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The *nawradii* Species Group of *Rhodobaenus* (Coleoptera, Curculionidae, Rhynchophorinae)

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INTRODUCTION AND ACKNOWLEDGMENTS

During studies on the neotropical genus *Metamasius*, I examined in Europe the types of related calandrine genera (*Sphenophorus*, *Rhodobaenus*, *Homalostylus*) of the Western Hemisphere. I chose lectotypes for some of Champion's and one of Kirsch's species of *Rhodobaenus* which seemed to be very closely allied to, if not congeneric with, *Metamasius*. As I have now decided that these species are probably not congeneric, and as no revision of *Rhodobaenus* (70 or 80 or more species) is contemplated, I believe it is best to publish the lectotype designations at this time, with a review of the 15 species concerned, here called the *nawradii* species group of *Rhodobaenus*.

The species of the *nawradii* group distinctly lack the excavation on the claw segment of the tarsus, which was formerly considered (Vaurie, 1951, p. 52, fig. 1) a diagnostic character of *Rhodobaenus*. This excavation (at the apex of the segment inferiorly, see fig. 2) is very strong and readily visible in the majority of species of the genus, but in some species it is reduced to a slight groove, and in a few it is difficult to tell whether it is present or not.

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The 15 species of the present group are not the only ones with the apex of the segment smooth, not excavated. Of the others, one (*rubicundus* Champion) is included in the key to the species below, although it probably belongs in a group by itself; five (not included in the key) differ by having an enlarged, flattened antennal scape. The latter, except for *Rhodobaenus dentifer* Champion, were described in *Homalostylus* (synonymized by Vaurie, 1967, p. 179, footnote). The species of this "genus" have most of the characters of *Rhodobaenus*, including having both the claw segment excavated and not excavated.¹ There is apparently no correlation between the expanded or normal scape and the smooth or excised claw segment. All combinations occur with one or more of the other characters found in the genus: a large, squarish antennal groove (fig. 8), a swollen or humped base to the beak, short prosternum, pronotum bending upward (or backward), narrowly separated middle coxae and contiguous front coxae, a tumid, subconical front part of the metasternum, an irrorate surface, and various shapes of the peduncle of the postmentum. This lack of concordance of characters should be taken into account by any reviser of *Rhodobaenus* who may wish to subdivide the genus. Perhaps larval characters or food preferences will be found to aid in the classifying of these weevils.

A further word is added on "*Homalostylus*." I do not include the species with the expanded scape in the *nawradii* group, even those with the claw segment smooth, because these species may be better assigned to a separate group or combined with other species of the genus. Champion (1910) stated that the expanded scape is a sexual character of his male of *dentirostris*, but he evidently misidentified his female (with normal scape). I have examined both specimens in the British Museum, and the female is a distinct species, differing by having the claw segment excavated. In the species I have examined the scape may be more widely expanded in males, but where expanded, it is in both sexes.

Although Chevrolat (1885) gave a list of the species of *Rhodobaenus* and also described many new species, he gave no key and did not discuss them. The only comprehensive work on the genus is that of Champion (1910) who reviewed the 20 species known from Mexico and Central America (South America not included), and described 31 addi-

¹ Of the species with an enlarged scape, the claw segment is not excavated in *Rhodobaenus dentifer*, "*Homalostylus*" *incertus* and *dentirostris* of Champion, and in "*Homalostylus*" *goyaensis* and *rufirostris* of Hustache; it is excavated in the type of "*Homalostylus*," *latiscapus* Kirsch, also in *nigrofasciatus* and *subcylindricus* Champion, and *geniculatus*, *ruficollis*, and *rufus* Hustache (1936, 1938). I have examined the types of these species.

tional ones. Thirteen of the 15 species of my *nawradii* group appear among the first 20 species at the beginning of Champion's classification. He placed them in this sequence without knowledge of the claw segment character, which seems to confirm my own concept of these species as a distinct group within *Rhodobaenus*.

The 424 specimens, including the types or cotypes, on which this study was based came from various sources which are identified by symbols in the listing of the specimens examined at the end of the paper. I wish to thank the institutions and individuals listed there, and Mr. Robert E. Logan, of the American Museum of Natural History, for the photographs. Part of the work was accomplished with the help of the National Science Foundation (Grant GB 2990).

DISTRIBUTION AND BIOLOGY

The 15 species are distributed principally in Mexico and Central America, only five species occurring in South America (fig. 1). None of the species from Mexico or Guatemala reaches South America, but three from Costa Rica and Panama (*melanocardius*, *nawradii*, *quadripunctatus*) are found farther south. Of the five species of South America, only two (*maior*, *melanurus*) are restricted to that continent. No species are recorded from Venezuela or Brazil or from south of Bolivia. Some species are restricted to one country, as *maior* to Ecuador, *v-nigrum* to Nicaragua, *plicatus* to Costa Rica, and *pinguis* and *sexguttatus* to Mexico. The six species that occur in Mexico come from the southern states of Veracruz, Oaxaca, Chiapas, and Tabasco, and *pinguis* is found also in the state of Morelos and far to the northwest in Nayarit. The most widespread species is *melanocardius*, but I have seen the greatest number of specimens of *nawradii* and *cuneatus* (see table 1). A larger number of specimens will no doubt change much of the distribution as given above.

There is no information on the feeding or breeding habits of these species, although many of the other species of the genus (those with the claw segment excavated) are associated with Compositae, Asclepiadaceae, and various weeds and flowers. Labels on specimens of one species (*cuneatus*) indicate various situations where specimens were captured (see that species).

SEXUAL DIMORPHISM

The secondary sexual characters of the group are not very numerous or striking except for those of *auriculatus*. In that species the female has a sharp tooth under the apex of the beak, and the male has the sides of



FIG. 1. Distribution of *nawradii* group of *Rhodobaenus*. The most northern locality (Nayarit, Mexico) is for *pinguis*; the most southern (Coroico, Bolivia), for *melanurus*; the most eastern (French Guiana), for *melanocardius*.

the beak horizontally expanded in front of the antennal insertion (figs. 19, 24); the female has a squarish pronotum, but the male has an elongate pronotum, with the front angles on each side hollowed out within

in cuplike depressions (fig. 24). Males of another species (*fortirostris*) have a slight angular prominence on the sides of the pronotum near the front. Females of all species except *auriculatus* and *sexguttatus* have the base of the peduncle of the postmentum sharply pointed, whereas males have it bluntly angulate or entirely flat. Females of some species have the beak less punctate or more finely punctate than that of males. A hollowed-out or depressed venter is not a characteristic exclusive to the males, as it usually is in weevils. Males (except those of *sexguttatus*, and possibly of *v-nigrum* which was not dissected) have a chitinous flap or thickening on the inside of the apex of the abdomen; this triangular or rounded piece (fig. 10) can be seen readily when the pygidium is pried open. It is present also in males of some species of the subgroups of *Metamasius*.

DISCUSSION OF GROUP CHARACTERS

The species of this group are not "rosy," as are other species of *Rhodoabaenus*. Their ground color is black, rarely dark purple or dark red (the red usually showing only when the specimen is wet), with an overlay of smoky gray or buffy coating or pruinosity through which appear the darker spots or bands characteristic of the species (figs. 24-31). The surface is dull and opaque in all species (shining specimens are greased), and the coloration is subdued. One species (*plicatus*) is entirely grayish black without pattern, one (*cuneatus*) has vague dark median spots in some specimens, two (*maior*, *v-nigrum*) have white edgings around the dark marks in fresh specimens, two (*saginitus*, some *interruptus*) have a checkerboard or tessellated pattern composed of about equal amounts of black and buffy areas, and the remaining species are grayish, with darker, velvety spots or bands. In many individuals of *interruptus* the pattern of darker bands is visible to the unaided eye but disappears when viewed under the microscope. There is actually no darker color, but the effect of a banded pattern is caused by the depressions of concentrated punctures outlining the "bands." In good condition the majority of species are irrorate with grayish or buffy round spots which surround the punctures, as stated by LeConte (1876) for *Rhodoabaenus pustulosus*. The specimens range in length from 13 to 22 mm., with two species (*sexguttatus*, *v-nigrum*) being smaller (8 to 11 mm.).

The beak is stout, cylindrical, about as long as the pronotum, or only perceptibly longer or shorter, but very long in *auriculatus* females. It is slightly or strongly arcuate, but rather straight in *interruptus* and some individuals of *stigmaticus*; usually it is wider at the base over the an-

TABLE 1
 VARIATION IN 15 SPECIES OF *Rhodobaenus* IN LENGTH OF SPONGY APEX OF
 ANTENNAL CLUB, SHAPE AND SURFACE OF FOURTH TO SEVENTH
 SEGMENTS OF ANTENNAL FUNICLE, PRESENCE OF DOUBLE ROW
 OF INFRAROSTRAL HAIRS, AND RELATION OF POSTERIOR
 EDGE OF ANTENNAL GROOVE TO EYE

Species	No. of Specimens	Apex of Club ^a	Antennal Segments	Hairs Under Beak	Antennal Groove ^b
<i>auriculatus</i>	14	Long	Moniliform, shining	Not visible ^c	Near
<i>navradii</i>	59	Long	Moniliform, shining	Present	Far
<i>cuneatus</i>	56	Long	Moniliform, shining	Present	Far
<i>plicatus</i>	25	Long	Moniliform, shining	Present	Far, ♂; near, ♀
<i>stigmaticus</i>	36	Long	Moniliform, shining	Present	Far, ♂; near, ♀
<i>sexguttatus</i>	7	Long	Moniliform, shining	Not visible ^c	Near
<i>v-nigrum</i>	2	Short	Transverse, tomentose	Present ^d	Near
<i>maior</i>	45	Short	Transverse, tomentose	At base only	Near
<i>interruptus</i>	44	Short	Transverse, tomentose	None visible	Far, ♂; near, ♀
<i>fortiostris</i>	7	Short	Transverse, tomentose	Not visible ^c	Near
<i>melanocardius</i>	35	Short	Transverse, tomentose	Barely visible	Near
<i>quadrifunctatus</i>	34	Short	Transverse, tomentose	Barely visible	Near
<i>melanurus</i>	40	Short	Transverse, tomentose	Barely visible	Near
<i>pinguis</i>	13	Short	Transverse, tomentose	Not visible ^c	Near
<i>saginitus</i>	6	Short	Transverse, tomentose	Not visible ^c	Near

^a The apex is considered long when it is one-half or more of the length of the club.

^b The posterior edge is considered near when it is no more than a scape's width from the eye, far when it is about the width of the club from the eye.

^c The hairs are actually present but are not visible in profile, as they are sunk in the grooves under the beak.

^d The hairs in this species are very dense and as long as a segment of the funicle.

TABLE 2

VARIATION IN 15 SPECIES OF *Rhodobaenus* IN PRESENCE OF DEPRESSION AT MIDDLE OF BASE OF PRONOTUM, EXTENT OF VESTITURE ON SOLES OF THIRD TARSAL SEGMENT, WIDTH OF SPACE BETWEEN MIDDLE COXAE, AND PATTERN OF ELYTRA IN WELL-MARKED, FRESH SPECIMENS

Species	Pronotal Depression	Tarsal Soles ^a	Intercoxal Space ^b	Elytral Pattern
<i>auriculatus</i>	Absent	Hairy	Narrow	Banded, faint
<i>nawradii</i>	Present	Hairy	Wide	Banded and spotted, distinct
<i>cuneatus</i>	Present	Hairy	Wide	None or very faint
<i>plicatus</i>	Present	Hairy	Wide	None
<i>stigmaticus</i>	Present	Hairy	Wide	Spotted, distinct
<i>sexguttatus</i>	Present	Hairy	Wide	Spotted, distinct
<i>v-nigrum</i>	Absent	$\frac{3}{4}$ hairy	Narrow	Central V, distinct
<i>maior</i>	Absent	$\frac{3}{4}$ hairy	Narrow	Central V, distinct
<i>interruptus</i>	Absent	$\frac{3}{4}$ hairy	Narrow	Banded faintly or tessellated
<i>fortirostris</i>	Absent	$\frac{3}{4}$ hairy	Narrow	Banded faintly
<i>melanocardius</i>	Absent	$\frac{2}{3}$ or $\frac{3}{4}$ hairy	Narrow	Central V, distinct
<i>quadripunctatus</i>	Absent	$\frac{2}{3}$ or $\frac{3}{4}$ hairy	Narrow	Banded and spotted, distinct
<i>melanurus</i>	Absent	$\frac{2}{3}$ or $\frac{3}{4}$ hairy	Narrow	Banded and spotted, faint
<i>pinguis</i>	Absent	$\frac{1}{2}$ hairy	Wide	Banded and spotted, faint
<i>sagittatus</i>	Absent	$\frac{1}{2}$ hairy	Wide	Tessellated

^a See figures 4, 5; hairy soles may have a shorter glabrous line than that shown in figure 4.

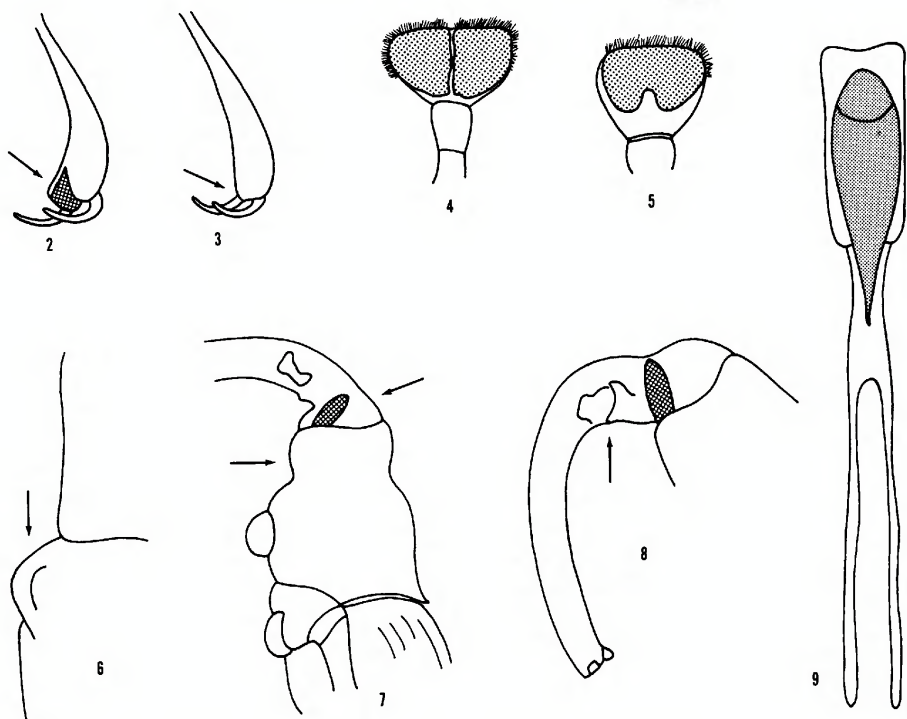
^b A narrow space is considered to be one-third or less of the diameter of a middle coxa; a wide space is one-half or more of the same.

tennal grooves (very wide and humped over the grooves in *fortirostris*), and narrower toward the apex. The dilation over the grooves, viewed dorsally, is longer than wide, except in *interruptus* and females of *maior* in which it is about as wide as long, and in *auriculatus* which has no angle at all over the grooves and therefore no dilation. The presence of infrarostral hairs and the distance of the groove from the eye are given in table 1.

The peduncle of the postmentum, or gular peduncle, is a good specific and group character in the calandrine weevils. In the *nawradii* group it is not clearly visible from a ventral view because the beak is often held parallel to the chest. A lateral or profile view, however, is usually sufficient. Five species (*nawradii*, *plicatus*, *cuneatus*, *stigmaticus*, and *v-nigrum*) have what I call a "seesaw" peduncle, which consists of a prominence both in front and behind, with a dip or depression in the middle. The posterior part in males of these species is bluntly or obtusely angulate, but in females is acutely, sharply angulate and points backward (figs. 11, 12). The anterior portion is disclike when viewed ventrally. In all but two of the remaining 10 species, the peduncle of the male is rather rounded or perhaps slightly prominent in front, and flat behind, whereas that of the female is decidedly flat in front, and extends behind in a long, sharp point (figs. 13-17). The two exceptions to these major types of peduncle are *auriculatus*, already mentioned, and *sexguttatus*, which has the peduncle in the form of a keel, more or less obtuse in front in the male (fig. 18), but acute and extending forward in the female. The sequence of species in tables 1 and 2 shows that the kind of peduncle is correlated with other diagnostic characters.

Variation in the length of the antennal club and in the segments of the funicle is shown in table 1. Those species that have the spongy apex of the club longer seem to have the entire club more elongate, less wedge-shaped and stubby, than that of the other species, but the shape is individually quite variable. The club is dilated in all species.

The pronotum of the majority of species is very slightly longer than wide, of *sexguttatus* and of some individuals of *quadripunctatus* distinctly longer than wide, and of *melanurus* about as wide as long. The shape, whether like a pear or rather square, influences the apparent length and width. Thus the pear-shaped pronotum with the sides narrowing from the middle of the sides invariably appears longer; species with this kind of pronotum are *cuneatus*, *nawradii*, *plicatus*, *sexguttatus*, *stigmaticus*, and possibly *maior* (figs. 22, 23). On the other hand, the pronotum of the other species appears more square, because the sides are straight (subparallel) from the base to near the apical constriction where they turn in abruptly



FIGS. 2-9. Anatomy of *Rhodobaenus*. 2. Claw segment characteristic of majority of genus. 3. Claw segment of *nawradii* group. 4. Tarsal soles virtually entirely hairy. 5. Tarsal soles one-half or three-quarters hairy. 6. Elytral angle at base of left elytron of *R. interruptus*, dorsal view. 7. *R. rubicundus*, showing constricted "neck" and small eye. 8. *R. dentirostris*, female, showing scrobe of antennae and humped beak. 9. Generalized aedeagus with wide apical border.

(figs. 20, 21). The shape varies somewhat individually, and in *auriculatus* it varies sexually (see Sexual Dimorphism above). In addition to the basal depression (table 2), several species (*interruptus*, *plicatus*, *pinguis*) may have two roundish depressions on the disc each side of the middle; one species (*saginitus*) may have four such foveae; two (*melanocardius* and some *melanurus*) may have a trace of from two to four. These foveae are obsolete in a few individuals of those species that normally possess them. The strong apical constriction of the pronotum is exaggerated by deep lateral creases in *plicatus*, although the other species with a pear-shaped pronotum have a feeble constriction. The basal line of the pronotum is usually covered by the encroaching sides of the base of the elytra; it is generally slightly or strongly sinuate, but in *auriculatus* it is distinctly straight.

The elytra are of the same general shape in all the species, and the

basal line is more or less bisinuate. Many, but not all, specimens of one species (*interruptus*) have a slight obtuse angle at the extreme sides of the base where the sides fold over onto the mesepimeron on the under side (fig. 6). The general pattern is given in table 2, but is stated in more detail for each species in the systematic section below, as the pattern, as a rule, is diagnostic. Specimens with the pruinose coating abraded or so badly greased that the usual dark velvety marks no longer show on the dark background are unfortunately not rare and pose a problem in identification. Even in fresh specimens of some species (*cuneatus*, *melanocardius*), the dark marks are faint and ill defined, and might at first sight be mistaken for rubbed areas. Without the pattern, some pairs of species are difficult to identify, i.e., *nawradii* and *cuneatus*, *melanocardius* and *quadripunctatus*, *saginitus* and *pinguis*. In *interruptus* the banded pattern is visible to the unaided eye, but disappears under the lighted microscope. Fresh individuals of many species have whitish or buffy rings around the punctures.⁶

The scutellum is small in relation to the elytra, but it is difficult to state just how small. Its base is generally not wider, or scarcely wider, than the base of the sutural interval. It is also short and usually shorter than the first tarsal segment. It is more or less the shape of a shield, with nearly parallel sides, but in some individuals, especially of *nawradii*, *pinguis*, and *v-nigrum*, it is more triangular, with a wider base.

Viewed from below, the pygidium extends well beyond the apex of the abdomen by almost as much as the length of the fourth abdominal segment (fig. 10). The apex is tumid in all species, notably produced and acuminate in some (*interruptus*, *maior*, *sexguttatus*, *v-nigrum*), and is furnished with long, bristly setae which are arranged in an apical row and in a tuft behind this row, or which emerge from all the punctures behind the apical row. Two species of *Metamasius* (*incisus*, *imitator* of Vaurie) have virtually the same kind of pygidium, and the seven species of the *aurofasciatus* subgroup of that genus have somewhat the same pygidium, but with a subapical, blunt carina and less vestiture.

The mesepimeron is at least twice wider than long, and has the front and hind borders subparallel, and the outer edge rounded or slightly acuminate. The front coxae are virtually contiguous in all species; the middle coxae are shown in table 2. The hind femora are gradually widened; in specimens of equal size the widest femora (in *interruptus*) are twice as wide as the narrowest (in *nawradii*). The apex of the hind femur extends about to the apex of the elytra, that of the middle femur to the base of the metasternum. The middle femur appears somewhat shorter in specimens of *melanocardius*, *melanurus*, and *quadripunctatus*. The

tibiae are linear in shape, their surface is tomentose, and their inner edge is furnished with short hairs. The tarsi are dorsally shining in the first six species in table 1, tomentose in the remainder. The widely dilated third tarsal segment varies ventrally in the area of spongy-hairy surface, as shown in table 2 and in figures 4 and 5, but the vestiture is subject to abrasion. The first and second segments are more slender and elongate in *nawradii* through *sexguttatus* (table 1), but rather stouter, especially at the apex, in *auriculatus* and the other species. The claw seg-

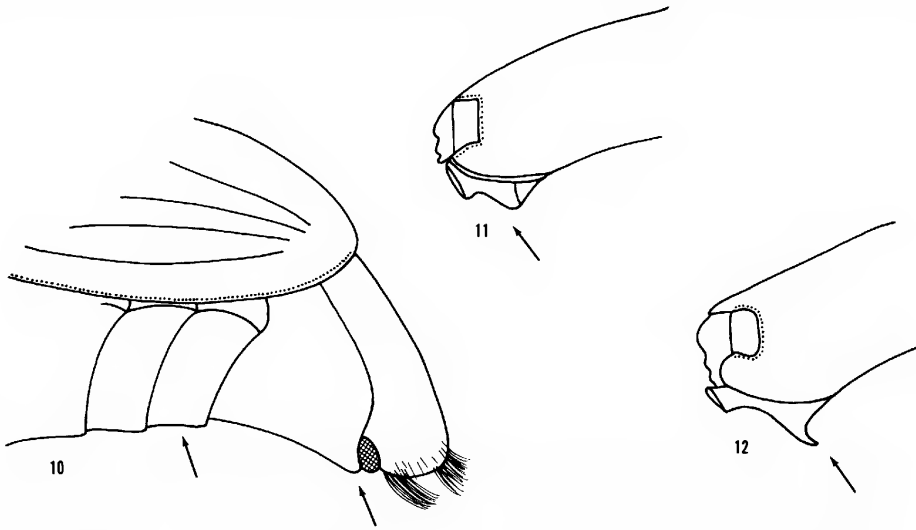
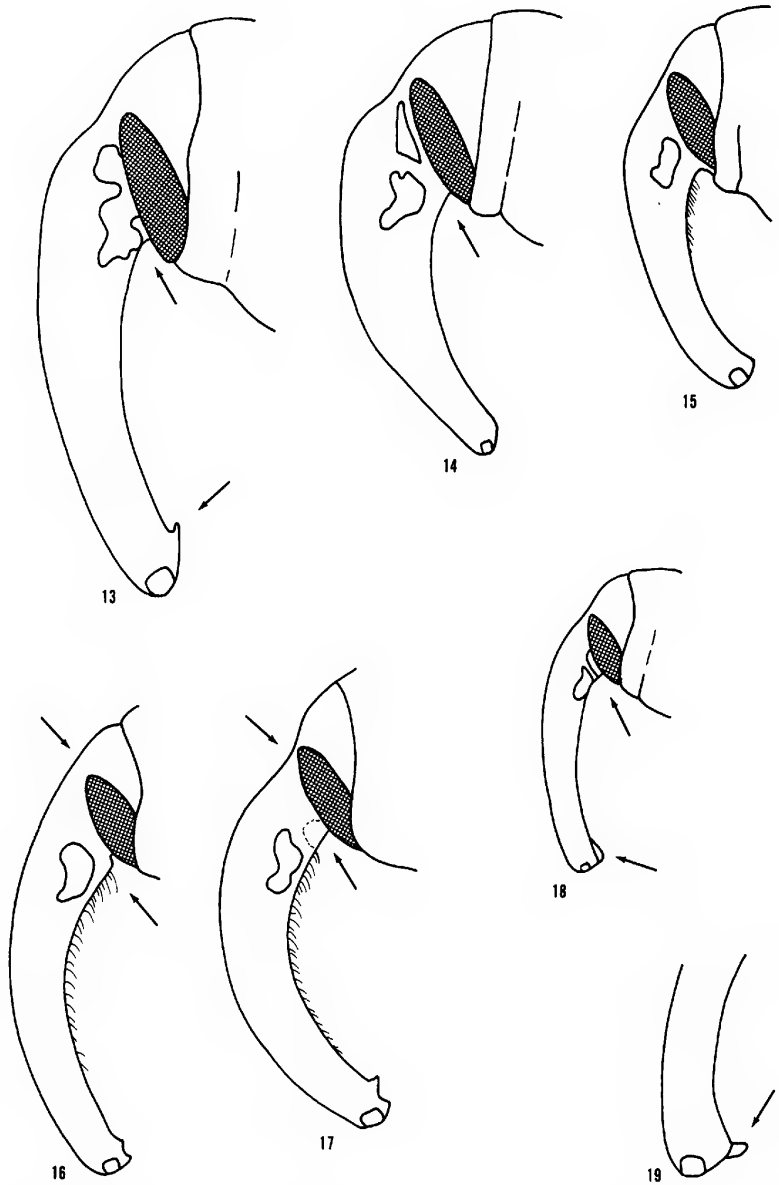


FIG. 10. Hairy pygidium of *nawradii* group, comparative length of fourth abdominal segment, and chitinized piece within abdominal opening.

FIGS. 11, 12. "Seesaw" peduncles. 11. Male. 12. Female.

ment is inserted at the middle or near the base of the third segment, its inner (or inferior) apex being smoothly convex or flat, not excavate.

The aedeagus and the eighth tergum of males are virtually the same in all species (*v-nigrum* was not dissected), even those of the otherwise bizarre *auriculatus*. They are about the same as those of species of *Metamasius* which have the apex of the aedeagus truncate or slightly emarginate and the chitinized apical border very wide, and the apex of the tergum rounded-truncate. The aedeagus of *sexguttatus*, however, is evenly rounded and has a very narrow apical border. There is no lateral line dividing the dorsal and ventral surfaces of the aedeagus, a character in which these species agree with species group III of *Metamasius* (groups I and II of that genus have a line), as well as with other species of *Rhodoabaenus*, in so far as I have investigated them. The long appendages



FIGS. 13-19. Beaks of *Rhodobaenus*. 13. *R. interruptus*, female. 14. *R. fortirostris*, male. 15. *R. melanurus*. 16. *R. stigmaticus*, female. 17. *R. cuneatus*, female. 18. *R. sexguttatus*, male. 19. *R. auriculatus*, female, apex only.

or apodemes are attached to the base of the aedeagus dorsally and are forked behind (fig. 9).

The eighth tergum of the female of *auriculatus* is decidedly thinner

than that of other females, and is long drawn out to a narrow apex. Females of the last five species listed in table 1 have the apices of the eighth tergum somewhat separated, not conjointly rounded as in the other females.

SYSTEMATIC SECTION

GENUS *RHODOBAENUS* LECONTE

Rhodobaenus LECONTE, 1876, p. 332. Type not designated, but assumed to be, by consensus, *Curculio tredecimpunctatus* Illiger, the first included species, and as such here designated.

Homalostylus CHEVROLAT, 1885, p. 287. Type, by monotypy, *Sphenophorus laticapus* Kirsch.

It is surprising that Champion (1910) or Blatchley and Leng (1916) did not mention or designate any type for this genus.

No diagnosis of the genus is given here as the group studied is only a small section of this large genus. The characters of the group are discussed, however, in the Introduction. The order of the species is that given in tables 1 and 2.

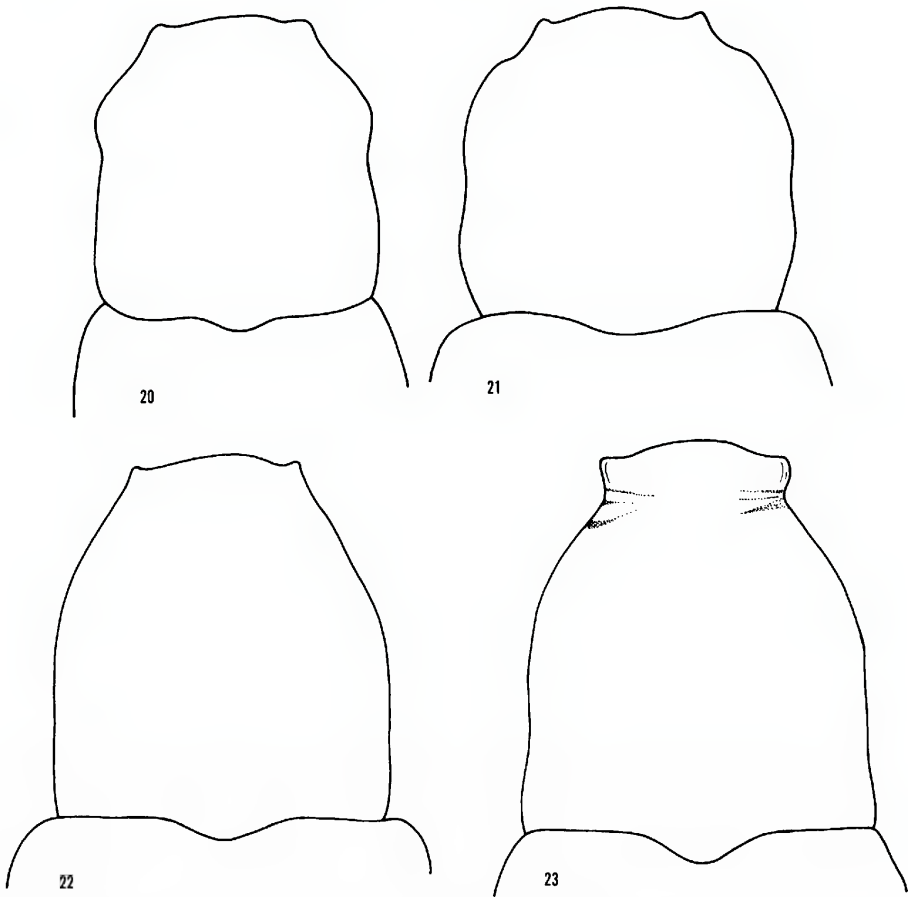
As mentioned in the Introduction, I once believed the species of the *Rhodobaenus nawradii* group might be congeneric with *Metamasius*, and, in fact, only a few characters separate these two closely allied genera. One character is the peduncle of the postmentum which varies in both genera, but which is never "seesaw" or keeled in species of *Metamasius* (figs. 11, 12) and is not (except for *rubicundus*, an aberrant species in other respects) sulcate in species of *Rhodobaenus*. A second character is the scutellum which in the majority of species of *Metamasius* is triangular and wider at the base than the base of the sutural interval and which is short and narrow in species of *Rhodobaenus*. A third character is the irrorate spotting and pruinose gray covering in *Rhodobaenus*, as opposed to the shining surface or red and black coloration of the majority of species of *Metamasius*. It is true that a few species of the latter genus of species group III, the *aurofasciatus* subgroup, are gray and pruinose, with velvety black marks, but these species are at once distinguished from those of *Rhodobaenus* by their large metasternal projection.

KEY TO THE SPECIES OF THE *nawradii* GROUP AND TO *rubicundus*¹

1. Posterior femur projecting well beyond apex of pygidium; prosternum in

¹ *Rhodobaenus rubicundus* Champion (1910, p. 151, pl. 7, figs. 31, 31a); type locality not specified; lectotype, female, Volcan de Chiriqui, Panama, here designated from two of three original specimens in the British Museum (Natural History), examined.

- profile cut back at right angles from coxa to apex, forming tubular "neck" (fig. 7); eyes very narrow; 8 to 9 mm.; red, with few black marks *rubicundus* Champion
- Posterior femur not projecting beyond apex of pygidium; prosternum in profile straight or oblique; length and color vary 2
2. Male with pronotum at sides of front with two angular, cuplike prominences and beak in front of antennal groove, viewed dorsally, semicircularly dilated (fig. 24); female with beak one-third longer than pronotum, no basal dilation over antennal groove, and peduncle of postmentum with sharp tooth perpendicular to beak (fig. 19)..... *auriculatus* Chevrolat
- Male and female not as described above..... 3
3. Pronotum with transverse or round depression at middle of base; spongy apical part of antennal club, distal view, nearly one-half, or more, of length of club; four apical segments of antennal funicle round or elongate, shining..... 4
- Pronotum not depressed at base, but may be rather flattened; spongy apical part of club one-third, or less, of length of club; four apical segments of funicle transverse, tomentose..... 9
4. Antennal insertion distant from eye by only width of scape; deep, elongate slit between antennal groove and eye; peduncle of postmentum in form of keel (fig. 18); infrastral hairs minute; elytra with six black spots of equal size; small (10 to 11 mm.)..... *sexaguttatus* Champion
- Antennal insertion distant from eye by about width of club (but less in *stigmaticus*); no slit between groove and eye; peduncle of postmentum "seesaw," with angle or prominence both in front and posteriorly (figs. 11, 12); infrastral hairs distinct; elytra either without spots or with two, four, or eight spots; usually 15 mm. or more 5
5. Pronotum with apical constriction abrupt, incised, and on each side strongly creased (fig. 23); elytra deeply transversely plicate (or creased) in front of and behind middle; disc of pronotum usually bifoveate... *plicatus* Champion
- Pronotum with apical constriction feeble, its sides oblique (fig. 22), not creased; elytra feebly, if at all, plicate; disc of pronotum not foveate 6
6. Elytra with eight small dark spots, of which two on disc at middle may be merged together; Mexico and Central America; beak nearly straight at base, arcuate only toward apex (fig. 16), densely punctate..... *stigmaticus* Fahraeus
- Elytra either with four very large dark spots, two at middle and two at apex (in some specimens merged into bands), and two tiny humeral spots, or elytra virtually immaculate, with perhaps blurred median marks; south of Mexico; beak strongly arcuate from base, almost a semi-circle (fig. 17), usually rather sparsely punctate (except for base).... 7
7. Elytra with definite dark spots or bands, median marks covering about one-third of length of elytra..... *nawradii* Kirsch (in part)
- Elytra virtually immaculate..... 8
8. Humerus of elytra, dorsal view, gently rounded, scarcely extending beyond base of pronotum; usually 15 mm.; Central America; pygidium in profile



FIGS. 20-23. Pronotal shapes of *Rhodobaenus*. 20. *R. quadripunctatus*. 21. *R. melanurus*. 22. *R. nawradii*; characteristic also of *cuneatus*, *plicatus*, *sexguttatus*, and *stigmaticus*. 23. *R. plicatus*, with apical creases.

- rather acuminate and produced..... *cuneatus* Champion
- Humerus of elytra, dorsal view, obtusely angulate, distinctly wider than base of pronotum; usually larger (15 mm. or more); South America (one specimen from Central America); pygidium in profile appearing convex at apex under tuft of hairs..... *nawradii* Kirsch (in part)
- 9. Disc of elytra with common, median, V-shaped or heart-shaped dark mark not reaching sides (figs. 27, 28)..... 10
- Disc of elytra with no dark mark, or mark not shaped as stated above, or mark reaching sides..... 12
- 10. Left elytron entirely "dusty" or buffy, less so on top of median mark, with no restricted, C-shaped, surrounding area.....
- *melanocardius* Linnaeus (in part)
- Left elytron with distinct, depressed, broad, C-shaped area on three sides of median mark, this area grayish, whitish, or reddish (fig. 27)..... 11

11. Larger (14 to 18 mm.); Ecuador; hairs under beak inconspicuous; apex of peduncle of postmentum flat..... *maior* Voss
 Small (8 to 9 mm.); Nicaragua; hairs under beak long, dense; apex of peduncle obtusely or sharply angulate..... *v-nigrum* Champion
12. Disc of elytra with two separated, small, dark spots..... 13
 Disc of elytra may be immaculate, or regularly mottled with buffy-ringed punctures, or having vague median dark band narrowing outwardly... 14
13. Pronotum appearing as wide as long (fig. 21) and elytral discal spots, if visible, small, only as wide as two or two and one-half intervals.....
 *melanurus* Kirsch (in part)
 Pronotum longer than wide (fig. 20) and elytral discal spots covering three, four, or five intervals..... *quadripunctatus* Chevrolat
14. Beak in profile much wider at middle than at apex and at least twice as wide at base as at apex, beak very strongly curved (fig. 14) and punctate..... *fortirostris* Champion
 Beak in profile scarcely, if at all, wider at middle than at apex, beak only gently curved or nearly straight (figs. 13, 15) and strongly punctate at base only..... 15
15. Elytra, viewed with unaided eye,¹ with large, median, dark band; in some specimens band narrowing outwardly to sides (fig. 31)..... 16
 Elytra immaculate or regularly mottled, or pattern indeterminate... 17
16. Large (15 to 22 mm.); pronotum immaculate, bifoveate in front of middle; dorsum not red..... *interruptus* Champion (in part)
 Smaller (10 to 12 mm.); pronotum with three longitudinal black stripes (lateral stripes vague in some specimens), not foveate (but vaguely bifoveate in one of 13 specimens); buffy dorsal coating turning red when wet..... *pinguis* Chevrolat
17. Elytra tessellate or mottled with large or small, buffy-ringed punctures..... 18
 Elytra greased or worn so that no pattern or buffy spots visible..... 19
18. Large (15 to 22 mm.); third tarsal segment inferiorly spongy-hairy except for basal glabrous slit; middle intercoxal space usually one-third of diameter of coxa; pronotum not foveate or only vaguely bifoveate.....
 *interruptus* Champion (in part)
 Small (10 to 14 mm.); third tarsal segment inferiorly spongy-hairy in apical half or two-thirds only (fig. 5); middle intercoxal space nearly one-half of diameter of coxa; pronotum usually with four foveae.....
 *saginatus* Champion
19. Pronotum appearing as wide as long; pronotum not foveate.....
 *melanurus* Kirsch (in part)
 Pronotum longer than wide; pronotum often bifoveate.....
 *quadripunctatus* Chevrolat or *melanocardius* Linnaeus (in part)

Rhodobaenus auriculatus (Chevrolat)

Figures 19, 24

Cactophagus auriculatus CHEVROLAT, 1882, p. 580, Chiapas, Mexico; type, male,

¹ Under a lighted microscope, the dark bands of *interruptus* cannot be seen.

in Naturhistoriska Riksmuseum, Stockholm, examined. CHAMPION, 1910, p. 127, pl. 6, figs. 11, 11a, 11b, 12 (as *Rhodobaenus*).

RANGE: Costa Rica north to southern Mexico.

DIAGNOSIS: The male of this species is unique among the calandrine weevils by having a circular, horizontal projection jutting out from the sides of the beak in front of the antennal grooves, as well as an earlike or cuplike depression behind the sharp front angles of the pronotum



FIGS. 24, 25. *Rhodobaenus*. 24. *R. auriculatus*, male, tipped backward to show enlargement of beak in front of antennae and depressed front angles of pronotum. 25. *R. stigmaticus*, tipped sideways to show median lateral spot.

(fig. 24), the latter being rectangular in shape. The female differs from other females by having a very long beak without the usual angle over the antennal groove, and with a perpendicular tooth at the apex below (fig. 19). The pronotum of the female differs in shape from that of *nawradii*, *plicatus*, and allies by being rather squarish, not pear-shaped, more like the pronotum of *interruptus*.

Color dark grayish black, with two large, transverse, indistinct, opaque black bands on elytra, one at middle and one near apex, bands interrupted at suture. Length, 16 to 22 mm.

REMARKS: As shown in tables 1 and 2, this species agrees with *nawradii* and the four species that follow in some characters, but differs in others. It differs also, in addition to the secondary sexual characters,

by having the antennae inserted closer to the eye, the antennal groove closer to the top of the beak and its posterior edge opening right onto the eye, the base of the pronotum straight, not sinuate at the middle, the tibiae proportionally shorter and wider, and the eighth tergum of the female very long and narrow. The scutellum appears proportionally smaller than that of the majority of species. A female from Turrialba has the hind tibia rather expanded and sinuate at the middle. The type is one of the largest specimens of the genus I have seen. In a revision of the genus, perhaps this species should be in a separate group.

Of 14 specimens examined, one of each sex was dissected.

Rhodobaenus nawradii (Kirsch)

Figures 22, 26

Sphenophorus Nawradii KIRSCH, 1869, p. 223, Bogota, Colombia; lectotype, female, here designated from original pair of "types" in Staatliches Museum für Tierkunde, Dresden, examined. CHAMPION, 1910, p. 123, pl. 6, figs. 4, 4a (as *Rhodobaenus*).

RANGE: Ecuador, Colombia; Costa Rica (one specimen).

DIAGNOSIS: The large size and bold black pattern on the gray elytra are reminiscent of *auriculatus*, but, in addition to the secondary sexual characters, *nawradii* differs by having the pronotum narrowed to the front, not rather square. The strongly arcuate, stout beak, with its abundant infrarostral hairs, and the "seesaw" peduncle (figs. 11, 12) of both sexes agree with these characters in both *cuneatus* and *plicatus*, but *nawradii* differs from the latter by having a bold pattern (fig. 26) (*plicatus* has no pattern) and the elytra smooth, not plicate, and from *cuneatus* also by the pattern (*cuneatus* has a vague pattern in some specimens), and from both species by having the elytral shoulders distinctly wider than the base of the pronotum, about as in *interruptus*. Confusion arises as to identification only when specimens are greased or worn and no pattern shows. (See tables 1 and 2.)

Color grayish, pruinose, with brownish or black opaque or velvety areas on pronotum, and on each elytron in form of large, round, or outwardly narrowed black spot slightly in front of middle and another at or on sides of apex, and tiny spot on each humerus; central spots may be merged. Length, 15 to 20 mm.; one specimen, 12 mm.

REMARKS: Chevrolat (1882) transferred this species from *Sphenophorus* to *Cactophagus*, and Champion (1910) transferred it to *Rhodobaenus*.

The specimen from Costa Rica mentioned by Champion, which I have examined, is the only one I have seen with the elytral spots broadly united into bands, but the lectotype from Colombia and another speci-

men from Medellin have the median spots touching across the suture. The lectotype is 18 mm. long and was partly dissected; the male syntype is 16 mm. and lacks the dark marks on the pronotum. The scutellum in both specimens is wider at the base than the base of the sutural interval. Although the majority of the 59 specimens examined have distinct dark markings, of eight individuals from Chimbo, Ecuador, only half show the typical dark marks and they are faint in all; the marks are also not visible in four or five other specimens from Ecuador (Santo Domingo, Balzapamba). A soaking in carbon tetrachloride brought out the markings in one specimen, but the others were not treated.

As is true also for *cuneatus*, the sexes in *nawradii* are often difficult to recognize unless the posterior angle of the peduncle of the female is distinctly acute.

Of 59 specimens examined, one male and six females were dissected.

Rhodoabaenus cuneatus Champion

Figures 17, 22

Rhodoabaenus stigmaticus var. *cuneatus* CHAMPION, 1910, p. 124; no type or type locality specified; lectotype, female, Chontales, Nicaragua, here designated from original specimens from Nicaragua, Costa Rica, and Panama, in the British Museum (Natural History), examined.

RANGE: Panama, Costa Rica, and Nicaragua.

DIAGNOSIS: A comparison of this species with *stigmaticus* is given in the diagnosis and discussion of that species. It may also be compared with *nawradii*, which has the same kind of beak, but from which it differs, in addition to the lack of an elytral pattern, by being generally smaller, by having the widest part of the elytra across the base less wide in relation to the pronotum than it is in *nawradii*, the scutellum narrower, the pygidium apparently more acuminate. When the elytra of *nawradii* are well marked there is no confusion, because in *cuneatus* the elytra are never more than faintly marked, if at all. *Cuneatus* differs from *plicatus* by having smoother elytra, no foveae in front of the middle of the pronotum, and no abrupt constriction at the apex of the pronotum. (See also tables 1 and 2.)

Color entirely gray or black, with two faint median and two sub-apical dark spots discernible in some specimens. Length, 12 to 16 mm.

REMARKS: Although Champion (1910, p. 122) referred to this species as "the immaculate form of *R. stigmaticus*," I find, after examination of the abundant material in the British Museum, that it is a distinct species allied more closely to *nawradii* and *plicatus* than to *stigmaticus*. Almost all the specimens from Central America listed by Champion are *cune-*



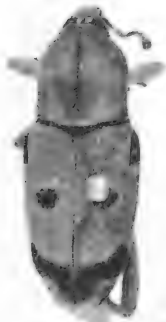
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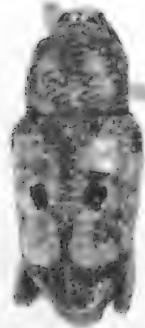
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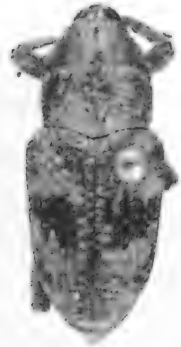
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FIGS. 26-31. Elytral pattern of *Rhodobaenus* (figures not to scale). 26. *R. nawradii*. 27. *R. maior*. 28. *R. melanocardius*. 29. *R. quadripunctatus*. 30. *R. melanurus*. 31. *R. pinguis*.

atus; only a male and female from Chontales, Nicaragua, and a female from Cache, Costa Rica, are *stigmaticus*. Specimens from Costa Rica now in the United States National Museum, which Champion examined, are also *cuneatus*.

Blackwelder (1947) listed this species as a synonym of *stigmaticus* var. *cuneipennis* Chevrolat, because Champion cited it in error as var. *cuneatus* Chevrolat (Champion's specimens are labeled *cuneatus* Chevrolat). However, the *cuneipennis* of Chevrolat, 1882, of which no type has been found

in Stockholm, was described as a variety "with white elytral striae" and appears under the name *stigmaticollis* Gyllenhal, one of the tiny grain weevils, currently a synonym of *Diocalandra frumenti* (Csiki, 1936). There are no white elytral striae in species of *Rhodobaenus*. Champion's short description of his "variety" mentioned the "darker, olivaceous or plumbeous" surface.

This is the only species of the group for which some ecological notations are available. Champion (1910) had specimens from Carillo, Costa Rica, labeled as "on *Piper* sp." and "Piperaceae," a family of tropical plants including the true peppers. In the United States National Museum there are specimens with various notes: on banana carts and on bushes for specimens from Hamburg Farm, Costa Rica; "on Sugar Cane and chayote" for a pair at Liberia, Guanacaste, Costa Rica (chayote is a widely cultivated annual vine, *Sechium edule*); and "Banana debris" for a specimen taken in quarantine in New Orleans from "?Panama."

Of 23 specimens examined in daylight and under the microscope, 14 showed no visible dark marks, and such marks as could be discerned in the others were rather feeble. A few of the "Biologia" specimens of Champion were found, by dissection, to be wrongly sexed, perhaps because the sharp peduncle of the females was abraded, thus resembling the more blunt angle of the males (figs. 11, 12).

Of 56 specimens examined, three of each sex were dissected.

Rhodobaenus plicatus Champion

Figure 22

Rhodobaenus plicatus CHAMPION, 1910, p. 122, pl. 6, figs. 2, 2a; type locality not specified; lectotype, male, La Palma, Costa Rica, here designated from 10 of original specimens from Costa Rica in the British Museum (Natural History), examined.

RANGE: Known only from Costa Rica.

DIAGNOSIS: This species differs from *nawradii* and *stigmaticus* and agrees with many specimens of *cuneatus* by having no elytral pattern. It differs from all three by having the elytra transversely distinctly creased or plicate both in front of and behind the middle, and the sides of the pronotum strongly constricted at the apex when viewed dorsally, and distinctly creased when viewed laterally (fig. 22). The beak is proportionally even stouter than that of *nawradii* or *cuneatus*, and it is much more arcuate than that of *stigmaticus*; it is densely punctate in both sexes. The peduncle is "seesaw" as in the preceding species. (See tables 1 and 2.)

Color uniformly gray. Length, 14 to 17 mm.

REMARKS: In addition to the characters given in the diagnosis above,

the majority of specimens of *plicatus* have two distinct, deep foveae on the pronotum in front of the basal depression, but such foveae, present in or absent from some other species as well (*interruptus*, *melanocardius*), are not constant in all specimens. They are scarcely discernible in a female from La Palma in Champion's original series, and they are lacking in a male from Carillo, which also has the elytra quite smooth, not plicate, but which has the characteristic side creases on the pronotum.

Of 25 specimens examined, one male and two females were dissected.

Rhodoabaenus stigmaticus (Fahraeus)

Figures 16, 22, 25

Sphenophorus stigmaticus FAHRAEUS, 1845, p. 244, Mexico; type, female, Cordoba, [Veracruz], Mexico, in Naturhistoriska Riksmuseum, Stockholm, examined. CHAMPION, 1910, p. 123, pl. 6, figs. 5, 5a (as *Rhodoabaenus*).

RANGE: Costa Rica north to southern Mexico.

DIAGNOSIS: Superficially, because of the spotting, this species might be mistaken for *melanocardius*, *melanurus*, or *quadripunctatus*, but it differs from them in many characters, as shown in tables 1 and 2 and also in its "seesaw" peduncle of the postmentum. The spotted elytra are similar to those of *sexguttatus*, but that species is only half of the size and has the peduncle in the form of a keel. From its closer allies (*nawradii*, *plicatus*, *cuneatus*), *stigmaticus* differs chiefly by having the beak coarsely punctate in both sexes and much less arcuate, being bent downward only toward the apex, and by having four spots, instead of three or none, on each elytron. It is the only one of the above species which occurs as far north as Mexico and Guatemala.

Color grayish or buffy, pruinose, pronotum with or without small dark patch; elytra typically with eight small, black, opaque spots, two on the shoulders, two at the center of the disc (these may merge in some specimens), two on the sides subapically, and two on the sides at the middle (the last-mentioned spots are absent from some specimens). Length, 14 to 17 mm.; one specimen, 10 mm.

REMARKS: The difference between *cuneatus*, which was considered a variety of *stigmaticus* by Champion, and *stigmaticus* is most noticeable in the beak of the female which is narrower, less arcuate, but coarsely punctate in *stigmaticus*, and continuous at the base with the head, but wider, very arcuate, and scarcely punctate in *cuneatus* (except at the base), with a slight depression between the beak and the head (figs. 16, 17). The antennal insertion in females of *stigmaticus* appears to be nearer the eye than that of *cuneatus*; the pygidium is less acuminate in

stigmaticus. The elytral spots are distinct in the great majority of specimens, whereas in *cuneatus* they are either absent or blurred and indistinct. Champion's colored illustration of *stigmaticus* (1910, pl. 6, fig. 5) shows a typically spotted specimen, but I believe he must have had the figure of the stout, arcuate beak done from a specimen of *cuneatus*.

Of 36 specimens examined, three males and two females were dissected.

Rhodoaenus sexguttatus Champion

Figures 18, 22

Rhodoaenus sexguttatus CHAMPION, 1910, p. 130, pl. 6, figs. 19, 19a, type locality not specified; lectotype, female, Toxpam [= Tuxpan, Veracruz?], Mexico, here designated from six of seven original specimens from localities in Veracruz in the British Museum (Natural History), examined.

RANGE: Known only from southern Mexico.

DIAGNOSIS: After *v-nigrum*, this species is the smallest of the group, and it is distinct from the others by having the peduncle of the postmentum in the form of a keel (fig. 18), as is found in several species of other groups of the genus, and by having the beak in profile of about the same width throughout, not appreciably wider at the base or humped over the antennal groove.

Color actually dark red when wet, otherwise grayish, pruinose, with irrorate buffy rings around punctures, elytra with six black, opaque spots of about equal size, on shoulders, on disc a little in front of middle, and on subapical calluses. Three black stripes of pronotum not visible in all specimens. Length, 10 to 11 mm.

REMARKS: As shown in tables 1 and 2, this species shares the majority of characters with the five preceding species, but shares the rostral hairs (not visible) and the scrobal character (the antennae inserted close to the eye) with the following nine species.

The spots on the elytra are as wide as three or four of the intervals; the subapical spot makes the subapical callus seem more prominent. The scutellum is as wide as or wider than the base of the sutural interval, but it is shorter than the first tarsal segment.

Of the seven specimens examined, one of each sex was dissected. This is the only species in which a difference in the aedeagus could be found (*v-nigrum* was not dissected). The apical border is very narrow, not wide as in the other species.

Rhodoaenus v-nigrum Champion

Rhodoaenus v-nigrum CHAMPION, 1910, p. 131, pl. 6, figs. 21, 21a, Chontales,

Nicaragua; lectotype, male, here designated from original pair in the British Museum (Natural History), examined.

RANGE: Known only from the type locality.

DIAGNOSIS: This species is like a small edition of *maior* (see that species, which follows). The elytral pattern is similar also to that of some of the genus *Rhodobaenus* that have the claw segment excavated, such as *cylindricollis*. The pattern of *melanocardius* is somewhat similar, but without the depression around the median mark; *v-nigrum* differs further from that species by having a "seesaw" peduncle (figs. 11, 12) and long, readily visible infrarostral hairs. (See tables 1 and 2.)

Color grayish and buffy, pruinose, with irrorate buffy rings around punctures; elytra on disc with large, common, broadly V-shaped, opaque, brown mark, the area around it more or less whitened and eroded, causing the mark to stand out; opaque brown marks also in oblong patch on shoulders, in sutural region of elytra, and in subapical band, which is interrupted at middle and extends slightly forward on sides. Length, 8 to 9 mm.

REMARKS: This, the smallest species of the group, is represented by only the male lectotype and the female paralectotype or syntype. Champion (1910, p. 132) calls it "the Nicaraguan representative of *R. crassipes* [synonym of *melanocardius*], differing from that insect in its somewhat fusiform shape and the more mottled upper surface." The more abundant infrarostral hairs of *v-nigrum* and the different peduncle (with a prominence in front as well as behind) show that it is quite different from *melanocardius*. The same characters, as well as size, separate *v-nigrum* also from *maior*.

Neither of the two specimens was dissected.

Rhodobaenus maior Voss

Figure 27

Rhodobaenus v-nigrum f. n. *maior* Voss, 1954, p. 336, Balzapamba, Ecuador; type destroyed; neotype, male, here designated from two specimens from type locality, in Zoologisches Museum, Berlin, examined.

RANGE: Known only from Ecuador.

DIAGNOSIS: This species is very similar in elytral pattern to *v-nigrum* from Nicaragua, but differs by being twice the size and by having a reddish color in many specimens, but especially by having no prominence on the front of the peduncle of the postmentum, although the female has the same acute angle posteriorly, by having the basal dilation, dorsal view, of the beak very sharp and scarcely longer than wide, the sides between the dilation itself and the base somewhat emarginate,

and the under side of the beak only inconspicuously, not markedly, hairy. (See tables 1 and 2.)

Color of neotype grayish, pruinose, with irrorate buffy rings around punctures, elytra on disc with large, common, heart-shaped, opaque, black mark (fig. 27), area around it whitened and appearing slightly depressed; black marks also in oblong patch on shoulders and as transverse, subapical band extending slightly forward on sides. When wet with brush, neotype and similar grayish specimens show dark red foundation (all areas red except for black marks), and pronotum also dark red with three longitudinal black stripes, color reverting to gray as soon as dry. Other (fresher?) specimens red or purplish red at all times, these with elytral black marks edged narrowly with white, and white rather than buffy rings around punctures. In three specimens, central mark reduced to V-shaped mark. Series of 28 specimens from Chimbo gray like neotype. Length, 14 to 18 mm.; of neotype, 17 mm.

REMARKS: Voss (1954) described a "new form" of *Rhodobaenus v-nigrum* Champion which he called *maior*. This form was based on a male of 17 mm. from Balzapamba, Ecuador, "Haensch, leg.," and constitutes, in my opinion, a distinct species differing from *v-nigrum* as stated above. The existence of this species was suspected by Champion (1910), as Voss (*loc. cit.*) remarked, but Champion gave it no name. I base my opinion on a series of 45 specimens which I have examined in the collections of the British Museum from Paramba, Ecuador, in the museum in Paris from Chimbo and Balzapamba, Ecuador, and in the museum in Berlin from San Carlos and Balzapamba, Ecuador. These specimens seem to correspond to the description of *maior*, and the pair in the museum in Berlin have the same notation of Haensch, "leg.," and the same locality as the type of *maior*. Because the type, as well as all Voss' other specimens of Curculionidae from the Hamburg Museum South Peru Expedition of 1936, was destroyed in a fire in the museum at the end of the war (Voss, in letter, 1966), it is desirable to appoint a neotype to place *maior* on a firm basis. Except for Paramba, which is in the northern part of Ecuador near the border of Colombia, the other localities are not very far to the northeast of Guayaquil.

Additional characters of this species not mentioned by Voss, nor given in tables 1 and 2, are that the beak of the male is finely punctate apically, strongly basally, whereas the beak of the female is virtually impunctate except at the base, the beak in both sexes being only slightly arcuate (as shown in fig. 13); the scutellum at the base is no wider than the base of the sutural interval; the pygidium, like that of the other species, is strongly tumid, its apex jutting out beyond the

apex of the abdomen and furnished with two sets of bristly hairs; the last segment of the abdomen is shallowly concave; and the tarsi are dorsally tomentose, the second segment longer than wide. The aedeagus and the eighth tergum of the male agree with those of the majority of species of the group, the former having a wide border and being truncate apically, the latter being rounded, but emarginate when tipped slightly backward. The eighth tergum of the female is narrower, not so blunt apically as that of *fortirostris* and *interruptus*, and has the apices more or less separately rounded.

The recording of *maior* and of *intermedia* Voss, a synonym of *melanurus* Kirsch, was omitted from the *Zoological Record*, probably because these names were hidden in a paragraph headed *Rhodoabaenus v-nigrum* Champion.

One male (the neotype) and one female were dissected from a total of 45 specimens.

Rhodoabaenus interruptus Champion

Figures 6, 13

Rhodoabaenus interruptus CHAMPION, 1910, p. 125, pl. 6, figs. 9, 9a; type locality not specified; lectotype, female, Irazu, Costa Rica, here designated from 22 specimens of original series from Costa Rica and Panama in the British Museum (Natural History), examined.

Rhodoabaenus tessellatus CHAMPION, 1910, p. 125, pl. 6, figs. 7, 7a, Cerro Zunil, Guatemala; lectotype, female, here designated from four original specimens in the British Museum (Natural History), examined. New synonymy.

RANGE: Panama and Costa Rica north to Guatemala and southern Mexico.

DIAGNOSIS: This large, robust, brownish species can be recognized by a number of characters, all of which may not be present in every individual. The beak, however, is very nearly straight in all specimens and is strongly eroded and tuberculate in front of and above the eye (fig. 13). The other diagnostic characters include an obtuse angle at the extreme sides of the base of the elytra (fig. 6; the angle present in 33 of 44 specimens); or a combination of two foveae on the pronotum with the elytra faintly transversely bifasciate to the unaided eye; or a combination of only vague foveae, if any, present on the pronotum and coarsely tessellate elytra, with buffy-ringed punctures on a dark background. A few specimens have no pronotal foveae and no buffy rings, and these superficially resemble *fortirostris*, but the beak is not strongly bowed or deeply punctate as in that species. (See tables 1 and 2.)

Color usually brownish black, with large, black, transverse band at middle and one at apex of elytra, bands made prominent because in-

tervening areas have slightly sunken, buffy-ringed, confluent punctures; bands not visible in small number of individuals which are either entirely black, with tiny punctures, or have large, buffy-ringed punctures on elytra in regular, checkerboard pattern, punctures not confluent or depressed. Length, 15 to 22 mm.

REMARKS: Although the extremes of the two forms described by Champion appear very different, a number of intermediate specimens seem to bridge the differences. The lectotype of *interruptus* (Costa Rica) and 31 males and females (including the syntypes) from Costa Rica and Panama have two distinct foveae on the pronotum, the elytra bifasciate, and the basal angle of the elytra. The lectotype of *tesselatus* (Guatemala) and one specimen from Mexico have vague pronotal foveae, but these two specimens and six other specimens (including the syntypes) from Guatemala and Mexico, plus one from Costa Rica, have virtually no foveae, no humeral elytral angle, and no elytral bands. These nine specimens are females. The elytra, however, are not the same in all, as they are coarsely tessellated with buffy-ringed punctures in the type series, but have merely very fine punctures in the other specimens, and one of the syntypes actually has faint transverse bands. These are not the only specimens without the elytral angle, as three individuals with both the foveae and the elytral bands also have no angle (Costa Rica; Cache, Costa Rica; Chiriqui, Panama). The angle is not a sexual character. The punctuation varies individually from strong to fine. Thus there is apparently no concordance with the punctuation, the foveae, the elytral angle, or the transverse bands, and I therefore synonymize *tesselatus* with *interruptus*. The presence or absence of pronotal foveae occurs also in *saginatus*, *melanocardius*, and *plicatus*.

Of the 44 specimens examined, two males and six females were dissected.

Rhodoaenus fortirostris Champion

Figure 14

Rhodoaenus fortirostris CHAMPION, 1910, p. 127, pl. 6, figs. 13, 13a; type locality not specified; male figured by Champion from Cosamaloapan [Veracruz], Mexico, here designated as lectotype, from four of seven original specimens from Mexico and Guatemala in the British Museum (Natural History), examined.

RANGE: Central Guatemala and southeastern Mexico.

DIAGNOSIS: Dorsally this species resembles a small individual of *auriculatus* or *interruptus*, but the beak (fig. 14) is quite different from that of either, being extremely stout, arcuate, and strongly humped at the base,

and very thick in profile until near the apex; the beak is the most powerful in the group and it is the same in both sexes. The male differs from other males by having a slight angular prominence or ledge on the sides of the pronotum in front, in about the same place that the male of *auriculatus* has its large, "earlike" prominences, but this prominence is not visible in a male from Purula, Guatemala. In the male the peduncle of the postmentum is not prominent in front, but in the female it has the usual backward-pointing angle. (See tables 1 and 2.)

Color gray, pruinose, with irrorate buffy rings around punctures; elytra with two transverse, black, opaque bands, middle band widened toward suture and usually distinct, subapical band less distinct, and faint humeral spots. Length, 10 to 15 mm.

REMARKS: Champion wrote (1910, p. 127) that only one of his six males had the "small angular prominence" at the sides of the pronotum in front, but two at least of his males proved on dissection to be females, and one is a female of *interruptus*. The other specimens I did not find in the collection of the British Museum. Champion believed that only the male had the "powerful rostrum," and that the female had it "straighter, smoother, and less thickened basally," which is characteristic of females of *interruptus*. The prominence on the pronotum, however, is probably a character, somewhat inconstant, of males. It is so in two species (*bruneri*, *scutellatus*) of the related genus, *Metamasius*.

Of seven specimens examined, one male and four females were dissected.

Rhodoaenus melanocardius (Linnaeus)

Figure 28

Curculio melanocardius LINNAEUS, 1764, p. 45, "Habitat in India," error for Central or South America; type, probably male, in Zoological Museum, University of Upsala.

Rhodoaenus crassipes CHAMPION, 1910, p. 131, pl. 6, figs. 20, 20a, Bugaba, Panama; lectotype, male, here designated from three original specimens from same locality in the British Museum (Natural History), examined.

RANGE: Peru north to Panama and Costa Rica, also the Guianas, but not Brazil.

DIAGNOSIS: This species is similar to the two that follow (*melanurus* and *quadripunctatus*) in all the characters given in tables 1 and 2 except for the elytral pattern which has a central V-shaped mark in this species, and two central round spots in the others. It resembles those species in the peduncle of the postmentum, the dorsally tomentose tarsal segments, the fact that the second tarsal segment is scarcely longer than wide, the slight subocular lobe (not invariably present), the hollowed-out meta-

sternum in both sexes, and the general size, but it differs further from *melanurus* by having the pronotum less square, and from *quadripunctatus* by having it less narrowly elongate.

Color grayish or buffy, pruinose, with irrorate buffy rings around punctures; elytra with common, V-shaped, dark mark at about middle, in some specimens interrupted at base of V, dark, subapical transverse band widened outwardly, and two tiny dark humeral spots (not visible in some specimens). Length, 10 to 14 mm.

REMARKS: Champion's three specimens from Panama, a series from French Guiana, and most of the specimens from Peru have the elytral marks distinct and uniform, but individuals with the V reduced to spots or the surface rubbed or greased are readily confused with those individuals of *melanurus* and *quadripunctatus* that are in the same unfortunate condition. Some such specimens, when wet, show the pattern fleetingly. The difference in the shape of the pronotum (figs. 20, 21) is not constant and apparently varies slightly in all three species. These species occur in approximately the same regions (only *melanurus* is not found in Central America), and there is no apparent difference in the genitalia or the eighth tergum. Possibly they are conspecific.

Two females from Surinam, collected by G. Bunzli, were taken "in coffee fields" (specimens in the British Museum).

Günther (1941) and Kuschel (1955) synonymized Champion's *crassipes* (Panama) with Linnaeus' species. Although these authors correctly assigned *melanocardius* to *Rhodobaenus*, Csiki (1936) and Blackwelder (1947) assigned it to *Calendra* or *Calandra* (now *Sphenophorus*). The type specimen of *melanocardius* is in very bad condition, having no abdomen, no scutellum, and the front pair of legs only. The peduncle of the postmentum has no backward-pointing angle, so that I assume the specimen is a male, but of course the beak is as abraded as the rest of the specimen. Infrarostral hairs likewise are probably worn off. In comparing it with *crassipes*, I find that both types have the characteristic V on the elytra (rather faint in *melanocardius*), and the soles of the third tarsal segment only partly spongy-hairy (fig. 5), but the type of *melanocardius* lacks the pronotal foveae. As the latter is not a very constant character, I agree with Günther and Kuschel that *crassipes* is a synonym.

Of 35 specimens examined, two of each sex were dissected.

Rhodobaenus quadripunctatus (Chevrolat)

Figures 20, 29

Cactophagus quadripunctatus CHEVROLAT, 1882, p. 581, Colombia; type, male, in Naturhistoriska Riksmuseum, Stockholm, examined.

RANGE: Ecuador, Colombia, and Panama.

DIAGNOSIS: There is very little observable difference between this species and *melanurus*, although the median spots of the elytra are slightly larger as a rule in *quadripunctatus*, and the pronotum is more robust and square in *melanurus* (figs. 20, 21, 29, 30). (See diagnosis of *melanocardius* and tables 1 and 2.)

Color grayish or buffy, pruinose, with irrorate buffy rings around punctures; elytra with two small black spots in front of middle (each spot about as wide as four or five intervals), a dark subapical band widened outwardly, and two humeral spots of about same size as median spots. Length, 10 to 16 mm.

REMARKS: This species may be conspecific with *melanurus*. All specimens I have seen of the latter have the pronotum square, but some of *quadripunctatus* (Darien, Panama) also have it almost as wide as long. Both forms occur in Ecuador, even at the same locality (Balzapamba). Specimens with the elytral marks obliterated are difficult to distinguish also from *melanocardius* in the same condition, because these two forms have nearly the same shape of pronotum, occur in the same areas, and are truly separable on the elytral pattern only.

Champion (1910, pp. 124, 131) transferred this species from *Cactophagus* to *Rhodobaenus*.

Of 34 specimens examined, two of each sex were dissected.

Rhodobaenus melanurus (Kirsch)

Figures 15, 21, 30

Sphenophorus melanurus KIRSCH, 1875, p. 278, Chanchomajo [= Chanchamayo], Peru; type, female, "Chanchom," in Staatliches Museum für Tierkunde, Dresden, examined.

Rhodobaenus boliviensis HUSTACHE, 1936, p. 107, Coroico, Bolivia; type, male, in Muséum National d'Histoire Naturelle, Paris, examined.

Rhodobaenus v-nigrum f. *intermedia* Voss, 1954, p. 336, Curaray, Ecuador, or Peru, but not specified which one; type destroyed. New synonymy.

RANGE: Bolivia, Peru, and Ecuador.

DIAGNOSIS: Comparison with *melanocardius* and *quadripunctatus* is made in the diagnosis of the former (above). *Rhodobaenus melanurus* resembles the latter in the dorsal pattern, but has generally a wider, more square pronotum (figs. 20, 21). The square pronotum combined with the elytral pattern of two median black spots distinguishes *melanurus* from *melanocardius*.

Color grayish or buffy, pruinose, with irrorate buffy rings around punctures; elytra with two small black spots in front of middle (each spot about as wide as three intervals), a dark subapical band widened

outwardly, and two humeral spots of about same size as median spots. Length, 12 to 14 mm.

REMARKS: The type and cotype of *boliviensis* agree perfectly with the type of *melanurus*, and I follow Günther (1941, p. 48) and Voss (1954) in synonymizing them. Voss' *intermedia* is also probably a synonym. It has not appeared in any of the catalogues, probably because the name is hidden under the heading of *Rhodobaenus v-nigrum* Champion. The type was burned in a fire in the museum in Hamburg, but Dr. Weidner of that museum has kindly sent me for examination a specimen determined by Voss, no doubt at a much later date, as *Rhodobaenus v-nigrum*. This specimen, from Chanchamayo, Peru, is like *melanurus* in all details except for the elytral spots which have been rubbed and resemble a weak V, and I believe it is Voss' variety and a synonym of *melanurus*.

Of 40 specimens examined, five males and one female were dissected.

Rhodobaenus pinguis Chevrolat

Figure 31

Rhodobaenus pinguis CHEVROLAT, 1885, p. 283, Mexico, here restricted to southern Mexico; type, male, in Naturhistoriska Riksmuseum, Stockholm, examined. CHAMPION, 1910, p. 129, pl. 6, figs. 16, 16a.

RANGE: Mexico in the states of Morelos, Nayarit, and Oaxaca.

DIAGNOSIS: This species and *saginitus*, which follows, differ from the seven species that precede by having the middle coxal space somewhat wider and the soles of the third tarsal segment only half covered with hair (fig. 5 and tables 1 and 2). They are otherwise rather similar in size and shape to *melanocardius*. The elytral pattern of *pinguis* resembles that of *fortirostris*, but in *pinguis* the ground color turns red when wet, and *pinguis* does not have a powerful beak like that of *fortirostris*. The pattern differs from that of *saginitus* by being fasciate, not tessellate.

Color grayish or buffy, but these parts red when wet, pruinose, with irrorate buffy rings around punctures; pronotum with median and two lateral black stripes which show only when background is red; elytra with two transverse, dark, opaque bands, median band widened toward suture, subapical one widened outwardly, and two oblong, indistinct, dark humeral areas; some black also in sutural region and on scutellum. Length, 10 to 12 mm.

REMARKS: Champion (1910, p. 129) considered this species as "a broad, robust form of the variable *R. pustulosus*." He also mentioned *valens* in connection with *pinguis*. Both these species, however, differ by having the tarsal claw segment excavated (fig. 2). This species and *sexguttatus* are the only ones restricted to Mexico.

Of 13 specimens examined, one male and two females were dissected.

Rhodoabaenus saginatus Champion

Rhodoabaenus saginatus CHAMPION, 1910, p. 125, pl. 6, figs. 8, 8a, type locality not specified; lectotype, male, Cerro Zunil, Guatemala, here designated from two original specimens from Cerro Zunil and Dueñas, in the British Museum (Natural History), examined.

RANGE: KNOWN from Costa Rica and southern Guatemala.

DIAGNOSIS: This species is very similar to *pinguis* (fig. 31), but differs by having a rough and more uneven surface, especially of the pronotum, and no transverse bands on the elytra. The elytra are mottled and tessellate like those of some individuals of *interruptus* from Guatemala, a much larger species found also at Cerro Zunil, from which *saginatus* differs further by having the middle coxae less approximate, the third tarsal segments less hairy (fig. 5), and the pronotum usually with four round foveae.

Color black, with buffy incrustation, giving irregular, tessellated appearance, with irrorate buffy rings around punctures, no definite pattern on elytra. Length, 10 to 14 mm.

REMARKS: Additional material may prove this species to be synonymous with *pinguis* Chevrolat. Unfortunately, I have seen no series of specimens from any one locality, therefore find it difficult to judge the degree of variation. Of the six specimens examined, three males and one female were dissected.

SPECIMENS EXAMINED

The following letter symbols are used below in parentheses to denote the collections in which the specimens were seen:

- A.M.N.H., the American Museum of Natural History
- B.M., British Museum (Natural History)
- C.A.C.S., Carlos A. Campos Seabra, Rio de Janeiro, private collection
- C.O'B., Charles W. O'Brien, University of California, Berkeley, California, private collection
- M.N.H.N., Muséum National d'Histoire Naturelle, Paris
- N.R., Naturhistoriska Riksmuseum, Stockholm
- S.M.T., Staatliches Museum für Tierkunde, Dresden
- U.C.D., University of California, Davis, California
- U.S.N.M., the United States National Museum, Smithsonian Institution, Washington, D. C.
- Z.M.B., Zoologisches Museum, Berlin
- Z.M.H., Zoologisches Museum, Hamburg
- Z.M.U.U., Zoological Museum, University of Upsala, Upsala

Rhodobaenus auriculatus (Chevrolat)

MEXICO: 1 ♂ (M.N.H.N.); Chiapas, 1 ♂ (type, N.R.); Toxpam [= Tuxpan], Veracruz, 1 ♂, 1 ♀; Cosamaloapam, Veracruz, 1 ♀ (B.M.).

GUATEMALA: Coban, 1 ♀ (B. M.).

NICARAGUA: Chontales, 3 ♀ (B.M.).

COSTA RICA: 1 ♂, 1 ♀ (U.S.N.M.); Infernillo, 1 ♂ (B.M.); Turrialba, 2 ♀ (B.M., U.S.N.M.).

Rhodobaenus nawradii (Kirsch)

COSTA RICA: San Carlos, 1 ♀ (U.S.N.M.).

COLUMBIA: 3 (M.N.H.N., Z.M.B.); 1 ♂, 2 ♀ (B.M., U.S.N.M.); Bogota, 1 ♂ (cotype), 1 ♀ (lectotype) (S.M.T.), 9 (B.M., M.N.H.N.); Landazuri, Santander, 1 ♀ (U.S.N.M.); Rio Guayuriba, Meta, 2 ♂, 2 ♀; Galego [=Gallegos?], 1 ♀ (A.M.N.H.); Medellin, 1 ♂ (B.M.); Cauca Valley, 2 (Z.M.B.); Muzo, 2; Manizales, 1; Cananche, Cundinamarca, 4 (M.N.H.N.).

ECUADOR: 1 ♀; Cachabe, 1 ♀; Paramba, 1 ♂ (B.M.); Chimbo, 8; Santo Domingo, 12; Balzapamba, 1 (M.N.H.N.); Balzapamba, 1 ♂, 1 ♀ (U.S.N.M., Z.M.B.).

Rhodobaenus cuneatus Champion

NICARAGUA: 1 ♀ (U.S.N.M.); Chontales, 13 ♂ (B.M., U.S.N.M.), 5 ♀ (including lectotype) (B.M.).

COSTA RICA: 3 (B.M., U.S.N.M.); Hamburg Farm, Reventazon, 1 ♂ "an Gebüsch," 1 ♀ "auf Bananenkarren"; Port Limon, 1 ♂; Zent, 20 miles from Puerto Limon, 1 ♀; Liberia, Guanacaste, 1 ♂, 1 ♀ "on Sugar Cane and chayote;" Tucurrique, 1 ♂, 1 ♀ (all U.S.N.M.); Carillo, 2 ♂, 1 ♀ "Piperaceae" "on *Piper* sp.;" Pozo Azul, 1 ♀; Savanillas de Pirris [=Sabanilla, San Jose], 1 ♂ (all B.M.); Infernillo, 1 ♂ (M.N.H.N.); Rio Toro Amarillo, near Guapiles, Limon, 1 ♂ (C.O'B.); La Palma, 3 ♂, 2 ♀ (B.M., U.S.N.M.); Tuis, 1 ♂, 1 ♀ (B.M., U.S.N.M.); San Carlos, 1 ♂, 1 ♀ (Z.M.B., U.S.N.M.); Turrialba, 2 ♂, 1 ♀ (Z.M.B., M.N.H.N.).

PANAMA: "?Panama, Banana debris at New Orleans, Louisiana," 1 ♀; Bocas del Toro, 1 ♀ (U.S.N.M.); Volcan de Chiriqui, 2 ♂, 2 ♀ (B.M.); Boquete, Chiriqui, 1 ♂ (C.O'B.). Locality illegible, 1 ♀ (Z.M.B.).

Rhodobaenus plicatus Champion

COSTA RICA; La Palma, 7 ♂ (including lectotype in B.M.), 8 ♀ (B.M., U.S.N.M.); Pacayas, Cartago, 1 ♂, 1 ♀ (A.M.N.H.); Cartago, 1 ♂; Carillo, 1 ♂, 1 ♀ (B.M.); Turrialba, 1 ♂, 1 ♀ (Z.M.B., M.N.H.N.); Orosi, 3 (M.N.H.N.).

Rhodobaenus stigmaticus (Fahraeus)

MEXICO: 2 ♂, 1 ♀; Veracruz: Tenndido [=Tendido?] River near El Fortin, 1 ♂ (U.S.N.M.); Cordoba, 1 ♀ (type, N.R.), 2 ♂, 1 ♀ (U.S.N.M.); Toxpam [=Tuxpan], 2 ♂, 1 ♀ (N.R., B.M.); Palaya Vicente, 1 ♀; Orizaba, 1 ♂; Atoyac, 1 ♀ (B.M.); Motzorongo, 2 ♂ (Z.M.B.); Tlapacoyan, 1 ♀ (U.C.D.); Tabasco: Teapa, 1 ♂ (B.M.); State?: Sierra de Durango, 2 ♂, 1 ♀ (B.M.).

GUATEMALA: San Juan, Verapaz, 1 ♀ (B.M.).

BRITISH HONDURAS: R[iver] Sarstoon, 1 ♂ (B.M.).

NICARAGUA: 6 ♂, 4 ♀ (B.M., N.R.); Chontales, 1 ♂, 1 ♀ (B.M.).

COSTA RICA: Cache, 1 ♀ (B.M.).

Rhodoaenus sexguttatus Champion

MEXICO: 1 ♂, 1 ♀ (B.M., N.R.); Veracruz: Toxpam [=Tuxpan], 1 ♂, 1 ♀ (lectotype); Santecomapan [=Sontecomapan], 1 ♀; Misantla, 1 ♀; Catemaco, 1 ♀ (all B.M.).

Rhodoaenus v-nigrum Champion

NICARAGUA: Chontales, 1 ♂ (lectotype), 1 ♀ (B.M.).

Rhodoaenus maior Voss

ECUADOR: Balzapamba, 1 ♂ (neotype), 1 ♀ (Z.M.B.), 4 (M.N.H.N.); Chimbo, 28 (M.N.H.N.); San Carlos, 1 ♂ (Z.M.B.); Paramba, 6 ♂, 4 ♀ (B.M.).

Rhodoaenus interruptus Champion

MEXICO: 1 ♀; Tapachula, Chiapas, 1 ♀ (Z.M.B.); Toxpam [=Tuxpan], Veracruz, 1 ♀ (B.M.).

GUATEMALA: Cerro Zunil, 4 ♀ (including lectotype of "*tesselatus*,") (B.M.).

COSTA RICA: 4 ♂, 1 ♀ (B.M., Z.M.B., U.S.N.M.); Irazu, 2 ♀ (including lectotype of *interruptus*); Estrella de Cartago, 1 ♀; Azahar de Cartago, 3 ♀; Rio Sucio, 2 ♀; Savanillas de Pirris [=Sabanilla], 1 ♀ (all B.M.); Carpintera, 1 ♀; Navarro, Cartago, 1 ♂ (U.S.N.M.); Cache, 1 ♂, 1 ♀ (B.M., U.S.N.M.); La Palma, 1 ♂, 2 ♀ (B.M., U.S.N.M.).

PANAMA: 2; Chiriqui, 2 (M.N.H.N.); Volcan de Chiriqui, 7 ♂, 5 ♀ (B.M., U.S.N.M.).

Rhodoaenus fortirostris Champion

MEXICO: 1 ♂, 1 ♀ (U.S.N.M.); Veracruz: Toxpam [=Tuxpan], 1 ♀; Cosamaloapam, 1 ♂ (lectotype) (B.M.).

GUATEMALA: Purula [=Purulha, Baja Verapaz], 1 ♂, 2 ♀ (B.M., U.S.N.M.).

Rhodoaenus melanocardius (Linnaeus)

COSTA RICA: 1 ♂ (Z.M.B.); Turrialba, 1 (M.N.H.N.).

PANAMA: Bugaba, 3 ♂ (including lectotype of "*crassipes*") (B.M.).

FRENCH GUIANA: 1; St. Laurent du Maroni, 9; St. Jean du Maroni, 2; Nouveau Chantier, 1; Guatimala, 1; Roches de Kourou, 1 (all M.N.H.N.).

SURINAM: 2 ♀ "in coffee fields," (B.M.).

COLOMBIA: 1 ♀ (A.M.N.H.); Villavicencia, 3 (M.N.H.N.).

ECUADOR: Coca, 1 ♀ (Z.M.B.); "Matopo," [=Rio Mapoto?], Rio Pastaza, 1 ♂ (A.M.N.H.).

PERU: Rio Santiago, 1 ♂, 1 ♀; Rio Huallaga, 1 ♀ (A.M.N.H.); Chambireyacu, near Yurimaguas, 1 (M.N.H.N.); Moyobamba, 1 ♂ (A.M.N.H.), 1 (M.N.H.N.).

"India," 1 (type, Z.M.U.U.).

Rhodoaenus quadripunctatus (Chevrolat)

PANAMA: Ciricito, Canal Zone, 1 ♂ (U.S.N.M.); "State of Darien, Colombia" [=Darien, Panama], 1 ♀ (B.M.).

COLOMBIA: 2 ♂ (including type, N.R.); 1 ♂, 3 ♀ (B.M., Z.M.B.); Bogota, 2

(B.M., M.N.H.N.); Muzo, 1; Ibague, 1 ♂; Cananche, Cundinamarca, 3; Rio Chili; 1 ♂, 1 ♀ (M.N.H.N.); Landazuri, Santander, 1 ♀ (U.S.N.M.).

ECUADOR: Balzapamba, 5; Chimbo, 9; Santo Domingo, 1 (M.N.H.N.).

No locality: 1 ♂.

Rhodoaenus melanurus (Kirsch)

ECUADOR: Balzapamba, 1 ♂ (M.N.H.N.); San Carlos, 1 ♀ (Z.M.B.); Zatzayacu, 1 ♂ (A.M.N.H.).

PERU: 1 ♂; San Ramon, Estancia Naranjal, Junin, 1 ♂ (A.M.N.H.); Chanchamayo, 1 ♀ (type of *melanurus*, S.M.T.), 3 (Z.M.B., Z.M.H.); Rio Toro (La Merced Chanchamayo), 6; Marcapata, 1 ♂ (Z.M.B.); "Callanga Bolivia" [= Callanga], 1 ♀ (M.N.H.N.).

BOLIVIA: Coroico, 1 ♂ (type of "*boliviensis*,"), 13 (M.N.H.N.), 1 ♀ (cotype of "*boliviensis*," S.M.T.); Cochabamba-Chapare, Alto Palmar, 4 ♂, 1 ♀ (C.O.'B.); El Palmar, Chapare-Cochabamba, 1 ♂, 1 ♀ (C.A.C.S.).

Rhodoaenus pinguis Chevrolat

MEXICO: 1 ♂ (type, N.R.), 1 ♂, 2 ♀ (B.M.); Cuernavaca, Morelos, 3 ♂, 2 ♀ (B.M., U.S.N.M.); Tepic, Nayarit, 1 ♂, 1 ♀ (A.M.N.H.); Juquila, Oaxaca, 1 ♂, 1 ♀ (B.M.).

Rhodoaenus saginatus Champion

GUATEMALA: 1 ♀; Retalhuleu, 1 ♂ (U.S.N.M.); Cerro Zunil, 1 ♀ (lectotype, B.M.); Dueñas, 1 ♂ (B.M.).

COSTA RICA: Turrialba, 2 ♂ (A.M.N.H., U.S.N.M.).

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