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New records of *Chersodromia* Walker from the shore of Black Sea and Sea of Azov of Russia with description of a new species (*Diptera: Hybotidae*)

Patrick Grootaert[1], Igor Shamshev[1, 2] & Semen Kustov[3]

Abstract: New records of *Chersodromia* Walker from the shore of Black Sea and Sea of Azov of Russia with description of a new species (*Diptera: Hybotidae*). *Cent. Ent. Stud., Misc. Pap*. 156: 1-9, 13 figs.

Four species of *Chersodromia* Walker (*Hybotidae, Tachydromiinae*) are reported from sandy beaches along the coast of the Taman Peninsula (Krasnodar Territory, Russia) on the side of the Black Sea as well as the Sea of Azov: *Chersodromia isabellae* Grootaert & Shamshev, 2010, *C. curtipennis* Collin, 1950, *C. pontica* Chvála, 1970 and *C. nikolayi* sp. nov. The new species belongs to the *speculifera* group and is described, illustrated and compared to *C. isabellae* that seems to be the closest related species. A revised key for the eight species known from the shore of the Black Sea and the Sea of Azov is provided.

Key words: *Diptera, Hybotidae*, new species, Caucasus.

Introduction

The key paper in the study of the Black Sea and Mediterranean *Chersodromia* Walker is still the review of Palaearctic *Chersodromia* by Chvála (1978). Beschovski (1973) published two new species from the Black Sea and unfortunately that paper was not fully integrated in Chvála's revision (l.c.). After Chvála's review (1978) several short papers on Mediterranean *Chersodromia* were published (Raffone, 1984; Raffone et al., 1988; Raffone, 1994; Raffone, 2004; Chvála, 1995; Plant, 1995; Stark, 1995; Grootaert & Shamshev, 2008; Grootaert & Shamshev, 2010; Grootaert, Shamshev & Andrade, 2010) that could be important to identify the Black Sea fauna of these flies.

Recently Grootaert & Shamshev (2010) described *C. isabellae* from a sandy beach on Taman Peninsula along the Sea of Azov. A more intensive search in late spring 2011 on sandy beaches on both the Black Sea coast and Sea of Azov coast of Taman Peninsula revealed the presence of four *Chersodromia* species. *Chersodromia isabellae* was found again, but only at the type locality at Sennoy. This locality is a sandy beach that is quasi permanently covered with a thick layer of wrack composed of sea grasses. A new species for science, described here, was also found on that beach. *Chersodromia pontica* Chvála and *C. curtipennis* Collin were not recorded at Sennoy, but were very common on all other beaches of the Taman Peninsula. These beaches are composed of pure white sand and generally they are very windy.

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Here we give details about new faunistic records and describe a new species. It belongs to the *speculifera* group and is closely related to *C. isabellae* but differs from it in many distinct characters. A revised key for the eight know species of *Chersodromia* from the coast of the Black Sea and Sea of Azov is given.

Taxonomic account

Chersodromia nikolayi sp. nov.

Figs 1–7, 8–11.

Type material. Holotype male: **Russia**, Sennoy, Taman region [RUSSIA: Krasnodar Territory, Temryuk District, Sennoy village, 45°18'N 36°59'E], 12 June 2011, white water trap on sandy beach. The holotype is deposited at Royal Belgian Institute of Natural Sciences, Brussels [RBINS] (dry, glued on card; leg. Semen Kustov).

Paratypes: 7 ♂♂, 1♀, same data as holotype (conserved in alcohol; RBINS & Zoological Institute, St. Petersburg).

1 male extracted for DNA and barcoded for COI, cuticle preserved (RBINS).

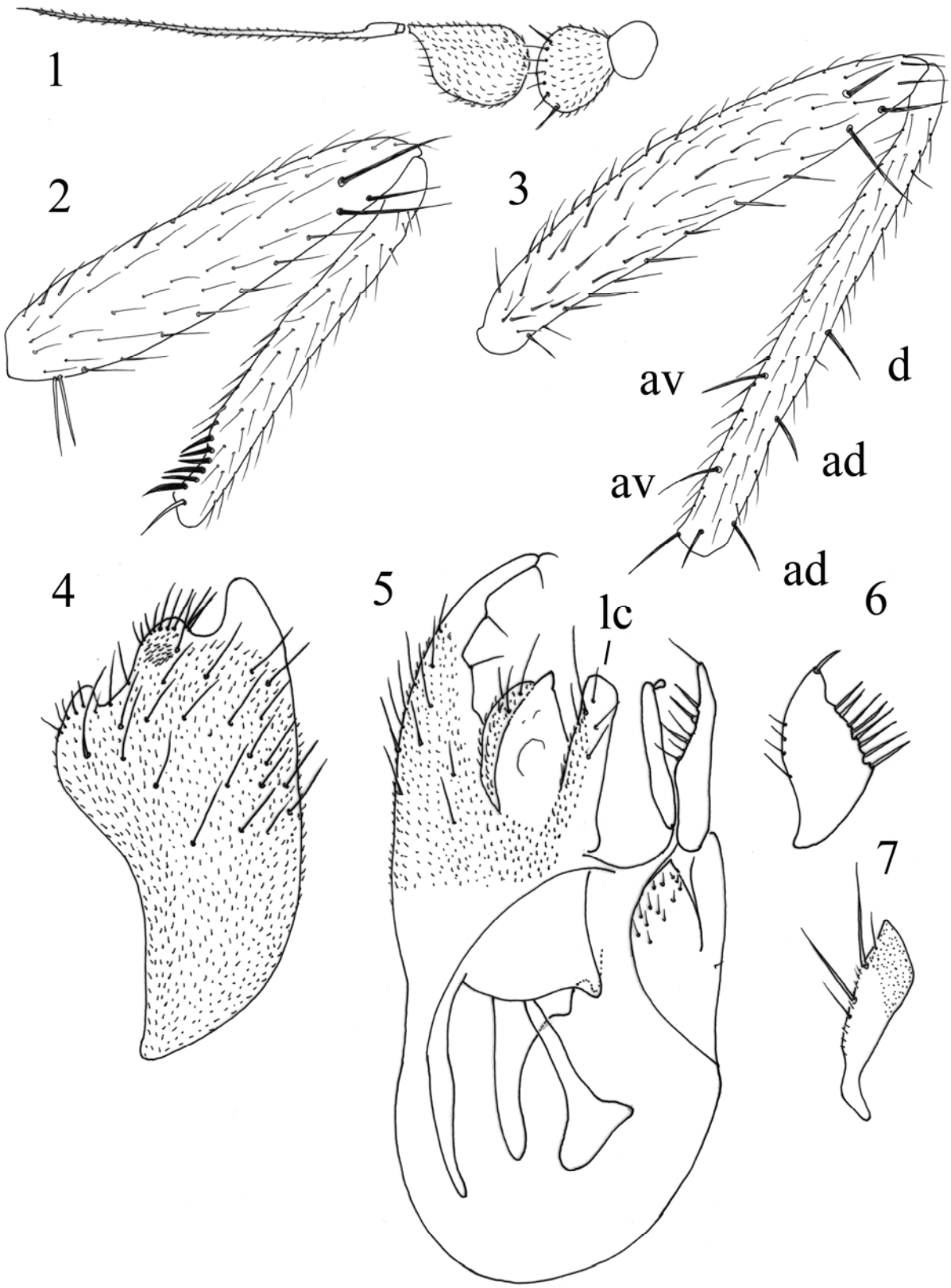
Diagnosis: A small species of the *C. speculifera* group [*sensu* Chvála (1978] with two pairs of long black vertical bristles. Postpedicel rounded with a dorsoapical stylus. Mesonotum black in ground-colour, except for brownish prescutellar depression. Pleura yellowish brown, dusted, but sternopleuron (= katepisternum) black, shining. Legs yellow including all coxae except fore leg with apical tarsomere contrastingly black and mid and hind legs with terminal tarsomere darkened. Male mid tibia with very short row of ventral spinules, row somewhat curved and occupying only apical quarter of tibia. Wing rather short, pale yellowish, veins pale brownish. Left surstylus fusiform in lateral view, with many long bristles on ventral side.

Male:

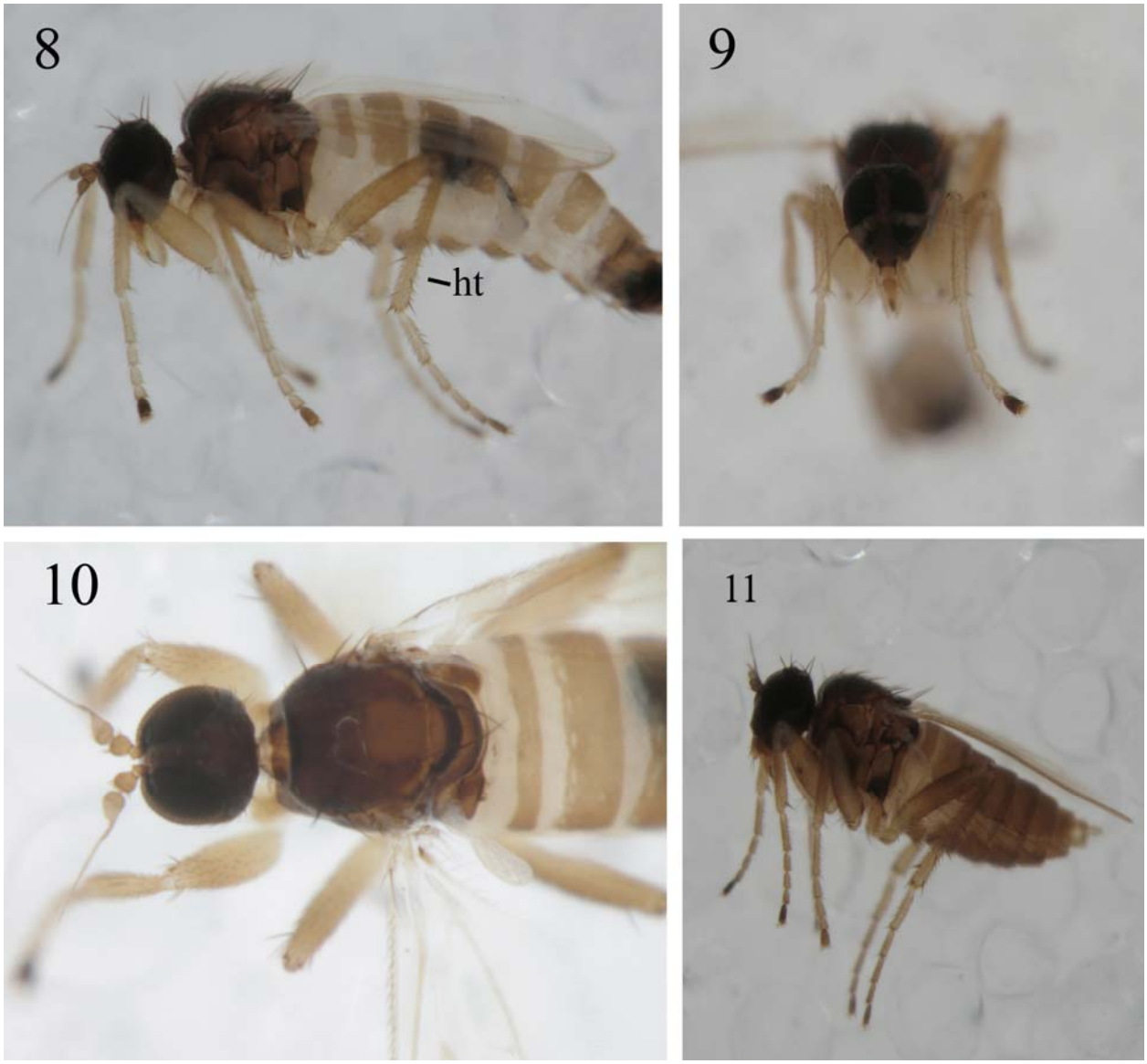
Length. Body: 1.95–2.2 mm; wing: 1 mm. (abdomen expanded in water trap and hence body length deformed).

Head. Black in ground-colour, covered with grey dusting. Frons wide, in front nearly as wide as pedicel, slightly narrowing near middle and widening again towards ocellar triangle. Face above wider than front of frons, strongly widening below, dusted. Gena below eye much wider than postpedicel, at most one fifth of height of eye. Ocellar and vertical bristles black. A pair of anterior ocellars, as long as postpedicel, crossing; a pair of equally long median ocellars diverging; a pair of minute posterior ocellars. Two pairs of verticals: inner pair longest, erect and crossing; outer pair somewhat shorter than inner pair and diverging. Postocular pubescence black, short bristly on occiput, shorter and finer below. Antenna (Fig. 1) yellowish brown; pedicel with circlet of short black bristles, except 2 ventral bristles that are a little longer; postpedicel almost round with long apical extension and dorsoapical stylus that is 3 times as long as postpedicel; basal part of stylus only slightly thickened. Proboscis yellowish brown. Palpus yellowish white, as long as two basal antennal segments combined, with a few brown hairs and a stronger black apical bristle nearly half as long as palpus.

Thorax with mesonotum brownish black in ground-colour, except for the yellowish brown prescutellar depression, grey dusted (Fig. 10). Pleura yellowish brown in ground-colour, with a pattern (Fig. 8): anterior corner of mesopleuron (= anepisternum) and sternopleuron as well as tip of hypopleuron (= meron) darkened; grey dusted, except for shining sternopleuron. All bristles on mesonotum black. Postpronotal lobe with 1 strong bristle. Mesonotum with 1 long erect presutural supra-alar, 2 notopleurals, 1 postsutural supra-alar, 1 long postalar; acrostichals biseriate, half as long as dorsocentrals, extending to base of scutellum; 4 equally long dorsocentrals among shorter hair-like setae; 1 pair of long, crossing apical scutellars with short hair-like seta at each side.



Figs 1–7. *Chersodromia nikolayi* sp. nov., paratype male: 1. antenna; 2. mid femur and tibia anteriorly; 3. hind femur and tibia anteriorly; 4. right epandrial lamella; 5. epandrium with cerci; 6. left surstylus; 7. left cercus; ad: anterodorsal bristle; av: anteroventral bristle; d: dorsal bristle; lc: left cercus; le: left epandrial lamella.



Figs 8–11. *Chersodromia nikolayi* sp. nov., paratypes. 8. male lateral view; 9. male front view; 10. male mesonotum dorsal view; 11. female. ht: hind tibia.

Wing pale yellowish brown, with indistinct brownish veins except for R_1 that is more distinct. Veins R_{4+5} and M_{1+2} slightly diverging basally but parallel when meeting costa. Upper basal cell (br) as long as lower basal cell (bm). Costal bristle black, following costal hairs pale. Squama white, with indistinct white ciliation. Halter completely white.

Legs yellow including all coxae (Fig. 8). Fore leg with apical tarsomere contrastingly black (Figs 8–9). Mid and hind legs with terminal tarsomere darkened. Fore coxa with only apical setae black. Fore femur swollen on basal two thirds; ventrally with row of minute brown bristles; with a distinct black anterior and a longer anteroventral preapical bristle; near base with a pair of short black bristles. Fore tibia much shorter than fore femur; without black dorsal bristle on basal third; with a pair of diverging subapicals about as long as tibia is wide. Fore tarsus longer than tibia: tarsomere 1 long; tarsomeres 3 to 5 a little widened. Mid femur more slender than fore femur; at base with a pair of pale bristles, ventral bristles indistinct; bearing a long black anterior preapical bristle longer than femur is wide (Fig. 2) and two long apical anteroventrals in apical third. Mid tibia as long as mid femur; with row of ventral black spinules limited to apical fourth of tibia. The row is a little curved and in an excavation (Fig. 2). Hind femur (Fig. 3) longest and as wide as mid femur; with 1 short strong anterior preapical and 2 longer anteroventral preapical bristles. Hind tibia a little longer than femur (Fig. 3), set with short black bristles that are hardly longer than tibia is wide: 2 anteroventrals, 2 anterodorsals, 1 longer dorsal near middle, 1 ventral apical and a short anterior preapical.

Abdomen yellowish brown (Fig. 8). Tergites covered with short pale hairs, sternites with black hairs. Tergite 1 narrow, following tergites equally long. Tergite 2 without basal excavation at each side. Genitalia (Figs 4–7) with large black pyriform hypandrium (not illustrated). Right epandrial lamella with short lateral appendage (Fig. 4). Left epandrial lamella with several short setae apically. Cerci of subequal length, pointed (viewed dorsally), with several moderately long, unmodified setae. Left cercus (Fig. 5, 7) truncate in dorsal view. Left surstylus as in Fig. 6, lentiform, with a row of long setae on left side and ventrally.

Female:

Length. Body 1.56 mm; wing 1.27 mm

Almost identical to male. Legs more yellowish brown. Colour of tarsomeres identical to male i.e. apical tarsomere of fore leg almost black; apical tarsomere on mid and hind legs darkened. Wing membrane also pale, but veins more distinct. Mid tibia without ventral spinules, and apically with 1 pair of long bristles.

Etymology. The new species is dedicated to Nikolay Georgievitsh Neshev our very sympathetic friend and host at Sennoy.

Distribution and habitat. Russia, Caucasus (Krasnodar Territory). The new species was collected on a small sandy beach that was almost permanently covered by dried wrack composed of stranded sea grass.

Discussion

Chersodromia nikolayi sp. nov. is a species with yellow legs, including the four hind coxae. The apical tarsomere of the fore leg is contrastingly black, the apical tarsomere of the mid and hind leg are darkened, not so contrastingly black as in fore leg. A unique character is the short, bowed row of ventral spinules on mid tibia. The row is hardly a quarter of the length of the tibia. In most other species the ventral row of spinules is at least a third or half as long as tibia. To our knowledge no other Mediterranean species has this combination of characters.

Chersodromia nikolayi sp. nov. clearly belongs to the *C. speculifera* group [*sensu* Chvála (1978] and therefore it is closely related to *C. isabellae* Grootaert & Shamshev. The latter has darker legs, at least four hind coxae brown, the fore leg has a white basal tarsomere and contrastingly black apical four tarsomeres. The thorax is completely black in ground-colour. In *C. nikolayi* sp. nov. the prescutellar depression is yellowish as well as most of the pleura. The tergites and sternites of abdomen are yellowish brown in ground-colour whereas they are black in *C. isabellae*. The shape of the male genitalia is similar, but the left cercus is pointed in *C. isabellae*, truncate in *C. nikolayi* sp. nov. In *C. isabellae* the left surstylus is excavated on the left side, wearing only a few bristles at the base of the excavation. The left surstylus is lentiform in lateral view and the left margin is not excavated in *C. nikolayi* sp. nov. The latter has white palps in male, while they are more yellowish brown in *C. isabellae*. The bristles on the hind tibia are hardly as long as tibia is wide, they are much stronger and almost twice as long as tibia is wide in *C. isabellae*.

The new species is also related to *C. nigrisetosa* Chvála as can be seen by the very similar male genitalia. Both species have an almost identical right epandrial lamella and a bristled left surstylus. In *C. nikolayi* sp. nov., the left surstylus is lentiform and the cerci are almost equal in length. In *C. nigrosetosa* the left surstylus is slender, not lentiform and the right cercus is distinctly longer than the left cercus (Chvála, 1970, Fig. 12: holotype male from Almeria, Spain). The main difference between these two species is that in *C. nigrosetosa* the postpedicel is conical with an apical stylus, while in *C. nikolayi* sp. nov. the postpedicel is rounded with a dorsoapical stylus. In *C. nigrosetosa* the apical 2 or 3 tarsal segments are darkened, while in *C. nikolayi* sp. nov. only the apical tarsomere of the fore leg is black. No details on the row of ventral spinules on the mid tibia are mentioned in the description of *C. nigrosetosa*, but we assume that Chvála would have mentioned this unusual feature. The bristling on the hind tibia is also much shorter in *C. nikolayi* sp. nov.

C. nigrosetosa Chvála, 1970 has an unusual broad Mediterranean and Black Sea distribution and therefore it seems a problematic species to us. It was described on the basis of 3

males only and each male came from a locality very distant apart: Spain (Almeria, type locality), Dalmatia and Caucasus. Beschovski (1973) said that it is very common along the Black Sea coast, but we did not observe it yet.

Chersodromia isabellae Grootaert & Shamshev, 2010
Figs 12–13.

Material examined. **Russia**, 7 ♂♂, 2 ♀♀, Sennoy village, Sea of Azov, Taman region Krasnodar Territory, Temryuk District, 45°17'50.42"N 36°59'36.01"E], 30 May 2011 (reg. 31018; leg. P. Grootaert & I. Van de Velde; RBINS).
2 ♂♂, 2 ♀♀ have been barcoded for COI; cuticle preserved at RBINS.

Diagnosis: A small species of the *C. speculifera* group with two pairs of long black vertical bristles. Postpedicel rounded with a dorsoapical stylus. Legs largely yellowish, but may be darkened. Fore coxae yellowish, posterior four coxae brown. Fore leg with tarsomere 1 white, tarsomeres 2–5 contrastingly black (Fig. 13). Hind tibia with very long anterodorsal and anteroventral bristles (Fig. 12). Wing long, rather milky white with pale veins in male, more distinct veins in female. Left surstylus excavated on left side, with several long bristles.

Distribution: Russia, Caucasus, Sea of Azov. Found on sandy beach that was almost permanently covered by dried wrack composed of sea grass.

Remarks: A few interesting characters that were not mentioned in the original description were observed on the newly collected specimens and that mainly because some specimens were dried and hence we could observe the dusting pattern: mesonotum completely black and covered by a greyish dusting; pleura also completely black in ground-colour and grey dusted, except for shining sternopleuron; abdomen with black sclerites and grey dusted. More diagnostic characters can be found under the discussion with *C. nikolayi* sp. nov.

Figs 12–13. *Chersodromia isabellae* Grootaert & Shamshev, male. 12. lateral view; 13. detail of fore leg. ht: hind tibia with long bristles; mt: fore metatarsus.

Chersodromia curtipennis Collin, 1950

Material examined. **Russia**, 11 ♂♂, 8 ♀♀, Taman, Black Sea [Krasnodar Territory, Temryuk District, 45°06'41"N 36°52'17"E], 27 May 2011 (reg. 31006; leg. P. Grootaert & I. Van de Velde); 14 ♂♂, 8 ♀♀, Ilisch, Taman region, Sea of Azov [Krasnodar Territory, Temryuk District, 45°24'53"N 36°45'38"E], 27 May 2011 (reg. 31011; leg. P. Grootaert & I. Van de Velde); 6 ♂♂, 4 ♀♀, Kuchugury, Taman region, Sea of Azov Azov [Krasnodar Territory, Temryuk District, 45°22'52.43"N 37° 1'26.93"E], 27 May 2011 (reg. 31014; leg. P. Grootaert & I. Van de Velde; RBINS).

5 ♂♂, 2 ♀♀ have been barcoded for COI; cuticle preserved at RBINS.

Diagnosis: A small brachypterous species of the *C. incana* group with variable leg colour. Reduced wings reaching slightly beyond abdominal tergite 2. Halter with black knob and white stalk.

Distribution: Russia, Sea of Azov, Black Sea; Bulgaria. Sand beaches.

Remarks: There is a variation in colour of legs from quite yellowish to dark brown. However there was no variation in COI-gene and male genitalia (Grootaert, in litt.) so that all specimens mentioned above can be considered as the same species. More detailed comparisons with other brachypterous species such as *C. neocurtipennis* Beschovski, *C. tunisiana* Grootaert & Shamshev and *C. squamata* Grootaert et al. can be found in Grootaert & Shamshev (2008) and Grootaert et al. (2010).

Chersodromia pontica Chvála, 1970

Material examined. **Russia**, 1♂, Taman, Black Sea [Krasnodar Territory, Temryuk District, 45°06'41"N 36°52'17"E], 27 May 2011 (reg. 31006; leg. P. Grootaert & I. Van de Velde; RBINS); 6 ♂♂, 8 ♀♀, Ilisch, Taman region, Sea of Azov [Krasnodar Territory, Temryuk District, 45°24'53"N 36°45'38"E], 27 May 2011 (reg. 31011; leg. P. Grootaert & I. Van de Velde; RBINS); 11 ♂♂, 20 ♀♀, Kuchugury, Taman region, Sea of Azov Azov [Krasnodar Territory, Temryuk District, 45°22'52.43"N 37° 1'26.93"E], 27 May 2011 (reg. 31014; leg. P. Grootaert & I. Van de Velde; RBINS).

7 ♂♂, 2 ♀♀ have been barcoded for COI; cuticle preserved at RBINS.

Diagnosis: A small species of the *Ch. speculifera* group with two pairs of long black vertical bristles. Postpedicel rounded with a dorsoapical stylus. Legs largely yellowish, but may be darkened. Fore coxae yellowish, posterior four coxae brown. Fore leg with tarsomere 1 yellowish at base otherwise brownish, tarsomeres 2–5 brown. Tarsomere 1 shorter than following two tarsomeres. Hind tibia with very long anterodorsal and anteroventral bristles. Wing long, rather milky white with pale veins in basal half in male, apical half more brownish with brown veins. Tip of right surstylus bifurcate. Left surstylus large, triangular, without long setae.

Distribution: Russia: Sea of Azov, Black Sea; Bulgaria. Found on sand beaches.

Remarks: *C. pontica* resembles *C. isabellae*, but the latter has the metatarsus (or first tarsomere) white and longer than the following two tarsomeres. In *C. pontica* the metatarsus is brownish, at most a little yellowish at base and shorter than the following two tarsomeres. Also tergite 2 has no excavations at the sides.

Key to male *Chersodromia* from the coast of Black Sea and Sea of Azov

1. Halters dark. Genae moderately wide, as wide as one-fifth to one-quarter of the eye height 2
–. Halters pale. Genae narrower.....4

2. Postpedicel pointed, with an apical stylus 3
–. Postpedicel ventrally rounded, with dorsoapical stylus ..... *caucasica* Chvála

3. Wing brownish on costal half. Mid tibia with ventral spinules on apical third.....*cursitans* (Zetterstedt)
–. Wing hyaline. Mid tibia with ventral spinules on apical two thirds..... *milanchvalai* Beschovski

4. Wing at least as long as abdomen. Face broad, as broad as front of frons.....5
–. Wing greatly reduced in length, reaching just beyond tergite 2. face narrower than front of frons.....
..... .*curtipennis* Collin

5. Postpedicel conical, with an apical stylus ..... *nigrosetosa* Chvála
–. Postpedicel ventrally rounded, with a dorsoapical stylus 6

6. Fore leg with only apical tarsomere contrastingly black. Mid tibia with row of ventral spinules confined to apical quarter..... *nikolayi* sp. nov.
–. Apical 2 to 4 tarsomeres brown to black. Mid tibia with row of ventral spinules occupying apical half or more of tibia, row not curved 7

7. Fore leg with basal tarsomere white, tarsomeres 2–5 contrastingly dark brown to black. Left surstylus with several long setae.....*isabellae* Grootaert & Shamshev
–. Fore tarsus completely brown, with basal tarsomere brownish, sometimes tarsomeres 4 and 5 more darkened. Left surstylus without long setae 8

8. Upper basal cell (br) slightly longer than lower basal cell (bm). Right surstylus broadly forked.....*pontica* Chvála
–. Upper basal cell (br) as long as lower basal cell (bm). Right surstylus not forked, pointed.....*bureschi* Beschovski

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