.7. Temple finely coriaceous and with fine disperse punctation medially. Flagellum with 46-51 segments, filiform, the apical 0.3 distinctly attenuate, 2<sup>nd</sup> segment 1.7×, shortest segment 1.0×, penultimate segment 1.8× as long as wide. Pronotum densely rugose-punctate laterally on the dorsal 0.3, with longitudinal wrinkles ventrally. Mesoscutum and scutellum coriaceous, very densely punctate. Scutellum with lateral carinae on the anterior 0.8. Prescutellar groove with fine longitudinal striae. Prepectal carina low, ventral part merging with the pleural part, the latter almost joining the anterior edge of the mesopleurum, the dorsal 0.1 replaced by several wrinkles. Transverse carina obliterated. Mesopleurum densely punctate or rugose-punctate on a very finely coriaceous and shining background. Speculum with fine oblique striae. Depression in front of the speculum with distinct rather short longitudinal striae, which merge with the punctation anteriorly. Metapleurum densely rugose. Pleural carina for the greater part obliterated and replaced by wrinkles, rarely complete. Areolet large, sessile, pointed or short-stalked, receiving the 2<sup>nd</sup> recurrent vein distinctly basad of the middle. Nervellus inclivous, distinctly intercepted. Nervellar index 0.8. Tibial spur index 0.8. Hind femur 5.7× as long as high. Hind tarsal claws short, with rather long pectinate teeth basally and medially. Propodeum extending to 0.4 of the hind coxae, broadly and not deeply depressed, with short transverse wrinkles anteriorly and long transverse wrinkles posteriorly, costulae partly present, longitudinal carinae obliterated anteriorly and medially, present posteriorly. Propodeal spiracle rather small, 3.1× as long as wide. Spiracular carina indistinct or obliterated. Spiracular index 0.5. 1<sup>st</sup> gastral tergite

5.1×, 2<sup>nd</sup> tergite 1.9× as long as wide. Petiole without glymmae or with very small glymmae at the anterior edge of indistinct narrow lateral areas, almost smooth in front of these areas, with some very fine longitudinal striae. Petiolar suture partly obliterated. 1<sup>st</sup> gastral sternite for the greater part smooth, with fine transverse striae posteriorly. Thyridium elongate. Thyridial index about 1.0. Epipleurum not separated from the 3<sup>rd</sup> gastral tergite, the latter with distinct black lateral stripes well above the ventrolateral edge. Gaster distinctly compressed posteriorly. Ovipositor index 0.4.

Colour: Black. Maxillary palpus dark brown. Mandible narrowly marked with yellow dorsally and medially. Wings hyaline. Stigma dark brown medially. Front femur and tibia yellowish brown. Front tarsus dark brown. Sometimes mid femur and mid tibia partly tinged with brown. 2<sup>nd</sup> gastral tergite red on the posterior 0.1. 3<sup>rd</sup> tergite red. 4<sup>th</sup> tergite completely red or red on the anterior 0.8.

♂ not available for study.

**Material** (18♀, 4♂): Russia: Irkutsk Prov.: Irkutsk; Chita Prov.: Adrianovka, Chita (PET), Lake Ivan (Hinz/ZSM, PET), Klichka (PET). Kazakhstan: Alma-Ata. Tadzhikistan: Pamir Mts., 2800 m (MOS). Kirgiziya: Alayskiy Mts., 3000-3100 m (LIN, PAR), Terskey Alatau Mts. (MOS). Mongoliya: Hentiy Prov.: Tsenhermandal (PET).

*Dusona polita* (Förster, 1868)

**Description.** ♀: Body length 10-12 mm. Temples distinctly constricted behind the eyes, 0.8× as long as the width of an eye, tangential lines on eyes and temples intersect on the scutellum. Ocellar index 0.8. Frons slightly depressed, coriaceous, finely and rather densely punctate, with a fine and partly obliterated median longitudinal carina, with fine and short radial wrinkles. Antennal carina low and narrow. Face and dorsal half of the clypeus coriaceous, very densely punctate. Clypeus flat, coriaceous and densely punctate ventrally, its apex truncate medially. Malar space index 0.2. Genal carina low ventrally, slightly bent sideways, joining the distinctly raised oral carina at an acute angle. Genal index 0.4. Temple finely coriaceous and with very fine disperse punctation medially. Flagellum with 42-46 segments, filiform, the apical 0.3 attenuate, 2<sup>nd</sup> segment 1.3×, shortest segment 0.7×, penultimate segment 1.0× as long as wide. Pronotum densely rugose-punctate laterally on the dorsal 0.2, with longitudinal wrinkles ventrally. Mesoscutum and scutellum coriaceous,

very densely punctate. Scutellum with lateral carinae on the anterior 0.2. Prescutellar groove smooth medially, with fine longitudinal striae laterally. Prepectal carina low, ventral part merging with the pleural part, the dorsal 0.3 of the latter obliterated or replaced by wrinkles, sometimes almost complete. Transverse carina for the greater part obliterated. Mesopleurum distinctly and densely punctate on a very finely coriaceous and shining background. Speculum very finely coriaceous, partly smooth, strongly shining. Depression in front of the speculum dorsally and medially with fine longitudinal wrinkles, which merge with the punctuation anteriorly, the ventral 0.3 finely coriaceous, shining. Metapleurum with fine and disperse or rather dense punctuation on a finely coriaceous and shining background. Pleural carina distinct. Areolet large, short-stalked, receiving the 2<sup>nd</sup> recurrent vein basad of the middle. Nervellus almost vertical, distinctly intercepted. Nervellar index 0.7-0.8. Tibial spur index 0.7. Hind femur 4.8× as long as high. Hind tarsal claws rather long, with distinct pectinate teeth basally and medially. Propodeum extending to 0.3 of the hind coxae, broadly and rather deeply depressed, sulcus for the greater part transversely wrinkled, with a short median longitudinal keel posteriorly, costulae obliterated, longitudinal carinae present posteriorly and sometimes also medially, obliterated anteriorly. Propodeal spiracle rather large, 2.8× as long as wide. Spiracular carina narrow, sometimes replaced by several wrinkles. Spiracular index 0.5. 1<sup>st</sup> gastral tergite 3.4×, 2<sup>nd</sup> tergite 1.6× as long as wide. Petiole with large glymmae, which are bordered by longitudinal carinae dorsally, smooth in front of the glymmae. Petiolar suture partly obliterated. 1<sup>st</sup> gastral sternite for the greater part smooth, with fine transverse striae posteriorly. Thyridium elongate. Thyridial index about 1.0. Epipleurum separated from the 3<sup>rd</sup> gastral tergite, the crease marked with black. Epipleural index 0.6-0.7. Gaster distinctly compressed posteriorly, strongly shining. Ovipositor index 0.7-0.8.

Colour: Black. Maxillary palpus yellowish brown. Mandible narrowly marked with yellow dorsally and medially. Tegula dark brown. Wings hyaline. Stigma yellowish brown medially. Front trochanter marked with yellow. Front femur, tibia and tarsus yellowish red. Mid femur yellowish red on the apical 0.4-0.7. Mid tibia yellowish red. Mid tarsus dark brown. Hind tibia broadly yellowish brown medially, narrowly dark brown basally and apically. Hind tarsus dark brown. 2<sup>nd</sup> gastral tergite red on the posterior 0.4-0.5. 3<sup>rd</sup> tergite red. 4<sup>th</sup> tergite red, marked with black posteriorly (to a variable extend). Pilosity whitish.

♂: Depression in front of the speculum finely coriaceous and shining on the ventral 0.5-0.6. Propodeum rather narrowly and not deeply depressed, longitudinal carinae complete or almost complete. Epipleural index 0.7-0.8. Maxillary palpus yellow. Mandible broadly yellow medially. Tergula yellow. Front and mid legs from the tip of the coxa onwards yellow, the femora yellowish red. Hind femur red on the apical 0.2. Hind tibia broadly yellow medially, narrowly medium brown basally and apically. In other characters similar to the ♀.

**Material** (1♀): Russia: Primorye: Pogranichnyy (PET).

#### *Dusona propodeator* Hinz, 1994

**Description.** ♀: Body length 9 mm. Temples strongly constricted behind the eyes, 0.5× as long as the width of an eye, tangential lines on eyes and temples intersect on the middle of the mesoscutum. Ocellar index 0.5. Frons distinctly but not deeply depressed above the antennal carinae, coriaceous, finely and densely rugose-punctate, with a very fine median longitudinal carina, without radial wrinkles. Antennal carina slightly but distinctly raised, the rim bent upwards and at the same time somewhat widened to a smooth bulge. Face and dorsal 0.6 of the clypeus densely rugose-punctate and rugose. Clypeus flat, finely coriaceous and rather densely punctate ventrally, its apex truncate or slightly concave medially. Malar space index 0.2. Genal carina low and straight ventrally, joining the slightly raised oral carina at an acute angle. Genal index 0.3. Temple finely coriaceous and with fine disperse punctuation medially. Flagellum with 40-42 segments, filiform, the apical 0.1 attenuate, 2<sup>nd</sup> segment 2.7×, shortest segment 1.1×, penultimate segment 1.2× as long as wide. Pronotum very densely punctate on a smooth background laterally on the dorsal 0.2, with distinct longitudinal striae on a smooth background ventrally. Mesoscutum coriaceous, dull, very densely punctate. Scutellum densely punctate on a smooth background, with lateral carinae on the anterior 0.7. Prescutellar groove for the greater part smooth. Prepectal carina low, ventral part merging with the pleural part, the dorsal 0.3 of the latter obliterated. Transverse carina complete, low. Mesopleurum with rather dense or dense punctuation on a slightly coriaceous and somewhat shining background. Speculum finely granulate-strigose. Depression in front of the speculum with distinct long longitudinal striae, which merge with the punctuation anteriorly. Meta-

pleurum densely rugose-punctate. Pleural carina distinct. Areolet rather small, stalked, receiving the 2<sup>nd</sup> recurrent vein slightly distad of the middle. Nervellus slightly reclivous, not intercepted or weakly intercepted. In the latter case nervellar index 0.7. Tibial spur index 0.5. Hind femur 5.5× as long as high. Hind tarsal claws short, with short pectinate teeth basally. Propodeum extending to 0.7 of the hind coxae, shallowly and narrowly depressed, the longitudinal furrow with short transverse wrinkles, irregularly wrinkled beside the furrow, costulae complete, longitudinal carinae present anteriorly (as short stubs) and posteriorly, obliterated medially. Propodeal spiracle rather large, 2.8× as long as wide. Spiracular carina widened. Spiracular index 0.3. 1<sup>st</sup> gastral tergite 4.7×, 2<sup>nd</sup> tergite 2.7× as long as wide. Petiole without glymmae, with narrow lateral areas, smooth in front of these areas. Petiolar suture distinct. 1<sup>st</sup> gastral sternite for the greater part smooth, with transverse striae posteriorly. Thyridium elongate. Thyridial index about 1.0. Epipleurum not separated from the 3<sup>rd</sup> gastral tergite, the latter with black lateral stripes well above the ventrolateral edge. Gaster distinctly compressed posteriorly. Ovipositor index 0.5.

Colour: Black. Maxillary palpus yellowish brown. Mandible narrowly marked with reddish brown medially. Wings hyaline. Stigma dark brown medially. Front femur yellowish brown on the apical half. Front tibia and tarsus yellowish brown. Mid tibia and tarsus dark brown, the tibia narrowly marked with yellow basally and apically. 3<sup>rd</sup> and 4<sup>th</sup> gastral tergites broadly black dorsally, marked with red ventrolaterally (half red or less in lateral view). Pilosity whitish.

**Material** (2♀): Japan: Hokkaido: Atsusabe (SAP); Honshu: Mt. Odaigahara near Nara (Hinz/ZSM).

?♂: Flagellum with 47 segments, 2<sup>nd</sup> segment 2.5×, shortest segment 1.3×, penultimate segment 1.4× as long as wide. Metapleurum coriaceous, finely and densely punctate. Areolet receiving the 2<sup>nd</sup> recurrent vein basad of the middle. Propodeum extending to the middle of the hind coxae. Mandible broadly reddish brown medially. Front leg from the tip of the coxa onwards yellowish. Mid femur yellow on the apical 0.2. Mid tibia and tarsus yellow. Hind tibia tinged with yellowish brown subbasally on the dorsal side. 2<sup>nd</sup> gastral tergite red on the posterior 0.1. 3<sup>rd</sup> and 4<sup>th</sup> tergites red, narrowly marked with black dorsally. In other characters similar to the ♀. Material: 1♂ Russia, Khabarovsk Terr., Khekhtsir near Khabarovsk (PET). This ♂ may belong to *D. propodeator*.

*Dusona pseudobucculenta* Hinz & Horstmann,  
spec. nov.

**Holotype** (♀): Russia, Chita Prov., Urulyunguy, E of Borzya, 5.7.1975 (PET).

**Description.** ♀: Body length 11 mm. Temples slightly constricted behind the eyes, 0.8× as long as the width of an eye, tangential lines on eyes and temples intersect on the petiole. Ocellar index 1.1. Frons not depressed, coriaceous, densely rugose-punctate, with a very fine median longitudinal carina, with indistinct radial wrinkles. Antennal sockets very close to each other. Antennal carina low and narrow. Face and clypeus densely rugose-punctate. Clypeus flat, its apex slightly convex medially, the rim thick and smooth. Malar space index 0.5. Genal carina low ventrally, slightly bent sideways, joining the distinctly raised oral carina at a right angle. Genal index 0.5. Temple with fine and rather dense punctation on an almost smooth background medially. Flagellum with 43 segments, filiform, the apical 0.3 distinctly attenuate, 2<sup>nd</sup> segment 1.4×, shortest segment 1.0×, penultimate segment 1.6× as long as wide. Pronotum very densely punctate on a smooth background laterally, without wrinkles. Mesoscutum and scutellum very densely punctate on a smooth background. Scutellum with lateral carinae on the anterior 0.4. Prescutellar groove with fine longitudinal striae. Prepectal carina low, ventral part merging with the pleural part, the dorsal 0.4 of the latter obliterated. Pleural part of the prepectus distinctly punctate without wrinkles. Transverse carina strongly raised anteriorly, obliterated posteriorly. Mesopleurum with rather dense or dense punctation on a smooth background. Speculum punctate posteriorly, with fine oblique striae anteriorly. Depression in front of the speculum with distinct short longitudinal wrinkles, which merge with the punctation anteriorly. Metapleurum very densely punctate on a smooth background. Pleural carina distinct. Areolet large, narrowly sessile, receiving the 2<sup>nd</sup> recurrent vein at the middle. Nervellus slightly inclivous, weakly intercepted. Nervellar index 0.8. Tibial spur index 0.6. Hind femur 4.9× as long as high. Hind tarsal claws rather long, with some distinct pectinate teeth basally. Propodeum extending to 0.3 of the hind coxae, scarcely depressed, irregularly wrinkled, with a short median longitudinal keel medially, costulae partly present, longitudinal carinae almost completely obliterated. Propodeal spiracle small, 3.5× as long as wide. Spiracular carina obliterated and covered with wrinkles. Spiracular index 0.9. 1<sup>st</sup> gastral tergite 3.8×, 2<sup>nd</sup> tergite 1.5× as

long as wide. Petiole with distinct glymmae, which are bordered by longitudinal carinae dorsally, smooth in front of the glymmae. Petiolar suture obliterated. 1<sup>st</sup> gastral sternite smooth. Thyridium oval. Thyridial index about 1.0. Epipleurum not separated from the 3<sup>rd</sup> gastral tergite, the latter with distinct black lateral stripes well above the ventrolateral edge. Gaster distinctly compressed posteriorly. Ovipositor index about 0.7.

Colour: Black. Maxillary palpus dark brown. Mandible narrowly marked with yellowish red dorsally and medially. Wings hyaline. Stigma dark brown medially. Front coxa, trochanter and femur black, marked with yellow anteriorly. Front tibia yellowish brown. Front tarsus dark brown. 2<sup>nd</sup> gastral tergite red on the posterior 0.3. 3<sup>rd</sup> and 4<sup>th</sup> tergites red, 4<sup>th</sup> tergite narrowly marked with black dorsally and posteriorly. Pilosity whitish.

♂ unknown.

### *Dusona pugillator* (Linnaeus, 1758)

*Dusona amictor* Hinz, 1979 (syn. nov.)

*Dusona scutellatoides* Hinz, 1985 (syn. nov.)

The holotype (♀) of *Dusona amictor* Hinz from Hakone/Honshu/Japan (OTT) cannot be found now. The specimen was obviously characterized by an unusually large propodeal spiracle. The synonymy is already indicated in the original description (Hinz 1979: 220). The holotype (♀) of *Dusona scutellatoides* Hinz from Londoko/Yevreyskiy A.O./Russia (PET) has recently been studied by the junior author.

**Description.** ♀: Body length 14-17 mm. Temples strongly constricted behind the eyes, 0.6× as long as the width of an eye, tangential lines on eyes and temples intersect on the posterior half of the mesoscutum. Ocellar index 0.9. Frons slightly but distinctly depressed above the antennal carinae, coriaceous, finely and densely rugose-punctate, with a fine median longitudinal carina, with distinct radial wrinkles, which extend to half the distance to the median ocellus. Antennal carina slightly but distinctly raised, the rim bent upwards (ear-like) (this structure being variable and sometimes indistinct). Face and dorsal 0.6 of the clypeus coriaceous, rather coarsely rugose. Clypeus flat, finely coriaceous and rather densely punctate ventrally, its apex truncate or slightly concave medially. Malar space index 0.3. Genal carina rather straight ventrally, slightly raised, joining the distinctly raised oral carina at an acute angle. Genal index 0.5. Temple finely coriaceous and with very fine

disperse punctation medially. Flagellum with 52-58 segments, filiform, the apical 0.3 distinctly attenuate, 2<sup>nd</sup> segment 1.5×, shortest segment 1.0×, penultimate segment 1.3× as long as wide. Pronotum finely and densely rugose laterally on the dorsal 0.2, with longitudinal wrinkles ventrally. Mesoscutum and scutellum coriaceous, finely and densely punctate. Scutellum with lateral carinae on the anterior 0.3. Prescutellar groove smooth medially, with fine longitudinal striae laterally. Prepectal carina low, ventral part merging with the pleural part or with the transverse carina, pleural part complete, joining the anterior edge of the mesopleurum, transverse carina complete or obliterated posteriorly. Mesopleurum distinctly coriaceous, distinctly and rather densely or densely punctate. Speculum coriaceous, rather dull. Depression in front of the speculum dorsally with rather short longitudinal striae, which merge with the punctation anteriorly, the ventral 0.3-0.5 coriaceous. Metapleurum coriaceous, densely rugose. Pleural carina distinct. Areolet large, short-stalked, receiving the 2<sup>nd</sup> recurrent vein basad of the middle. Nervellus slightly inclivous, strongly intercepted. Nervellar index 0.7. Tibial spur index 0.4. Hind femur 5.5× as long as high. Hind tarsal claws short, with long pectinate teeth basally and medially. Propodeum extending to 0.3 of the hind coxae, broadly and deeply depressed, sulcus for the greater part with long transverse wrinkles, costulae partly present, longitudinal carinae strong medially and posteriorly, almost complete. Propodeal spiracle large, 3.9× as long as wide. Spiracular carina indistinct or obliterated. Spiracular index 0.4. 1<sup>st</sup> gastral tergite 4.8×, 2<sup>nd</sup> tergite 2.0× as long as wide. Petiole with large glymmae, which are bordered by longitudinal carinae dorsally, with very fine sculpture or smooth in front of the glymmae. Petiolar suture for the greater part obliterated. 1<sup>st</sup> gastral sternite coriaceous anteriorly, smooth medially, transversely striate posteriorly. Thyridium oval. Thyridial index about 2.0. Epipleurum separated from the 3<sup>rd</sup> gastral tergite anteriorly, the crease marked with black. Epipleural index 0.2-0.4. Gaster strongly compressed posteriorly. Ovipositor index 0.6.

Colour: Black. Maxillary palpus yellowish brown. Mandible broadly yellow medially. Tegula yellowish brown. Wings hyaline or slightly infusate. Stigma yellowish brown medially. Front leg from the tip of the coxa onwards yellowish red, the tibia yellow. Mid femur yellow apically (to a variable extent). Mid tibia yellow. Mid tarsus dark brown. Hind femur completely black or yellowish red on the apical 0.2. Hind tibia broadly yellow medially, narrowly brown or black basally

and apically. 2<sup>nd</sup> gastral tergite dorsally red on the posterior 0.2-0.5, the red marks more extended laterally, sometimes the tergite completely red laterally. 3<sup>rd</sup> and 4<sup>th</sup> tergites red, 4<sup>th</sup> tergite sometimes marked with black posteriorly. 5<sup>th</sup> tergite sometimes marked with red anteriorly. Pilosity whitish.

♂: Longitudinal carinae of propodeum sometimes complete. Front and mid legs almost completely yellowish red, the coxae marked with black basally. In other characters similar to the ♀.

**Material** (10♀♀, 6♂♂): Russia: Novosibirsk Prov.: Cherepanovo (MOS); Chita Prov.: Chita, Karymskoye, Kurort Darasun; Amur Prov.: Novorossiyska; Yevreyskiy A.O.: Londoko; Khabarovsk Terr.: Khekhtsir near Khabarovsk (PET); Primorye: Spassk Dalniy (MOS); Kamchatka: Kozyrevsk, Milkovo, Ust-Kamchatsk. Kazakhstan: Kokchetav (PET). Japan: Hokkaido: Maruyama (SAP).

### *Dusona pulmentariae* Hinz 1963

**Description.** ♀: Body length 6-9 mm. Temples slightly constricted behind the eyes, 0.9× as long as the width of an eye, tangential lines on eyes and temples intersect on the propodeum. Ocellar index 0.9. Frons scarcely depressed, coriaceous, densely rugose-punctate, with a very fine and incomplete median longitudinal carina or the latter obliterated, radial wrinkles scarcely indicated. Antennal carina low and narrow. Face and dorsal 0.8 of the clypeus coriaceous and densely rugose-punctate. Clypeus flat, finely coriaceous and densely punctate ventrally, its apex slightly convex medially. Malar space index 0.5. Genal carina low ventrally, slightly bent sideways, joining the distinctly raised oral carina at a right angle. Genal index 0.2. Temple finely coriaceous and with fine disperse punctation medially. Flagellum with 36-40 segments, filiform, the apical 0.2 slightly attenuate, 2<sup>nd</sup> segment 1.5×, shortest segment 0.9×, penultimate segment 1.1× as long as wide. Pronotum very densely punctate laterally on the dorsal 0.2, with longitudinal wrinkles ventrally. Mesoscutum coriaceous, dull, very densely punctate. Scutellum very densely punctate on a partly smooth background, with lateral carinae on the anterior 0.6. Prescutellar groove smooth medially, with longitudinal striae laterally. Prepectal carina low, ventral part merging with the pleural part, the latter complete or almost complete, sometimes the dorsal 0.2 replaced by several wrinkles. Trans-

verse carina almost completely obliterated. Mesopleurum finely coriaceous, distinctly and densely punctate. Speculum finely granulate-strigose, shining. Depression in front of the speculum with distinct longitudinal striae, which merge with the punctation anteriorly. Metapleurum distinctly and coarsely rugose. Pleural carina complete. Areolet rather small, pointed or short-stalked, receiving the 2<sup>nd</sup> recurrent vein distinctly distad of the middle. Nervellus almost vertical, rather weakly intercepted. Nervellar index 0.7. Tibial spur index 0.6. Hind femur 5.0× as long as high. Hind tarsal claws rather long, with distinct pectinate teeth basally and medially. Propodeum extending to the middle of the hind coxae, deeply but rather narrowly depressed, with strong transverse striae in the longitudinal furrow, coarsely and irregularly wrinkled beside the furrow, carinae complete but partly indistinct and covered with wrinkles. Propodeal spiracle small, 3.0× as long as wide. Spiracular carina narrow. Spiracular index 0.6. 1<sup>st</sup> gastral tergite 4.5×, 2<sup>nd</sup> tergite 2.0× as long as wide. Petiole without glymmae, with distinct narrow lateral areas, with very fine sculpture or smooth in front of these areas. Petiolar suture partly obliterated. 1<sup>st</sup> gastral sternite smooth. Thyridium oval. Thyridial index about 1.0. Epipleurum not separated from the 3<sup>rd</sup> gastral tergite, the latter without black lateral stripes. Gaster distinctly compressed posteriorly. Ovipositor index 0.7.

Colour: Black. Maxillary palpus dark brown basally and medially, yellowish brown apically. Mandible narrowly marked with reddish brown medially. Flagellum light brown apically. Tegula yellow. Wings hyaline. Stigma yellowish brown medially. Front femur yellowish red, slightly darkened basally. Front tibia and tarsus yellow. Mid femur yellowish red on the apical 0.4. Mid tibia yellow. Mid tarsus yellow basally, black apically. Hind tibia yellow basally and medially, the apical 0.3 black. Hind tarsus blackish, the basitarsus narrowly yellow basally. 2<sup>nd</sup> gastral tergite dorsally red on the posterior 0.2-0.3, red marks more extended laterally. 3<sup>rd</sup> tergite red, sometimes marked with black posteriorly. 4<sup>th</sup> tergite narrowly marked with red anteriorly or completely black. Pilosity whitish.

♂: Similar to the ♀.

**Material** (3♀♀, 6♂♂): Russia: Chita Prov.: Nerchinskiy Zavod, Priargunsk; Primorye: Khasan, Novokachalinsk (PET). Kirgiziya: Kashkasi in Kirgizskiy Mts., 1800 m (LIN). China: Heilongjiang Prov.: Charbin (= Harbin) (AEI).

*Dusona radiator* Hinz & Horstmann, spec. nov.

**Types.** Holotype (♀): Russia, Khabarovsk Terr., Khekhtsir, near Khabarovsk, 12.6.1983 (PET). – Paratypes: 1♀ same locality, 12.6.1985 (PET); 1♀ same locality, 14.6.1985 (Hinz/ZSM).

**Description.** ♀: Body length 7 mm. Temples distinctly constricted behind the eyes, 0.8× as long as the width of an eye, tangential lines on eyes and temples intersect on the scutellum. Ocellar index 0.8. Frons scarcely depressed, coriaceous, densely rugose, with a fine median longitudinal carina, with short and indistinct radial wrinkles. Antennal carina low and narrow. Face and dorsal 0.7 of the clypeus densely rugose-punctate. Clypeus flat, coriaceous and with fine disperse punctation ventrally, its apex scarcely convex medially, the rim thick and smooth. Malar space index 0.4. Genal carina low ventrally, distinctly bent sideways and slightly bent forwards, joining the oral carina close to the base of the mandible at a right angle. Genal index 0.1 or less. Temple finely coriaceous and with very fine disperse punctation medially. Flagellum with 36–37 segments, filiform, the apical 0.2 slightly attenuate, 2<sup>nd</sup> segment 2.3×, shortest segment 1.0×, penultimate segment 1.0× as long as wide. Pronotum with dense irregular wrinkles laterally on the dorsal 0.1, with longitudinal wrinkles ventrally. Mesoscutum and scutellum coriaceous and densely punctate. Scutellum with lateral carinae on the anterior 0.7. Prescutellar groove with distinct short longitudinal striae. Prepectal carina low, ventral part merging with the pleural part, the dorsal 0.2 of the latter obliterated and covered with wrinkles. Transverse carina obliterated. Mesopleurum distinctly coriaceous, rather densely or densely punctate. Speculum with fine oblique striae, shining. Depression in front of the speculum with distinct long longitudinal striae, which merge with the punctation anteriorly. Metapleurum coriaceous, finely and densely rugose. Pleural carina distinct. Areolet rather small, pointed or narrowly sessile, receiving the 2<sup>nd</sup> recurrent vein at the middle. Nervellus vertical, weakly intercepted. Nervellar index 0.8. Tibial spur index 0.7. Hind femur 4.8× as long as high. Hind tarsal claws short, with pectinate teeth basally. Propodeum extending to 0.4 of the hind coxae, slightly and narrowly depressed, with few short transverse wrinkles in the longitudinal furrow, with some longitudinal wrinkles posteriorly, in other parts irregularly wrinkled, carinae almost completely obliterated. Propodeal spiracle small, 2.0× as long as wide. Spiracular carina narrow.

Spiracular index 0.8. 1<sup>st</sup> gastral tergite 3.9×, 2<sup>nd</sup> tergite 1.7× as long as wide. Petiole smooth laterally, without glymmae. Petiolar suture partly obliterated. 1<sup>st</sup> gastral sternite for the greater part smooth, with fine transverse striae posteriorly. Thyridium elongate. Thyridial index about 0.5. Epipleurum not separated from the 3<sup>rd</sup> gastral tergite, the latter with distinct black lateral stripes well above the ventrolateral edge. Gaster distinctly but not strongly compressed posteriorly. Ovipositor index 0.6.

Colour: Black. Maxillary palpus yellow. Mandible narrowly marked with yellowish red dorsally and medially. Tegula yellowish brown. Wings hyaline. Stigma yellowish brown medially. Front trochanter yellowish red dorsally, black ventrally. Front femur yellowish red. Front tibia and tarsus yellow. Mid femur yellowish red on the apical 0.4. Mid tibia and tarsus yellow. Hind tibia yellowish brown medially, narrowly marked with dark brown basally, broadly marked with dark brown apically. Hind tarsus dark brown. 2<sup>nd</sup> gastral tergite red on the posterior 0.1. 3<sup>rd</sup> and 4<sup>th</sup> tergites red, both marked with dark brown to a variable extent. Pilosity whitish.

♂ unknown.

*Dusona recta* (Thomson, 1887)

**Description.** ♀: Body length 8–10 mm. Temples strongly constricted behind the eyes, 0.6× as long as the width of an eye, tangential lines on eyes and temples intersect on the posterior half of the mesoscutum. Ocellar index 0.6. Frons slightly depressed, coriaceous, finely and rather densely punctate, with a very fine median longitudinal carina, with distinct short radial wrinkles, which extend to 0.3 the distance to the median ocellus. Antennal carina narrow, slightly raised (inconspicuous). Face and dorsal half of the clypeus coriaceous, densely rugose-punctate. Clypeus flat, coriaceous and dispersely or rather densely punctate ventrally, its apex truncate medially. Malar space index 0.3. Genal carina straight ventrally, slightly raised, joining the slightly raised oral carina at an acute angle. Genal index 1.5. Temple finely coriaceous and with very fine disperse punctation medially. Flagellum with 42–45 segments, filiform, the apical 0.2 attenuate, 2<sup>nd</sup> segment 2.0×, shortest segment 0.8×, penultimate segment 1.2× as long as wide. Pronotum densely rugose-punctate laterally on the dorsal 0.2, with longitudinal wrinkles ventrally. Mesoscutum and scutellum coriaceous, dull, densely or very densely punctate. Scutellum

with lateral carinae on the anterior 0.3. Prescutellar groove smooth medially, with longitudinal striae laterally. Prepectal carina low, ventral part merging with the pleural part, the latter complete, joining the anterior edge of the mesopleurum. Transverse carina present anteriorly. Mesopleurum distinctly coriaceous, rather finely and rather densely punctate. Speculum coriaceous, rather dull. Depression in front of the speculum dorsally with fine longitudinal striae, which merge with the punctation anteriorly, the ventral 0.6 coriaceous. Metapleurum coriaceous, finely and densely punctate, partly with fine irregular wrinkles. Pleural carina distinct. Areolet rather small, long-stalked, receiving the 2<sup>nd</sup> recurrent vein distad of the middle. Nervellus vertical, weakly intercepted. Nervellar index 0.8. Tibial spur index 0.5. Hind femur 4.9× as long as high. Hind tarsal claws short, with distinct pectinate teeth basally and medially. Propodeum extending to 0.3 of the hind coxae, broadly and deeply depressed, sulcus coriaceous or with few short transverse wrinkles anteriorly, with rather long transverse wrinkles medially, with transverse wrinkles over the total breadth of the sulcus posteriorly, carinae for the greater part obliterated or covered with wrinkles, costulae sometimes present. Propodeal spiracle rather large, 2.7× as long as wide. Spiracular carina narrow or widened. Spiracular index 0.5. 1<sup>st</sup> gastral tergite 4.1×, 2<sup>nd</sup> tergite 1.8× as long as wide. Petiole with distinct but rather small and often elongate glymmae, which are bordered by longitudinal carinae dorsally, smooth in front of the glymmae. Petiolar suture almost completely obliterated. 1<sup>st</sup> gastral sternite for the greater part smooth, with transverse striae posteriorly. Thyridium oval. Thyridial index about 1.5. Epipleurum separated from the 3<sup>rd</sup> gastral tergite anteriorly and folded in, a black lateral stripe parallel with the crease in a short distance anteriorly, divergent from the ventrolateral edge posteriorly. Epipleural index 0.2-0.3. Gaster distinctly compressed posteriorly. Ovipositor index 0.6.

Colour: Black. Maxillary palpus yellowish red. Mandible narrowly marked with yellow dorsally and medially. Tegula yellowish brown. Wings hyaline. Stigma yellowish brown medially. Front trochanter marked with yellow. Front femur yellowish red. Front tibia and tarsus yellow. Mid femur yellow on the apical 0.3. Mid tibia yellow. Mid tarsus brown. Hind tibia yellow medially, narrowly black basally, broadly black apically. 2<sup>nd</sup> gastral tergite red on the posterior 0.4. 3<sup>rd</sup> and 4<sup>th</sup> tergites red. Pilosity whitish.

♂: Propodeum with complete costulae, longitudinal carinae present medially and posteriorly.

Front coxa yellow apically and front trochanter yellow. Mid femur almost completely yellowish red. In other characters similar to the ♀.

**Material** (6♀♀, 2♂♂): Russia: Primorye: Kanganz, Partizansk, Pozhiga SO of Dalnerechensk, Vladivostok; Kuril Isl.: Dubovoye and Volcano Golovina on Kunashir (PET).

*Dusona rectator* Hinz & Horstmann, spec. nov.

**Holotype** (♀): Russia, Primorye, Sudzukhinskiy Reserve, 180 km E of Vladivostok, 6.7.1946 (MOS).

**Description.** ♀: Body length 11 mm. Temples strongly constricted behind the eyes, 0.6× as long as the width of an eye, tangential lines on eyes and temples intersect on the posterior half of the mesoscutum. Ocellar index 0.6. Frons slightly depressed, coriaceous, very finely punctate, with a distinct narrow median longitudinal carina, with short and indistinct radial wrinkles. Antennal carina low and narrow, the rim inconspicuously bent upwards. Face and clypeus coriaceous, densely rugose-punctate. Clypeus flat, its apex almost truncate medially. Malar space index 0.3. Genal carina low and straight ventrally, joining the slightly but distinctly raised oral carina at an acute angle. Genal index 0.5. Temple finely coriaceous and with fine disperse punctation medially. Flagellum filiform, its apical 0.3 broken off in the only known specimen, 2<sup>nd</sup> segment 1.7×, shortest segment 1.0× as long as wide. Pronotum densely rugose-punctate laterally on the dorsal 0.3, with longitudinal wrinkles ventrally. Mesoscutum and scutellum coriaceous, densely punctate. Scutellum with lateral carinae on the anterior half. Prescutellar groove smooth. Prepectal carina low, ventral part merging with the pleural part, the latter almost joining the anterior edge of the mesopleurum. Transverse carina present anteriorly. Mesopleurum distinctly coriaceous, densely punctate. Speculum coriaceous. Depression in front of the speculum for the greater part coriaceous, with fine and short longitudinal striae medially, which merge with a coriaceous area without punctation anteriorly. Metapleurum distinctly coriaceous, densely punctate. Pleural carina strong. Areolet large, short-stalked, receiving the 2<sup>nd</sup> recurrent vein slightly distad of the middle. Nervellus slightly reclivous, distinctly intercepted. Nervellar index 0.7. Tibial spur index 0.6. Hind femur 5.1× as long as high. Hind tarsal claws short, with pectinate teeth basally. Propodeum extending to 0.3 of the hind coxae, broadly and rather deeply depressed, sulcus with

fine transverse wrinkles anteriorly and posteriorly, most irregularly wrinkled medially, carinae almost completely obliterated. Propodeal spiracle large, 3.3× as long as wide. Spiracular carina narrow. Spiracular index 0.2. 1<sup>st</sup> gastral tergite 3.9×, 2<sup>nd</sup> tergite 2.0× as long as wide. Petiole with small glymmae at the anterior edge of rather broad lateral areas, with very fine longitudinal wrinkles in front of the glymmae, partly smooth. Petiolar suture partly obliterated. 1<sup>st</sup> gastral sternite smooth. Thyridium oval. Thyridial index about 1.5. Epipleurum separated from the 3<sup>rd</sup> gastral tergite anteriorly, the crease marked with black. Epipleural index 0.3. Gaster distinctly compressed posteriorly. Ovipositor index 0.6.

Colour: Black. Maxillary palpus yellowish red. Mandible broadly marked with yellowish red medially. Tegula medium brown. Wings hyaline. Stigma yellowish brown medially. Tip of the front coxa and front trochanter and femur yellowish red, the trochanter and femur somewhat darkened ventrally. Front tibia and tarsus yellow. Mid femur yellowish brown on the apical 0.2. Mid tibia yellowish brown. Mid tarsus dark brown. Hind tibia yellowish brown medially, narrowly black basally, very broadly black apically. 2<sup>nd</sup> gastral tergite dorsally red on the posterior 0.2, almost completely red laterally. 3<sup>rd</sup> and 4<sup>th</sup> tergites red. Pilosity whitish.

♂ unknown.

*Dusona rectoides* Hinz & Horstmann,  
spec. nov.

**Types.** Holotype (♀): Japan, Honshu, Norikura-dake, 2000 m, 30.7.1954 (AEI). – Paratypes: 1♀ Japan, Honshu, Chuzenji-ko, 4000-5000 ft., July-August 1913 (Hinz/ZSM); 1♀ Japan, Honshu, Kamikochi, near Norikura-dake, 5.8.1916 (SAP); 1♀ Japan, Shikoku, Ishizuchi, 23.7. (SAP); 5♂♂ Japan, Honshu, Kamikochi, near Norikura-dake, 24.-26.7.1954 (4♂♂ AEI, 1♂ Hinz/ZSM).

**Description.** ♀: Body length 6-9 mm. Temples distinctly constricted behind the eyes, 0.6× as long as the width of an eye, tangential lines on eyes and temples intersect on the prescutellar groove. Ocular index 1.0. Frons slightly depressed, coriaceous, with fine and disperse irregular wrinkles, with a fine median longitudinal carina, with short radial wrinkles. Antennal carina low and narrow. Face and dorsal 0.6 of the clypeus coriaceous, finely and densely rugose-punctate. Clypeus flat, coriaceous and with fine disperse punctation ventrally, its apex truncate medially. Malar space index 0.4.

Genal carina low and straight ventrally, joining the scarcely raised oral carina at an acute angle. Genal index 0.4. Temple finely coriaceous and with very fine disperse punctation medially. Flagellum with 39-41 segments, filiform, the apical 0.2 slightly attenuate, 2<sup>nd</sup> segment 2.0×, shortest segment 0.9×, penultimate segment 1.1× as long as wide. Pronotum coriaceous and with fine punctures and irregular wrinkles laterally on the dorsal 0.4, with longitudinal wrinkles ventrally. Mesoscutum and scutellum coriaceous, finely and densely punctate. Scutellum with lateral carinae on the anterior half. Prescutellar groove smooth or with fine longitudinal striae. Prepectal carina low, ventral part merging with the pleural part, the latter almost joining the anterior edge of the mesopleurum (covered with wrinkles close to the edge). Transverse carina obliterated. Mesopleurum distinctly coriaceous, finely and rather densely punctate. Speculum coriaceous. Depression in front of the speculum with rather short longitudinal striae and wrinkles, which merge with a narrow coriaceous area without punctation anteriorly. Metapleurum coriaceous, very finely and densely rugose-punctate. Pleural carina distinct. Areolet rather large, pointed, receiving the 2<sup>nd</sup> recurrent vein at or slightly distad of the middle. Nervellus vertical, distinctly intercepted. Nervellar index 0.7. Tibial spur index 0.6. Hind femur 5.2× as long as high. Hind tarsal claws short, with distinct pectinate teeth basally. Propodeum extending to 0.4 of the hind coxae, rather broadly and not deeply depressed, sulcus for the greater part irregularly wrinkled, with few transverse wrinkles, with some short longitudinal wrinkles posteriorly, costulae partly present, longitudinal carinae almost complete, but partly indistinct. Propodeal spiracle rather large, 2.9× as long as wide. Spiracular carina narrow. Spiracular index 0.4. 1<sup>st</sup> gastral tergite 4.3×, 2<sup>nd</sup> tergite 1.9× as long as wide. Petiole with long and very narrow glymmae, which are bordered by carinae dorsally and ventrally, smooth in front of the glymmae. Petiolar suture very fine. 1<sup>st</sup> gastral sternite for the greater part smooth, with fine transverse striae posteriorly. Thyridium oval. Thyridial index about 1.0. Epipleurum separated from the 3<sup>rd</sup> gastral tergite anteriorly, either folded in or folded back secondarily and pendent as a narrow lobe, the crease marked with black, a black lateral stripe parallel with the ventrolateral edge in a short distance anteriorly, divergent from the latter posteriorly. Epipleural index 0.2-0.3. Gaster distinctly but not strongly compressed posteriorly. Ovipositor index 0.5.

Colour: Black. Maxillary palpus medium brown. Mandible broadly marked with yellow

medially. Tegula dark brown. Wings hyaline. Stigma dark brown medially. Front femur yellowish red dorsally, dark brown ventrally. Front tibia and tarsus yellowish red. Mid tibia yellowish red. Mid tarsus dark brown. Hind tibia black, sometimes tinged with dark brown subbasally. 2<sup>nd</sup> gastral tergite red on the posterior 0.2. 3<sup>rd</sup> tergite red. 4<sup>th</sup> tergite varying from almost completely red to almost completely black. Pilosity whitish.

♂: Flagellum with 37-38 segments. Maxillary palpus yellow. Front leg from the tip of the coxa onwards yellowish, the coxa sometimes completely black. Mid leg from the trochanter onwards yellowish, the trochanter and femur sometimes marked with brown. Hind tibia dark yellowish brown medially, narrowly black basally, broadly black apically. In other characters similar to the ♀.

### *Dusona remota* (Förster, 1868)

**Description.** ♀: Body length 7-9 mm. Temples distinctly constricted behind the eyes, 0.7× as long as the width of an eye, tangential lines on eyes and temples intersect on the prescutellar groove. Ocular index 0.8-0.9. Frons slightly depressed, coriaceous, finely and rather densely punctate, with a fine median longitudinal carina, with fine radial wrinkles, which extend to 0.3 the distance to the median ocellus. Antennal carina low and narrow. Face and dorsal 0.6 of the clypeus coriaceous, densely rugose-punctate and rugose. Clypeus flat, coriaceous and rather densely punctate ventrally, its apex truncate medially. Malar space index 0.4. Genal carina low ventrally, slightly bent sideways, joining the slightly raised oral carina at an acute angle. Genal index 0.5. Temple finely coriaceous and with very fine disperse punctation medially. Flagellum with 39-41 segments, filiform, the apical 0.2 slightly attenuate, 2<sup>nd</sup> segment 1.9×, shortest segment 0.9-1.0×, penultimate segment 1.0-1.1× as long as wide. Pronotum densely rugose-punctate and rugose laterally on the dorsal 0.4, with longitudinal wrinkles ventrally. Mesoscutum and scutellum coriaceous, dull, densely punctate. Scutellum with lateral carinae on the anterior half. Prescutellar groove almost smooth medially, with fine longitudinal striae laterally. Prepectal carina low, ventral part merging with the pleural part, the dorsal 0.2 of the latter replaced by several wrinkles. Transverse carina present, low. Mesopleurum distinctly coriaceous, rather densely or densely punctate. Speculum granulate-strigose, rather dull, sometimes a small ventral area almost smooth and shining. Depression in front of the speculum with fine longitudinal striae, which

merge with the punctation anteriorly. Metapleurum densely rugose. Pleural carina distinct. Areolet rather small, stalked, receiving the 2<sup>nd</sup> recurrent vein distad of the middle. Nervellus slightly inclivous, weakly intercepted. Nervellar index 0.8. Tibial spur index 0.7. Hind femur 5.5× as long as high. Hind tarsal claws short, with short pectinate teeth basally. Propodeum extending to 0.4 of the hind coxae, broadly and distinctly but not deeply depressed, sulcus with short or long transverse wrinkles anteriorly and medially, with long transverse wrinkles posteriorly, often with a median longitudinal keel posteriorly, costulae partly present, longitudinal carinae present but sometimes fine and indistinct medially and posteriorly, obliterated anteriorly. Propodeal spiracle rather small, 2.3× as long as wide. Spiracular carina narrow. Spiracular index 0.6. 1<sup>st</sup> gastral tergite 4.4×, 2<sup>nd</sup> tergite 1.8× as long as wide. Petiole with distinct glymmae, which are bordered by longitudinal carinae dorsally, smooth in front of the glymmae. Petiolar suture fine, sometimes partly obliterated. 1<sup>st</sup> gastral sternite coriaceous anteriorly, smooth or with fine sculpture medially, transversely striate posteriorly. Thyridium oval. Thyridial index about 1.0. Epipleurum not separated from the 3<sup>rd</sup> gastral tergite, the latter with distinct black lateral stripes well above the ventrolateral edge. Gaster distinctly compressed posteriorly. Ovipositor index 0.6.

**Colour:** Black. Maxillary palpus yellowish brown. Mandible narrowly marked with yellow dorsally and medially, rarely completely black. Tegula dark brown or black. Wings hyaline. Stigma light brown medially. Front leg from the femur onwards yellowish red, the femur sometimes marked with brown basally. Mid femur often marked with yellowish red on the apical 0.1-0.2. Mid tibia yellowish red. Mid tarsus light brown. Hind tibia broadly yellow to yellowish red medially, narrowly black basally and apically. Hind tarsus dark brown, at most narrowly marked with yellowish brown basally. 2<sup>nd</sup> gastral tergite dorsally red on the posterior 0.2-0.4, the red marks more extended laterally, sometimes the posterior edge slightly marked with brown. 3<sup>rd</sup> and 4<sup>th</sup> tergites red. Pilosity whitish.

♂: Propodeum more coarsely transversely wrinkled, with strong longitudinal carinae medially and posteriorly. Front trochanter sometimes yellow. In other characters similar to the ♀.

**Material** (2♀♀, 2♂♂): Russia: Sverdlovsk Prov.: Yekaterinburg (= Sverdlovsk) (PET); Kemerovo Prov.: Tyazhinskiy (MOS); Kuril Isl.: Urup (SAP). Japan: Honshu: Kamikochi near Norikura-dake (AEI), Nagano (OTT).

*Dusona rubator* Hinz, 1985

**Description.** ♀: Body length 8 mm. Temples distinctly constricted behind the eyes, 0.8× as long as the width of an eye, tangential lines on eyes and temples intersect on the scutellum. Ocellar index 1.0. Frons not depressed, densely rugose-punctate, with a fine median longitudinal carina, with indistinct radial wrinkles. Antennal carina low and narrow. Face and clypeus densely rugose. Clypeus slightly concave, with a narrow smooth area above its apex, the latter slightly convex medially. Malar space index 0.4. Genal carina low ventrally, slightly bent sideways, joining the slightly raised oral carina almost at a right angle. Genal index 0.4. Temple finely coriaceous, partly almost smooth, with distinct rather dense punctation medially. Flagellum with 39-40 segments, slightly fusiform, 2<sup>nd</sup> segment 1.4×, shortest segment 0.7×, penultimate segment 0.9× as long as wide. Pronotum densely rugose-punctate laterally on the dorsal 0.4, with longitudinal wrinkles ventrally. Mesoscutum and scutellum very densely punctate on a smooth background. Scutellum with lateral carinae on the anterior 0.6. Prescutellar groove smooth medially, with fine longitudinal striae laterally. Prepectal carina low, ventral merging with the pleural part, the latter almost complete or complete, in the latter case joining the anterior edge of the mesopleurum. Transverse carina obliterated. Mesopleurum densely punctate on a smooth background. Speculum with fine oblique striae. Depression in front of the speculum with distinct longitudinal striae, which merge with the punctation anteriorly. Metapleurum very densely punctate on a smooth background. Pleural carina complete. Areolet rather large, pointed, receiving the 2<sup>nd</sup> recurrent vein slightly basad of the middle. Nervellus distinctly reclivous, weakly intercepted. Nervellar index 0.6. Tibial spur index 0.5. Hind femur 3.7× as long as high. Hind tarsal claws rather long, with short pectinate teeth basally. Propodeum extending to 0.6 of the hind coxae, distinctly and rather narrowly depressed, with distinct short transverse striae in the longitudinal furrow, irregularly wrinkled beside the furrow, carinae almost completely obliterated. Propodeal spiracle rather small, 3.5× as long as wide. Spiracular carina narrow. Spiracular index 0.6. 1<sup>st</sup> gastral tergite 3.5×, 2<sup>nd</sup> tergite 1.4× as long as wide. Petiole with small glymmae at the anterior edge of narrow lateral areas, smooth in front of the glymmae. Petiolar suture partly obliterated. 1<sup>st</sup> gastral sternite for the greater part smooth, with transverse striae posteriorly. Thyridium oval. Thyridial index about 1.0. Epipleurum not sepa-

rated from the 3<sup>rd</sup> gastral tergite, the latter with fine black lateral stripes well above the ventrolateral edge. Gaster slightly compressed posteriorly. Ovipositor index 0.6.

Colour: Black. Maxillary palpus yellowish red. Mandible broadly yellowish red medially. Flagellum light brown apically. Tegula yellow. Wings hyaline. Stigma yellowish brown medially. Front and mid legs from the tip of the coxa onwards red. Hind leg from the trochanter onwards red. Postpetiole and 2<sup>nd</sup> to 4<sup>th</sup> tergites red, sometimes the 4<sup>th</sup> tergite indistinctly tinged with black dorsally. Pilosity whitish.

♂ unknown.

**Material** (2♀♀): Russia: Buryatiya: Verkhneudinsk (= Ulan-Ude) (PET). Mongoliya: Selenge Prov.: Darhan (Hinz/ZSM).

*Dusona rufator* Hinz, 1994

**Description.** ♀: Body length 8 mm. Temples distinctly constricted behind the eyes, 0.6× as long as the width of an eye, tangential lines on eyes and temples intersect on the prescutellar groove. Ocellar index 0.9. Frons not depressed, coriaceous, finely rugose, with a fine median longitudinal carina, without radial wrinkles. Antennal carina low and narrow. Face and dorsal 0.7 of the clypeus coriaceous, densely rugose-punctate. Clypeus flat, finely coriaceous and densely punctate ventrally, its apex truncate medially. Malar space index 0.4. Genal carina low ventrally, slightly bent forwards, joining the slightly raised oral carina at an acute angle. Genal index 0.2. Temple coriaceous and with fine dense punctation medially. Flagellum with at least 40 segments (both tips broken off in the only available ♀), filiform, the apical 0.2 slightly attenuate, 2<sup>nd</sup> segment 2.0×, shortest segment 1.0× as long as wide. Pronotum with longitudinal wrinkles laterally, with additional punctures dorsolaterally. Mesoscutum and scutellum coriaceous, densely rugose-punctate. Scutellum with lateral carinae on the anterior 0.2. Prescutellar groove smooth medially, with some longitudinal striae laterally. Ventral part of the prepectal carina merging with the transverse carina, both carinae low. Pleural part of the prepectal carina present only ventrally as a short stub. Mesopleurum densely punctate on a finely coriaceous and shining background. Speculum finely granulate-strigose. Depression in front of the speculum with fine but distinct long longitudinal striae, which merge with the punctation anteriorly. Metapleurum finely and densely rugose-punctate and rugose. Pleural car-

ina complete. Areolet rather large, short-stalked, receiving the 2<sup>nd</sup> recurrent vein distinctly distad of the middle. Nervellus slightly reclivous, weakly intercepted. Nervellar index 0.7. Tibial spur index 0.5. Hind femur 5.4× as long as high. Hind tarsal claws short, with short pectinate teeth. Propodeum extending to the middle of the hind coxae, shallowly and narrowly depressed, with short transverse wrinkles in the longitudinal furrow, irregularly wrinkled beside the furrow, carinae almost completely obliterated. Propodeal spiracle rather small, 2.5× as long as wide. Spiracular carina narrow. Spiracular index 0.5. 1<sup>st</sup> gastral tergite 4.6×, 2<sup>nd</sup> tergite 2.5× as long as wide. Petiole without glymmae, with narrow lateral areas, smooth in front of these areas. Petiolar suture fine. 1<sup>st</sup> gastral sternite coriaceous anteriorly, smooth medially, transversely striate posteriorly. Thyridium elongate. Thyridial index about 1.0. Epipleurium not separated from the 3<sup>rd</sup> gastral tergite, the latter with distinct black lateral stripes well above the ventrolateral edge. Gaster distinctly compressed posteriorly. Ovipositor index 0.6.

Colour: Black. Maxillary palpus yellow. Mandible broadly yellow medially. Wings hyaline. Stigma light brown medially. Front leg from the tip of the coxa onwards yellowish red. Mid leg from the trochanter onwards yellowish red. Hind femur red. Hind tibia broadly yellowish brown medially, narrowly brown basally and apically. Hind tarsus brown, the basitarsus yellowish ventrally. 2<sup>nd</sup> gastral tergite dorsally red on the posterior 0.2, laterally red on the posterior 0.4. 3<sup>rd</sup> to 7<sup>th</sup> tergites and sternites red, the tergites narrowly marked with black dorsally. Pilosity whitish.

**Material** (1♀): Japan: Hokkaido: Jozankei (AEI).

♂: Body length 7 mm. Genal carina low and straight ventrally. Flagellum with 44 segments. Speculum finely coriaceous, shining. Depression in front of the speculum partly with irregular wrinkles. Longitudinal furrow of the propodeum for the greater part irregularly wrinkled, with some longitudinal wrinkles posteriorly. Spiracular carina indistinct. Spiracular index 1.0. Thyridium circular. Thyridial index about 2.5. Tegula yellow. Front and mid legs from the tip of the coxa onwards yellow, the femora yellowish red. Genital clasper red. In other characters similar to the ♀. Material: 1♂ Russia, Khabarovsk Terr., Khekhtsir near Khabarovsk (PET). The association of this ♂ with the ♀ is tentative.

*Dusona rufiventrorator* Horstmann, spec. nov.

**Types.** Holotype (♀): Japan, Honshu, Nagano, 400 m, 20.5.1962 (OTT). – Paratypes: 1♂ same locality, 13.5.1962 (OTT); 1♂ same locality, 3.5.1960 (Hinz/ZSM).

**Description.** ♀: Body length 9 mm. Temples distinctly constricted behind the eyes, 0.8× as long as the width of an eye, tangential lines on eyes and temples intersect on the prescutellar groove. Ocellar index 0.9. Frons slightly depressed, coriaceous, finely and densely rugose-punctate, with a very fine median longitudinal carina, with short radial wrinkles, the latter extending to 0.3 the distance to the median ocellus. Antennal carina low and narrow. Face and dorsal 0.6 of the clypeus coriaceous, densely rugose-punctate and rugose. Clypeus flat, finely coriaceous and with fine disperse punctation ventrally, its apex truncate medially. Malar space index 0.3. Genal carina straight ventrally, strongly raised close to the junction with the also raised oral carina, forming a lopsided triangular pyramid, the tip of the latter shifted ventrally and situated behind the base of the mandible, gena deeply depressed close to the junction, the depression about 0.7× as deep as the width of the 2<sup>nd</sup> flagellar segment. Genal index 0.4–0.5. Temple finely coriaceous and with very fine disperse punctation medially. Flagellum with 39–41 segments, slightly fusiform, 2<sup>nd</sup> segment 1.6×, shortest segment 0.8×, penultimate segment 1.0× as long as wide. Pronotum densely rugose-punctate laterally on the dorsal 0.3, with longitudinal wrinkles ventrally. Mesoscutum and scutellum coriaceous, densely punctate. Scutellum with lateral carinae on the anterior 0.2. Prescutellar groove smooth. Prepectal carina low, ventral part merging with transverse carina, the latter slightly raised. Pleural part of the prepectal carina indistinct and covered with wrinkles ventrally, distinct medially, the dorsal 0.4 obliterated. Mesopleurium finely but distinctly wrinkled, with distinct and dense punctation. Speculum very finely coriaceous, shining. Depression in front of the speculum with distinct longitudinal striae, which merge with the punctation anteriorly. Metapleurium finely but distinctly coriaceous, densely punctate. Pleural carina distinct. Areolet rather small, stalked, receiving the 2<sup>nd</sup> recurrent vein at the middle. Nervellus distinctly inclivous, intercepted. Nervellar index 0.8–0.9. Tibial spur index 0.7. Hind femur 5.4× as long as high. Hind tarsal claws short, with distinct pectinate teeth basally and medially. Propodeum extending to 0.4 of the hind coxae, broadly and not deeply depressed, for the greater part with

irregular wrinkles, with some transverse wrinkles posteriorly, carinae almost completely obliterated. Propodeal spiracle rather large, 3.2× as long as wide. Spiracular carina partly widened. Spiracular index 0.5. 1<sup>st</sup> gastral tergite 4.0×, 2<sup>nd</sup> tergite 1.4× as long as wide. Petiole without glymmae, lateral areas indicated, smooth in front of these areas. Petiolar suture for the greater part obliterated. 1<sup>st</sup> gastral sternite for the greater part smooth, with transverse striae posteriorly. Thyridium oval. Thyridial index about 1.0. Epipleurum not separated from the 3<sup>rd</sup> gastral tergite, the latter with distinct black lateral stripes well above the ventrolateral edge. Gaster distinctly compressed posteriorly. Ovipositor index 0.8.

Colour: Black. Maxillary palpus yellowish red. Mandible narrowly marked with yellow dorsally. Tegula yellow. Wings hyaline. Stigma medium brown medially. Front femur yellowish red, marked with brown ventrally. Front tibia and tarsus yellow. Mid femur yellowish red on the apical 0.2. Mid tibia and tarsus yellow. Hind tibia yellow medially, narrowly black basally, broadly black apically. 2<sup>nd</sup> gastral tergite black dorsally, broadly red laterally. The following tergites narrowly black dorsally, broadly red laterally. Gaster sternites red. Pilosity whitish.

♂: Speculum granulate-strigose. Propodeum for the greater part rather strongly irregularly wrinkled. Maxillary palpus yellow. Mandible broadly marked with yellow medially. Tip of the front coxa and front trochanter yellow. Mid femur completely yellowish red or marked with yellowish red dorsally and apically. Genital clasper red, marked with dark brown. In other characters similar to the ♀.

*Dusona rufoapicalis* Horstmann, spec. nov.

**Holotype** (♀): China, Shaanxi Prov., Qinling Mts., Xunyangba, 1000-1300 m, 23.5.-13.6.1998 (LIN).

**Description.** ♀: Body length 10 mm. Temples strongly constricted behind the eyes, 0.7× as long as the width of an eye, tangential lines on eyes and temples intersect on the posterior half of the mesoscutum. Ocellar index 0.8. Frons slightly depressed, coriaceous, very finely and dispersely punctate, with few short radial wrinkles, the median longitudinal carina very fine and partly obliterated. Antennal carina low and narrow. Face and dorsal 0.6 of the clypeus coriaceous, densely rugose-punctate. Clypeus flat, coriaceous and densely punctate ventrally, its apex truncate me-

dially. Malar space index 0.3. Genal carina low and almost straight ventrally, joining the slightly raised oral carina at an acute angle. Genal index 0.4. Temple finely coriaceous and with fine disperse punctation medially. Flagellum with 51 segments, filiform, the apical 0.3 attenuate, 2<sup>nd</sup> segment 1.8×, shortest segment 1.0×, penultimate segment 1.2× as long as wide. Pronotum densely rugose-punctate laterally on the dorsal 0.3, the interspaces smooth, with longitudinal wrinkles ventrally. Mesoscutum coriaceous, very densely punctate. Scutellum coriaceous, rather densely punctate, with lateral carinae on the anterior 0.4. Prescutellar groove smooth. Prepectal carina low, ventral part merging with the pleural part, the dorsal 0.2 of the latter indistinct and covered with wrinkles. Transverse carina present anteriorly. Mesopleurum distinctly coriaceous, rather finely and densely punctate, slightly shining. Speculum coriaceous and granulate-strigose. Depression in front of the speculum with short longitudinal striae and wrinkles, which partly merge with the punctation, partly with an area without punctation anteriorly. Metapleurum coriaceous, dull, densely and rather finely punctate. Pleural carina distinct. Areolet large, short-stalked, receiving the 2<sup>nd</sup> recurrent vein slightly distad of the middle. Nervellus slightly inclivous, weakly intercepted. Nervellar index 0.7. Tibial spur index 0.6. Hind femur 5.1× as long as high. Hind tarsal claws short, with long pectinate teeth basally and medially. Propodeum extending to 0.3 of the hind coxae, broadly and shallowly depressed, sulcus coriaceous and with some irregular wrinkles anteriorly, with long transverse wrinkles posteriorly, carinae almost completely obliterated. Propodeal spiracle large, 2.8× as long as wide. Spiracular carina for the greater part narrow. Spiracular index 0.4. 1<sup>st</sup> gastral tergite 3.5×, 2<sup>nd</sup> tergite 1.3× as long as wide. Petiole with large glymmae, which are bordered by longitudinal carinae dorsally, smooth in front of the glymmae. Petiolar suture for the greater part obliterated. 1<sup>st</sup> gastral sternite smooth. Thyridium oval. Thyridial index about 1.0. Epipleurum not separated from the 3<sup>rd</sup> gastral tergite, but the ventrolateral edge somewhat bent inwards and rounded on the anterior 0.2, the tergite with distinct black lateral stripes well above the ventrolateral edge. Gaster distinctly compressed posteriorly. Ovipositor index 0.6.

Colour: Black. Maxillary palpus yellow. Mandible almost completely yellow. Tegula yellow. Wings hyaline. Stigma dark brown medially. Front leg from the tip of the coxa onwards yellow, the femur yellowish red. Mid leg from the apical 0.2 of the femur onwards yellow. Hind tibia light

yellowish brown medially, narrowly black basally, broadly black apically. 2<sup>nd</sup> gastral tergite dorsally red on the posterior 0.2, laterally red on the posterior 0.6, the posterior edge narrowly marked with brown. The following tergites red, the 3<sup>rd</sup> dorsally marked with dark brown anteriorly, the posterior tergites tinged with brown dorsally. Gastral sternites red. Pilosity whitish.

♂ unknown.

*Dusona rufovariata* Horstmann, spec. nov.

**Holotype** (♂): Russia, Primorye, Vladivostok, 7.-20.6.1912 (PET).

**Description.** ♂: Body length 10 mm. Temples strongly constricted behind the eyes, 0.6× as long as the width of an eye, tangential lines on eyes and temples intersect on the posterior half of the mesoscutum. Ocellar index 0.6. Frons slightly depressed, coriaceous, finely and dispersely punctate, with a distinct median longitudinal carina, with distinct short radial wrinkles. Antennal carina narrow and rather low. Face and dorsal 0.6 of the clypeus coriaceous, very densely punctate. Clypeus partly concave, coriaceous and rather densely punctate ventrally, its apex truncate medially. Malar space index 0.3. Genal carina low and straight ventrally, joining the slightly raised oral carina at an acute angle. Genal index 0.4. Temple finely coriaceous and with fine disperse punctation medially. Flagellum with 50 segments, filiform, the apical 0.3 distinctly attenuate, 2<sup>nd</sup> segment 1.8×, shortest segment 0.9×, penultimate segment 1.4× as long as wide. Pronotum densely rugose-punctate laterally on the dorsal 0.1, with longitudinal wrinkles ventrally. Mesoscutum and scutellum coriaceous, densely punctate. Scutellum with distinct lateral carinae on the anterior 0.8. Prescutellar groove with fine longitudinal striae. Prepectal carina low, ventral part merging with the pleural part, the latter complete, joining the anterior edge of the mesopleurum. Transverse carina obliterated. Mesopleurum distinctly coriaceous, with rather fine and disperse or rather dense punctation. Speculum coriaceous, rather dull. Depression in front of the speculum granulate-strigose and with some longitudinal striae, which merge with a coriaceous area without punctation anteriorly. Metapleurum coriaceous, finely and rather densely punctate. Pleural carina distinct. Areolet large, short-stalked, receiving the 2<sup>nd</sup> recurrent vein at the middle. Nervellus vertical, weakly intercepted. Nervellar index 0.7. Tibial spur index 0.6. Hind femur 4.9× as long as high.

Hind tarsal claws short, with short pectinate teeth basally. Propodeum extending to 0.3 of the hind coxae, distinctly, rather broadly and not deeply depressed, costulae and longitudinal carinae complete, area superomedia coriaceous, area petiolaris coriaceous and with fine irregular wrinkles, shining, with some short transverse wrinkles posteriorly. Propodeal spiracle rather large, 3.1× as long as wide. Spiracular carina narrow. Spiracular index 0.5. 1<sup>st</sup> gastral tergite 3.4×, 2<sup>nd</sup> tergite 1.7× as long as wide. Petiole with distinct and deep but not large glymmae, smooth in front of the glymmae. Petiolar suture fine and complete. 1<sup>st</sup> gastral sternite for the greater part smooth, with transverse wrinkles posteriorly. Thyridium almost circular. Thyridial index about 1.5. Epipleurum separated from the 3<sup>rd</sup> gastral tergite by a bulge anteriorly, pendent as a very narrow rectangular lobe, the bulge marked with black. Epipleural index 0.4. Gaster distinctly compressed posteriorly.

Colour: Black. Maxillary palpus yellow. Mandible broadly marked with yellow medially. Tegula yellow. Wings hyaline. Stigma dark yellowish brown medially. Front and mid legs from the tip of the coxa onwards yellow, the femora yellowish red. Hind tibia whitish yellow medially, narrowly black basally, rather broadly black apically. Hind tarsus brownish black. Postpetiole marked with red laterally. 2<sup>nd</sup> gastral tergite dorsally red on the posterior 0.2, almost completely red laterally. 3<sup>rd</sup> and 4<sup>th</sup> tergites for the greater part red, 3<sup>rd</sup> tergite dorsally marked with black posteriorly, 4<sup>th</sup> tergite dorsally marked with black over its total length. Pilosity whitish.

♀ unknown.

*Dusona rugifer* (Förster, 1868)

This is a poorly defined species. Possibly the males from Europe described below (including the types of *Campoplex rugifer* Förster and *C. punctus* Kriechbaumer) (ZSM) belong to *D. stragifex* (Förster) as a variety with the legs marked with yellow instead of yellowish brown, and the female from Iran represents a different, undescribed species (with a rather low epipleural index). A similar female from Augsburg/Germany (Hinz/ZSM) is included in the description.

**Description.** ♀: Body length 12-14 mm. Temples distinctly constricted behind the eyes, 0.7× as long as the width of an eye, tangential lines on eyes and temples intersect on the prescutellar groove. Ocellar index 0.8-0.9. Frons slightly depressed, coriaceous and densely rugose-punctate dorsally, with

a fine median longitudinal carina and with distinct radial wrinkles, which extend to half the distance to the median ocellus. Antennal carina low and narrow. Face and dorsal 0.7 of the clypeus coriaceous, densely rugose-punctate. Clypeus flat, coriaceous and rather densely punctate ventrally, its apex truncate medially. Malar space index 0.3. Genal carina low and straight ventrally, joining the distinctly raised oral carina at an acute angle. Genal index 0.4. Temple finely coriaceous with very fine and disperse punctation medially. Flagellum with 55-56 segments, filiform, the apical 0.2 attenuate, 2<sup>nd</sup> segment 1.6×, shortest segment 0.9×, penultimate segment 1.2× as long as wide. Pronotum densely rugose-punctate laterally on the dorsal 0.3, with longitudinal wrinkles ventrally. Mesoscutum and scutellum coriaceous, densely or very densely punctate. Scutellum with lateral carinae on the anterior 0.6. Prescutellar groove for the greater part smooth, with some longitudinal striae laterally. Prepectal carina slightly raised ventrally, ventral part merging with the pleural part, the latter almost complete, the dorsal 0.1-0.2 replaced by several wrinkles. Transverse carina also slightly raised, as high as the prepectal carina at the junction. Mesopleurum distinctly coriaceous, densely punctate. Speculum coriaceous. Depression in front of the speculum with fine long longitudinal striae, which merge with the punctation anteriorly. Metapleurum coriaceous, densely rugose-punctate. Pleural carina distinct. Areolet large, short-stalked, receiving the 2<sup>nd</sup> recurrent vein basad of the middle. Nervellus slightly inclivous, distinctly intercepted. Nervellar index 0.7. Tibial spur index 0.6. Hind femur 5.1× as long as high. Hind tarsal claws rather short, with distinct pectinate teeth basally and medially. Propodeum extending to 0.3 of the hind coxae, distinctly and rather broadly depressed, sulcus for the greater part with transverse wrinkles, longitudinal carinae present medially and posteriorly, obliterated anteriorly, costulae partly present. Propodeal spiracle large, 2.9× as long as wide. Spiracular carina narrow. Spiracular index 0.3. 1<sup>st</sup> gastral tergite 3.8×, 2<sup>nd</sup> tergite 1.5× as long as wide. Petiole with large glymmae, smooth or with very fine sculpture in front of the glymmae. Petiolar suture partly present or complete. 1<sup>st</sup> gastral sternite for the greater part with fine sculpture, with transverse striae posteriorly. Thyridium oval. Thyridial index about 1.5. Epipleurum separated from the 3<sup>rd</sup> gastral tergite anteriorly, the crease marked with black. Epipleural index 0.5. Gaster distinctly compressed posteriorly. Ovipositor index 0.6.

Colour: Black. Maxillary palpus yellowish brown to dark brown. Mandible broadly yellow

medially. Tegula brown. Wings hyaline. Stigma yellowish brown medially. Front trochanter brown. Front femur yellowish red. Front tibia and tarsus yellow. Mid femur yellowish red on the apical 0.3. Mid tibia yellow. Mid tarsus brown. Hind femur completely black or the apical 0.2 marked with red. Hind tibia broadly yellow medially, narrowly brown basally and apically. 2<sup>nd</sup> gastral tergite red on the posterior 0.3-0.4. 3<sup>rd</sup> and 4<sup>th</sup> tergites red. Pilosity whitish.

♂: Frons without or with very short radial wrinkles. Flagellum with 51-57 segments. Prepectal carina low. Transverse carina low and partly obliterated. Metapleurum coriaceous, densely punctate. Propodeum almost completely areolated, costulae sometimes partly obliterated. Epipleural index 0.7. Maxillary palpus yellow. Tegula yellow. Front and mid legs from the tip of the coxa onwards yellowish, the femora yellowish red. Mid coxa and trochanter sometimes dark brown. In other characters similar to the ♀.

**Material** (1♀): Iran: 90 km O Minudasht (ZSM).

*Dusona rugifrons* Horstmann, spec. nov.

**Holotype** (♂): Russia, Kuril Isl., Shikotan, Krabozavodsk, 15.8.1973 (PET).

**Description.** ♂: Body length 15 mm. Temples strongly constricted behind the eyes, 0.8× as long as the width of an eye, tangential lines on eyes and temples intersect on the middle of the mesoscutum. Ocellar index 0.7. Frons coriaceous and densely rugose-punctate dorsally, deeply depressed ventrally and with strong radial wrinkles in the depression, the wrinkles extending to half the distance to the median ocellus, with a narrow median longitudinal bulge. Antennal carina strongly raised, with a transversely striate nose-like dorsal projection. Face and dorsal 0.6 of the clypeus coriaceous, densely rugose-punctate. Clypeus flat, finely coriaceous and densely punctate ventrally, its apex truncate medially. Malar space index 0.3. Genal carina low ventrally, slightly bent sideways, joining the strongly raised oral carina at an acute angle. Genal index 0.4. Temple finely coriaceous and with fine but distinct rather dense punctation medially. Flagellum with 56 segments, filiform, the apical 0.3 distinctly attenuate, 2<sup>nd</sup> segment 1.7×, shortest segment 1.0×, penultimate segment 1.2× as long as wide. Pronotum densely rugose-punctate on a smooth background laterally on the dorsal half, with longitudinal wrinkles ventrally. Mesoscutum finely coriaceous, very densely punc-

tate. Scutellum densely punctate on a smooth background, with lateral carinae on the anterior 0.3. Prescutellar groove with longitudinal striae. Prepectal carina low, ventral part merging with the pleural part, the latter complete, joining the anterior edge of the mesopleurum. Transverse carina present anteriorly. Mesopleurum very densely punctate on a smooth background. Speculum finely coriaceous, almost smooth, shining. Depression in front of the speculum with rather short longitudinal striae, which merge with the punctuation anteriorly. Metapleurum densely rugose. Pleural carina complete. Areolet large, pointed, receiving the 2<sup>nd</sup> recurrent vein at the middle. Nervellus distinctly inclivous, distinctly intercepted. Nervellar index 0.8. Tibial spur index 0.6. Hind femur 6.3× as long as high. Hind tarsal claws rather long, with short pectinate teeth basally and medially. Propodeum extending to 0.4 of the hind coxae, broadly and not deeply depressed, sulcus for the greater part transversely wrinkled, with some distinct longitudinal wrinkles posteriorly, costulae partly present, longitudinal carinae strong and almost complete. Propodeal spiracle rather large, 3.2× as long as wide. Spiracular carina narrow. Spiracular index 0.5. 1<sup>st</sup> gastral tergite 4.0×, 2<sup>nd</sup> tergite 2.5× as long as wide. Petiole with large glymmae, smooth in front of the glymmae. Petiolar suture fine, partly obliterated. 1<sup>st</sup> gastral sternite coriaceous, with fine transverse wrinkles. Thyridium oval. Thyridial index about 2.0. Epipleurum separated from the 3<sup>rd</sup> gastral tergite anteriorly, the crease marked with black. Epipleural index 0.4. Gaster strongly compressed posteriorly.

Colour: Black. Maxillary palpus dark brown. Mandible slightly tinged with yellowish brown dorsally. Wings hyaline. Stigma yellowish brown medially. Front leg from the trochantellus onwards yellowish red. Mid femur yellowish red on the apical 0.2. Mid tibia yellowish red. Mid tarsus dark brown. Hind tibia yellowish brown, slightly darkened apically. 2<sup>nd</sup> gastral tergite dorsally red on the posterior 0.3, almost completely red laterally. 3<sup>rd</sup> and 4<sup>th</sup> tergites for the greater part red, narrowly marked with black dorsally. 5<sup>th</sup> tergite for the greater part reddish brown, tinged with dark brown. Posterior tergites dark brown or black. Gaster sternites red or reddish brown. Genital clasper black with a reddish brown tip. Pilosity whitish.

♀ unknown.

**Types.** Holotype (♀): Japan, Honshu, Sasayama, 28.5.1953 (SAP). – Paratypes: 1♀ same locality, 4.6.1952 (Hinz/ZSM); 1♀ South Korea, Suigen (= Suwon), 1.6. 1928 (SAP).

**Description.** ♀: Body length 13–14 mm. Temples distinctly constricted behind the eyes, 0.8× as long as the width of an eye, tangential lines on eyes and temples intersect on the scutellum. Ocellar index 0.9. Frons slightly depressed, coriaceous, in most parts finely and densely punctate, with a distinct median longitudinal carina, with short radial wrinkles, which extend to 0.3 the distance to the median ocellus. Antennal carina low and narrow. Face and dorsal 0.8 of the clypeus coriaceous, densely rugose and rugose-punctate. Clypeus flat, coriaceous and densely punctate ventrally, its apex truncate medially. Malar space index 0.4. Genal carina low and straight ventrally, joining the scarcely raised oral carina at an acute angle. Genal index 0.3–0.4. Temple finely coriaceous and with fine disperse punctuation medially. Flagellum with 51–52 segments, filiform, the apical 0.7 attenuate, 2<sup>nd</sup> segment 1.5×, shortest segment 0.8×, penultimate segment 1.1× as long as wide. Pronotum densely rugose-punctate laterally on the dorsal 0.2, with longitudinal wrinkles ventrally. Mesoscutum and scutellum coriaceous, densely punctate. Scutellum with lateral carinae on the anterior 0.7. Prescutellar groove with few fine longitudinal striae. Prepectal carina low, the ventral part merging with the pleural part, the latter complete, joining the anterior edge of the mesopleurum. Transverse carina present anteriorly. Mesopleurum finely coriaceous, rather densely punctate. Speculum coriaceous and granulate-strigose, shining. Depression in front of the speculum with fine but distinct longitudinal wrinkles, which merge with the punctuation anteriorly. Metapleurum finely coriaceous, distinctly and densely punctate. Pleural carina strong. Areolet large, short-stalked, receiving the 2<sup>nd</sup> recurrent vein basad of the middle. Nervellus slightly inclivous, distinctly intercepted. Nervellar index 0.7. Tibial spur index 0.7. Hind femur 4.6× as long as high. Hind tarsal claws rather long, with short pectinate teeth basally and medially. Propodeum extending to 0.3 of the hind coxae, broadly and not deeply depressed, sulcus with rather fine irregular wrinkles anteriorly and medially, with long transverse wrinkles posteriorly, costulae partly present, longitudinal carinae distinct posteriorly, obliterated medially and anteriorly. Propodeal spiracle large, 3.4× as long as wide. Spiracular carina narrow. Spiracular index

0.3. 1<sup>st</sup> gastral tergite 3.4×, 2<sup>nd</sup> tergite 1.5× as long as wide. Petiole with large glymmae, which are bordered by longitudinal carinae dorsally, with very fine longitudinal wrinkles in front of the glymmae. Petiolar suture fine, partly obliterated. 1<sup>st</sup> gastral sternite smooth. Thyridium oval. Thyridial index about 1.0. Epipleurum separated from the 3<sup>rd</sup> gastral tergite, the crease marked with black. Epipleural index 0.6. Gaster distinctly compressed posteriorly. Ovipositor index 0.7.

Colour: Black. Maxillary palpus yellow. Mandible broadly marked with yellow medially. Tegula yellow. Wings hyaline. Stigma light brown medially. Front trochanter yellow, marked with brown. Front femur yellowish red, marked with black ventrally. Front tibia and tarsus yellow. Mid femur yellow on the apical 0.2. Mid tibia yellow. Mid tarsus yellow basally, dark brown apically. Hind tibia yellow medially, narrowly black basally, broadly black apically. 2<sup>nd</sup> gastral tergite red on the posterior 0.1-0.2. 3<sup>rd</sup> and 4<sup>th</sup> tergites red, the 4<sup>th</sup> tergite often marked with black. Posterior gastral sternites sometimes reddish brown. Pilosity whitish.

?♂: Body length 13 mm. Flagellum with 54 segments. Propodeum with short transverse wrinkles also anteriorly and medially. Epipleural index 0.7. Tip of the front coxa, front trochanter and front femur yellowish red. Mid femur yellowish red dorsally and apically. Hind tibia rather narrowly dark yellowish brown medially, narrowly marked with black basally, very broadly marked with black apically (apical black ring extending over half of the tibia). 2<sup>nd</sup> gastral tergite black dorsally, marked with red laterally. 3<sup>rd</sup> and 4<sup>th</sup> tergites for the greater part red, narrowly marked with black dorsally. 5<sup>th</sup> and 6<sup>th</sup> tergites for the greater part black, narrowly marked with red laterally. Posterior gastral sternites black, marked with red. Genital clasper black. In other characters similar to the ♀. Material: 1♂ Russia, Khabarovsk Terr., Khekhtsir, near Khabarovsk (PET). This ♂ may belong to *D. rugosa*, but the colour pattern of the gaster is rather different from that of the ♀.

### *Dusona sachalini* Hinz, 1985

*Dusona sachalini* Hinz, 1994

Hinz (1985: 308 ff., 1994: 37 f.) described this species twice (see introduction). The descriptions of both taxa differ from each other (in 1985 both sexes are described, in 1994 only the ♀ is), and the type series are different, although both taxa have the same holotype. This specimen from Dolinsk/

Sakhalin/Russia (PET) has recently been studied by the junior author.

**Description.** ♀: Body length 9-10 mm. Temples strongly constricted behind the eyes, 0.7× as long as the width of an eye, tangential lines on eyes and temples intersect on the anterior half of the mesoscutum. Ocellar index 1.0. Frons slightly depressed, coriaceous, densely rugose-punctate, without a median longitudinal carina and without radial wrinkles. Antennal carina low and narrow, its rim slightly bent upwards (inconspicuous). Face coriaceous, densely punctate. Clypeus distinctly convex, coriaceous, in almost all parts with very fine disperse punctation, its apex slightly convex medially. Malar space index 0.6. Genal carina low and almost straight ventrally, joining the slightly raised oral carina at an acute angle. Genal index 0.9. Temple finely coriaceous and with very fine disperse punctation medially. Flagellum with 45-48 segments (after Hinz 1985: 308; tips of antennae broken off in all available ♀♀), filiform, the apical 0.3 distinctly attenuate, 2<sup>nd</sup> segment 2.3×, shortest segment 1.3× as long as wide. Pronotum coriaceous and with fine dense punctation laterally on the dorsal 0.3, with longitudinal wrinkles ventrally. Mesoscutum coriaceous, dull, for the greater part finely and rather densely punctate, in some parts rugose. Scutellum coriaceous, very densely punctate, with lateral carinae on the anterior 0.3. Prescutellar groove for the greater part smooth. Prepectal carina low, ventral part merging with the pleural part, the latter complete, joining the anterior edge of the mesopleurum. Transverse carina obliterated. Mesopleurum distinctly coriaceous, dull, for the greater part distinctly and densely punctate. Speculum coriaceous, dull. Depression in front of the speculum dorsally with short longitudinal wrinkles, the ventral 0.7 granulate-strigose and dull, a narrow coriaceous area without punctation in front of the impression. Metapleurum finely and densely rugose-punctate. Pleural carina distinct. Areolet small, long-stalked, receiving the 2<sup>nd</sup> recurrent vein distad of the middle. Nervellus slightly reclivous, not intercepted. Tibial spur index 0.6. Hind femur 6.1× as long as high. Hind tarsal claws short, with rather long pectinate teeth basally and medially. Propodeum extending to 0.3 of the hind coxae, not depressed, in most parts with irregular wrinkles, almost completely areolated, area basalis partly replaced by a longitudinal keel, area superomedial bordered by a carina posteriorly, costulae for the greater part obliterated, longitudinal carinae present anteriorly, indistinct medially and posteriorly (Fig. 30). Propodeal spiracle small, 1.7× as

long as wide. Spiracular carina narrow. Spiracular index 0.7. 1<sup>st</sup> gastral tergite 2.8×, 2<sup>nd</sup> tergite 1.3× as long as wide. Petiole with large glymmae, which are bordered by longitudinal carinae dorsally, for the greater part smooth in front of the glymmae, with some fine longitudinal striae. Petiolar suture complete. 1<sup>st</sup> gastral sternite coriaceous. Thyridium oval. Thyridial index about 0.5. Epipleurum separated from the 3<sup>rd</sup> gastral tergite, the crease indistinctly marked with black. Epipleural index 0.9. Gaster distinctly compressed posteriorly. Ovipositor index 0.4.

Colour: Black. Maxillary palpus dark brown. Wings hyaline. Stigma dark brown medially. Front femur yellowish brown dorsally and apically, black basally and ventrally. Front tibia and tarsus yellowish brown. Mid femur medium brown on the apical 0.2. Mid tibia medium brown. Mid tarsus dark brown. 2<sup>nd</sup> gastral tergite red on the posterior 0.3. 3<sup>rd</sup> tergite red. 4<sup>th</sup> tergite red anteriorly, black posteriorly (to a variable extend). Posterior gastral sternites red or brown. Pilosity whitish.

♂: Tangential lines on eyes and temples intersect on the posterior half of the mesoscutum. Genal index 0.7. Flagellum with 45 segments. Mesopleurum for the greater part densely rugose-punctate and rugose. Impression in front of the speculum with rather long wrinkles, which merge with the punctation anteriorly. Front femur almost completely yellowish brown. 3<sup>rd</sup> gastral tergite red only on the anterior 0.7. 4<sup>th</sup> tergite black. In other characters similar to the ♀.

**Host:** Larva of Lasiocampidae (PET).

**Material** (2♀♀, 1♂): Russia: Primorye: Krasnoarmeysk; Sakhalin: Dolinsk (PET); Kuril Isl.: Dubovoye on Kunashir (Hinz/ZSM).

*Dusona sasayamae* Hinz & Horstmann,  
spec. nov.

**Types.** Holotype (♀): Japan, Honshu, Sasayama, 21.5.1951 (SAP). – Paratypes: 3♀♀ same locality, dates 19.5.1953, 25.5.1953, 18.5.1955 (1♀ Hinz/ZSM, 2♀♀ SAP).

**Description.** ♀: Body length 13-17 mm. Temples strongly constricted behind the eyes, 0.7× as long as the width of an eye, tangential lines on eyes and temples intersect on the posterior half of the mesoscutum. Ocellar index 0.9. Frons slightly depressed, coriaceous, densely and finely rugose, with a fine median longitudinal carina, with short radial wrinkles, which extend to 0.3 the distance to the median ocellus. Antennal carina low and

narrow. Face and dorsal 0.7 of the clypeus densely rugose-punctate. Clypeus flat, coriaceous and with rather dense punctation ventrally, its apex slightly concave medially. Malar space index 0.3. Genal carina slightly raised ventrally, straight, joining the distinctly raised oral carina at an acute angle. Genal index 0.4. Temple finely coriaceous and with fine disperse punctation medially. Flagellum with 56-60 segments, filiform, the apical 0.3 distinctly attenuate, 2<sup>nd</sup> segment 1.8×, shortest segment 0.9×, penultimate segment 1.2× as long as wide. Pronotum densely rugose-punctate laterally on the dorsal half, with longitudinal wrinkles ventrally. Mesoscutum and scutellum finely coriaceous and densely punctate. Scutellum with lateral carinae on the anterior 0.3. Prescutellar groove smooth. Prepectal carina low, ventral part merging with the pleural part, the latter almost joining the anterior edge of the mesopleurum. Transverse carina obliterated. Mesopleurum densely punctate on a finely coriaceous and shining background. Speculum smooth or almost smooth. Depression in front of the speculum with fine long longitudinal wrinkles, which merge with the punctation anteriorly. Metapleurum very densely punctate on an almost smooth background. Pleural carina strong. Areolet large, short-stalked, receiving the 2<sup>nd</sup> recurrent vein basad of the middle. Nervellus almost vertical, strongly intercepted. Nervellar index 0.7. Tibial spur index 0.6. Hind femur 5.5× as long as high. Hind tarsal claws rather long, with long pectinate teeth almost over their total length. Propodeum extending to 0.3 of the hind coxae, broadly and not deeply depressed, sulcus with irregular wrinkles anteriorly and medially, with long transverse wrinkles posteriorly, costulae partly present, longitudinal carinae almost complete. Propodeal spiracle large, 3.3× as long as wide. Spiracular carina narrow. Spiracular index 0.6. 1<sup>st</sup> gastral tergite 3.6×, 2<sup>nd</sup> tergite 1.8× as long as wide. Petiole with large glymmae, which are bordered by longitudinal carinae dorsally and ventrally, with very fine sculpture in front of the glymmae. Petiolar suture complete. 1<sup>st</sup> gastral sternite finely coriaceous anteriorly, transversely striate posteriorly. Thyridium oval. Thyridial index about 1.5. Epipleurum separated from the 3<sup>rd</sup> gastral tergite, the crease marked with black. Epipleural index 0.7-0.8. Gaster distinctly compressed posteriorly. Ovipositor index 0.5.

Colour: Black. Maxillary palpus yellowish red. Mandible broadly marked with yellow medially. Tegula dark brown. Wings slightly tinged with brown. Stigma dark brown medially. Front leg from the tip of the coxa onwards yellow, the femur yellowish red. Mid femur black, marked with

yellowish red dorsally and apically. Mid tibia and tarsus yellow, the tarsus marked with black apically. Hind tibia yellowish brown, sometimes narrowly marked with brown basally and apically. Hind tarsus yellowish brown basally, dark brown apically. 2<sup>nd</sup> gastral tergite red on the posterior 0.2. 3<sup>rd</sup> and 4<sup>th</sup> tergites red. 5<sup>th</sup> tergite for the greater part red, narrowly marked with black dorsally. 6<sup>th</sup> and 7<sup>th</sup> tergites for the greater part black, narrowly marked with red ventrolaterally. Gastral sternites red. Pilosity whitish.

♂ unknown.

*Dusona scalprata* Horstmann, spec. nov.

**Holotype** (♂): Russia, S Primorye, Petrovka, 20.6.1962 (MOS).

**Description.** ♂: Body length about 15 mm. Temples strongly constricted behind the eyes, 0.7× as long as the width of an eye, tangential lines on eyes and temples intersect on the posterior half of the mesoscutum. Ocellar index 0.7. Frons slightly depressed, coriaceous, finely and dispersely punctate, with a fine but distinct median longitudinal carina, with short and indistinct radial wrinkles. Antennal carina low and narrow. Face and dorsal 0.8 of the clypeus coriaceous, finely and very densely punctate. Clypeus flat, coriaceous and rather densely punctate ventrally, its apex truncate medially. Malar space index 0.4. Genal carina low and straight ventrally, joining the slightly raised oral carina at an acute angle. Genal index 0.5. Temple finely coriaceous and with fine disperse punctation medially. Flagellum with 58 segments, filiform, the apical 0.3 distinctly attenuate, 2<sup>nd</sup> segment 1.9×, shortest segment 1.0×, penultimate segment 1.3× as long as wide. Pronotum with longitudinal wrinkles laterally, with additional punctation dorsolaterally. Mesoscutum and scutellum coriaceous, very densely punctate. Scutellum with lateral carinae on the anterior 0.6. Prescutellar groove smooth medially, with longitudinal striae laterally. Ventral part of the prepectal carina low, merging with the transverse carina. Pleural part of the prepectal carina for the greater part obliterated, replaced by some wrinkles medially. Mesopleurum strongly and densely punctate on a smooth background. Speculum finely granulate-strigose, shining. Depression in front of the speculum with distinct longitudinal striae, which merge with the punctation anteriorly. Metapleurum densely rugose, not coriaceous. Pleural carina complete. Areolet large, sessile, receiving the 2<sup>nd</sup> recurrent vein slightly basad of the middle. Nerve-

lus slightly inclivous, intercepted. Nervellar index 0.7. Tibial spur index 0.7. Hind femur 4.2× as long as high. Hind tarsal claws rather long, with short pectinate teeth basally. Propodeum extending to 0.3 of the hind coxae, scarcely depressed, with fine transverse wrinkles almost over its total width, costulae present, fine, longitudinal carinae almost completely obliterated. Propodeal spiracle large, 3.3× as long as wide. Spiracular carina narrow. Spiracular index 0.4. 1<sup>st</sup> gastral tergite 4.4×, 2<sup>nd</sup> tergite 4.6× as long as wide. Petiole without glymmae, narrow lateral areas weakly indicated, smooth in front of the lateral areas. Petiolar suture almost completely obliterated. 1<sup>st</sup> gastral sternite smooth. Thyridium large, oval. Thyridial index about 1.5. Epipleurum not separated from the 3<sup>rd</sup> gastral tergite, the latter with indistinct black lateral stripes well above the ventrolateral edge. Gaster very strongly compressed from the 2<sup>nd</sup> segment onwards.

Colour: Black. Maxillary palpus yellow. Mandible broadly marked with yellow medially. Tegula dark yellowish brown. Wings hyaline. Stigma dark brown medially. Front and mid legs from the tip of the coxa onwards yellow. Hind femur yellow on the apical 0.2. Hind tibia and tarsus yellow, the tarsus tinged with yellowish brown apically. 2<sup>nd</sup> gastral tergite black dorsally, broadly marked with red laterally. 3<sup>rd</sup> to 7<sup>th</sup> tergites narrowly black dorsally, broadly red laterally. Gastral sternites red. Genital clasper red. Pilosity whitish.

♀ unknown.

*Dusona schikotani* Hinz, 1994

This is a variable and poorly defined species.

**Description.** ♀: Body length 6-9 mm. Temples strongly constricted behind the eyes, 0.7× as long as the width of an eye, tangential lines on eyes and temples intersect on the posterior half of the mesoscutum. Ocellar index 0.9-1.1. Frons not depressed, coriaceous, densely rugose-punctate, with a fine median longitudinal carina, with short and indistinct radial wrinkles. Antennal carina low and narrow. Face and dorsal half of the clypeus coriaceous, densely rugose-punctate. Clypeus flat, coriaceous and with fine disperse punctation ventrally, its apex slightly convex medially. Malar space index 0.6. Genal carina low ventrally, slightly bent sideways, joining the slightly raised oral carina at an acute angle. Genal index 0.2-0.3. Temple finely coriaceous and with very fine disperse punctation medially. Flagellum with 36-42 seg-

ments, filiform, the apical 0.2 slightly attenuate, 2<sup>nd</sup> segment 2.3×, shortest segment 1.2×, penultimate segment 1.2× as long as wide. Pronotum densely rugose-punctate laterally on the dorsal 0.3, with longitudinal wrinkles ventrally. Mesoscutum and scutellum coriaceous, densely punctate. Scutellum with lateral carinae on the anterior 0.6-0.8. Prescutellar groove smooth medially, with longitudinal striae laterally. Prepectal carina low, ventral part merging with the pleural part, the latter almost complete or complete, in the latter case joining the anterior edge of the mesopleurum. Transverse carina obliterated. Mesopleurum coriaceous, dull, very densely punctate. Speculum punctate posteriorly, finely coriaceous and shining anteriorly. Depression in front of the speculum with distinct longitudinal striae, which merge with the punctation anteriorly. Metapleurum densely rugose and rugose-punctate. Pleural carina distinct. Areolet rather small, stalked, receiving the 2<sup>nd</sup> recurrent vein distad of the middle. Nervellus vertical or slightly reclivous, weakly intercepted. Nervellar index 0.7. Tibial spur index 0.7. Hind femur 4.8-5.4× as long as high. Hind tarsal claws short, with short pectinate teeth basally. Propodeum extending to 0.4 of the hind coxae, shallowly and narrowly depressed, with short transverse wrinkles in the longitudinal furrow, with irregular wrinkles beside the furrow, with long transverse wrinkles posteriorly, carinae almost completely obliterated. Propodeal spiracle small, 2.6× as long as wide. Spiracular carina narrow. Spiracular index 0.5. 1<sup>st</sup> gastral tergite 4.0×, 2<sup>nd</sup> tergite 1.7× as long as wide. Petiole smooth laterally, without glymmae or narrow lateral areas. Petiolar suture obliterated. 1<sup>st</sup> gastral sternite smooth. Thyridium elongate. Thyridial index about 1.0. Epipleurum not separated from the 3<sup>rd</sup> gastral tergite, the latter without black lateral stripes. Gaster distinctly compressed posteriorly. Ovipositor index 0.6.

Colour: Black. Maxillary palpus yellowish brown. Mandible tinged with dark brown medially. Flagellum sometimes tinged with brown apically. Tegula dark brown. Wings hyaline. Stigma dark brown medially. Front femur, tibia and tarsus yellowish brown, the femur marked with black basally, the tibia marked with whitish yellow on the dorsal side. Mid femur whitish yellow on the apical 0.3. Mid tibia whitish yellow basally and medially, brown apically. Mid tarsus whitish yellow basally, brown apically (to a variable extend). Hind tibia for the greater part black, marked with white subbasally on the dorsal side, the white mark sometimes almost lacking. Hind tarsus blackish, the basitarsus marked with white basally. 2<sup>nd</sup>

gastral tergite red on the posterior 0.3. 3<sup>rd</sup> and 4<sup>th</sup> tergites red. Pilosity whitish.

**Material** (5♀): Russia: Primorye: Slavyanka (LIN), Spassk Dalniy (Hinz/ZSM); Kuril Isl.: Semnovodsk on Kunashir (paratype of *D. micrator*), Krabozavodsk on Shikotan (PET). North Korea: Puryong (SAW).

? ♂: Body length 7-9 mm. 38-42 flagellar segments, 2<sup>nd</sup> segment 1.7×, shortest segment 1.0×, penultimate segment 1.3× as long as wide. Hind femur 4.3-4.7× as long as wide. Propodeum with almost complete carinae, the longitudinal carinae obliterated anteriorly. Thyridium oval. Thyridial index about 2.0. 3<sup>rd</sup> gastral tergite sometimes with black lateral stripes. Hind tibia white medially, narrowly black basally, broadly black apically. 2<sup>nd</sup> gastral tergite red on the posterior 0.1-0.2. 4<sup>th</sup> tergite red on the anterior half. In other characters similar to the ♀. Material: 1♂ Russia, Primorye, Partizansk (PET); 2♂♂ North Korea, Hyangsan (1♂ Hinz/ZSM, 1♂ SAW). The differences between these ♂♂ and the ♀♀ of *D. schikotani* may be interpreted as sexual differences.

#### *Dusona scolator* Hinz, 1985

**Description.** ♀: Body length 6-7 mm. Temples distinctly constricted behind the eyes, 0.8× as long as the width of an eye, tangential lines on eyes and temples intersect on the prescutellar groove. Ocellar index 0.8. Frons scarcely depressed, coriaceous and finely rugose-punctate, with a fine median longitudinal carina, with distinct radial wrinkles, which extend to half the distance to the median ocellus. Antennal carina low and narrow. Face and dorsal half of the clypeus coriaceous, densely rugose-punctate. Clypeus flat, finely coriaceous and rather densely punctate ventrally, its apex truncate medially. Malar space index 0.5. Genal carina low ventrally, distinctly bent forwards, joining the oral carina at the base of the mandible at a right angle. Temple finely coriaceous and with fine disperse punctation medially. Flagellum with 34-37 segments, filiform, the apical 0.2 attenuate, 2<sup>nd</sup> segment 2.4×, shortest segment 1.0×, penultimate segment 1.3× as long as wide (sometimes flagellum stouter, shortest segment 0.9×, penultimate segment 1.0× as long as wide). Pronotum densely rugose-punctate laterally on the dorsal 0.2, with longitudinal wrinkles ventrally. Mesoscutum and scutellum coriaceous, very densely punctate. Scutellum with lateral carinae on the anterior 0.7. Prescutellar groove almost smooth. Ventral part of the prepectal carina merging with

the transverse carina, both carinae distinctly raised, the former distinctly emarginate medially. Pleural part of the prepectal carina low, present ventrally and medially, the dorsal 0.4 obliterated. Mesopleurum distinctly and densely punctate on a slightly coriaceous and shining background. Speculum granulate-strigose or with fine oblique striae, somewhat shining. Depression in front of the speculum for the greater part with fine longitudinal striae, which merge with the punctation anteriorly. Metapleurum finely and densely rugose-punctate and rugose. Pleural carina distinct. Areolet rather large, stalked, receiving the 2<sup>nd</sup> recurrent vein distad of the middle. Nervellus vertical or slightly reclivous, weakly intercepted. Nervellar index 0.8. Tibial spur index 0.6. Hind femur 5.0× as long as high. Hind tarsal claws short, with short pectinate teeth basally. Propodeum extending to 0.4 of the hind coxae, broadly and not deeply depressed, sulcus for the greater part irregularly wrinkled, with transverse wrinkles posteriorly, carinae almost completely obliterated. Propodeal spiracle rather small, 3.0× as long as wide. Spiracular carina narrow. Spiracular index 0.6. 1<sup>st</sup> gastral tergite 4.1×, 2<sup>nd</sup> tergite 1.6× as long as wide. Petiole without glymmae or with small and shallow glymmae, smooth in front of the glymmae. Petiolar suture partly obliterated. 1<sup>st</sup> gastral sternite smooth. Thyridium oval. Thyridial index about 1.0. Epipleurum not separated from the 3<sup>rd</sup> gastral tergite, the latter with distinct black lateral stripes well above the ventrolateral edge. Gaster distinctly compressed posteriorly. Ovipositor index 0.5.

Colour: Black. Maxillary palpus yellowish red. Mandible narrowly yellowish red medially, sometimes almost completely black. Wings hyaline. Stigma yellowish brown medially. Front and mid femora, tibiae and tarsi yellowish red, the mid femur marked with black basally. Hind tibia yellowish brown medially, narrowly black basally, broadly black apically. Hind tarsus black dorsally, for the greater part yellowish brown ventrally. 2<sup>nd</sup> gastral tergite red on the posterior 0.3-0.4. 3<sup>rd</sup> and 4<sup>th</sup> tergites red. Pilosity whitish.

♂: Nervellus sometimes not intercepted. Propodeum with transverse wrinkles also medially. Tegula yellowish brown. Front trochanter yellowish red. In other characters similar to the ♀.

**Material** (3♀, 1♂): Russia: Yakutsk A.S.S.R.: Bestyakh on River Amga (Hinz/ZSM), Chuchur-Muran, Vilyuyskogo trakta (PET). The species also occurs in Europe: 2♀♀ Scotland, Cairngorms in Inverness-shire, Braemar in Aberdeenshire (EDI) 3♀♀, 1♂ Italy, Kaltern (= Caldaro) in Südtirol (Hinz/ZSM).

*Dusona scriptor* Hinz & Horstmann, spec. nov.

**Holotype** (♀): Japan, Hokkaido, Tokachi-dake, 18.7.1954 (SAP).

**Description.** ♀: Body length 15 mm. Temples distinctly constricted behind the eyes, 0.7× as long as the width of an eye, tangential lines on eyes and temples intersect on the scutellum. Ocellar index 1.2. Frons scarcely depressed, coriaceous, densely punctate, with a fine median longitudinal carina, with rather short radial wrinkles, which extend to 0.4 the distance to the median ocellus. Antennal carina low and narrow. Face and dorsal 0.7 of the clypeus coriaceous, densely punctate, partly rugose. Clypeus flat, coriaceous and rather densely punctate ventrally, its apex truncate and with a smooth bulge medially. Malar space index 0.4. Genal carina low and rather straight ventrally, joining the distinctly raised oral carina at an acute angle. Genal index 0.5. Temple coriaceous and with fine disperse punctation medially. Flagellum with 61 segments, filiform, its apical 0.4 distinctly attenuate, 2<sup>nd</sup> segment 1.5×, shortest segment 1.0×, penultimate segment 1.1× as long as wide. Pronotum coriaceous and very densely punctate laterally, with longitudinal wrinkles in the dorsoventral furrow. Mesoscutum and scutellum coriaceous, densely punctate. Scutellum with lateral carinae on the anterior 0.8. Prescutellar groove with fine longitudinal striae. Prepectal carina low, ventral part merging with the pleural part, the latter for the greater part present, its dorsal 0.2 indistinct and covered with wrinkles. Transverse carina obliterated. Mesopleurum finely coriaceous, rather densely punctate. Speculum with fine oblique striae dorsally, finely coriaceous and shining ventrally. Depression in front of the speculum dorsally with longitudinal wrinkles, which merge with the punctation anteriorly, the ventral half finely coriaceous and granulate-strigose. Metapleurum coriaceous, densely punctate. Pleural carina distinct. Areolet large, short-stalked, receiving the 2<sup>nd</sup> recurrent vein distinctly basad of the middle. Nervellus slightly inclivous, distinctly intercepted. Nervellar index 0.7. Tibial spur index 0.6. Hind femur 5.3× as long as high. Hind tarsal claws rather short, with short dense pectinate teeth almost over their total length. Propodeum extending to 0.4 of the hind coxae, distinctly and rather broadly depressed, sulcus with rather short transverse wrinkles anteriorly and medially, with long transverse wrinkles posteriorly, costulae partly present, longitudinal carinae indicated medially and posteriorly. Propodeal spiracle large, 3.6× as long as wide. Spiracular carina narrow. Spiracular

index 0.6. 1<sup>st</sup> gastral tergite 3.1×, 2<sup>nd</sup> tergite 1.9× as long as wide. Petiole with large and deep glymmae, which are bordered by longitudinal carinae dorsally, smooth in front of the glymmae. Petiolar suture obliterated. 1<sup>st</sup> gastral sternite smooth. Thyridium oval. Thyridial index about 1.0. Epipleurum not separated from the 3<sup>rd</sup> gastral tergite, the latter without black lateral stripes. Gaster distinctly compressed posteriorly. Ovipositor index 0.6.

Colour: Black. Maxillary palpus yellowish red. Mandible broadly yellow medially. Tegula dark brown. Wings hyaline. Stigma medium brown medially. Front trochanter yellow. Front trochantellus and femur yellowish red, marked with brown ventrally. Front tibia and tarsus yellow. Mid femur yellowish brown on the apical 0.2. Mid tibia yellowish brown. Mid tarsus medium brown. Hind tibia dark yellowish brown, narrowly marked with black basally. Hind tarsus dark brown. Gaster black dorsally. 2<sup>nd</sup> tergite narrowly marked with red laterally. 3<sup>rd</sup> and 4<sup>th</sup> tergites broadly marked with red laterally. Posterior tergites narrowly marked with red laterally. Gastral sternites red. Pilosity whitish.

♂ unknown.

#### *Dusona scutellator* Hinz, 1979

**Description.** ♀: Body length 15-16 mm. Temples strongly constricted behind the eyes, 0.7× as long as the width of an eye, tangential lines on eyes and temples intersect on the middle of the mesoscutum. Ocellar index 0.9-1.0. Frons slightly depressed, coriaceous, finely and rather densely punctate, with an indistinct median longitudinal carina, with distinct radial wrinkles, which extend to 0.3 the distance to the median ocellus. Antennal carina rather low, the rim bent upwards and widened to a narrow crescent-shaped plate, the latter transversely striate. Face and greater part of the clypeus coarsely and densely rugose-punctate. Clypeus flat, with a narrow less densely punctate area ventrally, its apex truncate medially. Malar space index 0.4. Genal carina slightly raised ventrally, almost straight, joining the distinctly raised oral carina at an acute angle. Gena slightly depressed close to the junction. Genal index 0.6. Temple finely coriaceous and with very fine disperse punctation medially. Flagellum with 58-66 segments, filiform, the apical half distinctly attenuate, 2<sup>nd</sup> segment 1.4×, shortest segment 1.0×, penultimate segment 1.2× as long as wide. Pronotum coriaceous and densely punctate laterally on the dorsal 0.2-0.5, with longitudinal wrinkles ven-

trally. Mesoscutum coriaceous, very densely punctate. Scutellum coriaceous, rather densely or densely punctate, with lateral carinae on the anterior 0.6. Prescutellar groove with distinct longitudinal striae. Prepectal carina low, ventral part merging with the pleural part, the dorsal 0.1-0.2 of the latter replaced by several wrinkles. Transverse carina present anteriorly. Mesopleurum distinctly and densely punctate on a finely coriaceous and shining background. Speculum punctate posteriorly, granulate-strigose and shining anteriorly. Depression in front of the speculum dorsally with fine longitudinal striae, which merge with the punctation anteriorly, the ventral half finely granulate-strigose and shining. Metapleurum densely rugose-punctate or rugose, the wrinkles smooth. Pleural carina distinct. Areolet large, narrowly sessile, receiving the 2<sup>nd</sup> recurrent vein at or slightly distad of the middle. Nervellus slightly inclivous, distinctly intercepted. Nervellar index 0.6-0.7. Tibial spur index 0.5-0.6. Hind femur 5.7× as long as high. Hind tarsal claws short, with rather long pectinate teeth almost over their total length. Propodeum extending to 0.3 of the hind coxae, broadly but not deeply depressed, sulcus transversely wrinkled, costulae partly present or complete, longitudinal carinae present medially and posteriorly, obliterated anteriorly, sometimes partly covered with wrinkles. Propodeal spiracle large, 4.4× as long as wide. Spiracular carina narrow. Spiracular index 0.3. 1<sup>st</sup> gastral tergite 3.2×, 2<sup>nd</sup> tergite 1.9× as long as wide. Petiole with large glymmae, which are bordered by longitudinal carinae dorsally, smooth in front of the glymmae. Petiolar suture fine, partly obliterated. 1<sup>st</sup> gastral sternite smooth. Thyridium oval. Thyridial index about 1.0. Epipleurum not separated from the 3<sup>rd</sup> gastral tergite, the latter without black lateral stripes. Gaster distinctly compressed posteriorly. Ovipositor index 0.5.

Colour: Black. Maxillary palpus yellowish red. Mandible broadly yellow medially. Tegula medium brown. Wings slightly infusate. Stigma medium brown medially. Front leg from the tip of the coxa onwards yellowish red. Mid femur yellowish red on the apical 0.3. Mid tibia and tarsus yellowish red. Hind femur yellowish brown on the apical 0.1-0.2. Hind tibia broadly yellowish brown medially, narrowly black basally, narrowly and indistinctly brown apically. Hind tarsus dark brown. 2<sup>nd</sup> gastral tergite black dorsally, broadly red laterally. 3<sup>rd</sup> to 8<sup>th</sup> tergites red, sometimes narrowly darkened dorsally. Gastral sternites red. Pilosity whitish.

♂ unknown.

**Material** (5♀): Russia: Primorye: Novokachalinsk (PET), Yakovlevka (MOS). Japan: Hokkaido: Apoidake (Hinz/ZSM, SAP); Honshu: Karuizawa (HEL).

#### *Dusona setator* Hinz, 1985

**Description.** ♀: Body length 8 mm. Temples not constricted behind the eyes, 1.1× as long as the width of an eye, tangential lines on eyes and temples running parallel. Ocellar index 1.0. Frons not depressed, coriaceous, densely punctate or rugose-punctate, without a median longitudinal carina and without radial wrinkles. Antennal sockets close to each other. Antennal carina low and narrow. Face and dorsal 0.7 of the clypeus densely rugose-punctate. Clypeus slightly concave, rather densely punctate on an almost smooth background ventrally, its apex truncate medially. Malar space index 0.4. Genal carina low and straight ventrally, joining the distinctly raised oral carina at an acute angle. Genal index 0.6. Temple with fine disperse punctation on a smooth background medially. Flagellum with 33-35 segments, slightly fusiform, 2<sup>nd</sup> segment 1.9×, shortest segment 0.9×, penultimate segment 1.0× as long as wide. Pronotum densely rugose-punctate laterally on the dorsal 0.2, with longitudinal wrinkles ventrally. Mesoscutum and scutellum densely punctate on a smooth background. Scutellum with lateral carinae on the anterior 0.6. Prescutellar groove smooth medially, with fine longitudinal striae laterally. Prepectal carina low, ventral part merging with the pleural part, the dorsal 0.4 of the latter obliterated. Transverse carina indicated anteriorly. Mesopleurum with disperse or rather dense punctation on a smooth background. Speculum punctate posteriorly, with fine oblique striae anteriorly. Depression in front of the speculum with distinct rather short longitudinal striae, which merge with the punctation anteriorly. Metapleurum with rather dense or dense punctation on a finely coriaceous or finely rugose background. Pleural carina complete. Areolet large, narrowly sessile, receiving the 2<sup>nd</sup> recurrent vein at or distad of the middle. Nervellus vertical, distinctly intercepted. Nervellar index 0.8. Tibial spur index 0.7. Hind femur 3.9× as long as high. Hind tarsal claws rather long, with few short pectinate teeth basally. Propodeum extending to 0.3 of the hind coxae, scarcely depressed, with some fine transverse wrinkles in the broad and very shallow sulcus, in other parts irregularly wrinkled, costulae partly present, longitudinal carinae present posteriorly, obliterated anteriorly and medially. Propodeal spiracle rather small, 2.8× as long as wide. Spiracular carina

indistinct. Spiracular index 0.5. 1<sup>st</sup> gastral tergite 2.9×, 2<sup>nd</sup> tergite 1.3× as long as wide. Petiole smooth laterally, sometimes with very fine longitudinal striae, without glymmae, sometimes with very small and shallow pits. Petiolar suture fine. 1<sup>st</sup> gastral sternite for the greater part smooth, with some transverse striae posteriorly. Thyridium oval. Thyridial index about 0.5. Epipleurum not separated from the 3<sup>rd</sup> gastral tergite, the latter without black lateral stripes. Gaster slightly compressed posteriorly. Ovipositor index 1.3.

Colour: Black. Maxillary palpus dark brown. Mandible narrowly dark brown medially. Wings hyaline. Stigma dark brown. Front leg from the femur onwards yellowish red, the femur marked with black basally. Mid femur brown on the apical 0.1. Mid tibia and tarsus brown. 2<sup>nd</sup> gastral tergite red on the posterior 0.6-0.8, sometimes completely red. 3<sup>rd</sup> and 4<sup>th</sup> tergites red. Pilosity whitish.

♂: Flagellum filiform. Propodeum not depressed, almost without transverse wrinkles. Mandible broadly yellow medially. Front coxa marked with yellow. 2<sup>nd</sup> gastral tergite red on the posterior 0.2. In other characters similar to the ♀.

**Material** (5♀♀, 2♂♂): Russia: Chita Prov.: Doroninsk-Chunguruk. Mongoliya: Dornod Prov.: Choybalsan; Selenge Prov.: Bayan-Gol (PET); Sühbaatar Prov.: Baruun Urt (Hinz/ZSM); Central Prov. (= Töv Prov.): Kerulen (PET).

#### *Dusona signator* (Brauns, 1895)

This species is rather variable, particularly in body size. The differentiation of small specimens of *D. signator* from *D. circumcinctus* may be difficult (see key, couplet 140).

**Description.** ♀: Body length 10-14 mm. Temples strongly constricted behind the eyes, 0.7× as long as the width of an eye, tangential lines on eyes and temples intersect on the posterior half of the mesoscutum. Ocellar index 0.7. Frons slightly depressed, coriaceous, distinctly and densely punctate, with a distinct median longitudinal carina, without radial wrinkles. Antennal carina low and narrow. Face and dorsal 0.8 of the clypeus finely coriaceous, densely rugose-punctate and rugose. Clypeus slightly concave, finely coriaceous and rather densely or densely punctate ventrally, its apex truncate medially. Malar space index 0.4. Genal carina low ventrally, slightly bent sideways, joining the distinctly raised oral carina almost at a right angle. Genal index 0.4. Temple finely coriaceous and with fine disperse punctation medially.

Flagellum with 49-58 segments, filiform, the apical 0.3 attenuate, 2<sup>nd</sup> segment 1.7×, shortest segment 1.0×, penultimate segment 1.3× as long as wide. Pronotum densely rugose-punctate on a smooth background laterally on the dorsal 0.4, with longitudinal wrinkles ventrally. Mesoscutum finely coriaceous, very densely punctate. Scutellum densely punctate on a smooth background, with lateral carinae on the anterior 0.3. Prescutellar groove smooth medially, with longitudinal striae laterally. Ventral part of the prepectal carina merging with the transverse carina, the former low, the latter slightly raised. Pleural part of the prepectal carina obliterated dorsally and ventrally, present as a rather long wrinkle medially. Mesopleurum distinctly and densely punctate on a finely coriaceous or smooth background. Speculum finely coriaceous, smooth ventrally (to a variable extend), strongly shining. Depression in front of the speculum with distinct longitudinal striae, which merge with the punctation anteriorly. Metapleurum densely punctate or rugose-punctate on a smooth background. Pleural carina distinct. Areolet large, pointed, receiving the 2<sup>nd</sup> recurrent vein at the middle. Nervellus almost vertical, distinctly intercepted, the upper branch slightly bent inwards. Nervellar index 0.7. Tibial spur index 0.7. Hind femur 5.2× as long as high. Hind tarsal claws rather long, with distinct pectinate teeth basally and medially. Propodeum extending to the middle of the hind coxae, shallowly and narrowly depressed anteriorly, not depressed posteriorly, with short or long transverse wrinkles anteriorly in the longitudinal furrow, irregularly wrinkled beside the furrow, with long transverse wrinkles posteriorly, costulae complete and distinct, longitudinal carinae distinct posteriorly, obliterated anteriorly and medially. Propodeal spiracle large, 2.8× as long as wide. Spiracular carina widened. Spiracular index 0.2. 1<sup>st</sup> gastral tergite 4.8×, 2<sup>nd</sup> tergite 2.7× as long as wide. Petiole without glymmae, with indistinct narrow lateral areas, smooth in front of these areas. Petiolar suture almost completely obliterated. 1<sup>st</sup> gastral sternite smooth, sometimes with transverse striae posteriorly. Thyridium oval. Thyridial index about 1.5. Epipleurum not separated from the 3<sup>rd</sup> gastral tergite, the latter with distinct black lateral stripes well above the ventrolateral edge. Gaster distinctly compressed posteriorly. Ovipositor index 0.6.

Colour: Black. Maxillary palpus dark brown basally, yellowish red medially and apically. Mandible broadly yellowish red medially. Tegula yellow. Wings hyaline. Stigma medium brown medially. Front leg from the tip of the coxa onwards yellowish red, the tibia and tarsus yellow. Mid

femur yellowish red dorsally, brown ventrally. Mid tibia and tarsus yellow. Hind tibia yellowish brown medially, narrowly brown or black basally, broadly medium brown apically, or the dark apical mark lacking. Hind tarsus dark brown or black. 2<sup>nd</sup> gastral tergite broadly black dorsally, narrowly red laterally. 3<sup>rd</sup> and 4<sup>th</sup> tergites narrowly black dorsally, broadly red laterally. 5<sup>th</sup> to 8<sup>th</sup> tergites for the greater part black, marked with red ventrolaterally. Gastral sternites red. Pilosity whitish.

♂: Similar to the ♀. Genital clasper red.

**Material** (23♀♀, 12♂♂): Russia: Yevreyskiy A.O.: Amurzet, Birofeld; Primorye: Kamen-Rybolov, Novokachalinsk; Kuril Isl.: Dubovoye and Tretyakovo on Kunashir (PET). China: Heilongjing Prov.: Charbin (= Harbin) (AEI), Liaoning Prov.: Kaigen (= Kaiyuan) (SAP). North Korea: Hyangsan, Kyongsong, Wonsan (SAW). Japan: Hokkaido: Jozankei, Sapporo (AEI); Honshu: Hakone near Tokyo (OTT), Kamikochi near Norikuradake (AEI), Nagano (OTT), Hashimoto and Yokohama near Tokyo (AEI).

#### *Dusona similator* Hinz, 1994

**Description.** ♀: Body length 11-14 mm. Temples strongly constricted behind the eyes, 0.6× as long as the width of an eye, tangential lines on eyes and temples intersect on the posterior half of the mesoscutum. Ocellar index 0.7. Frons slightly depressed, coriaceous, finely and rather densely punctate, with a very fine median longitudinal carina, with short radial wrinkles. Antennal carina low and narrow. Face and dorsal 0.6 of the clypeus coriaceous, densely rugose-punctate and rugose. Clypeus flat, coriaceous and rather densely punctate ventrally, its apex truncate or slightly concave medially. Malar space index 0.3. Genal carina low and straight ventrally, joining the low oral carina at an acute angle. Genal index 0.5. Temple finely coriaceous and with fine disperse punctation medially. Flagellum with 58-63 segments, filiform, the apical 0.3 distinctly attenuate, 2<sup>nd</sup> segment 1.5×, shortest segment 0.8×, penultimate segment 1.4× as long as wide. Pronotum densely rugose-punctate laterally on the dorsal 0.3, with longitudinal wrinkles ventrally. Mesoscutum and scutellum coriaceous, dull, densely punctate. Scutellum with lateral carinae on the anterior half. Prescutellar groove smooth medially, with longitudinal striae laterally. Prepectal carina low, ventral part merging with the pleural part, the latter complete, joining the anterior edge of the mesopleurum. Transverse carina obliterated

ed. Mesopleurum with rather fine and rather dense or disperse punctation on a coriaceous and somewhat shining background. Speculum punctate posteriorly, finely coriaceous and shining anteriorly. Depression in front of the speculum dorsally with fine longitudinal striae, which merge with the punctation anteriorly, the ventral half finely granulate-strigose. Metapleurum densely rugose-punctate and rugose. Pleural carina distinct. Areolet large, short-stalked, receiving the 2<sup>nd</sup> recurrent vein distinctly basad of the middle. Nervellus almost vertical, distinctly intercepted. Nervellar index 0.7. Tibial spur index 0.6. Hind femur 5.5× as long as high. Hind tarsal claws rather short, with short pectinate teeth basally and medially. Propodeum extending to 0.3 of the hind coxae, rather broadly and shallowly depressed, sulcus for the greater part irregularly wrinkled or with short transverse wrinkles in the midline, with long transverse wrinkles posteriorly, costulae obliterated, longitudinal carinae present posteriorly and sometimes also medially, obliterated anteriorly. Propodeal spiracle large, 4.5× as long as wide. Spiracular carina sometimes indistinct. Spiracular index 0.3-0.5. 1<sup>st</sup> gastral tergite 3.7×, 2<sup>nd</sup> tergite 2.0× as long as wide. Petiole without glymmae or with very small and shallow glymmae at the anterior edge of narrow lateral areas, smooth in front of these areas. Petiolar suture partly obliterated. 1<sup>st</sup> gastral sternite finely coriaceous or smooth. Thyridium oval. Thyridial index about 1.3. Epipleurum separated from the 3<sup>rd</sup> gastral tergite, the crease marked with black. Epipleural index 0.7-0.8. Gaster distinctly compressed posteriorly. Ovipositor index 0.5.

Colour: Black. Maxillary palpus medium brown basally, yellowish brown apically. Mandible broadly yellow medially. Wings hyaline. Stigma dark brown medially. Front trochanter marked with yellow. Front femur black basally and ventrally, yellowish red dorsally and apically. Front tibia and tarsus yellow. Mid femur yellowish brown on the apical 0.2. Mid tibia yellowish brown. Mid tarsus dark brown. Hind tibia yellowish brown medially, narrowly black basally, broadly black apically. 2<sup>nd</sup> gastral tergite red on the posterior 0.2-0.3. 3<sup>rd</sup> and 4<sup>th</sup> tergites red. Pilosity whitish.

♂: Sulcus of the propodeum sometimes irregularly wrinkled, with some longitudinal wrinkles posteriorly. Maxillary palpus yellowish red. Tegula yellowish brown to brown. Front and mid legs from the tip of the coxa onwards yellow, the mid femur marked with brown ventrally. Hind tibia sometimes narrowly brown apically. In other characters similar to the ♀.

**Material** (4♀♀, 3♂♂): Japan: Hokkaido: Jozankei (Hinz/ZSM), Sapporo; Honshu: Karuizawa (AEI), Tokyo (OTT).

**Variety:** 3<sup>rd</sup> to 6<sup>th</sup> gastral tergites and sternites red. In other characters similar to the nominate morpho. Material: 1♀ Russia, Khabarovsk Terr., Khekhtsir near Khabarovsk (PET). This specimen may represent a separate subspecies or an individual variety.

#### *Dusona sobolicida* (Förster, 1868)

**Description.** ♀: Body length 8-10 mm. Temples distinctly constricted behind the eyes, 0.9× as long as the width of an eye, tangential lines on eyes and temples intersect on the prescutellar groove. Ocellar index 0.8-0.9. Frons scarcely depressed, coriaceous, densely rugose-punctate, with a fine median longitudinal carina, with distinct radial wrinkles, which extend to 0.7 the distance to the median ocellus. Antennal carina narrow, distinctly but not strongly raised, the rim not bent upwards (Fig. 5), with fine transverse striae. Face and dorsal 0.8 of the clypeus densely rugose-punctate or rugose on a finely coriaceous or smooth background. Clypeus flat, coriaceous and rather densely punctate ventrally, its apex truncate medially. Malar space index 0.4. Genal carina distinctly raised ventrally, slightly bent sideways, joining the distinctly raised oral carina at an acute angle, both carinae forming a lopsided triangular pyramid, the tip of the latter shifted ventrally and situated behind the base of the mandible. Gena depressed close to the junction, the depression about half as deep as the width of the 2<sup>nd</sup> flagellar segment. Genal index about 0.2. Temple finely coriaceous and with very fine disperse punctation medially. Flagellum with 45-46 segments, filiform, the apical 0.3 attenuate, 2<sup>nd</sup> segment 1.8×, shortest segment 0.8×, penultimate segment 1.0× as long as wide. Pronotum densely rugose-punctate laterally on the dorsal 0.3, with longitudinal wrinkles ventrally. Mesoscutum and scutellum coriaceous, very densely punctate. Scutellum with lateral carinae on the anterior 0.4. Prescutellar groove almost completely smooth. Ventral part of the prepectal carina merging with the transverse carina, both carinae somewhat raised, the former not emarginate medially. Pleural part of the prepectal carina low, the dorsal 0.3 obliterated and replaced by several wrinkles. Mesopleurum distinctly coriaceous, rather densely or densely punctate. Speculum granulate-strigose or with fine oblique striae. Depression in front of the speculum with

*Dusona specularis* Horstmann, spec. nov.

**Holotype** (♂): Russia, Khabarovsk Terr., Khekh-tsir, near Khabarovsk, 4.7.1983 (PET).

**Description.** ♂: Body length 9 mm. Temples scarcely constricted behind the eyes, as long as the width of an eye, tangential lines on eyes and temples intersect on the gaster. Ocellar index 1.1. Frons scarcely depressed, coriaceous, dull, densely punctate, with a fine median longitudinal carina, with short radial wrinkles, which extend to 0.3 the distance to the median ocellus. Antennal carina low and narrow. Face and dorsal half of the clypeus coriaceous, densely rugose-punctate. Clypeus flat, finely coriaceous and rather densely punctate ventrally, its apex truncate medially. Malar space index 0.4. Genal carina low and straight ventrally, joining the slightly raised oral carina at an acute angle. Genal index 0.4. Temple finely coriaceous and with fine disperse punctation medially. Flagellum with 40 segments, filiform, the apical 0.2 slightly attenuate, 2<sup>nd</sup> segment 2.5×, shortest segment 1.0×, penultimate segment 1.0× as long as wide. Pronotum coarsely punctate on a finely coriaceous and shining background laterally on the dorsal 0.3, with longitudinal wrinkles ventrally. Mesoscutum and scutellum coriaceous, densely punctate. Scutellum shining, with lateral carinae on the anterior 0.2. Prescutellar groove with longitudinal striae. Prepectal carina low, ventral part merging with the pleural part, the latter complete, joining the anterior edge of the mesopleurum. Transverse carina present anteriorly. Mesopleurum with disperse or rather dense punctation on a finely coriaceous and strongly shining background. Speculum for the greater part smooth. Depression in front of the speculum with strong and rather short longitudinal striae, which merge with a narrow finely coriaceous area without punctation anteriorly. Metapleurum densely rugose-punctate, the wrinkles smooth. Pleural carina strong. Areolet rather small, long-stalked, receiving the 2<sup>nd</sup> recurrent vein distinctly distad of the middle. Nervellus distinctly inclivous, distinctly intercepted, its upper branch distinctly bent inwards. Nervellar index 0.8. Tibial spur index 0.6. Hind femur 4.8× as long as high. Hind tarsal claws short, with a few long pectinate teeth basally. Propodeum extending to 0.4 of the hind coxae, rather narrowly and not deeply depressed, the longitudinal furrow transversely wrinkled, with coarse irregular wrinkles beside the furrow, almost completely areolated, but the carinae partly covered with wrinkles, longitudinal carinae obliterated anteriorly. Propodeal spiracle small, 1.7× as long as wide.

distinct long longitudinal striae, which merge with the punctation anteriorly. Metapleurum coriaceous, densely rugose-punctate and rugose. Pleural carina distinct. Areolet rather small, short-stalked, receiving the 2<sup>nd</sup> recurrent vein slightly distad of the middle. Nervellus vertical, weakly intercepted. Nervellar index 0.7. Tibial spur index 0.6. Hind femur 4.4× as long as high. Hind tarsal claws short, with short pectinate teeth basally and medially. Propodeum extending to 0.4 of the hind coxae, broadly and deeply depressed, sulcus for the greater part or completely transversely wrinkled, costulae sometimes partly present, longitudinal carinae almost completely obliterated. Propodeal spiracle large, 3.3× as long as wide. Spiracular carina narrow or widened. Spiracular index 0.2. 1<sup>st</sup> gastral tergite 5.1×, 2<sup>nd</sup> tergite 1.9× as long as wide. Petiole without glymmae or with small and shallow glymmae at the anterior edge of narrow lateral areas, smooth in front of these areas. Petiolar suture for the greater part obliterated. 1<sup>st</sup> gastral sternite smooth. Thyridium oval. Thyridial index about 1.5. Epipleurum not separated from the 3<sup>rd</sup> gastral tergite, the latter with distinct black lateral stripes well above the ventrolateral edge. Gaster distinctly compressed posteriorly. Ovipositor index 0.7.

Colour: Black. Maxillary palpus yellowish brown. Mandible narrowly marked with yellow dorsally and medially. Tegula dark brown. Wings hyaline. Stigma light brown medially. Front leg from the femur onwards yellowish red, the femur sometimes marked with black basally. Mid femur yellowish brown on the apical 0.2. Mid tibia yellowish brown. Mid tarsus dark brown. Hind tibia yellowish brown medially, narrowly black basally, broadly black apically. 2<sup>nd</sup> gastral tergite red on the posterior 0.2-0.3. 3<sup>rd</sup> and 4<sup>th</sup> tergites red, the 4<sup>th</sup> tergite sometimes marked with black posteriorly. Pilosity whitish.

♂: Flagellum with 46-50 segments. Petiolar suture complete. Mandible broadly yellow medially. Tegula yellow. Front leg from the tip of the coxa onwards yellow. Mid femur completely yellowish red. Hind tibia light yellow medially. In other characters similar to the ♀.

**Host:** *Hypomecis punctinalis* (Scopoli, 1763) (Geometridae) (MIN).

**Material** (19♀♀, 7♂♂): Russia: Altaysk Terr.: Volchikha (MIN); Buryatiya: Zakamensk; Chita Prov.: Chita, Kalga, Klichka, Kurort Darasun, Nerchinskij Zavod; Amur Prov.: Novorossiyska (PET). Kazakhstan: Alma-Ata (MOS), Kokchetav (PET), Koktuma (LIN). Kirgiziya: River Ala-Archa in Kirgizskiy Mts., 1600 m (LIN).

Spiracular carina narrow. Spiracular index 1.0. 1<sup>st</sup> gastral tergite 3.7×, 2<sup>nd</sup> tergite 2.0× as long as wide. Petiole with rather small and elongate glymmae, with longitudinal striae in front of the glymmae and with short transverse striae anteriorly. Petiolar suture distinct. 1<sup>st</sup> gastral sternite smooth. Thyridium oval. Thyridial index about 2.0. Epipleurum separated from the 3<sup>rd</sup> gastral tergite, the crease marked with black. Epipleural index 0.7. Gaster distinctly compressed posteriorly.

Colour: Black. Maxillary palpus brown basally, yellow medially and apically. Mandible broadly yellow medially. Wings slightly infusate. Stigma dark brown medially. Front leg from the trochanter onwards yellowish brown. Mid femur yellowish red on the apical 0.2. Mid tibia and tarsus yellowish red. Hind tibia yellowish brown medially, narrowly black basally, rather broadly dark brown apically. Hind tarsus dark brown. 2<sup>nd</sup> gastral tergite red on the posterior 0.1. 3<sup>rd</sup> and 4<sup>th</sup> tergites marked with reddish brown laterally. Genital clasper marked with reddish brown. Pilosity on the face brown, on other parts of the body whitish.

♀ unknown.

*Dusona spinator* Hinz & Horstmann, spec. nov.

**Types.** Holotype (♀): Russia, Khabarovsk, 1.7.1985 (PET). – Paratypes: 1♀ Russia, Primorye, Spassk Dalniy, 30.6.1985 (PET); 1♀ Russia, Yevreyskaya A.O., Amurzet, Amur River, 18.6.1985 (Hinz/ZSM); 2♂♂ Russia, Primorye, Spassk Dalniy, 26.-27.6.1985 (PET); 2♂♂ Russia, Khabarovsk Terr., Khekhtsir, near Khabarovsk, 3.-4.7.1983 (1♂ PET, 1♂ Hinz/ZSM); 1♂ Russia, Kuril Isl., Kunashir, Golovino, 10.6.1973 (PET); 1♂ Japan, Honshu, Nagano, 400 m, 20.5.1962 (OTT).

**Description.** ♀: Body length 10 mm. Temples distinctly constricted behind the eyes, 0.8× as long as the width of an eye, tangential lines on eyes and temples intersect on the prescutellar groove. Ocellar index 1.1. Frons slightly depressed, coriaceous, finely and densely punctate, with rather long radial wrinkles, which extend to half the distance to the median ocellus, the median longitudinal carina indistinct or obliterated. Antennal carina low and narrow. Face and dorsal half of the clypeus coriaceous, densely rugose. Clypeus flat, coriaceous and rather densely or densely punctate ventrally, its apex truncate medially. Malar space index 0.4. Genal carina low and rather straight ventrally, joining the slightly raised oral carina at an

acute angle. Genal index 0.4. Temple finely coriaceous and with fine disperse punctation medially. Flagellum with 40-41 segments, filiform, the apical 0.2 slightly attenuate, 2<sup>nd</sup> segment 2.3×, shortest segment 0.8-0.9×, penultimate segment 1.0-1.1× as long as wide. Pronotum densely rugose-punctate laterally on the dorsal 0.2, with longitudinal wrinkles ventrally. Mesoscutum and scutellum coriaceous, very densely punctate. Scutellum with lateral carinae on the anterior 0.2. Prescutellar groove with distinct short longitudinal striae. Prepectal carina low, ventral part merging with the pleural part, the latter complete, joining the anterior edge of the mesopleurum. Transverse carina obliterated. Mesopleurum distinctly coriaceous, densely punctate. Speculum coriaceous, partly shining. Depression in front of the speculum with distinct short somewhat irregular wrinkles, which merge with the punctation anteriorly. Metapleurum coriaceous, densely punctate. Pleural carina distinct. Areolet large, short-stalked, receiving the 2<sup>nd</sup> recurrent vein distinctly distad of the middle. Nervellus vertical or slightly inclivous, distinctly intercepted. Nervellar index 0.7. Tibial spur index 0.7. Hind femur 5.1× as long as high. Hind tarsal claws rather long, with long pectinate teeth almost over their total length. Propodeum extending to 0.4 of the hind coxae, broadly and not deeply depressed, sulcus for the greater part transversely wrinkled, almost without carinae in the holotype, longitudinal carinae present medially and posteriorly in the paratypes. Propodeal spiracle rather large, 3.4× as long as wide. Spiracular carina obliterated. Spiracular index 0.3. 1<sup>st</sup> gastral tergite 3.1×, 2<sup>nd</sup> tergite 1.3× as long as wide. Petiole with large glymmae, which are bordered by longitudinal carinae dorsally, with fine or very fine longitudinal striae in front of the glymmae. Petiolar suture complete. 1<sup>st</sup> gastral sternite for the greater part coriaceous and dull, with transverse striae posteriorly. Thyridium oval. Thyridial index about 1.0. Epipleurum separated from the 3<sup>rd</sup> gastral tergite, the crease marked with black. Epipleural index 0.8. Gaster distinctly compressed posteriorly. Ovipositor index 1.1.

Colour: Black. Maxillary palpus dark brown basally, yellowish brown apically. Mandible narrowly marked with yellow dorsally and medially. Tegula brown. Wings hyaline. Stigma yellowish brown medially. Front femur yellowish brown, somewhat darkened basally. Front tibia and tarsus yellow. Mid femur yellowish brown on the apical 0.3. Mid tibia and tarsus yellow. Hind tibia yellow or yellowish brown medially, narrowly black basally, broadly brown or black apically.

2<sup>nd</sup> gastral tergite red on the posterior 0.2. 3<sup>rd</sup> and 4<sup>th</sup> tergites red. Sometimes the 5<sup>th</sup> tergite marked with red anteriorly. Pilosity whitish.

♂: Body length 9-10 mm. 40-44 flagellar segments. Propodeum with almost complete longitudinal carinae. Maxillary palpus yellow. Tegula yellow. Front trochanter marked with yellow. Mid femur almost completely yellowish red. Hind tibia yellow medially, narrowly black basally, broadly medium brown apically. Hind tarsus yellowish brown to medium brown. 4<sup>th</sup> gastral tergite sometimes marked with black dorsally. In other characters similar to the ♀.

### *Dusona spinipes* (Thomson, 1887)

**Description.** ♀: Body length 11-12 mm. Temples strongly constricted behind the eyes, 0.7× as long as the width of an eye, tangential lines on eyes and temples intersect on the posterior half of the mesoscutum. Ocellar index 0.8. Frons slightly depressed, coriaceous, finely and rather densely punctate, with a distinct median longitudinal carina, without radial wrinkles. Antennal carina low and narrow. Face and dorsal 0.8 of the clypeus densely rugose, partly with vertical wrinkles. Clypeus flat, finely coriaceous and densely punctate ventrally, its apex truncate medially. Malar space index 0.5. Genal carina low and straight ventrally, joining the slightly raised oral carina at an acute angle. Genal index 0.4. Temple finely coriaceous and with very fine disperse punctation medially. Flagellum with 48-50 segments, filiform, the apical 0.3 distinctly attenuate, 2<sup>nd</sup> segment 1.8×, shortest segment 1.0×, penultimate segment 1.3× as long as wide. Pronotum coriaceous and densely rugose-punctate and rugose laterally on the dorsal 0.2, with longitudinal wrinkles ventrally. Mesoscutum and scutellum coriaceous, dull, very densely punctate. Scutellum with lateral carinae on the anterior 0.4. Prescutellar groove smooth. Ventral part of the prepectal carina merging with the transverse carina, both carinae low. Pleural part of the prepectal carina obliterated. Pleural part of the prepectus rugose-punctate and with oblique wrinkles. Mesopleurum with disperse or rather dense punctation on a finely coriaceous and shining background. Speculum finely granulate-strigose. Depression in front of the speculum with longitudinal striae and wrinkles, which merge with the punctation anteriorly. Metapleurum densely rugose. Pleural carina distinct. Areolet large, pointed, receiving the 2<sup>nd</sup> recurrent vein slightly basad of the middle. Nervellus vertical, distinctly inter-

cepted, the upper branch slightly bent inwards. Nervellar index 0.8. Tibial spur index 0.7. Hind femur 5.7× as long as high. Hind tarsal claws short, with distinct pectinate teeth basally and medially. Propodeum extending to 0.4 of the hind coxae, rather broadly and shallowly depressed, sulcus with short transverse wrinkles anteriorly and medially in the midline, irregularly wrinkled sublaterally, with long transverse wrinkles posteriorly, carinae almost completely obliterated, sometimes costulae complete. Propodeal spiracle large, 2.8× as long as wide. Spiracular carina narrow. Spiracular index 0.3. 1<sup>st</sup> gastral tergite 4.6×, 2<sup>nd</sup> tergite 2.5× as long as wide. Petiole without glymmae or with very small glymmae at the anterior edge of narrow lateral areas, smooth in front of these areas. Petiolar suture fine, partly obliterated. 1<sup>st</sup> gastral sternite smooth. Thyridium elongate. Thyridial index about 1.0. Epipleurum not separated from the 3<sup>rd</sup> gastral tergite, the latter with distinct black lateral stripes well above the ventrolateral edge. Gaster distinctly compressed posteriorly. Ovipositor index 0.7.

Colour: Black. Maxillary palpus yellowish red. Mandible broadly yellow medially. Tegula dark brown. Wings hyaline. Stigma dark brown medially. Front leg from the trochanter onwards yellow, the femur yellowish red. Tip of the front coxa sometimes yellow. Mid femur red on the apical 0.2-0.5. Mid tibia yellow. Mid tarsus brown. Hind tibia dark brown or blackish, narrowly black basally. Gaster tergites black dorsally. 2<sup>nd</sup> tergite laterally red on the posterior 0.5. 3<sup>rd</sup> tergite broadly red laterally. 4<sup>th</sup> tergite about half red or brown in lateral view. Posterior tergites narrowly marked with brown ventrolaterally. Posterior gastral sternites brown. Pilosity whitish.

♂: Propodeum scarcely depressed, costulae complete. 2<sup>nd</sup> and 4<sup>th</sup> gastral tergites almost completely red laterally. Genital clasper reddish brown. In other characters similar to the ♀.

**Material** (11♀♀, 8♂♂): Russia: Novosibirsk Prov.: Kourak (PET); Altaysk Terr.: Gorno-Altaysk (MIN); Irkutsk Prov.: Dachnaya; Chita Prov.: Adrianovka, Bukuka; Khabarovsk Terr.: Khekhtsir near Khabarovsk; Primorye: Khasan, Posyet, Spassk Dalniy; Kuril Isl.: Alekhino and Sernovodsk on Kunashir (PET). Japan: Hokkaido: Jozankei; Honshu: Nagano (AEI); Amami O-shima (SAP).

*Dusona spiracularis* Hinz & Horstmann,  
spec. nov.

**Types.** Holotype (♀): Russia, Primorye, Anisimovka, ESE of Shkotovo, 11.9.1978 (PET). – Paratypes: 1♀ same dates (Hinz/ZSM); 3♂♂ Russia, Primorye, Ussuriysk, 4.-5.9.1983 (2♂♂ PET, 1♂ Hinz/ZSM).

**Description.** ♀: Body length 6-7 mm. Temples distinctly constricted behind the eyes, 0.6× as long as the width of an eye, tangential lines on eyes and temples intersect on the scutellum. Ocellar index 0.9. Frons not depressed, coriaceous, densely rugose-punctate, with a fine median longitudinal carina, with distinct radial wrinkles, which almost reach the median ocellus. Antennal sockets close to each other. Antennal carina low, widened to a crescent-shaped plate, the latter with fine transverse striae. Face and dorsal 0.6 of the clypeus densely rugose. Clypeus flat, coriaceous and rather densely punctate ventrally, its apex slightly convex medially. Malar space index 0.4. Genal carina low ventrally, slightly bent sideways, joining the slightly raised oral carina almost at a right angle. Genal index 0.1. Temple finely coriaceous and with fine disperse punctation medially. Flagellum with 29 segments, slightly fusiform, 2<sup>nd</sup> segment 2.1×, shortest segment 0.9×, penultimate segment 1.2× as long as wide. Pronotum densely rugose laterally on the dorsal 0.1, with longitudinal wrinkles ventrally. Mesoscutum and scutellum coriaceous, densely punctate. Scutellum with lateral carinae on the anterior half. Prescutellar groove with fine longitudinal striae. Ventral part of the prepectal carina low, merging with the transverse carina, the latter slightly raised. Pleural part of the prepectal carina low, the dorsal 0.3 obliterated. Mesopleurum with dense or very dense punctation on a very slightly sculptured background, partly rugose or rugose-punctate. Speculum with fine longitudinal striae. Depression in front of the speculum with with strong longitudinal striae, which merge with the punctation anteriorly. Metapleurum densely and rather coarsely rugose. Pleural carina fine. Areolet rather small, pointed or short-stalked, receiving the 2<sup>nd</sup> recurrent vein distinctly distad of the middle. Nervellus slightly inclivous, intercepted. Nervellar index 0.8. Tibial spur index 0.6. Hind femur 5.2× as long as high. Hind tarsal claws short, with few pectinate teeth basally. Propodeum extending to 0.6 of the hind coxae, rather narrowly and not deeply depressed, für the greater part coarsely and irregularly wrinkled, with short transverse wrinkles in the longitudinal furrow, costulae com-

plete, longitudinal carinae obliterated. Propodeal spiracle small, 2.0× as long as wide. Spiracular carina narrow. Spiracular index 0.5. 1<sup>st</sup> gastral tergite 5.2×, 2<sup>nd</sup> tergite 1.9× as long as wide. Petiole without glymmae, with narrow and somewhat depressed lateral areas, smooth in front of the areas. Petiolar suture fine. 1<sup>st</sup> gastral sternite for the greater part smooth, with transverse striae posteriorly. Thyridium elongate. Thyridial index 1.3. Epipleurum not separated from the 3<sup>rd</sup> gastral tergite, the latter without or with short black lateral stripes. Gaster distinctly compressed posteriorly. Ovipositor index 1.0.

Colour: Black. Maxillary palpus dark brown. Mandible narrowly marked with dark brown medially. Tegula dark brown. Wings hyaline. Stigma dark brown medially. Front leg from the trochantellus onwards and mid leg from the femur onwards yellow or yellowish red. Hind femur yellowish red on the apical 0.2. Hind tibia yellowish brown, narrowly brown basally. Hind tarsus dark brown. 2<sup>nd</sup> gastral tergite red on the posterior 0.4. 3<sup>rd</sup> and 4<sup>th</sup> tergites red. Pilosity whitish.

♂: Flagellum with 33-34 segments, filiform, shortest segment 1.0× as long as wide. Maxillary palpus yellowish brown. Mandible broadly marked with yellow medially. Front leg from the tip of the coxa onwards yellow or yellowish red. Hind femur sometimes completely black. 3<sup>rd</sup> gastral tergite with distinct black lateral stripes. In other characters similar to the ♀.

*Dusona splendor* Hinz, 1985

**Description.** ♀: Body length 9-11 mm. Temples distinctly constricted behind the eyes, 0.8× as long as the width of an eye, tangential lines on eyes and temples intersect on the prescutellar groove. Ocellar index 0.5. Frons slightly depressed, coriaceous and densely punctate, with a fine median longitudinal carina, with fine radial wrinkles, which extend to 0.3-0.5 the distance to the median ocellus. Antennal carina low and narrow. Face coriaceous, densely rugose-punctate. Clypeus slightly concave, coriaceous, densely punctate, with a narrow less densely punctate area ventrally, the apex slightly convex or truncate medially. Malar space index 0.3. Genal carina strongly raised ventrally, slightly bent sideways, joining the strongly raised oral carina at an acute angle, both carinae forming a lopsided triangular pyramid, the tip of the latter shifted ventrally and situated behind the base of the mandible. Gena depressed close to the junction, the depression about half as deep as the width of the 2<sup>nd</sup> flagellar segment. Genal index

about 0.3. Temple finely coriaceous and with very fine disperse punctation medially. Flagellum with 47-49 segments, filiform, the apical 0.2 distinctly attenuate, 2<sup>nd</sup> segment 1.6×, shortest segment 0.8×, penultimate segment 1.3× as long as wide. Pronotum very densely punctate laterally on the dorsal 0.3, with longitudinal wrinkles ventrally. Mesoscutum coriaceous, very densely punctate. Scutellum very densely punctate on a partly smooth background, with lateral carinae on the anterior 0.7. Prescutellar groove smooth. Ventral part of the prepectal carina either merging with the pleural part or with the transverse carina, the latter complete, not raised. Pleural part of the prepectal carina low, its dorsal 0.1-0.3 obliterated or replaced by several wrinkles. Mesopleurum with disperse or rather dense punctation on a smooth or very finely coriaceous background. Speculum smooth or almost smooth, strongly shining. Depression in front of the speculum with distinct and rather long longitudinal striae, which merge with the punctation anteriorly. Metapleurum with longitudinal wrinkles dorsally, densely punctate on a finely coriaceous or smooth background ventrally. Pleural carina strong. Areolet large, narrowly sessile or pointed, receiving the 2<sup>nd</sup> recurrent vein at or slightly distad of the middle. Nervellus slightly inclivous, distinctly intercepted. Nervellar index 0.7. Tibial spur index 0.7. Hind femur 4.5× as long as high. Hind tarsal claws short, with distinct pectinate teeth almost over their total length. Propodeum extending to 0.6 of the hind coxae, broadly and shallowly depressed, sulcus with long transverse wrinkles, costulae obliterated, longitudinal carinae sometimes indicated posteriorly and medially. Propodeal spiracle large, 3.1× as long as wide. Spiracular carina partly widened. Spiracular index 0.5. 1<sup>st</sup> gastral tergite 4.5×, 2<sup>nd</sup> tergite 2.1× as long as wide. Petiole without glymmae or with small and shallow glymmae at the anterior edge of narrow lateral areas, smooth in front of these areas. Petiolar suture partly obliterated. 1<sup>st</sup> gastral sternite smooth. Thyridium elongate. Thyridial index about 1.5. Epipleurum not separated from the 3<sup>rd</sup> gastral tergite, the latter without or with black lateral stripes well above the ventrolateral edge. Gaster distinctly compressed posteriorly. Ovipositor index 0.9.

Colour: Black. Maxillary palpus yellowish red. Mandible broadly yellow medially. Flagellum light brown apically. Tegula yellow. Wings hyaline. Stigma light brown medially. Front leg from the tip of the coxa onwards yellow. Mid femur black basally and ventrally, yellow dorsally and apically. Mid tibia yellow. Mid tarsus yellowish brown. Hind tibia yellow, very narrowly dark brown ba-

sally and apically, the apical dark mark often lacking. Hind tarsus dark brown. 2<sup>nd</sup> gastral tergite yellowish red on the posterior 0.3. 3<sup>rd</sup> tergite yellowish red. 4<sup>th</sup> tergite yellowish red anteriorly (to a variable extent). Pilosity whitish.

♂: Mid femur yellow. In other characters similar to the ♀.

**Material** (2♀♀, 1♂): Kazakhstan: Kharkin near Kalmykovo (Hinz/ZSM, PET); China: Heilongjiang Prov.: Charbin (= Harbin) (AEI). The species also occurs in Europe: 2♀♀ Russia, Volgograd (PET).

### *Dusona stragifex* (Förster, 1868)

This species is very similar to *D. bicoloripes* and *D. chabarowski*, particularly to those specimens in which the raised points between the antennal sockets and the eyes are obliterated. In *D. stragifex* the impression in front of the speculum is distinctly striate, the propodeum is distinctly depressed, the longitudinal carinae are usually present medially and posteriorly, and the sulcus is more or less transversely striate medially and posteriorly. But some specimens, in particular ♂♂, may be indeterminate, and some specimens listed below may be misidentified. *D. stragifex* is also similar to *D. rugifer* (see remark under this name).

**Description.** ♀: Body length 10-13 mm. Temples strongly constricted behind the eyes, 0.7× as long as the width of an eye, tangential lines on eyes and temples intersect on the middle of the mesoscutum. Ocellar index 0.7. Frons slightly depressed, coriaceous, finely and densely punctate, with a fine and partly obliterated median longitudinal carina, without or with short radial wrinkles. Antennal carina low and narrow. Face and dorsal half of the clypeus coriaceous, densely rugose-punctate. Clypeus flat, finely coriaceous and with rather dense punctation ventrally, its apex slightly convex medially. Malar space index 0.3. Genal carina low ventrally, straight or slightly bent sideways, joining the slightly raised oral carina at an acute angle. Genal index 0.5. Temple finely coriaceous and with very fine disperse punctation medially. Flagellum with 49-52 segments, filiform, the apical 0.3 distinctly attenuate, 2<sup>nd</sup> segment 1.5×, shortest segment 0.9×, penultimate segment 1.2× as long as wide. Pronotum with longitudinal wrinkles laterally, with additional punctures on the dorsal 0.3. Mesoscutum and scutellum coriaceous, dull, densely or very densely punctate. Scutellum with lateral carinae on the anterior 0.2. Prescutellar groove smooth medially, with longi-

tudinal striae laterally. Prepectal carina low, ventral part merging with the pleural part, the latter complete, joining the anterior edge of the mesopleurum, sometimes the dorsal 0.1 replaced by several wrinkles. Transverse carina indistinct. Mesopleurum distinctly coriaceous, rather densely or densely punctate. Speculum finely coriaceous, shining. Depression in front of the speculum with distinct longitudinal wrinkles or striae, which merge with the punctation anteriorly. Metapleurum coriaceous, finely rugose-punctate. Pleural carina distinct. Areolet large, short-stalked, receiving the 2<sup>nd</sup> recurrent vein at or basad of the middle. Nervellus almost vertical, distinctly intercepted. Nervellar index 0.7-0.8. Tibial spur index 0.7. Hind femur 4.9× as long as high. Hind tarsal claws short, with distinct pectinate teeth basally and medially. Propodeum extending to 0.3 of the hind coxae, distinctly and broadly but not deeply depressed, sulcus usually for the greater part transversely wrinkled, often with a short longitudinal keel posteriorly, costulae partly present, longitudinal carinae present medially and posteriorly, sometimes almost complete. Propodeal spiracle large, 2.8× as long as wide. Spiracular carina narrow. Spiracular index 0.6. 1<sup>st</sup> gastral tergite 3.8×, 2<sup>nd</sup> tergite 1.6× as long as wide. Petiole with large glymmae, which are bordered by longitudinal carinae dorsally, smooth in front of the glymmae. Petiolar suture fine, sometimes partly obliterated. 1<sup>st</sup> gastral sternite coriaceous anteriorly, smooth or finely coriaceous medially, transversely striate posteriorly. Thyridium oval. Thyridial index about 1.0. Epipleurum separated from the 3<sup>rd</sup> gastral tergite, the crease marked with black. Epipleural index 0.6-0.7. Gaster distinctly compressed posteriorly. Ovipositor index 0.6.

Colour: Black. Maxillary palpus yellowish red to brown. Mandible broadly yellow medially. Tegula dark brown. Wings hyaline. Stigma medium brown medially. Front leg from the trochanter onwards yellowish red. Mid femur and tibia yellowish red, the femur often marked with black basally. Hind tibia broadly yellowish brown to brown medially, narrowly dark brown or black basally and apically, the apical dark mark sometimes lacking. 2<sup>nd</sup> gastral tergite red on the posterior 0.4-0.5. 3<sup>rd</sup> and 4<sup>th</sup> tergites red, the 4<sup>th</sup> tergite sometimes marked with black dorsally (to a variable extent). Pilosity whitish.

♂: Tegula sometimes yellow. Front and mid legs sometimes from the tip of the coxa onwards yellow or yellowish red. 2<sup>nd</sup> gastral tergite sometimes black dorsally and 4<sup>th</sup> tergite sometimes completely black. In other characters similar to the ♀.

**Material** (35♀♀, 8♂♂): Russia: Sverdlovsk Prov.: Ye-katerinburg (= Sverdlovsk); Tomsk Prov.: Tomsk (PET); Altaysk Terr.: Artybash (MIN); Buryatiya: River Dzhida; Khabarovsk Terr.: Khekhitsir near Khabarovsk, Slavyanka; Primorye: Khasan, Roshchino on River Iman, Spassk Dalniy, Ussuriysk; Sakhalin: Lof-tsi; Kuril Isl.: Dubovoye and Volcano Golovnina on Kunashir (PET). South Korea: Suigen (= Suwon) (AEI). Japan: Hokkaido: Asahikawa (PET), Maruyama (SAP), Sapporo (Hinz/ZSM), Teshio; Honshu: Kyoto, Sasayama (SAP), Tokyo (OTT), Yokohama (AEI); Shikoku: Kagawa (SAP).

**Variety**: 2<sup>nd</sup> gastral tergite dorsally red on the posterior 0.2, laterally red on the posterior 0.4. 3<sup>rd</sup> and 4<sup>th</sup> tergites narrowly black dorsally, broadly red laterally. 5<sup>th</sup> tergite broadly black dorsally, half red in lateral view. 6<sup>th</sup> and 7<sup>th</sup> tergites narrowly marked with red ventrolaterally. Gaster sternites for the greater part red. Genital clasper black. In other characters similar to the nominate morpho. Material: 2♂♂ Russia, Primorye, Roshchino on River Iman (PET). The status of this variety is unknown.

#### *Dusona stygia* (Förster, 1868)

**Description.** ♀: Body length 10-11 mm. Temples slightly constricted behind the eyes, 0.9-1.0× as long as the width of an eye, tangential lines on eyes and temples intersect on the posterior edge of the propodeum. Ocellar index 1.2. Frons slightly depressed above the antennal carinae, coriaceous and densely rugose-punctate, with a fine median longitudinal carina, with short radial wrinkles. Antennal carina low, with a more or less distinct dorsal projection (nose-like), the latter with fine transverse striae. Face and dorsal 0.4 of the clypeus coriaceous, dull, densely rugose-punctate. Clypeus flat, coriaceous and rather densely punctate ventrally, its apex truncate medially. Malar space index 0.5. Genal carina low ventrally, slightly bent sideways, joining the distinctly raised oral carina at an acute angle. Genal index 0.4. Temple coriaceous and with fine rather dense punctation medially. Flagellum with 44-48 segments, filiform, the apical 0.2 slightly attenuate, 2<sup>nd</sup> segment 1.5×, shortest segment 0.9×, penultimate segment 1.1× as long as wide. Pronotum densely rugose-punctate laterally on the dorsal 0.4-0.6, with longitudinal wrinkles ventrally. Mesoscutum coriaceous, very densely punctate. Scutellum very densely punctate on a smooth or finely coriaceous background, with lateral carinae on the anterior 0.5-0.7. Prescutellar groove smooth medially, with longitudinal striae laterally. Pre-

pectal carina low, ventral part merging with the pleural part, the dorsal 0.2-0.3 of the latter obliterated or replaced by several wrinkles. Transverse carina complete or partly obliterated. Mesopleurum distinctly coriaceous, distinctly and densely punctate. Speculum punctate posteriorly, granulate-strigose and rather dull anteriorly. Depression in front of the speculum with with short longitudinal wrinkles, which merge with the punctation anteriorly. Metapleurum coriaceous, densely rugose-punctate. Pleural carina fine, often partly indistinct and covered with wrinkles. Areolet large, pointed, receiving the 2<sup>nd</sup> recurrent vein distad of the middle. Nervellus vertical, weakly intercepted. Nervellar index 0.7. Tibial spur index 0.7. Hind femur 4.7× as long as high. Hind tarsal claws long, with distinct pectinate teeth basally and medially. Propodeum extending to 0.3 of the hind coxae, broadly and shallowly depressed, sulcus irregularly wrinkled anteriorly, with long transverse wrinkles posteriorly, carinae for the greater part obliterated, sometimes some parts weakly indicated. Propodeal spiracle small, 2.8× as long as wide. Spiracular carina obliterated. Spiracular index 0.9-1.1. 1<sup>st</sup> gastral tergite 3.6×, 2<sup>nd</sup> tergite 1.3× as long as wide. Petiole without glymmae, with indistinct narrow lateral areas, smooth in front of these areas. Petiolar suture fine. 1<sup>st</sup> gastral sternite for the greater part smooth or with very fine sculpture, with transverse striae posteriorly. Thyridium oval or elongate. Thyridial index about 1.0. Epipleurum not separated from the 3<sup>rd</sup> gastral tergite, sometimes discernible as a small triangular lobe anteriorly, 3<sup>rd</sup> tergite with distinct black lateral stripes well above the ventrolateral edge. Gaster distinctly compressed posteriorly. Ovipositor index 0.6.

Colour: Black. Mandible sometimes narrowly marked with reddish brown medially. Wings hyaline. Stigma yellowish brown medially. Front femur black basally and ventrally, yellowish brown dorsally and apically. Front tibia yellowish brown. Front tarsus dark brown. Mid leg blackish, the femur narrowly brown apically, the tibia narrowly brown basally. Hind tibia sometimes tinged with brown subbasally. 2<sup>nd</sup> gastral tergite red on the posterior 0.4-0.6. 3<sup>rd</sup> and 4<sup>th</sup> tergites red, sometimes narrowly marked with black. 5<sup>th</sup> tergite sometimes marked with red anteriorly. Pilosity whitish.

♂: Propodeum almost not depressed. In other characters similar to the ♀.

**Material** (2♂♂, 1♀): Iran: Takht-i-Suleiman Mts., 2000-2500 m (WAR). Turkmeniya: Kopet-Dag Mts. (PET).

**Description.** ♀: Body length 7-9 mm. Temples strongly constricted behind the eyes, 0.6× as long as the width of an eye, tangential lines on eyes and temples intersect on the middle of the mesoscutum. Ocellar index 0.7. Frons slightly depressed, coriaceous, finely and rather densely punctate, with a fine median longitudinal carina, without radial wrinkles. Antennal carina low and narrow. Face and dorsal 0.7 of the clypeus coriaceous, densely rugose-punctate and rugose. Clypeus flat, finely coriaceous and rather densely punctate ventrally, its apex truncate medially. Malar space index 0.4. Genal carina low and almost straight ventrally, joining the slightly raised oral carina at an acute angle. Genal index 0.5. Temple finely coriaceous and with very fine disperse punctation medially. Flagellum with 39-41 segments, filiform, the apical 0.3 slightly attenuate, 2<sup>nd</sup> segment 2.2×, shortest segment 0.9×, penultimate segment 1.0× as long as wide. Pronotum coriaceous and densely rugose-punctate laterally on the dorsal 0.3, with longitudinal wrinkles ventrally. Mesoscutum coriaceous, dull, very densely punctate. Scutellum finely coriaceous, dispersely or rather densely punctate, with lateral carinae on the anterior half. Prescutellar groove with fine longitudinal striae. Prepectal carina low, ventral part usually merging with the pleural part, rarely with the transverse carina. Pleural part of the prepectal carina present ventrally, the dorsal 0.4 obliterated, sometimes the pleural part completely obliterated and replaced by wrinkles. Transverse carina distinct or obliterated. Mesopleurum distinctly coriaceous, densely punctate. Speculum coriaceous, dull. Depression in front of the speculum with distinct rather short longitudinal wrinkles, which merge with the punctation anteriorly. Metapleurum densely rugose. Pleural carina distinct. Areolet rather large, pointed or short-stalked, receiving the 2<sup>nd</sup> recurrent vein at or basad of the middle. Nervellus slightly reclivous, weakly intercepted. Nervellar index 0.7. Tibial spur index 0.6. Hind femur 5.2× as long as high. Hind tarsal claws short, with distinct pectinate teeth basally and medially. Propodeum extending to the middle of the hind coxae, scarcely depressed, for the greater part irregularly wrinkled, often with some longitudinal wrinkles posteriorly, rarely with few short transverse wrinkles, costulae fine, sometimes almost complete, longitudinal carinae for the greater part obliterated. Propodeal spiracle large, 3.0× as long as wide. Spiracular carina narrow. Spiracular index 0.4. 1<sup>st</sup> gastral tergite 5.0×, 2<sup>nd</sup> tergite

2.3× as long as wide. Petiole for the greater part smooth laterally, glymmae lacking, narrow lateral areas sometimes indicated. Petiolar suture obliterated or partly indicated. 1<sup>st</sup> gastral sternite smooth, sometimes with fine transverse striae posteriorly. Thyridium elongate. Thyridial index about 1.5. Epipleurum not separated from the 3<sup>rd</sup> gastral tergite, the latter with rather fine black lateral stripes well above the ventrolateral edge. Gaster distinctly compressed posteriorly. Ovipositor index 0.6.

Colour: Black. Maxillary palpus yellow. Mandible broadly yellow medially. Tegula medium brown. Wings hyaline. Stigma dark brown medially. Front leg from the tip of the coxa onwards yellowish red. Mid femur yellowish brown on the apical 0.3. Mid tibia and tarsus yellowish brown. Hind tibia broadly yellowish brown to brown medially, narrowly black basally, narrowly brown apically, the apical dark mark sometimes indistinct or lacking. 2<sup>nd</sup> gastral tergite black dorsally, red laterally on the posterior 0.3-0.5. 3<sup>rd</sup> and 4<sup>th</sup> tergites for the greater part red, narrowly marked with black dorsally, sometimes only on the 3<sup>rd</sup> tergite marked with black. 5<sup>th</sup> to 7<sup>th</sup> tergites black dorsally, red laterally (to a variable extend). Gaster sternites red. Pilosity whitish.

♂: Flagellum with 40-46 segments. Pleural part of the prepectal carina often obliterated. Impression in front of the speculum often with fine longitudinal striae. Propodeum not depressed. Tegula yellow. Front and mid legs yellow, the mid coxa marked with black basally. Genital clasper red. In other characters similar to the ♀

**Material** (26♀, 71♂): Russia: Khabarovsk Terr.: Khabarovsk, Khekhtsir near Khabarovsk; Primorye: Chuguyevka, Gornotayensk (PET), Nakhodka (KIS), Okeanskaya (PET), Partizansk (KIS), Sudzuhinskiy (= Lazovskiy) Reserve (PET), Ussuriysk (MOS), Vladivostok; Sakhalin: Novoaleksandrovsk; Kuril Isl.: Alekhino, Tretyakovo and Volcano Golovnina on Kunashir (PET). Japan: Hokkaido: Maruyama, Sapporo, Taisetsuan (SAP); Honshu: Chigasaki, Kamikochi near Norikura-dake (AEI), Nagano (AEI, OTT), Norikura-dake (AEI); Shikoku: Tosa; Kyushu: Hiko-san (SAP).

**Variety:** Flagellum with 46 segments. Mesopleurum densely punctate on a smooth background. In other characters similar to the nominate morpho. Material: 1♀ Russia, Yevreyskiy A.O., Londoko (PET). The status of this variety is unknown.

*Dusona temnator* Hinz & Horstmann,  
spec. nov.

**Types.** Holotype (♀): Russia, Primorye, Kedrovaya Pad Reserve, near Khasan, 25.8.1963 (MOS). – Paratypes: 3♀, 2♂ same locality, 22.8.-8.9. 1963 (2♀, 1♂ MOS, 1♀, 1♂ Hinz/ZSM); 1♀ Japan, Hokkaido, Sapporo, 18.10.1922 (SAP).

**Description.** ♀: Body length 9-10 mm. Temples distinctly constricted behind the eyes, 0.7× as long as the width of an eye, tangential lines on eyes and temples intersect on the scutellum. Ocellar index 0.8. Frons not depressed, coriaceous, distinctly and densely punctate, with indistinct radial wrinkles, without a median longitudinal carina. Antennal sockets close to each other. Antennal carina low, sometimes widened to a narrow smooth crescent-shaped plate. Face and clypeus finely coriaceous and densely punctate. Clypeus flat, its apex truncate and with a smooth bulge medially. Malar space index 0.4. Genal carina straight ventrally, slightly raised, joining the distinctly raised oral carina at an acute angle. Genal index 0.3. Temple with fine and rather dense punctation on a smooth background medially. Flagellum with 47-51 segments, filiform, the apical 0.3 distinctly attenuate, 2<sup>nd</sup> segment 1.9×, shortest segment 1.1×, penultimate segment 1.4× as long as wide. Pronotum densely rugose-punctate laterally on the dorsal 0.6, with longitudinal wrinkles ventrally. Mesoscutum and scutellum densely punctate, very finely coriaceous and shining between the punctures. Scutellum with lateral carinae on the anterior 0.6. Prescutellar groove smooth. Ventral part of the prepectal carina low, merging with the transverse carina, the latter slightly raised. Pleural part of the prepectal carina completely obliterated. Pleural part of the prepectus punctate, without wrinkles. Mesopleurum with rather dense or dense punctation, very finely coriaceous and partly smooth between the punctures. Speculum densely punctate posteriorly, very finely sculptured or smooth anteriorly. Depression in front of the speculum with distinct short longitudinal striae dorsally and medially, which merge with the punctation anteriorly, almost smooth ventrally. Metapleurum densely rugose. Pleural carina very fine, partly covered with wrinkles or obliterated. Areolet large, pointed or short-stalked, receiving the 2<sup>nd</sup> recurrent vein at or slightly distad of the middle. Nervellus slightly reclinous, intercepted. Nervellar index 0.6-0.7. Tibial spur index 0.6. Hind femur 5.3× as long as high. Hind tarsal claws rather long, with distinct pectinate teeth basally. Propodeum

extending to 0.4 of the hind coxae, broadly and not deeply depressed, sulcus finely coriaceous and with fine irregular wrinkles anteriorly, with fine transverse wrinkles posteriorly, costulae partly present, longitudinal carinae obliterated or indicated medially and posteriorly. Propodeal spiracle rather large, 3.2× as long as wide. Spiracular carina indistinct and covered with wrinkles. Spiracular index about 0.8. 1<sup>st</sup> gastral tergite 5.2×, 2<sup>nd</sup> tergite 2.2× as long as wide. Petiole without glymmae, with indistinct narrow lateral areas, smooth in front of these areas. Petiolar suture partly obliterated. 1<sup>st</sup> gastral sternite for the greater part smooth, with transverse striae posteriorly. Thyridium elongate. Thyridial index about 1.0. Epipleurum not separated from the 3<sup>rd</sup> gastral tergite, the latter without or with short and weak black lateral stripes. Gaster strongly compressed posteriorly. Ovipositor index 0.7.

Colour: Black. Wings hyaline. Stigma dark brown medially. Front tibia with a yellow or yellowish brown stripe anteriorly. 2<sup>nd</sup> gastral tergite red on the posterior 0.1. 3<sup>rd</sup> tergite red. 4<sup>th</sup> tergite black or marked with red on the anterior 0.2. Pilosity whitish.

♂: Propodeum with distinct transverse wrinkles, longitudinal carinae distinct medially and posteriorly. Front femur yellowish brown anteriorly. Front tibia yellowish brown. Front tarsus and mid tibia sometimes yellowish brown. In other characters similar to the ♀.

*Dusona templator* Hinz & Horstmann,  
spec. nov.

The types of this species differ somewhat from each other in colour pattern and in the sculpture of the frons, but are very similar to each other in other characters.

**Types.** Holotype (♀): Mongoliya, Central Prov. (=Töv Prov.), Kerulen, 28.8.-3.9.1975 (PET). – Paratypes: 1♀ Tadzhikistan, Shakhristan, 12.6.1982 (Hinz/ZSM); 1♂ Russia, Tuvinskaya A.S.S.R., Kyzyl, 31.5.1975 (PET).

**Description.** ♀: Body length 9 mm. Temples distinctly constricted behind the eyes, 0.8× as long as the width of an eye, tangential lines on eyes and temples intersect on the scutellum. Ocellar index 1.0. Frons not depressed, coriaceous, densely rugose-punctate, with a very fine median longitudinal carina, with rather long radial wrinkles, which extend to 0.5-0.8 the distance to the median ocellus, the frons between the wrinkles almost smooth

in the holotype, dull in the ♀ paratype. Antennal carina low and narrow. Face and dorsal 0.7 of the clypeus coriaceous, densely rugose-punctate. Clypeus flat, coriaceous and densely punctate ventrally, its apex slightly convex medially. Malar space index 0.3. Genal carina low and straight ventrally, joining the distinctly raised oral carina at an acute angle. Genal index 0.5. Temple finely coriaceous and with fine disperse punctuation medially. Flagellum with 43-45 segments, filiform, the apical 0.2 slightly attenuate, 2<sup>nd</sup> segment 1.7×, shortest segment 1.0×, penultimate segment 1.1× as long as wide. Pronotum densely rugose-punctate laterally on the dorsal 0.4, with longitudinal wrinkles ventrally. Mesoscutum and scutellum coriaceous, densely punctate. Scutellum with lateral carinae on the anterior 0.7. Prescutellar groove smooth. Prepectal carina low, ventral part merging with the pleural part, the dorsal 0.2 of the latter obliterated or covered by wrinkles. Transverse carina obliterated. Mesopleurum coriaceous, distinctly and densely punctate. Speculum granulate-strigose, dull. Depression in front of the speculum with longitudinal striae and short wrinkles, which merge with the punctuation anteriorly. Metapleurum densely rugose. Pleural carina fine. Areolet large, pointed, receiving the 2<sup>nd</sup> recurrent vein slightly distad of the middle. Nervellus vertical or slightly reclivous, weakly intercepted. Nervellar index 0.7. Tibial spur index 0.7. Hind femur 4.9× as long as high. Hind tarsal claws rather long, with short pectinate teeth basally. Propodeum extending to 0.4 of the hind coxae, scarcely depressed, for the greater part irregularly wrinkled, with short longitudinal wrinkles posteriorly, carinae almost completely obliterated. Propodeal spiracle small, 3.4× as long as wide. Spiracular carina obliterated. Spiracular index 1.2. 1<sup>st</sup> gastral tergite 4.1×, 2<sup>nd</sup> tergite 1.6× as long as wide. Petiole without glymmae, narrow lateral areas weakly indicated by a coriaceous surface, smooth in front of these areas. Petiolar suture partly obliterated. 1<sup>st</sup> gastral sternite for the greater part smooth, with transverse striae posteriorly. Thyridium oval. Thyridial index about 1.5. Epipleurum separated from the 3<sup>rd</sup> gastral tergite anteriorly, pendent as a small rather triangular lobe. Epipleural index about 0.1. 3<sup>rd</sup> tergite with black lateral stripes well above the ventrolateral edge. Gaster distinctly compressed posteriorly. Ovipositor index 0.6.

Colour: Holotype: Black. Mandible narrowly marked with dark brown medially. Wings hyaline. Stigma brownish black medially. Front leg from the femur onwards yellowish brown. Mid femur brown on the apical 0.1. Mid tibia brown. 2<sup>nd</sup> gastral tergite red on the posterior 0.6. 3<sup>rd</sup> and

4<sup>th</sup> tergites red. Pilosity whitish. The ♀ paratype is distinctly darker: Mandible black. Wings distinctly infusate. Front femur marked with black ventrally. Front tarsus dark brown. Mid leg black. 2<sup>nd</sup> gastral tergite red on the posterior 0.4. 4<sup>th</sup> tergite narrowly marked with black posteriorly. Pilosity dark brown.

♂: Frons dull between the radial wrinkles. Maxillary palpus dark brown. Mandible narrowly marked with yellowish red dorsally and medially. Front leg from the tip of the coxa onwards yellowish red. Mid femur yellowish on the apical 0.3. Mid tibia yellowish brown. Mid tarsus dark brown. 2<sup>nd</sup> gastral tergite red on the posterior 0.4. In other characters similar to the holotype.

**Variety:** Flagellum with 48 segments. Temples slightly constricted behind the eyes, tangential lines on eyes and temples intersect on the propodeum. Wings slightly infusate. Pilosity light brown. In other characters similar to the nominate ♂. Material: 1♂ Uzbekistan, Bukhara (PET). The status of this male is unknown. It is somewhat intermediary between *D. stygia* and *D. templator*.

#### *Dusona temporalis* Horstmann, spec. nov.

**Types.** Holotype (♀): Kazakhstan, Uzun-Agach, 50 km NW Alma-Ata, 30.5.1994 (LIN). – Paratype: 1♂ same dates (Hinz/ZSM).

**Description.** ♀: Body length 8 mm. Temples scarcely constricted behind the eyes, 0.9× as long as the width of an eye, tangential lines on eyes and temples intersect on the apex of the gaster. Ocellar index 1.0. Frons scarcely depressed, coriaceous, densely rugose-punctate, with a very fine median longitudinal carina, with rather long radial wrinkles, which extend to half the distance to the median ocellus. Antennal carina low and narrow. Face and dorsal 0.8 of the clypeus coriaceous, densely rugose-punctate. Clypeus flat, finely coriaceous and rather densely punctate ventrally, its apex truncate medially. Malar space index 0.5. Genal carina very low ventrally, almost obliterated, slightly bent forwards, joining the slightly raised oral carina close to the base of the mandible almost at a right angle. Genal index 0.1 or less (difficult to estimate). Temple finely coriaceous and with distinct dense punctation medially. Flagellum with 43–44 segments, filiform, the apical 0.2 attenuate, 2<sup>nd</sup> segment 2.1×, shortest segment 1.1×, penultimate segment 1.4× as long as wide. Pronotum densely rugose-punctate on a smooth back-

ground laterally on the dorsal 0.4, with longitudinal wrinkles ventrally. Mesoscutum coriaceous, densely punctate. Scutellum with rather dense or dense punctation on an almost smooth background, with lateral carinae on the anterior half. Prescutellar groove smooth medially, with longitudinal striae laterally. Prepectal carina low, ventral part merging with the pleural part, the latter almost joining the anterior edge of the mesopleurum. Transverse carina obliterated. Mesopleurum distinctly and densely punctate on a very finely coriaceous and shining background. Speculum finely coriaceous dorsally, almost smooth ventrally. Depression in front of the speculum with short irregular wrinkles dorsally, granulate-strigose and with fine longitudinal striae ventrally, the latter merging with the punctation anteriorly. Metapleurum finely coriaceous, densely punctate. Pleural carina complete. Areolet rather small, short-stalked, receiving the 2<sup>nd</sup> recurrent vein at the middle. Nervellus reclivous, weakly intercepted. Nervellar index 0.7. Tibial spur index 0.6. Hind femur 4.8× as long as high. Hind tarsal claws rather long, with short pectinate teeth basally. Propodeum extending to 0.4 of the hind coxae, deeply and rather narrowly depressed, with short transverse striae in the longitudinal furrow, with irregular wrinkles beside the furrow, carinae almost completely obliterated. Propodeal spiracle rather small, 3.5× as long as wide. Spiracular carina narrow. Spiracular index 0.5. 1<sup>st</sup> gastral tergite 4.4×, 2<sup>nd</sup> tergite 1.6× as long as wide. Petiole without glymmae, with weak narrow lateral areas, smooth in front of these areas. Petiolar suture almost completely obliterated. 1<sup>st</sup> gastral sternite smooth. Thyridium elongate. Thyridial index about 1.0. Epipleurum not separated from the 3<sup>rd</sup> gastral tergite, the latter with distinct black lateral stripes well above the ventrolateral edge. Gaster not much compressed posteriorly. Ovipositor index 0.5.

Colour: Black. Maxillary palpus yellowish red. Mandible narrowly marked with yellow dorsally and medially. Tegula yellow. Wings hyaline. Stigma yellowish brown medially. Front leg from the trochanter onwards yellowish red, the trochanter marked with black. Mid femur and tibia yellowish red, the femur marked with black basally. Mid tarsus brownish black. Hind femur narrowly marked with red subapically. Hind tibia ventrally reddish brown, dorsally dark yellowish brown basally, dark brown apically. 2<sup>nd</sup> gastral tergite red on the posterior 0.4. 3<sup>rd</sup> and 4<sup>th</sup> tergites red. Pilosity whitish.

♂: Temples widened behind the eyes. Flagellum with the 2<sup>nd</sup> segment 1.8× as long as wide.

Depression in front of the speculum for the greater part coriaceous and granulate-strigose. Maxillary palpus yellow. Mandible for the greater part yellow (teeth black). Front and mid legs from the coxae onwards yellow or yellowish red, the base of the coxae black. Hind femur broadly marked with red subapically. Hind tibia ventrally red, dorsally yellowish basally and medially, blackish apically. In other characters similar to the ♀.

#### *Dusona tenuis* (Förster, 1868)

**Description.** ♀: Body length 8 mm. Temples strongly constricted behind the eyes, 0.6× as long as the width of an eye, tangential lines on eyes and temples intersect on the posterior half of the mesoscutum. Ocellar index 0.9. Frons scarcely depressed, coriaceous, finely and densely rugose-punctate, with a very fine and partly obliterated median longitudinal carina, with short radial wrinkles. Antennal carina low and narrow, sometimes slightly raised (inconspicuous). Face and dorsal 0.3 of the clypeus coriaceous, densely rugose-punctate and rugose. Clypeus flat, coriaceous and densely punctate ventrally, its apex truncate medially. Malar space index 0.3. Genal carina low ventrally, distinctly bent sideways and forwards (Fig. 9 and 14), more or less obliterated close to the junction with the distinctly raised oral carina. Gena slightly depressed close to the junction. Genal index about 0.3. Temple finely coriaceous and with fine disperse punctation medially. Flagellum with 44-48 segments, filiform, the apical 0.3 distinctly attenuate, 2<sup>nd</sup> segment 1.8×, shortest segment 1.0×, penultimate segment 1.3× as long as wide. Pronotum densely rugose-punctate and rugose laterally on the dorsal 0.3, with longitudinal wrinkles ventrally. Mesoscutum coriaceous, dull, very densely punctate. Scutellum coriaceous, dull, with rather dense or dense punctation, with lateral carinae on the anterior 0.6. Prescutellar groove smooth medially, with longitudinal striae laterally. Ventral part of the prepectal carina merging with the transverse carina, both carinae strongly raised, the former distinctly emarginate medially. Pleural part of the prepectal carina low, its dorsal 0.4 obliterated (Fig. 19). Mesopleurum finely coriaceous, densely punctate. Speculum granulate-strigose, rather dull. Depression in front of the speculum with distinct striae, which merge with the punctation anteriorly. Metapleurum finely and densely rugose-punctate. Pleural carina distinct. Areolet rather large, short-stalked, receiving the 2<sup>nd</sup> recurrent vein distad of the middle. Nervellus slightly reclivous, weakly intercepted. Nervellar

index 0.7 (Fig. 28). Tibial spur index 0.6. Hind femur 5.3× as long as high. Hind tarsal claws short, with distinct pectinate teeth basally and medially. Propodeum extending to the middle of the hind coxae, distinctly but not deeply and rather narrowly depressed, for the greater part with long transverse wrinkles, carinae almost completely obliterated. Propodeal spiracle rather small, 3.3× as long as wide. Spiracular carina narrow. Spiracular index 0.5. 1<sup>st</sup> gastral tergite 4.8×, 2<sup>nd</sup> tergite 2.3× as long as wide. Petiole smooth laterally, without glymmae or narrow lateral areas. Petiolar suture fine, partly obliterated. 1<sup>st</sup> gastral sternite smooth. Thyridium oval. Thyridial index about 2.0. Epipleurum not separated from the 3<sup>rd</sup> gastral tergite, the latter with distinct black lateral stripes well above the ventrolateral edge. Gaster distinctly compressed posteriorly. Ovipositor index 0.5.

**Colour:** Black. Maxillary palpus dark brown. Mandible sometimes marked with brown medially. Wings hyaline. Stigma dark brown medially. Front leg from the femur onwards yellowish red. Mid femur yellowish red on the apical half. Mid tibia yellowish red. Hind tibia sometimes tinged with dark brown medially. 2<sup>nd</sup> gastral tergite red on the posterior 0.3. 3<sup>rd</sup> and 4<sup>th</sup> tergites red. Pilosity whitish.

♂: Maxillary palpus yellow. Mandible broadly yellow medially. Tegula yellow. Front and mid legs from the tip of the coxa onwards yellow, the femora yellowish red. Hind tibia yellow medially, narrowly black basally, broadly black apically. In other characters similar to the ♀.

**Material** (10♀♀, 6♂♂): Russia: Chita Prov.: Klichka, Kurort Darasun; Primorye: Slavyanka. Kazakhstan: Aksu-Dzhabagly ESE of Chimkent, Alma-Ata, Borovoye near Kokchetav. Kirgiziya: Frunze (= Bishkek), River Chatkal (PET), Tyan-Shan Mts. (MOS). Mongoliya: Hövsgöl Prov.: Mörön (PET).

#### *Dusona terebrator* (Förster, 1868)

**Description.** ♀: Body length 9-11 mm. Temples distinctly constricted behind the eyes, 0.8× as long as the width of an eye, tangential lines on eyes and temples intersect on the prescutellar groove. Ocellar index 1.1. Frons slightly depressed, coriaceous, densely rugose-punctate, with short radial wrinkles, a median longitudinal carina distinct medially, obliterated dorsally and ventrally. Antennal carina low and narrow. Face and dorsal half of the clypeus coriaceous, dull, densely rugose-punctate. Clypeus flat, coriaceous and rather densely punctate ventrally, its apex slightly convex medially.

Malar space index 0.5. Genal carina low and rather straight ventrally, joining the slightly raised oral carina at an acute angle. Genal index 0.5. Temple finely coriaceous and with fine disperse punctation medially. Flagellum with 39-43 segments, filiform, the apical 0.2 attenuate, 2<sup>nd</sup> segment 1.6-1.8 $\times$ , shortest segment 0.9 $\times$ , penultimate segment 1.2 $\times$  as long as wide. Pronotum coriaceous and densely rugose laterally on the dorsal 0.4, with longitudinal wrinkles ventrally. Mesoscutum and scutellum coriaceous, densely or very densely punctate. Scutellum with lateral carinae on the anterior 0.2. Prescutellar groove smooth. Prepectal carina low, ventral part merging with the pleural part, the latter complete, joining the anterior edge of the mesopleurum. Transverse carina obliterated. Mesopleurum coriaceous, dull, distinctly and densely punctate. Speculum coriaceous, rather dull. Depression in front of the speculum with short and fine longitudinal wrinkles, which merge with the punctation anteriorly. Metapleurum coriaceous, densely rugose. Pleural carina distinct. Areolet large, pointed, receiving the 2<sup>nd</sup> recurrent vein distad of the middle. Nervellus slightly reclivous, intercepted. Nervellar index 0.6-0.7. Tibial spur index 0.7. Hind femur 5.3 $\times$  as long as high. Hind tarsal claws long, with rather short pectinate teeth basally and medially. Propodeum extending to 0.3 of the hind coxae, broadly and not deeply depressed, partly irregularly wrinkled, with rather short transverse wrinkles in the midline, with a median longitudinal keel posteriorly, carinae complete or almost complete. Propodeal spiracle rather small, 2.4 $\times$  as long as wide. Spiracular carina narrow. Spiracular index 0.7. 1<sup>st</sup> gastral tergite 3.5 $\times$ , 2<sup>nd</sup> tergite 1.6 $\times$  as long as wide. Petiole with large glymmae, which are bordered by longitudinal carinae dorsally, smooth or with fine sculpture in front of the glymmae. Petiolar suture complete. 1<sup>st</sup> gastral sternite for the greater part coriaceous, with transverse striae posteriorly. Thyridium oval. Thyridial index about 1.5. Epipleurum separated from the 3<sup>rd</sup> gastral tergite, the crease marked with black. Epipleural index 0.8. Gaster distinctly compressed posteriorly. Ovipositor index 1.0.

Colour: Black. Wings hyaline. Stigma yellowish brown medially. Front leg from the femur onwards yellowish red. Mid femur yellowish red on the apical 0.3. Mid tibia and tarsus yellowish red, the tarsus darkened apically. Hind tibia yellowish brown medially, narrowly black basally, broadly black apically. 2<sup>nd</sup> gastral tergite red on the posterior half. 3<sup>rd</sup> and 4<sup>th</sup> tergites red. Pilosity whitish.

$\delta$ : Propodeum shallowly depressed, with distinct carinae. Mandible sometimes marked with reddish brown medially. In other characters similar to the  $\varphi$ .

**Material** (5 $\varphi\varphi$ , 6 $\delta\delta$ ): Russia: Altaysk Terr.: Volgykha (PET); Primorye: Andreyevka (KIS). Kazakhstan: Kustanay (PET). Kirgiziya: Cholpon-Ata (LIN), Issykata (MOS), Khaydarken, 2500-2800 m, Sosnovka, 1500-1800 m, Talas, 1750-1900 m (LIN).

*Dusona ternata* Hinz & Horstmann, spec. nov.

**Holotype** ( $\varphi$ ): Japan, Odaira (locality unidentified, possibly in central Honshu), 25.8.1954 (HEL).

**Description.**  $\varphi$ : Body length 11 mm. Temples very strongly constricted behind the eyes, 0.6 $\times$  as long as the width of an eye, tangential lines on eyes and temples intersect on the anterior half of the mesoscutum. Ocellar index 0.5. Frons slightly depressed, coriaceous, densely punctate, with a distinct and slightly raised median longitudinal carina, with short und indistinct radial wrinkles. Antennal carina low and narrow. Face and clypeus coriaceous, densely rugose-punctate. Clypeus flat, its apex slightly concave medially. Malar space index 0.3. Genal carina low and rather straight ventrally, joining the slightly raised oral carina at an acute angle. Genal index 0.6. Temple finely coriaceous and with fine disperse punctation medially. Flagellum with 48 segments, filiform, the apical 0.3 distinctly attenuate, 2<sup>nd</sup> segment 2.1 $\times$ , shortest segment 0.9 $\times$ , penultimate segment 1.3 $\times$  as long as wide. Pronotum densely rugose-punctate laterally on the dorsal 0.2, with longitudinal wrinkles ventrally. Mesoscutum and scutellum coriaceous, very densely punctate. Scutellum with lateral carinae on the anterior half. Prescutellar groove with short longitudinal striae. Prepectal carina low, ventral part merging with the pleural part, the dorsal half of the latter obliterated. Transverse carina complete, as high as the prepectal carina. Mesopleurum finely coriaceous, densely punctate. Speculum coriaceous and granulate-strigose. Depression in front of the speculum with distinct longitudinal striae, which merge with the punctation anteriorly. Metapleurum coriaceous, finely and densely punctate. Pleural carina distinct. Areolet large, pointed, receiving the 2<sup>nd</sup> recurrent vein basad of the middle. Nervellus vertical, weakly intercepted. Nervellar index 0.7. Tibial spur index 0.6. Hind femur 5.3 $\times$  as long as high. Hind tarsal claws short, with short but distinct pectinate teeth basally. Propodeum extending to the

middle of the hind coxae, narrowly and not deeply depressed, with short transverse wrinkles in the longitudinal furrow anteriorly and medially, with long transverse wrinkles over the total width of the propodeum posteriorly, costulae fine, complete, longitudinal carinae present only posteriorly. Propodeal spiracle large, 3.5× as long as wide. Spiracular carina somewhat widened. Spiracular index 0.4. 1<sup>st</sup> gastral tergite 4.7×, 2<sup>nd</sup> tergite 2.8× as long as wide. Petiole without glymmae, with indistinct narrow lateral areas, smooth in front of these areas. Petiolar suture almost completely obliterated. 1<sup>st</sup> gastral sternite for the greater part smooth, with transverse striae posteriorly. Thyridium elongate. Thyridial index about 1.5. Epipleurum not separated from the 3<sup>rd</sup> gastral tergite, the latter with distinct black lateral stripes well above the ventrolateral edge. Gaster distinctly compressed posteriorly. Ovipositor index 0.6.

Colour: Black. Maxillary palpus yellow. Mandible broadly yellow medially. Tegula yellowish brown. Wings hyaline. Stigma dark brown medially. Front leg from the tip of the coxa onwards yellowish red. Mid femur yellowish red on the apical 0.2. Mid tibia and tarsus yellowish red, the tarsus brown apically. Hind tibia broadly yellowish brown medially, narrowly dark brown basally and apically. 2<sup>nd</sup> gastral tergite black dorsally, with a long red lateral mark posteriorly. 3<sup>rd</sup> and 4<sup>th</sup> tergites red. 5<sup>th</sup> tergite marked with red ventrolaterally. Posterior gastral sternites reddish brown. Pilosity whitish.

♂ unknown.

#### *Dusona thomsoni* Hinz, 1963

**Description.** ♀: Body length 7-8 mm. Temples strongly constricted behind the eyes, 0.6× as long as the width of an eye, tangential lines on eyes and temples intersect on the posterior half of the mesoscutum. Ocellar index 0.7. Frons slightly depressed, coriaceous and finely rugose-punctate dorsally, coriaceous with few short radial wrinkles ventrally, a median longitudinal carina distinct medially, obliterated dorsally and ventrally. Antennal carina low and narrow. Face and dorsal 0.7 of the clypeus coriaceous, finely and densely rugose-punctate. Clypeus almost flat, coriaceous and rather densely punctate ventrally, its apex truncate medially. Malar space index 0.4. Genal carina low ventrally, slightly bent forwards, joining the slightly raised oral carina at an acute angle. Genal index 0.1. Temple finely coriaceous and with fine disperse punctation medially. Flagellum with 39-42 segments, filiform, the apical 0.2 slightly attenu-

ate, 2<sup>nd</sup> segment 2.3×, shortest segment 0.9×, penultimate segment 1.1× as long as wide. Pronotum coriaceous and finely rugose-punctate laterally on the dorsal 0.2, with longitudinal wrinkles ventrally. Mesoscutum and scutellum coriaceous, densely or very densely punctate. Scutellum with lateral carinae on the anterior half. Prescutellar groove with fine longitudinal striae. Ventral part of the prepectal carina merging with the transverse carina, the former low, the latter slightly raised. Pleural part of the prepectal carina obliterated dorsally and ventrally, the median 0.3 present. Mesopleurum coriaceous, dull, distinctly and densely punctate. Speculum granulate-strigose, rather dull. Depression in front of the speculum with distinct short longitudinal striae, which merge with the punctation anteriorly. Metapleurum coriaceous, finely and densely rugose. Pleural carina distinct. Areolet large, stalked, receiving the 2<sup>nd</sup> recurrent vein almost at the middle. Nervellus slightly inclivous, weakly intercepted. Nervellar index 0.7-0.8. Tibial spur index 0.6. Hind femur 4.8× as long as high. Hind tarsal claws short, with distinct pectinate teeth basally and medially. Propodeum extending to the middle of the hind coxae, broadly and shallowly depressed, sulcus with short transverse wrinkles anteriorly, with long transverse wrinkles medially and posteriorly, costulae complete and distinct, longitudinal carinae obliterated anteriorly and medially, distinct posteriorly. Propodeal spiracle rather small, 2.5× as long as wide. Spiracular carina narrow. Spiracular index 0.5. 1<sup>st</sup> gastral tergite 5.1×, 2<sup>nd</sup> tergite 2.5× as long as wide. Petiole without glymmae, with narrow lateral areas, smooth in front of these areas. Petiolar suture partly obliterated. 1<sup>st</sup> gastral sternite for the greater part smooth, with transverse striae posteriorly. Thyridium elongate. Thyridial index about 1.0. Epipleurum not separated from the 3<sup>rd</sup> gastral tergite, the latter with distinct black lateral stripes well above the ventrolateral edge. Gaster distinctly compressed posteriorly. Ovipositor index 0.8.

Colour: Black. Maxillary palpus yellow. Mandible broadly yellow medially. Tegula yellow. Wings hyaline. Stigma medium brown medially. Front leg from the tip of the coxa onwards yellow, the femur yellowish red. Mid femur yellow on the apical 0.2. Mid tibia and tarsus yellow. Hind tibia yellow medially, narrowly black basally, very broadly black apically, the apical black ring extending over 0.3 of the tibia. 2<sup>nd</sup> gastral tergite completely black or narrowly marked with red laterally. 3<sup>rd</sup> tergite red, distinctly marked with black dorsally on the anterior 0.7. 4<sup>th</sup> tergite red, indistinctly marked with brown dorsally. 5<sup>th</sup> to 7<sup>th</sup>

tergites broadly black dorsally, narrowly red ventrolaterally (to a variable extend). Gastral sternites red or reddish brown. Pilosity whitish.

♂: Propodeum rather narrowly and shallowly depressed, with transverse wrinkles in almost all parts. Mid trochanter yellow. Mid femur yellowish red. Genital clasper reddish brown. In other characters similar to the ♀.

**Material** (2♀♀): Russia: Chita Prov.: Nerchinskij Zavod. Kazakhstan: Borovoye near Kokchetav (PET).

*Dusona tibiatoria* Horstmann, spec. nov.

**Holotype** (♂): Mongoliya, Central Prov. (= Töv Prov.), Lün, Lün-uul Mts., 16.6.1975 (PET).

**Description.** ♂: Body length 10 mm. Temples slightly constricted behind the eyes, 0.9× as long as the width of an eye, tangential lines on eyes and temples intersect on the propodeum. Ocellar index 1.1. Frons slightly depressed, coriaceous, densely punctate, with a fine but distinct median longitudinal carina, with fine radial wrinkles, which extend to half the distance to the median ocellus. Antennal carina low and narrow. Face and dorsal 0.7 of the clypeus coriaceous, densely rugose-punctate. Clypeus concave, coriaceous and rather densely punctate ventrally, its apex convex medially. Malar space index 0.4. Genal carina straight ventrally, distinctly raised, joining the distinctly raised oral carina at an acute angle, forming a lopsided triangular pyramid, the tip of the latter shifted ventrally and situated behind the base of the mandible. Gena depressed close to the junction, the depression about half as deep as the width of the 2<sup>nd</sup> flagellar segment. Genal index 0.4. Temple finely coriaceous and with fine disperse punctation medially. Flagellum with 47 segments, filiform, the apical 0.3 attenuate, 2<sup>nd</sup> segment 1.4×, shortest segment 0.9×, penultimate segment 1.0× as long as wide. Pronotum very densely punctate on a smooth background laterally on the dorsal 0.6, with rather irregular wrinkles ventrally. Mesoscutum and scutellum very densely punctate, mesoscutum with a coriaceous, scutellum with a smooth background. Scutellum with lateral carinae on the anterior half. Prescutellar groove smooth medially, longitudinally striate laterally. Ventral part of the prepectal merging with the transverse carina, both carinae low. Pleural part of the prepectal carina replaced by some indistinct short wrinkles medially, obliterated dorsally and ventrally. Pleural part of the prepectus densely punctate on a smooth background, with few wrin-

kles. Mesopleurum densely and coarsely punctate on a smooth background. Speculum punctate posteriorly, with fine oblique striae anteriorly. Depression in front of the speculum with distinct longitudinal wrinkles, which merge with the punctation anteriorly. Metapleurum very densely punctate on a smooth background. Pleural carina distinct. Areolet large, pointed, receiving the 2<sup>nd</sup> recurrent vein slightly basad of the middle. Nervellus vertical, distinctly intercepted. Nervellar index 0.7. Tibial spur index 0.6. Hind femur 4.2× as long as high. Hind tarsal claws long, with distinct pectinate teeth almost over their total length. Propodeum extending to the middle of the hind coxae, distinctly and broadly depressed, sulcus with short transverse wrinkles in the midline, with irregular wrinkles laterally, costulae distinct and complete, longitudinal carinae present only posteriorly. Propodeal spiracle rather large, 3.0× as long as wide. Spiracular carina narrow. Spiracular index 0.2. 1<sup>st</sup> gastral tergite 4.5×, 2<sup>nd</sup> tergite 1.9× as long as wide. Petiole without glymmae, narrow lateral areas weakly indicated, smooth in front of these areas. Petiolar suture almost completely obliterated. 1<sup>st</sup> gastral sternite smooth. Thyridium elongate. Thyridial index about 1.0. Epipleurum not separated from the 3<sup>rd</sup> gastral tergite, the latter with distinct black lateral stripes well above the ventrolateral edge. Gaster distinctly compressed posteriorly.

Colour: Black. Maxillary palpus brown basally, yellow medially and apically. Mandible narrowly marked with yellowish red dorsally and medially. Tegula yellow. Wings hyaline. Stigma light yellowish brown medially. Front leg from the tip of the coxa onwards yellowish red. Mid leg from the trochantellus onwards yellowish red. Hind femur yellowish red on the apical 0.1. Hind tibia completely yellowish red. 2<sup>nd</sup> gastral tergite dorsally black, laterally red on the posterior 0.4. 3<sup>rd</sup> tergite red. 4<sup>th</sup> tergite narrowly marked with red anteriorly. Pilosity whitish. (The legs might have been marked with yellow originally, and the yellowish red markings might be an artefact caused by the killing agent.)

♀ unknown.

*Dusona tritor* Hinz & Horstmann, spec. nov.

**Holotype** (♀): Japan, Honshu, Nagano, Tenryu-kyo, 3.6.1950 (AEL).

**Description.** ♀: Body length 9 mm. Temples distinctly constricted behind the eyes, 0.7× as long as the width of an eye, tangential lines on eyes and temples intersect on the prescutellar groove. Ocellar index 0.8. Frons scarcely depressed, coriaceous, very finely and rather densely punctate, with a fine median longitudinal carina, with indistinct radial wrinkles. Antennal carina low and narrow. Face and dorsal 0.6 of the clypeus coriaceous, densely rugose-punctate. Clypeus flat, coriaceous and rather densely punctate ventrally, its apex slightly concave medially. Malar space index 0.4. Genal carina low and rather straight ventrally, joining the slightly raised oral carina at an acute angle. Genal index 0.25. Temple finely coriaceous and with very fine disperse punctation medially. Flagellum with 41 segments, filiform, its apical 0.2 slightly attenuate, 2<sup>nd</sup> segment 1.9×, shortest segment 1.0×, penultimate segment 1.2× as long as wide. Pronotum coriaceous and finely and densely rugose-punctate laterally on the dorsal 0.4, with longitudinal wrinkles ventrally. Mesoscutum coriaceous, finely and very densely punctate. Scutellum coriaceous, distinctly and densely punctate, with lateral carinae on the anterior 0.4. Prescutellar groove almost smooth, with few fine longitudinal striae. Ventral part of the prepectal carina low, merging with the transverse carina, the latter slightly raised. Pleural carina strong. Areolet large, short-stalked, receiving the 2<sup>nd</sup> recurrent vein distinctly distad of the middle. Nervellus slightly inclivous, weakly intercepted. Nervellar index 0.7. Tibial spur index 0.6. Hind femur 5.7× as long as high. Hind tarsal claws short, with short pectinate teeth basally. Propodeum extending to the middle of the hind coxae, slightly and rather narrowly depressed, with fine long transverse wrinkles anteriorly and medially, with irregular wrinkles posteriorly, costulae fine but complete, longitudinal carinae present only posteriorly. Propodeal spiracle rather small, 2.9× as long as wide. Spiracular carina narrow. Spiracular index 0.6. 1<sup>st</sup> gastral tergite 4.9×, 2<sup>nd</sup> tergite 2.0× as long as wide. Petiole without glymmae, narrow lateral areas indi-

cated by a coriaceous surface, with very small and shallow pits at their anterior edge, petiole smooth in front of these areas. Petiolar suture partly obliterated. 1<sup>st</sup> gastral sternite for the greater part smooth, with transverse striae posteriorly. Thyridium oval. Thyridial index about 1.0. Epipleurum not separated from the 3<sup>rd</sup> gastral tergite, the latter with indistinct black lateral stripes well above the ventrolateral edge. Gaster strongly compressed posteriorly. Ovipositor index 0.6.

Colour: Black. Maxillary palpus dark brown basally, yellowish brown medially and apically. Mandible tinged with dark brown medially. Wings hyaline. Stigma dark brown medially. Front leg from the femur onwards yellowish red, the femur marked with black basally. Mid femur yellowish brown on the apical 0.1. Mid tibia yellowish brown. Mid tarsus dark brown. Hind tibia black basally and ventrally, dark reddish brown apically and dorsally. 2<sup>nd</sup> gastral tergite black dorsally; with a rather long narrow red mark laterally. 3<sup>rd</sup> and 4<sup>th</sup> tergites red, marked with dark brown dorsally. 5<sup>th</sup> tergite broadly marked with red anteriorly and laterally. Pilosity whitish.

♂ unknown.

*Dusona ucrainator* Hinz, 1985

Both sexes differ remarkably from each other in the sculpture of the frons and in the antennal carina. There is a slight possibility that the ♂♂ may belong to a different, undescribed species.

**Description.** ♀: Body length 9 mm. Temples distinctly constricted behind the eyes, 0.7× as long as the width of an eye, tangential lines on eyes and temples intersect on the scutellum. Ocellar index 0.5. Frons not depressed, coriaceous, densely rugose-punctate and rugose, with a fine median longitudinal carina, with distinct radial wrinkles, which almost reach the median ocellus. Antennal carina slightly but distinctly raised, the rim bent upwards (ear-like), forming a crescent-shaped transversely striate plate. Face and dorsal half of the clypeus coriaceous, densely rugose. Clypeus flat, rather densely punctate on a finely coriaceous and shining background ventrally, its apex truncate medially. Malar space index 0.3. Genal carina low ventrally, bent sideways and forwards, joining the oral carina at the base of the mandible at a right angle. Temple finely coriaceous and with very fine disperse punctation medially. Flagellum with 39-41 segments, filiform, the apical 0.2 attenuate, 2<sup>nd</sup> segment 2.4×, shortest segment 1.0×, penultimate segment 1.3× as long as wide. Pronotum

densely rugose-punctate laterally on the dorsal 0.1, with longitudinal wrinkles ventrally. Mesoscutum and scutellum coriaceous, densely punctate, the scutellum finely coriaceous and somewhat shining. Scutellum with lateral carinae on the anterior 0.7. Prescutellar groove smooth medially, with fine longitudinal striae laterally. Ventral part of the prepectal carina merging with the transverse carina, the former distinctly raised and distinctly emarginate medially, the latter slightly raised. Pleural part of the prepectal carina low ventrally and medially, the dorsal 0.3 obliterated and replaced by wrinkles. Mesopleurum finely coriaceous, densely or rather densely punctate. Speculum coriaceous and granulate-strigose. Depression in front of the speculum with dorsally with distinct longitudinal striae, ventrally with fine striae, which merge with the punctation anteriorly. Metapleurum finely and densely rugose-punctate and rugose. Pleural carina distinct. Areolet rather large, short-stalked, receiving the 2<sup>nd</sup> recurrent vein slightly basad of, in or slightly distad of the middle. Nervellus slightly reclivous, not intercepted or weakly intercepted. In the latter case nervellar index 0.7. Tibial spur index 0.6. Hind femur 5.3× as long as high. Hind tarsal claws short, with short pectinate teeth basally. Propodeum extending to the middle of the hind coxae, broadly and deeply depressed, for the greater part with fine transverse wrinkles, carinae almost completely obliterated. Propodeal spiracle rather small, 4.0× as long as wide. Spiracular carina widened. Spiracular index about 0.4. 1<sup>st</sup> gastral tergite 4.8×, 2<sup>nd</sup> tergite 2.0× as long as wide. Petiole with small glymmae at the anterior edge of narrow lateral areas, smooth in front of the glymmae. Petiolar suture fine, partly obliterated. 1<sup>st</sup> gastral sternite smooth. Thyridium elongate. Thyridial index about 1.5. Epipleurum not separated from the 3<sup>rd</sup> gastral tergite, the latter with distinct black lateral stripes well above the ventrolateral edge. Gaster distinctly compressed posteriorly. Ovipositor index 0.5.

Colour: Black. Maxillary palpus yellowish red. Mandible narrowly marked with yellow dorsally and medially. Tegula yellow. Wings hyaline. Stigma medium brown medially. Front leg from the tip of the coxa onwards yellow, the trochanter marked with brown or black, the femur yellowish red. Mid femur yellowish red on the apical 0.3. Mid tibia yellow. Mid tarsus yellowish brown or brown. Hind tibia light yellow medially on the dorsal side, narrowly black basally, brown medially on the ventral side, broadly marked with black apically, the apical black ring extending over 0.3 of the tibia. 2<sup>nd</sup> gastral tergite red on the poste-

rior 0.1-0.2. 3<sup>rd</sup> and 4<sup>th</sup> tergites red, the 4<sup>th</sup> tergite sometimes marked with black posteriorly. Pilosity whitish.

♂: Frons distinctly but not deeply depressed above the antennal carinae. Antennal carinae rather strongly raised, the rim bent upwards (ear-like), forming a crescent-shaped transversely striate plate. Mandible broadly yellow medially. Front and mid leg from the tip of the coxa onwards yellow. In other characters similar to the ♀.

**Material** (8♀, 5♂): Russia: Chita Prov.: Chita (PET), Lake Ivan (Hinz/ZSM, PET); Primorye: Spassk Dalniy (KIS, PET). Japan: Honshu: Kamikochi near Norikura-dake (AEI, Hinz/ZSM).

### *Dusona ucrainica* Hinz, 1972

**Description.** ♀: Body length 9-10 mm. Temples distinctly constricted behind the eyes, 0.8× as long as the width of an eye, tangential lines on eyes and temples intersect on the scutellum. Ocellar index 0.9. Frons slightly depressed, finely and densely rugose dorsally, with distinct radial wrinkles medially and ventrally, the latter almost reaching the median ocellus, with a median longitudinal carina, which is distinctly raised medially. Antennal carina distinctly but not strongly raised, the rim bent upwards (ear-like), forming a crescent-shaped plate, which is transversely striate. Face coriaceous, densely rugose-punctate. Clypeus slightly convex, finely coriaceous, densely punctate, its apex slightly convex medially. Malar space index 0.4. Genal carina low ventrally, slightly bent sideways, joining the oral carina at the base of the mandible at a right angle. Temple coriaceous and with fine disperse punctation medially. Flagellum with 42-43 segments, filiform, the apical 0.3 distinctly attenuate, 2<sup>nd</sup> segment 2.1×, shortest segment 1.1×, penultimate segment 1.4× as long as wide. Pronotum densely rugose-punctate laterally on the dorsal 0.3, with longitudinal wrinkles ventrally. Mesoscutum and scutellum coriaceous, densely rugose-punctate. Scutellum with lateral carinae on the anterior 0.4-0.5. Prescutellar groove smooth medially, with fine longitudinal striae laterally. Ventral part of the prepectal carina merging with the transverse carina, both carinae slightly raised, the former emarginate medially. Pleural part of the prepectal carina low ventrally and medially, the dorsal 0.3 obliterated. Mesopleurum coriaceous, densely punctate. Speculum with fine longitudinal striae dorsally, finely granulate-strigose and shining ventrally. Depression in front of the speculum with distinct long longitudinal

striae, which merge with the punctuation anteriorly. Metapleurum densely rugose-punctate and rugose. Pleural carina fine but complete. Areolet rather small, pointed or short-stalked, receiving the 2<sup>nd</sup> recurrent vein distinctly distad of the middle. Nervellus distinctly reclivous, weakly intercepted. Nervellar index 0.7. Tibial spur index 0.5. Hind femur 4.7× as long as high. Hind tarsal claws short, with distinct pectinate teeth basally and medially. Propodeum extending to 0.4 of the hind coxae, rather broadly but not deeply depressed, irregularly wrinkled anteriorly, with short transverse wrinkles medially, with long transverse wrinkles posteriorly, carinae almost completely obliterated. Propodeal spiracle rather large, 3.1× as long as wide. Spiracular carina narrow. Spiracular index 0.3. 1<sup>st</sup> gastral tergite 4.1×, 2<sup>nd</sup> tergite 1.6× as long as wide. Petiole with small and shallow glymmae at the anterior edge of indistinct narrow lateral areas, smooth in front of the glymmae. Petiolar suture obliterated. 1<sup>st</sup> gastral sternite smooth. Thyridium elongate. Thyridial index about 1.0. Epipleurum not separated from the 3<sup>rd</sup> gastral tergite, the latter with distinct black lateral stripes well above the ventrolateral edge. Gaster slightly compressed posteriorly. Ovipositor index 0.5.

Colour: Black. Maxillary palpus medium brown basally, yellowish red medially and apically. Mandible black, sometimes narrowly tinged with brown medially. Tegula dark brown. Wings hyaline. Stigma yellowish brown medially. Front femur yellowish red. Front tibia and tarsus yellow. Mid femur yellowish red on the apical 0.2. Mid tibia yellow. Mid tarsus brown. Hind tibia completely black or marked with whitish yellow subbasally on the dorsal side (to a variable extent). 2<sup>nd</sup> gastral tergite red on the posterior 0.3. 3<sup>rd</sup> and 4<sup>th</sup> tergites red. Pilosity whitish.

♂: Glymma lacking. Mandible broadly yellow medially. Tegula yellowish brown. Front trochanter marked with yellowish red. In other characters similar to the ♀.

**Material** (12♀, 13♂): Russia: Omsk Prov.: Omsk; Chita Prov.: Karymskoye, Kozlovo, Urulyunguy E of Borzya, Zabaykalsk; Amur Prov.: Novorossiyska; Yevreyskiy A.O.: Amurzet (PET); Primorye: Andreyevka (KIS), Spassk Dalniy. Mongoliya: Selenge Prov.: Darhan (PET). North Korea: Hyangsan (SAW). Japan: Honshu: Tokyo (AEI).

**Description.** ♀: Body length 7-9 mm. Temples distinctly constricted behind the eyes, 0.8× as long as the width of an eye, tangential lines on eyes and temples intersect on the scutellum. Ocellar index 1.0. Frons slightly depressed, coriaceous, finely punctate, with a very fine median longitudinal carina (sometimes obliterated), with very short radial wrinkles. Antennal carina low and narrow. Face and dorsal 0.6-0.7 of the clypeus coriaceous, densely rugose-punctate or rugose. Clypeus flat, finely coriaceous and rather densely punctate ventrally, its apex truncate medially. Malar space index 0.4. Genal carina low and straight ventrally, joining the slightly raised oral carina at an acute angle. Genal index 0.6. Temple finely coriaceous and with very fine disperse punctuation medially. Flagellum with 42-44 segments, filiform, the apical 0.2 slightly attenuate, 2<sup>nd</sup> segment 1.9×; shortest segment 0.9×, penultimate segment 1.0-1.1× as long as wide. Pronotum coriaceous and densely rugose-punctate laterally on the dorsal 0.4-0.6, with longitudinal wrinkles ventrally. Mesoscutum and scutellum coriaceous, densely punctate. Scutellum with lateral carinae on the anterior 0.5-0.6. Prescutellar groove smooth, sometimes with fine longitudinal striae laterally. Prepectal carina low, ventral part merging with the pleural part, the latter complete or almost complete. Transverse carina obliterated. Mesopleurum coriaceous, dull, densely punctate. Speculum granulate-stri-gose. Depression in front of the speculum with rather long longitudinal wrinkles, which merge with the punctuation anteriorly. Metapleurum coriaceous, finely and densely rugose-punctate. Pleural carina distinct. Areolet rather small, pointed or narrowly sessile, receiving the 2<sup>nd</sup> recurrent vein distinctly distad of the middle (Fig. 24). Nervellus slightly inclivous, weakly intercepted. Nervellar index 0.7-0.8. Tibial spur index 0.7. Hind femur 5.0× as long as high. Hind tarsal claws short, with short pectinate teeth basally. Propodeum extending to 0.4 of the hind coxae, rather broadly depressed, the sulcus coriaceous and with fine irregular wrinkles, with some transverse wrinkles and a short median longitudinal keel posteriorly, costulae partly present, longitudinal carinae almost completely obliterated. Propodeal spiracle rather large, 2.7× as long as wide. Spiracular carina narrow. Spiracular index 0.4. 1<sup>st</sup> gastral tergite 3.6×, 2<sup>nd</sup> tergite 1.4× as long as wide. Petiole with large glymmae, which are bordered by longitudinal carinae dorsally, smooth in front of the glymmae. Petiolar suture complete. 1<sup>st</sup> gastral sternite for the greater part smooth, with transverse striae poste-

riorly. Thyridium oval. Thyridial index about 1.0. Epipleurum not separated from the 3<sup>rd</sup> gastral tergite, the latter with distinct black lateral stripes well above the ventrolateral edge. Gaster distinctly compressed posteriorly. Ovipositor index 0.7.

Colour: Black. Maxillary palpus brownish black. Mandible narrowly reddish brown to brown medially. Wings hyaline. Stigma medium brown medially. Front femur reddish brown on the apical half or for the greater part light red, with a brown mark ventrally. Front tibia and tarsus yellowish brown. Mid femur sometimes reddish brown on the apical 0.2. Mid tibia yellowish brown. Mid tarsus dark brown. Hind tibia completely black or tinged with yellowish brown medially on the dorsal side. 2<sup>nd</sup> gastral tergite red on the posterior 0.1-0.2. 3<sup>rd</sup> tergite red, sometimes marked with black dorsally. 4<sup>th</sup> tergite sometimes marked with red. Pilosity whitish.

♂: Longitudinal carinae of the propodeum often indicated medially. Tegula yellowish brown to dark brown. Front trochanter and femur yellowish red. Mid femur yellowish red on the apical 0.2. Mid tarsus yellowish red. 2<sup>nd</sup> gastral tergite sometimes red on the posterior 0.3, the red marks more extended laterally. 4<sup>th</sup> tergite marked with red anteriorly. In other characters similar to the ♀.

**Material** (3♀♀, 4♂♂): Russia: Chita Prov.: Kalga, Kurort Darasun; Khabarovsk Terr.: Khekhtsir near Khabarovsk, Vysokogorny; Primorye: Roshchino on River Iman. Mongoliya: Ara-Hangay Prov.: 40 km SSW of Tövshruleh (PET).

#### *Dusona varipes* Horstmann, spec. nov.

**Types.** Holotype (♂): Russia, Khabarovsk Terr., Khekhtsir, near Khabarovsk, 30.7.1983 (PET). – Paratype: 1♂ Russia, Primorye, Ussuriysk, 27.6.1981 (Hinz/ZSM).

**Description.** ♂: Body length 9-10 mm. Temples distinctly constricted behind the eyes, 0.7× as long as the width of an eye, tangential lines on eyes and temples intersect on the scutellum. Ocellar index 0.8. Frons slightly depressed, coriaceous, finely and densely punctate, with a distinct median longitudinal carina, with rather long radial wrinkles, which extend to 0.7 the distance to the median ocellus. Antennal carina low and narrow. Face and dorsal 0.7 of the clypeus coriaceous, densely rugose-punctate. Clypeus flat, coriaceous and rather densely punctate ventrally, its apex truncate medially. Malar space index 0.4. Genal carina straight ventrally, slightly raised, joining the slight-

ly raised oral carina at an acute angle. Genal index 0.6. Temple finely coriaceous and with fine rather dense punctation medially. Flagellum with 50-51 segments, filiform, the apical 0.3 attenuate, 2<sup>nd</sup> segment 1.5×, shortest segment 1.0×, penultimate segment 1.1× as long as wide. Pronotum coriaceous and densely rugose-punctate laterally on the dorsal 0.3, with longitudinal wrinkles ventrally. Mesoscutum and scutellum coriaceous, dull, very densely punctate. Scutellum with lateral carinae on the anterior 0.7. Prescutellar groove with dense longitudinal striae. Ventral part of the prepectal carina low, merging with the transverse carina, the latter slightly raised. Pleural part of the prepectal carina replaced by a short wrinkle medially, obliterated dorsally and ventrally. Mesopleurum coriaceous, dull, distinctly and densely punctate. Speculum coriaceous, rather dull. Depression in front of the speculum with distinct short longitudinal wrinkles, which merge with the punctation anteriorly. Metapleurum coriaceous, densely and finely rugose. Pleural carina distinct. Areolet rather small, long-stalked, receiving the 2<sup>nd</sup> recurrent vein slightly distad of the middle. Nervellus slightly reclivous, weakly intercepted. Nervellar index 0.8. Tibial spur index 0.7. Hind femur 4.5× as long as high. Hind tarsal claws short, with distinct pectinate teeth basally. Propodeum extending to 0.4 of the hind coxae, distinctly but not deeply and rather narrowly depressed, the longitudinal furrow for the greater part transversely wrinkled, other parts irregularly wrinkled, costulae partly present, longitudinal carinae indicated medially and posteriorly. Propodeal spiracle rather large, 3.3× as long as wide. Spiracular carina narrow. Spiracular index 0.7. 1<sup>st</sup> gastral tergite 4.4×, 2<sup>nd</sup> tergite 2.2× as long as wide. Petiole with small and rather shallow glymmae at the anterior edge of narrow lateral areas, for the greater part smooth in front of the glymmae, with a small depression and short transverse wrinkles anteriorly. Petiolar suture fine, partly obliterated. 1<sup>st</sup> gastral sternite for the greater part smooth, with some transverse striae posteriorly. Thyridium oval. Thyridial index about 1.5. Epipleurum not separated from the 3<sup>rd</sup> gastral tergite, the latter with distinct black lateral stripes well above the ventrolateral edge. Gaster strongly compressed posteriorly.

Colour: Black. Maxillary palpus yellow. Mandible yellow, the teeth black. Tegula dark brown or black. Wings hyaline. Stigma dark brown medially. Front leg from the tip of the coxa onwards yellow, the femur yellowish red, marked with dark brown ventrally. Mid femur yellowish red dorsally and apically. Mid tibia yellowish, marked

with dark brown on the inside. Mid tarsus dark brown. Hind tibia marked with dark yellowish brown medially on the ventral side. 2<sup>nd</sup> gastral tergite dorsally red on the posterior 0.4, laterally red on the posterior 0.2. 3<sup>rd</sup> and 4<sup>th</sup> tergites red, the 4<sup>th</sup> tergite marked with black posteriorly. Pilosity whitish.

♀ unknown.

*Dusona venitor* Hinz & Horstmann, spec. nov.

**Holotype** (♀): Russia, Irkutsk Prov., Lake Baykal, Kultuk, 19.6.1929 (MOS).

**Description.** ♀: Body length 10 mm. Temples distinctly constricted behind the eyes, 0.8× as long as the width of an eye, tangential lines on eyes and temples intersect on the postscutellum. Ocellar index 1.0. Frons slightly depressed, coriaceous, finely rugose-punctate, with a fine median longitudinal carina, with indistinct radial wrinkles. Antennal carina low and narrow. Face and dorsal 0.7 of the clypeus coriaceous, densely rugose-punctate. Clypeus flat, coriaceous and with rather dense punctation ventrally, its apex almost truncate medially. Malar space index 0.4. Genal carina low and straight ventrally, joining the slightly raised oral carina at an acute angle. Genal index 0.5. Temple coriaceous and with fine disperse punctation medially. Flagellum with 48-49 segments, filiform, the apical 0.3 slightly attenuate, 2<sup>nd</sup> segment 1.5×, shortest segment 1.0×, penultimate segment 1.2× as long as wide. Pronotum densely rugose-punctate laterally on the dorsal 0.3, with longitudinal wrinkles ventrally. Mesoscutum and scutellum coriaceous, finely and very densely punctate. Scutellum with lateral carinae on the anterior half. Prescutellar groove with fine short longitudinal striae. Prepectal carina low, the ventral part merging with the pleural part, the dorsal 0.2 of the latter replaced by several wrinkles. Transverse carina obliterated. Mesopleurum distinctly coriaceous, densely punctate. Speculum and depression in front of the speculum with fine longitudinal striae, which merge with the punctation anteriorly. Metapleurum densely rugose-punctate and finely rugose. Pleural carina distinct. Areolet large, pointed, receiving the 2<sup>nd</sup> recurrent vein slightly basad of the middle. Nervellus almost vertical, weakly intercepted. Nervellar index 0.7. Tibial spur index 0.8. Hind femur 4.7× as long as high. Hind tarsal claws short, with short pectinate teeth basally. Propodeum extending to 0.3 of the hind coxae, broadly and slightly depressed, sulcus partly somewhat shining, for the greater part irregu-

larly wrinkled, with few short transverse wrinkles, carinae almost completely obliterated. Propodeal spiracle rather large, 3.4× as long as wide. Spiracular carina obliterated. Spiracular index 0.7. 1<sup>st</sup> gastral tergite 3.7×, 2<sup>nd</sup> tergite 2.0× as long as wide. Petiole with distinct but rather small and shallow glymmae, which are bordered by longitudinal carinae dorsally, smooth in front of the glymmae. Petiolar suture for the greater part present. 1<sup>st</sup> gastral sternite for the greater part smooth, with transverse striae posteriorly. Thyridium oval. Thyridial index about 2.0. Epipleurum separated from the 3<sup>rd</sup> gastral tergite anteriorly and folded in, the crease marked with black. Epipleural index 0.2. Gaster strongly compressed posteriorly. Ovipositor index 0.6.

Colour: Black. Wings hyaline. Stigma medium brown medially. Front femur marked with yellowish brown dorsally. Front tibia and tarsus medium brown. Mid tibia and tarsus dark brown. 2<sup>nd</sup> gastral tergite red on the posterior 0.2. 3<sup>rd</sup> and 4<sup>th</sup> tergites red. Pilosity whitish.

♂ unknown.

*Dusona ventrator* Hinz & Horstmann,  
spec. nov.

**Holotype** (♀): Japan, Hokkaido, Jozankei, 10.7.1954 (AEI).

**Description.** ♀: Body length 11 mm. Temples strongly constricted behind the eyes, 0.8× as long as the width of an eye, tangential lines on eyes and temples intersect on the posterior half of the mesoscutum. Ocellar index 1.0. Frons slightly depressed, coriaceous, finely and rather densely punctate dorsally, with a fine median longitudinal carina, with distinct radial wrinkles, which extend to 0.4 the distance to the median ocellus. Antennal carina low and narrow. Face and dorsal 0.6 of the clypeus densely rugose-punctate. Clypeus flat, coriaceous and densely punctate ventrally, its apex truncate medially. Malar space index 0.4. Genal carina low and straight ventrally, joining the distinctly raised oral carina at an acute angle. Genal index 0.4. Temple finely coriaceous and with fine disperse punctation medially. Flagellum with 49 segments, filiform, the apical 0.2 distinctly attenuate, 2<sup>nd</sup> segment 2.0×, shortest segment 0.9×, penultimate segment 1.2× as long as wide. Pronotum densely rugose-punctate laterally on the dorsal 0.1, with longitudinal wrinkles and with some punctures ventrally. Mesoscutum and scutellum coriaceous, finely and densely punctate. Scutellum with lateral carinae on the anterior 0.6. Pre-

scutellar groove almost smooth, with some fine longitudinal striae. Prepectal carina low, ventral part merging with the pleural part, the dorsal 0.2 of the latter obliterated. Transverse carina obliterated. Mesopleurum coriaceous, densely punctate. Speculum finely coriaceous, shining. Depression in front of the speculum with short irregular wrinkles dorsally, with fine short longitudinal striae medially and ventrally, the latter merging with a narrow coriaceous area without punctation anteriorly. Metapleurum coriaceous, densely punctate. Pleural carina complete. Areolet large, short-stalked, receiving the 2<sup>nd</sup> recurrent vein slightly distad of the middle. Nervellus inclivous, strongly intercepted. Nervellar index 0.8. Tibial spur index 0.6. Hind femur 4.9× as long as high. Hind tarsal claws rather short, with distinct pectinate teeth basally and medially. Propodeum extending to 0.3 of the hind coxae, broadly and not deeply depressed, sulcus for the greater part irregularly wrinkled, with some longitudinal wrinkles posteriorly, costulae partly present, longitudinal carinae indicated medially and posteriorly. Propodeal spiracle large, 3.5× as long as wide. Spiracular carina widened. Spiracular index 0.2. 1<sup>st</sup> gastral tergite 3.7×, 2<sup>nd</sup> tergite 2.0× as long as wide. Petiole with rather narrow but deep glymmae, which are bordered by longitudinal carinae dorsally, smooth in front of the glymmae. Petiolar suture partly obliterated. 1<sup>st</sup> gastral sternite smooth. Thyridium oval. Thyridial index about 1.0. Epipleurum not separated from the 3<sup>rd</sup> gastral tergite, the latter with distinct black lateral stripes well above the ventrolateral edge. Gaster distinctly but not strongly compressed posteriorly. Ovipositor index 0.6.

Colour: Black. Maxillary palpus medium brown basally, yellow medially and apically. Mandible broadly yellow medially. Tegula medium brown. Wings hyaline. Stigma light brown medially. Front leg from the trochanter onwards yellow, the femur tinged with brown basally. Mid femur yellowish red on the apical 0.2. Mid tibia yellow. Mid tarsus medium brown. Hind tibia broadly yellowish brown medially, narrowly black basally, narrowly medium brown apically. 2<sup>nd</sup> gastral tergite black dorsally, broadly red laterally. 3<sup>rd</sup> tergite red. 4<sup>th</sup> tergite red, dorsally marked with brown posteriorly. Posterior tergites black dorsally, red laterally. Gaster black dorsally, red laterally. Gaster sternites red. Pilosity whitish.

♂ unknown.

**Description.** ♀: Body length 6-8 mm. Temples distinctly constricted behind the eyes, 0.6× as long as the width of an eye, tangential lines on eyes and temples intersect on the prescutellar groove. Ocellar index 0.6. Frons not depressed, coriaceous, finely rugose-punctate, with a scarcely indicated median longitudinal carina, with few short radial wrinkles. Antennal carina low and narrow. Face and dorsal 0.3 of the clypeus finely rugose-punctate. Clypeus flat, coriaceous and with fine disperse punctation ventrally, its apex truncate medially. Malar space index 0.4. Genal carina slightly raised ventrally, almost straight, joining the slightly raised oral carina at an acute angle. Genal index 0.2. Temple finely coriaceous and with fine disperse punctation medially. Flagellum with 30-34 segments, filiform, the apical 0.2 attenuate, 2<sup>nd</sup> segment 2.4×, shortest segment 1.0×, penultimate segment 1.2× as long as wide. Pronotum granulate-strigose laterally on the dorsal 0.3, with longitudinal wrinkles ventrally. Mesoscutum and scutellum coriaceous, dull, with fine disperse punctation. Scutellum with lateral carinae on the anterior 0.2. Prescutellar groove with short longitudinal wrinkles. Prepectal carina low, ventral part merging with the pleural part, the latter complete, joining the anterior edge of the mesopleurum. Transverse carina indistinct. Mesopleurum distinctly coriaceous, with fine disperse punctation. Speculum coriaceous, rather dull. Depression in front of the speculum with fine longitudinal striae, which merge with a coriaceous area without punctation anteriorly. Metapleurum finely and densely rugose. Pleural carina fine. Areolet small, stalked, receiving the 2<sup>nd</sup> recurrent vein distinctly distad of the middle. Nervellus slightly inclivous, distinctly intercepted. Nervellar index 0.8. Tibial spur index 0.5. Hind femur 5.0× as long as high. Hind tarsal claws short, with rather long pectinate teeth basally and medially. Propodeum extending to 0.3 of the hind coxae, distinctly and broadly depressed, sulcus coriaceous anteriorly, transversely striate medially and posteriorly, costulae fine, longitudinal carinae complete and distinct. Propodeal spiracle small, 3.0× as long as wide. Spiracular carina narrow or partly widened. Spiracular index 0.5. 1<sup>st</sup> gastral tergite 4.0×, 2<sup>nd</sup> tergite 1.4× as long as wide. Petiole with very fine sculpture laterally, without glymmae or narrow lateral areas. Petiolar suture fine, partly obliterated. 1<sup>st</sup> gastral sternite finely coriaceous. Thyridium elongate. Thyridial index about 1.0. Epipleurum separated from the 3<sup>rd</sup> gastral tergite anteriorly. Black lateral stripes unrecognizable. Epipleural

index 0.4-0.5. Gaster distinctly compressed posteriorly. Ovipositor index 0.6.

Colour: Black. Maxillary palpus yellow. Mandible almost completely yellow. Tegula yellow. Wings hyaline. Stigma dark brown medially. Front leg from the tip of the coxa onwards yellow, the femur yellowish red. Mid femur yellowish red. Mid tibia and tarsus yellow. Hind tibia whitish yellow medially, narrowly black basally, broadly black apically. Hind tarsus yellowish brown basally. Pilosity whitish.

♂: Similar to the ♀.

**Material** (4♀, 7♂): Russia: Chita Prov.: Adrianovka; Khabarovsk Terr.: Khekhtsir near Khabarovsk; Primorye: Khasan, Pogranichnyy, Vladivostok; Kamchatka: Milskovo, Kozyrevska (PET). Japan: Honshu: Kamikochi near Norikura-dake (AEI).

*Dusona viduator* Hinz & Horstmann,  
spec. nov.

**Types.** Holotype (♀): Russia, Khabarovsk Terr., Khekhtsir, near Khabarovsk, 12.6.1983 (PET). – Paratypes: 5♀, 2♂ same locality, 8-30.6.1983 and 12.6.1985 (4♀, 1♂ PET, 1♀, 1♂ Hinz/ZSM); 1♀ Russia, Primorye, Spassk Dalniy, 26.5.1985 (PET).

**Description.** ♀: Body length 7-9 mm. Temples slightly constricted behind the eyes, 0.9× as long as the width of an eye, tangential lines on eyes and temples intersect on the propodeum. Ocellar index 1.2. Frons slightly depressed, coriaceous, with very fine punctation and very fine wrinkles, with a fine median longitudinal carina, with short and indistinct radial wrinkles, sometimes on either side with a raised point between the antennal socket and the eye. Antennal carina low and narrow. Face and dorsal 0.6 of the clypeus coriaceous, densely rugose-punctate. Clypeus flat, coriaceous and with rather dense punctation ventrally, its apex truncate medially. Malar space index 0.4. Genal carina low ventrally, straight or slightly bent sideways, joining the low oral carina at an acute angle. Genal index 0.4-0.5. Temple finely coriaceous and with very fine disperse punctation medially. Flagellum with 35-37 segments, filiform, the apical 0.1 slightly attenuate, 2<sup>nd</sup> segment 1.7×, shortest segment 0.8×, penultimate segment 1.0× as long as wide. Pronotum densely rugose-punctate laterally on the dorsal 0.3, the wrinkles almost smooth, with longitudinal wrinkles ventrally. Mesoscutum and scutellum coriaceous, densely punctate. Scutellum with lateral carinae on the

anterior 0.7. Prescutellar groove smooth. Prepectal carina low, ventral part merging with the pleural part, the latter complete, joining the anterior edge of the mesopleurum. Transverse carina obliterated. Mesopleurum with rather dense or dense punctation on a finely coriaceous and shining background. Speculum very finely coriaceous or granulate-strigose, partly almost smooth. Depression in front of the speculum granulate-strigose and with fine longitudinal striae, which merge with the punctation anteriorly. Metapleurum finely and densely punctate on a finely coriaceous and shining background. Pleural carina distinct. Areolet large, pointed or short-stalked, receiving the 2<sup>nd</sup> recurrent vein at or basad of the middle. Nervellus almost vertical, weakly intercepted. Nervellar index 0.7. Tibial spur index 0.7. Hind femur 5.1× as long as high. Hind tarsal claws short, with long pectinate teeth basally and medially. Propodeum extending to 0.3 of the hind coxae, scarcely or not at all depressed, coriaceous and shining anteriorly (region of the area superomedia), irregularly wrinkled medially, with some long longitudinal wrinkles posteriorly, costulae fine but complete, longitudinal carinae almost completely obliterated. Propodeal spiracle rather large, 2.7× as long as wide. Spiracular carina widened. Spiracular index 0.6. 1<sup>st</sup> gastral tergite 3.2×, 2<sup>nd</sup> tergite 1.6× as long as wide. Petiole with large glymmae, which are bordered by longitudinal carinae dorsally, smooth in front of the glymmae. Petiolar suture complete or obliterated posteriorly. 1<sup>st</sup> gastral sternite for the greater part smooth, with fine transverse striae posteriorly. Thyridium oval. Thyridial index about 1.5. Epipleurum separated from the 3<sup>rd</sup> gastral tergite, the crease marked with black. Epipleural index 0.7-0.8. Gaster distinctly but not strongly compressed posteriorly. Ovipositor index 0.6.

Colour: Black. Maxillary palpus yellow. Mandible broadly yellow medially. Tegula yellow or brown. Wings hyaline. Stigma yellowish brown medially. Front leg from the femur onwards yellow, the femur marked with brown basally. Mid femur yellow on the apical 0.2. Mid tibia and tarsus yellow. Hind tibia yellow medially, narrowly black basally, broadly black apically. Hind tarsus yellowish brown or brown. Gaster tergites black, narrowly tinged with dark brown ventrolaterally. Pilosity whitish.

♂: Temples sometimes more strongly constricted behind the eyes. Flagellum with 38-39 segments. Front and mid legs from the tip of the coxa onwards yellow. In other characters similar to the ♀.

*Dusona vigilator* (Förster, 1868)

**Description.** ♀: Body length 10-12 mm. Temples distinctly constricted behind the eyes, 0.9× as long as the width of an eye, tangential lines on eyes and temples intersect on the scutellum. Ocellar index 1.2. Frons slightly depressed, coriaceous, with fine and disperse or rather dense punctation, with a fine median longitudinal carina, with few fine and indistinct radial wrinkles. Antennal carina low and narrow, its rim slightly bent upwards (inconspicuous). Face and dorsal 0.3 of the clypeus coriaceous, dull, densely rugose-punctate and rugose. Clypeus flat, coriaceous, dull and densely punctate ventrally, its apex truncate medially. Malar space index 0.3. Genal carina low and almost straight ventrally, joining the slightly raised oral carina at an acute angle. Genal index 0.3. Temple finely coriaceous and with very fine disperse punctation medially. Flagellum with 48-55 segments, filiform, the apical 0.3 distinctly attenuate, 2<sup>nd</sup> segment 1.5×, shortest segment 0.9×, penultimate segment 1.2× as long as wide. Pronotum coriaceous and densely rugose-punctate laterally on the dorsal 0.4, with longitudinal wrinkles ventrally. Mesoscutum and scutellum coriaceous, dull, very densely punctate. Scutellum with lateral carinae on the anterior 0.4. Prescutellar groove for the greater part smooth. Prepectal carina low, ventral part merging with the pleural part, the latter complete, joining the anterior edge of the mesopleurum. Transverse carina obliterated. Mesopleurum distinctly coriaceous, rather densely or densely punctate. Speculum coriaceous, somewhat shining. Depression in front of the speculum dorsally with distinct short longitudinal wrinkles, which merge with the punctation anteriorly, the ventral 0.3 with fine striae or granulate-strigose. Metapleurum finely coriaceous, finely and rather densely punctate. Pleural carina distinct. Areolet large, short-stalked, receiving the 2<sup>nd</sup> recurrent vein at or slightly basad of the middle. Nervellus slightly inclivous, distinctly intercepted. Nervellar index 0.8. Tibial spur index 0.6. Hind femur 4.8× as long as high. Hind tarsal claws short, with distinct pectinate teeth basally and medially. Propodeum extending to 0.3 of the hind coxae, rather broadly and shallowly depressed, sulcus irregularly wrinkled anteriorly and medially, sometimes coriaceous without distinct wrinkles anteriorly, transversely wrinkled posteriorly, sometimes with a median longitudinal keel posteriorly, costulae partly present, longitudinal carinae usually present medially and posteriorly. Propodeal spiracle large, 3.6× as long as wide. Spiracular carina narrow.

Spiracular index 0.5. 1<sup>st</sup> gastral tergite 3.5×, 2<sup>nd</sup> tergite 1.8× as long as wide. Petiole with distinct glymmae, which are bordered by longitudinal carinae dorsally, smooth or with very fine sculpture in front of the glymmae. Petiolar suture fine, sometimes partly obliterated. 1<sup>st</sup> gastral sternite coriaceous anteriorly, finely coriaceous or smooth medially, transversely striate posteriorly. Thyridium oval. Thyridial index about 1.5. Epipleurum separated from the 3<sup>rd</sup> gastral tergite anteriorly, folded in or folded back secondarily and pendent as a narrow rectangular lobe, a black lateral stripe parallel with the crease in a short distance anteriorly, divergent from the ventrolateral edge posteriorly. Epipleural index 0.2-0.3. Gaster distinctly compressed posteriorly. Ovipositor index 0.6.

Colour: Black. Maxillary palpus yellowish brown or brown. Mandible broadly yellow medially. Wings hyaline. Stigma medium brown medially. Front femur reddish brown, the basal 0.2 dark brown. Front tibia and tarsus yellow. Mid femur yellow on the apical 0.1. Mid tibia yellow. Mid tarsus dark brown. Hind tibia broadly dark yellowish brown medially, narrowly black basally and apically. 2<sup>nd</sup> gastral tergite dorsally black, laterally marked with red in front of the black posterior edge, sometimes also dorsally tinged with red in front of the posterior edge. 3<sup>rd</sup> and 4<sup>th</sup> tergites red, the 4<sup>th</sup> tergite sometimes marked with black (to a variable extend) or completely black. Pilosity whitish.

♂: Propodeum with somewhat stronger carinae and coarser wrinkles. Maxillary palpus brown basally, yellow medially and apically. Tegula yellow to brown. Front trochanter and femur yellowish red. Mid trochanter and femur yellowish brown. In other characters similar to the ♀.

**Material** (17♀♀, 6♂♂): Russia: Khabarovsk Terr.: Khekhtsir near Khabarovsk; Primorye: Khasan, Kiyevka, Okeanskaya, Roshchino on River Iman; Kuril Isl.: Alekhino and Sernovodsk on Kunashir. Kazakhstan: Alma-Ata (PET). Kirgiziya: Chatkalskiy Mts. (MOS).

**Variety:** Body length 9-10 mm. Flagellum with 45-47 segments. In other characters similar to the nominate morph. Material: 1♀ Japan, Honshu, Nagano (OTT); 3♂♂ Japan, Honshu, Kamikochi near Norikura-dake (2♂♂ AEI, 1♂ Hinz/ZSM). The status of this variety is unknown. The solution of this problem depends on the answer to the question whether the nominate morph of *D. vigilator* does occur in Japan or not.

*Dusona xenocampta* (Förster, 1868)

This is a variable and poorly defined species.

**Description.** ♀: Body length 8-12 mm. Temples distinctly constricted behind the eyes, 0.8× as long as the width of an eye, tangential lines on eyes and temples intersect on the prescutellar groove. Ocellar index 1.0. Frons scarcely depressed, coriaceous, densely rugose-punctate, with a very fine median longitudinal carina, without radial wrinkles. Antennal carina low and narrow. Face and dorsal 0.6 of the clypeus coriaceous, densely rugose-punctate and rugose. Clypeus flat, coriaceous and rather densely or dispersely punctate ventrally, its apex truncate or slightly convex medially. Malar space index 0.4. Genal carina low and straight ventrally, joining the slightly raised oral carina at an acute angle. Genal index 0.3. Temple finely coriaceous and with very fine disperse punctation medially. Flagellum with 45-53 segments, filiform, the apical 0.3 distinctly attenuate, 2<sup>nd</sup> segment 2.1×, shortest segment 0.9×, penultimate segment 1.5× as long as wide. Pronotum with longitudinal wrinkles laterally, the dorsolateral 0.3 with additional punctures. Mesoscutum and scutellum coriaceous, dull, densely or very densely punctate. Scutellum with lateral carinae on the anterior 0.8. Prescutellar groove smooth. Ventral part of the prepectal carina merging with the pleural part or with the transverse carina, the ventral part low, the pleural part almost complete or complete, in the latter case joining the anterior edge of the mesopleurum, the transverse carina slightly raised or low and partly obliterated. Mesopleurum distinctly coriaceous, densely punctate. Speculum finely granulate-strigose. Depression in front of the speculum granulate-strigose or with fine long longitudinal striae, which merge the punctation or with a coriaceous area without punctation anteriorly. Metapleurum distinctly coriaceous, rather densely or densely punctate. Pleural carina distinct. Areolet rather large, short-stalked, receiving the 2<sup>nd</sup> recurrent vein slightly basad of the middle. Nervellus distinctly reclivous, weakly intercepted. Nervellar index 0.4-0.6 (Fig. 29), rarely 0.7. Tibial spur index 0.6. Hind femur 5.2× as long as high. Hind tarsal claws short, with distinct pectinate teeth basally and medially. Propodeum extending to 0.3 of the hind coxae, deeply and rather broadly depressed, with short transverse striae in the midline of the sulcus, in other parts irregularly wrinkled, costulae complete or obliterated, longitudinal carinae often indicated medially and posteriorly. Propodeal spiracle large, 4.4× as long as wide. Spiracular carina narrow. Spirac-

ular index 0.2. 1<sup>st</sup> gastral tergite 3.8×, 2<sup>nd</sup> tergite 1.9× as long as wide. Petiole with distinct but sometimes rather small glymmae, which are bordered by longitudinal carinae dorsally, smooth in front of the glymmae. Petiolar suture fine, partly obliterated. 1<sup>st</sup> gastral sternite for the greater part smooth, sometimes with transverse wrinkles posteriorly. Thyridium oval. Thyridial index about 2.0. Epipleurum not separated from the 3<sup>rd</sup> gastral tergite, the latter with distinct black lateral stripes well above the ventrolateral edge. Gaster distinctly compressed posteriorly. Ovipositor index 0.5.

Colour: Black. Maxillary palpus yellowish brown. Mandible broadly yellowish red medially. Tegula yellowish brown to dark brown. Wings hyaline. Stigma light brown medially. Front leg from the tip of the coxa onwards yellowish red. Mid femur yellowish red on the apical 0.3. Mid tibia yellowish red. Mid tarsus dark brown. Hind tibia yellowish brown medially, narrowly black basally, broadly black apically. 2<sup>nd</sup> gastral tergite red on the posterior 0.1-0.4. 3<sup>rd</sup> and 4<sup>th</sup> tergites red. Pilosity whitish.

♂: Tegula yellow to yellowish brown. Front and mid tibiae yellow. Hind tibia yellow medially, narrowly black basally, broadly black apically. In other characters similar to the ♀.

**Material** (38♀, 7♂♂): Russia: Sverdlovsk Prov.: Yekaterinburg (= Sverdlovsk); Irkutsk Prov.: Dachnaya; Chita Prov.: Bukuka (PET), Chita (MOS), Kurort Darasun, Nerchinskij Zavod; Yevreyskiy A.O.: Londoko; Khabarovsk Terr.: Khokhtsir near Khabarovsk (PET); Primorye: Spassk Dalniy (MOS), Vladivostok; Kuril Isl.: Alekhino and Tretyakovo on Kunashir (1♀ from Tretyakovo being a paratype of *D. indistinctor*). Kazakhstan: Borovoye near Kokchetav (PET), Zailyskiy Alatau Mts. Kirgiziya: Issykata (MOS), Terskey Alatau Mts. (LIN). Japan: Hokkaido: Jozankei (AEI), Maruyama; Honshu: Aomori; Shikoku: Mt. Kamegamori (SAP).

*Dusona yamanakai* Hinz, 1985

*Dusona yamanakai* Hinz, 1994

Hinz (1985: 314 f., 1994: 38 f.) described this species twice (see introduction). The descriptions of both taxa differ from each other (in 1985 both sexes are described, in 1994 only the ♀ is), and the type series are different, the holotype (♀) of the 1994 description from Sendai/Kyushu/Japan (SAP) being mentioned as a paratype in the 1985 description. This specimen and the holotype (♀) of the 1985 description from Roshchino on River Iman/Primorye/Russia (PET) have recently been studied by the junior author.

**Description.** ♀: Body length 10-13 mm. Temples strongly constricted behind the eyes, 0.8× as long as the width of an eye, tangential lines on eyes and temples intersect on the posterior half of the mesoscutum. Ocellar index 0.9. Frons slightly depressed, coriaceous and finely and densely punctate dorsally, coriaceous almost without punctures ventrally, with a weakly indicated median longitudinal carina low and narrow, the rim slightly bent upwards (inconspicuous). Face and dorsal 0.6 of the clypeus coriaceous, densely rugose. Clypeus flat, finely coriaceous and with fine disperse or rather dense punctation ventrally, its apex slightly convex medially. Malar space index 0.3. Genal carina low and straight ventrally, joining the low oral carina at an acute angle. Genal index 0.4. Temple finely coriaceous and with fine rather dense punctation medially. Flagellum with 54-58 segments, filiform, the apical 0.3 distinctly attenuate, 2<sup>nd</sup> segment 1.9×, shortest segment 0.8×, penultimate segment 1.2× as long as wide. Pronotum densely punctate or rugose-punctate on a smooth background laterally, with a few short longitudinal wrinkles on the ventral 0.3. Mesoscutum and scutellum coriaceous, very densely punctate. Scutellum with lateral carinae on the anterior 0.6. Prescutellar groove for the greater part smooth, with few longitudinal striae laterally. Prepectal carina low, ventral part merging with the pleural part, the dorsal 0.3 of the latter replaced by several wrinkles. Transverse carina obliterated. Mesopleurum with rather dense or dense punctation on a very finely coriaceous or smooth background. Speculum punctate posteriorly, very finely coriaceous and shining anteriorly. Depression in front of the speculum with distinct longitudinal striae, which merge with the punctation anteriorly. Metapleurum finely coriaceous, densely punctate. Pleural carina complete. Areolet large, pointed, receiving the 2<sup>nd</sup> recurrent vein basad of the middle. Nervellus vertical, distinctly intercepted, the upper branch slightly bent inwards. Nervellar index 0.7. Tibial spur index 0.6. Hind femur 4.4× as long as high. Hind tarsal claws rather long, with short pectinate teeth almost over their total length. Propodeum extending to 0.4 of the hind coxae, rather narrowly and rather shallowly depressed, sometimes not depressed, for the greater part rugose-punctate or irregularly wrinkled, often with a small finely coriaceous and shining area without punctation anteriorly (region of the area superomedia), with some short longitudinal wrinkles posteriorly, carinae almost completely obliterated. Propodeal spiracle large, 2.8× as long as wide. Spiracular carina widened, sometimes indistinct. Spiracular

index 0.5. 1<sup>st</sup> gastral tergite 3.7×, 2<sup>nd</sup> tergite 1.7× as long as wide. Petiole with distinct glymmae, which are bordered by longitudinal carinae dorsally, smooth or with very fine longitudinal striae in front of the glymmae. Petiolar suture partly obliterated. 1<sup>st</sup> gastral sternite for the greater part smooth, with transverse striae posteriorly. Thyridium elongate. Thyridial index about 1.0. Epipleurum separated from the 3<sup>rd</sup> gastral tergite anteriorly, the crease marked with black. Epipleural index 0.4-0.5. Gaster distinctly compressed posteriorly. Ovipositor index 0.6.

Colour: Black. Maxillary palpus yellow. Mandible broadly yellow medially. Tegula yellow, marked with brown. Wings hyaline. Stigma yellowish brown medially. Front leg from the tip of the coxa onwards yellowish red. Mid femur yellowish red on the apical 0.2. Mid tibia and tarsus yellowish red. Hind tibia broadly yellowish red medially, narrowly black basally, narrowly medium brown apically. Hind tarsus medium brown. 2<sup>nd</sup> gastral tergite dorsally black, laterally red on the posterior 0.2. 3<sup>rd</sup> and 4<sup>th</sup> tergites narrowly black dorsally, broadly red laterally. Gastral sternites red. Pilosity whitish.

♂: Propodeum with the costulae partly present and the longitudinal carinae present medially and posteriorly. Front and mid legs from the tip of the coxa onwards yellow. Hind tibia broadly yellow medially, narrowly black basally, narrowly and indistinctly tinged with brown apically. Hind tarsus yellowish brown. 2<sup>nd</sup> gastral tergite completely black. 3<sup>rd</sup> and 4<sup>th</sup> tergites broadly black dorsally, half red in lateral view. Gastral sternites and genital clasper black. In other characters similar to the ♀.

**Material** (3♀♀, 3♂♂): Russia: Primorye: Roshchino on River Iman (Hinz/ZSM, PET), Spassk Dalniy (Hinz/ZSM, MOS). Japan: Kyushu: Sendai (SAP).

#### *Dusona jezoensis* (Uchida, 1928)

The lectotype of this species, a ♂ from Hokkaido/Japan (SAP) without gaster, was studied by the senior author. So far no other ♂ has been found.

**Description.** ♀: Body length 12-13 mm. Temples strongly constricted behind the eyes, 0.7× as long as the width of an eye, tangential lines on eyes and temples intersect on the posterior half of the mesoscutum. Ocellar index 0.9. Frons slightly depressed, coriaceous, finely and densely rugose-punctate, a median longitudinal carina slightly raised medially, obliterated dorsally and ventrally, radial wrin-

kles short and indistinct. Antennal carina low and narrow. Face and dorsal half of the clypeus coriaceous, densely rugose-punctate. Clypeus flat or slightly concave, coriaceous and rather densely punctate ventrally, its apex truncate or slightly concave medially. Malar space index 0.5. Genal carina low and straight ventrally, joining the slightly raised oral carina at an acute angle. Genal index 0.9. Temple finely coriaceous and with very fine disperse punctation medially. Flagellum with 45-47 segments, filiform, the apical 0.3 distinctly attenuate, 2<sup>nd</sup> segment 1.8×, shortest segment 0.9-1.0×, penultimate segment 1.0× as long as wide. Pronotum densely rugose-punctate laterally on the dorsal 0.3, with longitudinal wrinkles ventrally. Mesoscutum and scutellum coriaceous, densely or very densely punctate. Scutellum with lateral carinae on the anterior 0.2. Prescutellar groove for the greater part smooth. Prepectal carina low, ventral part merging with the pleural part, the latter complete, joining the anterior edge of the mesopleurum. Transverse carina present anteriorly. Mesopleurum distinctly and densely punctate on a finely coriaceous and shining background. Speculum coriaceous and granulate-strigose. Depression in front of the speculum with distinct short longitudinal wrinkles and striae, which merge with the punctation anteriorly. Metopleurum coriaceous, densely rugose-punctate and rugose. Pleural carina distinct. Areolet rather large, stalked, receiving the 2<sup>nd</sup> recurrent vein distad of the middle. Nervellus slightly reclivous, distinctly intercepted. Nervellar index 0.7. Tibial spur index 0.7. Hind femur 5.5× as long as high. Hind tarsal claws short, with short pectinate teeth basally. Propodeum extending to 0.3 of the hind coxae, shallowly and rather narrowly depressed, sulcus with irregular wrinkles and short transverse wrinkles, with some longitudinal wrinkles posteriorly, carinae complete or almost complete. Propodeal spiracle rather small, 2.5× as long as wide. Spiracular carina indistinct. Spiracular index 0.6-1.0. 1<sup>st</sup> gastral tergite 4.0×, 2<sup>nd</sup> tergite 2.1× as long as wide. Petiole with distinct glymmae, which are bordered by longitudinal carinae dorsally, smooth or with very fine sculpture in front of the glymmae. Petiolar suture complete. 1<sup>st</sup> gastral sternite coriaceous and finely rugose. Thyridium oval. Thyridial index about 2.0. Epipleurum separated from the 3<sup>rd</sup> gastral tergite, the crease marked with black. Epipleural index 0.8. Gaster distinctly compressed posteriorly. Ovipositor index 0.9.

Colour: Black. Mandible narrowly tinged with reddish brown medially. Wings hyaline. Stigma yellowish brown medially. Front femur black basally and ventrally, yellowish red dorsally and

apically. Front tibia yellow. Front tarsus yellowish brown. Mid femur narrowly yellowish brown or dark brown. 2<sup>nd</sup> gastral tergite completely black or red on the posterior 0.1. 3<sup>rd</sup> and 4<sup>th</sup> tergites red, marked with black dorsally (to a variable extent). Pilosity whitish.

♂ not available for description.

**Material** (18♀): Russia: Khabarovsk Terr.: Khekhtsir near Khabarovsk; Primorye: Andreyevka, Khasan, Nakhodka, Spassk Dalniy, Ussuriysk; Kuril Isl.: Alekhino, Dudovoye and Yuzhno-Kurilsk on Kunashir (PET). Japan: Hokkaido: Maruyama (SAP), Sapporo (AEL, Hinz/ZSM); Kyushu: Miyazaki (SAP). The species also occurs in Europe: 1♀ Russia, Kaluga Prov., Borovsk (PET).

*Dusona yezoensis* Hinz & Horstmann,  
spec. nov.

**Holotype** (♀): Japan, Hokkaido, Kaributo, 22.6. 1966 (HEL).

**Description.** ♀: Body length 13 mm. Temples strongly constricted behind the eyes, 0.6× as long as the width of an eye, tangential lines on eyes and temples intersect on the anterior half of the mesoscutum. Ocellar index 0.6. Frons slightly depressed, coriaceous, finely rugose-punctate, with a fine median longitudinal carina, with short and indistinct radial wrinkles. Antennal carina low and narrow. Face and dorsal half of the clypeus coriaceous, very densely punctate. Clypeus flat, coriaceous and rather densely punctate ventrally, its apex truncate medially. Malar space index 0.4. Genal carina low and almost straight ventrally, joining the low oral carina at an acute angle. Genal index 0.6. Temple coriaceous and finely and rather densely punctate medially. Flagellum with 48 segments, filiform, the apical 0.4 distinctly attenuate, 2<sup>nd</sup> segment 2.2×, shortest segment 1.2×, penultimate segment 1.7× as long as wide. Pronotum coriaceous and densely rugose-punctate laterally on the dorsal 0.2, with longitudinal wrinkles ventrally. Mesoscutum and scutellum coriaceous, densely punctate. Scutellum with lateral carinae on the anterior 0.2. Prescutellar groove almost smooth, with some very fine longitudinal striae. Prepectal carina low, ventral part merging with the pleural part, the latter complete, joining the anterior edge of the mesopleurum. Transverse carina obliterated. Mesopleurum distinctly coriaceous, rather densely or densely punctate. Speculum coriaceous and granulate-strigose. Depres-

sion in front of the speculum with distinct longitudinal wrinkles, which merge with the punctation anteriorly. Metapleurum coriaceous, densely rugose. Pleural carina distinct. Areolet large, pointed, receiving the 2<sup>nd</sup> recurrent vein distinctly basad of the middle. Nervellus distinctly reclivous, distinctly intercepted. Nervellar index 0.5. Tibial spur index 0.6. Hind femur 6.2× as long as high. Hind tarsal claws slightly elongate, with distinct pectinate teeth basally and medially. Propodeum extending to the middle of the hind coxae, slightly and narrowly depressed, with complete costulae and longitudinal carinae, the latter bordering the longitudinal furrow, for the greater part irregularly wrinkled, with some short transverse wrinkles in the longitudinal furrow. Propodeal spiracle large, 5.3× as long as wide. Spiracular carina narrow. Spiracular index 0.4. 1<sup>st</sup> gastral tergite 5.8×, 2<sup>nd</sup> tergite 2.6× as long as wide. Petiole with rather small but deep glymmae, with very fine longitudinal striae in front of the glymmae. Petiolar suture very fine. 1<sup>st</sup> gastral sternite for the greater part smooth, with transverse striae posteriorly. Thyridium elongate. Thyridial index about 1.5. Epipleurum separated from the 3<sup>rd</sup> gastral tergite, the crease marked with black. Epipleural index 0.8. Gaster strongly compressed posteriorly. Ovipositor index 0.9.

Colour: Black. Maxillary palpus dark brown. Mandible rather broadly marked with yellow medially. Wings hyaline. Stigma dark brown medially. Front femur yellowish red dorsally, dark brown ventrally. Front tibia and tarsus yellow. Mid femur yellowish brown on the apical 0.1. Mid tibia yellowish brown. 2<sup>nd</sup> gastral tergite with a black posterior edge, narrowly marked with red in front of the posterior edge. 3<sup>rd</sup> tergite red. 4<sup>th</sup> tergite red, marked with black dorsally and posteriorly. Pilosity whitish.

♂ unknown.

## References

- Aubert, J.-F. 1960. Descriptions préliminaires de quelques espèces et sous-espèces méditerranéennes de la famille des Ichneumonides. – Bull. Soc. ent. Moulhouse 1960: 62-65
- Bachmaier, F. 1979. Das in der Zoologischen Staatssammlung München aufbewahrte Typenmaterial der Gattung *Dusona* Cameron 1900 (= *Campoplex* auct.) und sein Erhaltungszustand (Hymenoptera, Ichneumonidae, Porizontinae). – Spixiana 2: 69-93
- Boie, F. 1855. Beobachtungen und Bemerkungen. – Ent. Z. Stettin 16: 97-108
- Förster, A. 1868. Monographie der Gattung *Campoplex* Grv. – Verh. zool.-bot. Ges. Wien 18: 761-876
- Gravenhorst, J. L. C. 1829. Ichneumonologia Europaea. Pars 3. – Vratislaviae, 1097 pp.
- Gupta, M. L. & V. K. Gupta. 1977. Ichneumonologica Orientalis. Part V. The genus *Dusona* of the Indian subregion (Hymenoptera: Ichneumonidae: Porizontinae). – Oriental Insects Monographs (Delhi) 8: IV & 228 pp.
- Gupta, V. K. & M. L. Gupta. 1976. A new porizontine genus *Kartika* from India and Burma (Hymenoptera: Ichneumonidae). – Orient. Ins. 10: 459-496
- Hinz, R. 1962. Die Försterschen Typen der Gattung *Dusona* Cam. (*Campoplex* auct.) (Hym.). – Opusc. Zool. 66: 1-12
- 1972. Zur Systematik und Ökologie der Ichneumoniden IV (Hym.). – Dt. Ent. Z. (N. F.) 19: 45-54
- 1977. Über einige Arten der Gattung *Dusona* Cameron (Hymenoptera, Ichneumonidae). – Nachr.-Bl. Bayer. Ent. 26: 47-54
- 1979. Beiträge zur Taxonomie der ostpalaearktischen Arten der Gattung *Dusona* Cameron (Hymenoptera, Ichneumonidae). – Dt. Ent. Z. (N. F.) 26: 215-227
- 1985. Neue sibirische *Dusona*-Arten (Hymenoptera, Ichneumonidae). – Dt. Ent. Z. (N. F.) 32: 297-317
- 1990. Beiträge zur Taxonomie der Gattung *Delopia* Cameron, 1903 (*Dusona* auct.) (Hymenoptera, Ichneumonidae). – Entomofauna 11: 261-271
- 1994. Neue Arten der Gattung *Dusona* Cameron, 1900, aus der östlichen Palaearktis (Hymenoptera, Ichneumonidae). – Entomofauna 15: 29-46
- Holmgren, A. E. 1872. Om de scandnaviska arterna af ophionidslägtet *Campoplex*. – Bihang K. Svensk. Vet. Akad. Handl. 1 (2): 1-89
- Horstmann, K. 2001. Revision der von Johann Christian Fabricius beschriebenen Ichneumonidae (Hymenoptera). – Beitr. Ent. 51: 7-50
- Roman, A. 1942. List of new finds of Ichneumonidae in Norway. – Tromsø Mus. Aarsh. 60 (3): 1-20
- Sonan, J. 1929. A few host-known Ichneumonidae found in Formosa (Hym.). – Trans. Nat. Hist. Soc. Formosa 19: 415-425
- Teunissen, H. G. M. 1947. Het genus *Campoplex* (Subfam. Ophioninae. Fam. Ichneumonidae). – Tijdschr. Ent. 88 (1945): 249-270
- Townes, H. 1969. The genera of Ichneumonidae, part 1. – Mem. Am. Ent. Inst. 11: II & 300 pp.
- 1984. A list of the ichneumonid types in Taiwan (Hymenoptera). – J. Agr. Res. China 33: 190-205
- , S. Momoi & M. Townes. 1965. A catalogue and reclassification of the eastern Palearctic Ichneumonidae. – Mem. Am. Ent. Inst. 5: V & 661 pp.
- Yu, D. S. & K. Horstmann. 1997. A catalogue of World Ichneumonidae (Hymenoptera). – Mem. Am. Ent. Inst. 58 (1-2): VI & 1558 pp.

## Index of hosts

*Allophyes oxyacanthae* 102  
*Cabera exanthemata* 62  
*Cabera pusaria* 62  
*Colotois pennaria* 102  
*Comptosia opacaria* 102  
*Heliolithis viriplaca* 53  
*Hypomecis punctinalis* 49, 156  
*Lasiocampidae* 148  
*Orgyia postica* 62  
*Semiothisa liturata* 83

## Index of *Dusona* species

*admontina* 6, 8, 13, 39  
*aemula* 10, 23, 40  
*affinator* 27, 40  
*alpinator* 31, 32, 41  
*alticola* 19, 42  
*americana* 4, 34, 35, 36, 43, 44  
*amictor* 135  
*amurator* 26, 27, 36, 38, 44  
*anceps* 20, 45  
*angustifrons* 6, 7, 8, 10, 28, 45, 57, 106  
*annexa* 27, 35, 43, 44, 46  
*auriculator* 10, 20, 23, 47  
*aurita* 7, 19, 48  
  
*bellator* 14, 49  
*bellipes* 6, 13, 50  
*belokobyli* 27, 51  
*bicoloripes* 13, 51, 52, 59, 160  
*bucculenta* 27, 32, 53  
*bucculentoides* 32, 54  
  
*caliginosa* 38, 77, 78  
*capitator* 6, 31, 54  
*carinator* 14, 55  
*carinifrons* 8, 9, 23, 56  
*carpathica* 22, 24, 57  
*caudator* 16, 17, 58  
*celator* 21, 58  
*chabarowski* 13, 52, 59, 160  
*chechziri* 12, 60  
*chinensis* 19, 23, 25, 61  
*circumcinctus* 8, 9, 26, 62, 153  
*collaris* 22, 63  
*confusator* 32, 63  
*constantineanui* 26, 64  
*contumator* 31, 33, 65  
*contumax* 13, 66  
*coriacea* 15, 67  
*crassiventris* 6, 20, 67  
*cultrator* 12, 68  
  
*detritor* 16, 18, 69  
*dictor* 28, 70

*falcator* 26, 32, 70  
*filator* 5  
*flagellator* 24, 71, 72  
*flavitaris* 14, 72  
*flavopicta* 34, 73  
*foersteri* 51  
*fundator* 22, 31, 38, 74  
  
*gastator* 9, 12, 74  
*gastroides* 13, 75  
*genator* 23, 76, 128  
*glauca* 38, 77, 78  
*graptor* 29, 30, 31, 78, 79  
  
*humilis* 33, 79  
  
*impressifrons* 21, 80  
*inconspicua* 30, 37, 81  
*indistinctor* 33, 81, 178  
*inermis* 24, 71, 82  
*infesta* 8, 12, 83  
*infundibulum* 12, 84  
*insignita* 29, 85  
*iwatae* 13, 85  
  
*japonica* 8, 27, 86  
*japonicus* 86  
*juvenilis* 23, 24, 87  
  
*kaspanyani* 23, 88  
*kyushui* 103  
  
*lamellifer* 28, 89  
*latisulcor* 77  
*leptogaster* 13, 90  
*levibasis* 37, 90  
*liberator* 24, 91  
*limnobia* 46  
*limnobioides* 46  
*linearis* 12, 92  
*lividariae* 25, 93  
*longicauda* 17, 93  
*longigena* 27, 94  
*longistilus* 37, 95  
  
*mactatoides* 20, 21, 96  
*mactator* 21, 96  
*maruyamae* 14, 97  
*maruyamator* 15, 98  
*matsumurae* 20, 99  
*melanator* 4, 11, 12, 29, 78, 79, 100  
*melanocerus* 62  
*memorator* 19, 101  
*mercator* 3, 5, 7, 10, 25, 101  
*meridionator* 9, 27, 31, 34, 35, 36, 103, 105  
*meritor* 35, 104  
*mesoxanthus* 101, 102  
*micrator* 8, 34, 104, 105, 121, 150  
*minor* 24, 28, 105, 106  
*minutor* 22, 106  
*momoi* 16, 18, 107, 108  
*montana* 7, 8, 17, 18, 108  
*myrtilla* 11, 109

*nanus* 35, 109  
*nebulosa* 36, 110  
*nervellator* 31, 111  
*midulator* 10, 16, 112  
*nigridens* 30, 31, 112, 117  
*nigridorsum* 10, 33, 37, 113  
*nigrifemur* 62  
*nigrina* 11, 114  
*nigrotibialis* 12, 115  
*nitidipleuris* 33, 37, 38, 115  
*norikurae* 29, 78, 79, 116  
  
*obliterata* 33, 36, 118  
*obscurator* 12, 16, 119  
*obscuripes* 24, 120  
*obtutor* 35, 38, 105, 120  
*okadai* 20, 121  
*opaca* 8, 34, 36, 39, 122  
*opacoides* 36, 39, 122, 123  
*oxyacanthae* 101  
*oyamadai* 4, 43, 44  
  
*papator* 18, 124  
*parva* 37, 109, 124  
*parvicavata* 20, 34, 125  
*peptor* 29, 117, 126  
*perditor* 23, 127  
*perditor* 10, 23, 127  
*petiolatooides* 28, 76, 128  
*petiolator* 8, 27, 28, 129  
*petitor* 24, 130  
*pictator* 16, 18, 19, 131  
*pineticola* 6, 20, 132  
*polita* 15, 16, 17, 19, 132  
*propodeator* 20, 133, 134  
*pseudobucculenta* 32, 134  
*pugillator* 12, 14, 21, 51, 135  
*pulmentariae* 31, 32, 136  
*punctus* 144  
  
*radiator* 28, 34, 137  
*recta* 21, 30, 137  
*rectator* 30, 138  
*rectoides* 29, 30, 139  
*remota* 38, 77, 140  
*rossica* 72  
*rubator* 31, 32, 141  
*rufator* 23, 141  
*rufiventrator* 25, 142  
*rufopicalis* 37, 143  
*rufovariata* 14, 30, 78, 79, 144  
  
*rugifer* 14, 15, 144, 160  
*rugifrons* 21, 145  
*rugosa* 15, 146, 147  
  
*sachalini* 4, 6, 9, 12, 147  
*sasayamae* 18, 148  
*scalprata* 25, 149  
*schikotani* 33, 34, 36, 105, 149, 150  
*scolator* 24, 150  
*scriptor* 36, 151  
*scutellatooides* 135  
*scutellator* 21, 36, 152  
*setator* 32, 153  
*sibirica* 20, 132  
*signator* 26, 153  
*similator* 13, 15, 17, 18, 154  
*sobolicida* 6, 20, 25, 155  
*specularis* 14, 17, 156  
*spinator* 17, 18, 157  
*spinipes* 25, 158  
*spiracularis* 22, 27, 159  
*splenditor* 25, 28, 159  
*stragifex* 15, 52, 59, 144, 160  
*stygia* 31, 35, 74, 161, 165  
*subimpressa* 26, 36, 38, 162  
  
*temnator* 27, 163  
*templator* 35, 164, 165  
*temporalis* 28, 165  
*tenuis* 7, 8, 26, 103, 166  
*terebrator* 16, 17, 18, 166  
*ternata* 36, 167  
*thomsoni* 23, 26, 168  
*tibiatoria* 25, 169  
*tritor* 26, 170  
  
*ucrainator* 19, 22, 170  
*ucrainica* 19, 171  
  
*variator* 8, 33, 37, 38, 115, 172  
*varipes* 26, 173  
*venitor* 30, 174  
*ventrator* 37, 174  
*vidua* 11, 175  
*viduator* 11, 176  
*vigilator* 14, 30, 177  
  
*xenocampta* 8, 31, 33, 81, 178  
  
*yamanakai* 4, 14, 29, 178  
*yezoensis* 17, 18, 179  
*yezoensoides* 18, 180



SPIXIANA bringt Originalarbeiten aus dem Gesamtgebiet der Zoologischen Systematik mit Schwerpunkten in Morphologie, Phylogenie, Tiergeographie und Ökologie. Manuskripte werden in Deutsch, Englisch oder Französisch angenommen. Pro Jahr erscheint ein Band zu drei Heften. Umfangreiche Beiträge können in Supplementbänden herausgegeben werden.

Ein Jahresabonnement kostet € 60. Supplementbände werden gesondert nach Umfang berechnet. Mitglieder der "Freunde der Zoologischen Staatssammlung München" können die Zeitschrift zum ermäßigten Preis von € 25,50 beziehen.

SPIXIANA publishes original papers on Zoological Systematics, with emphasis on Morphology, Phylogeny, Zoogeography and Ecology. Manuscripts will be accepted in German, English or French. A volume of three issues will be published annually. Extensive contributions may be edited in supplement volumes.

Annual subscription rate is € 60 or any internationally convertible currency in the value of € 60. Supplements are charged at special rates depending on the number of printed pages. Members of the "Freunde der Zoologischen Staatssammlung München" may order the journal at the reduced rate of € 25.50.

Bestellungen sind zu richten an die

Orders should be addressed to the library of the

Zoologische Staatssammlung München  
Münchhausenstraße 21  
D-81247 München

### **Hinweise für Autoren**

Die Manuskripte sollen in zweifacher Ausfertigung eingereicht werden. Sie sollen einseitig und weitzeitig mit mindestens vier cm breitem Rand geschrieben sein. Sie müssen den allgemeinen Bedingungen für die Abfassung wissenschaftlicher Manuskripte entsprechen. Für die Form der Manuskripte ist die jeweils letzte Ausgabe der SPIXIANA maßgebend und genau zu beachten. Eine englische Zusammenfassung ist der Arbeit voranzustellen. Tabellen und Abbildungsvorlagen sind gesondert beizufügen. Der Gesamtumfang eines Beitrages sollte nicht mehr als 2 Druckbogen (32 Druckseiten) umfassen.

Manuskripte auf Computerdisketten werden bevorzugt. In diesem Falle müssen die Diskette und zwei gedruckte Exemplare eingereicht werden. Der Text sollte keine Absatzformatierungen enthalten, die Tabellen sollten aber mit Tabulatoren formatiert sein. Gattungs- und Artnamen können kursiv gesetzt werden. Von der Verwendung anderer Zeichenformatierungen ist abzusehen. Anstelle von ♀ und ♂ sollte eine Zeichenkombination, welche im Text sonst nicht vorkommt, z. B. '#w' und '#m', verwendet werden. Es sollten 3,5" Disketten, lesbar auf IBM-kompatiblen Computern, eingereicht werden. Die Texte sollten möglichst als WINWORD-Datei abgegeben werden.

Die Herausgabe dieser Zeitschrift erfolgt ohne gewerblichen Gewinn. Mitarbeiter und Herausgeber erhalten kein Honorar. Die Autoren erhalten 1 Heft mit ihrer Arbeit. Sonderdrucke werden nach Wunsch gegen Rechnung angefertigt. Die Bestellung muß bei Rückgabe der Fahnenkorrektur erfolgen.

### **Notice to Contributors:**

The manuscript should be presented in two complete copies. It must be typed on one side of the paper only and double spaced with a margin of at least four centimetres. It should correspond to the universal composition of scientific manuscripts. The form should observe the SPIXIANA standard outlay set up in the previous issue. An English abstract should precede the paper. Tables, graphs and illustrations must be enclosed separately. The total text of a contribution should not exceed two galley proofs (32 printed pages).

Manuscripts on word processor discs are preferred. The floppy disc with text (and graphic-files, if present) and two hard copies should be sent to the Editor. Do not format the text, except for italics (for names of genera and species) and tabs (only for tables!). Instead of ♀ and ♂ use '#f' and '#m' or any other combinations of signs which do not occur elsewhere in the text. The text should be on 3.5" discs, readable on IBM-compatibles. WINWORD-files are preferred.

The publication of this journal ensues without material profit. Co-workers and publishers receive no payment. The authors will receive 1 copy of the part of the volume in which their paper appears. Reprints must be ordered when the proofs are returned.

SMITHSONIAN INSTITUTION LIBRARIES



3 9088 01118 8489

WIDE IN SMOKE PAPERBACK

