

NEW SPECIES OF NORTH AMERICAN CLERID BEETLES OF THE GENUS AULICUS.

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Three species of *Aulicus* are at the present time recorded from the United States. These are: *A. nero* Spinola, *monticola* Gorham, and *femoralis* Schaeffer. The first two were originally described from Mexico and the last from Arizona. Of these *nero* was first recorded from the United States by Dr. George H. Horn¹ from specimens collected by William S. Gabb in the coast range of southern California. Later Horn² and Wolcott³ have recorded the species from Texas, New Mexico, Arizona, and Lower California, thus giving *nero* a wide distribution in the southwestern United States. I have seen specimens from these additional localities, and after a close study of them am convinced that several distinct species were confused as *Aulicus nero*.

In the typical species of the genus the claws are simple in both sexes, but in certain species some or all of the claws are toothed or cleft in the male and simple in the female. Such species do not differ otherwise from typical *Aulicus*, and I do not think it advisable to separate them generically on a character which is possessed by one sex alone and which also varies in the number of claws affected in the different species. An aberrant species (*antennatus*), described below, differs from typical *Aulicus* in the form of the two or three antennal joints preceding the three-jointed club, and as below stated, appears to be intermediate between the genera *Aulicus* and *Xenoclerus*.

In the males the intermediate antennal joints are usually shorter and stouter and the club larger than in the females, and the fifth ventral abdominal segment is usually more or less deeply arcuate-emarginate at apex in the former, but truncate in the female.

Some species are more variable in color than others. In all the species the blue markings of the elytra are similar and consist of a sutural vitta, a median and an apical fascia; the rest red or yellow. Of the blue markings the median elytral fascia is especially variable

¹ Trans. Amer. Ent. Soc., vol. 2, 1863, p. 134.

² Proc. California Acad. Sci., ser. 2, vol. 4, 1894, p. 331.

³ Field Mus. of Nat. Hist., Zool. Ser., vol. 7, 1910, p. 365.

and in some specimens of *dentipes* is reduced to a small, rounded spot on each side near suture, while in the type of *nero*, as indicated in the original description, it is entirely absent. The sutural vitta above the median fascia, however, varies much less and differs in form and width in several species, offering a good character for their separation. In some species the blue humeral spot is always present, in others absent, and in one, *femoralis*, may be present or absent. In the females, generally, the blue markings of the elytra are heavier and the coloration of the ventral segments is darker than in the males.

The form of prothorax is similar in all the species and nearly as in our robust species of *Clerus*, but with a much stronger subapical impression, which is very strong at sides and more feeble at middle. The pubescence of the upper side is never very dense and is easily lost. The elytra punctuation seems to be rather constant, but the rugosities between the punctures may vary in the more sparsely punctate forms. The punctuation of the under surface is never dense and is variable even in specimens of the same species.

The species are apparently rare and poorly represented in collections, and without the assistance of the material in other collections very little could have been accomplished. I have studied 92 specimens which are preserved in the following collections and for the loan of which and gift specimens I am greatly indebted to Dr. A. Fenyes, Mr. Warren Knaus, Mr. Charles Liebeck, Dr. E. C. Van Dyke, Prof. H. F. Wickham, American Museum of Natural History (through Dr. F. E. Lutz), Academy of Sciences of Philadelphia (through Dr. Henry Skinner), Brooklyn Museum, University of Kansas (through Mr. C. P. Alexander), Massachusetts Agricultural College (through Dr. H. T. Fernald), and the United States National Museum.

Most of the species can be readily separated in the males by good structural characters, but the females are more difficult to distinguish, and I have used coloration largely in the following table. The measurements of the length of the specimens are from the apical margin of prothorax to the apex of the elytra. Four of the six species of the genus included in Wolcott's synoptic table,⁴ but which apparently do not occur in the United States, are omitted

TABLE OF NORTH AMERICAN SPECIES OF AULICUS.

- | | |
|---|--------------------------|
| 1. Head red, prothorax bluish-black at middle, red at sides..... | 2 |
| Head and prothorax entirely black or bluish black..... | 3 |
| 2. Body below and legs black or bluish-black, except the fifth ventral segment, which is red at sides and apex; blue sutural vitta above the median fascia small, sometimes obsolete near base and always much narrower than the red humeral space; claws of male simple; fifth ventral segment of male scarcely emarginate; last dorsal segment subtruncate at apex in the male and broadly rounded in the female..... | <i>monticola</i> Gorham. |

⁴ Can. Ent., 1910, p. 245.

- Body below and femora in about basal half or more red, last ventral segment sometimes more or less black; blue sutural vitta above the median fascia always broad and generally as wide or wider than the red humeral space, nearly parallel, at most feebly dilated towards base; males with the inner claw of anterior tarsi toothed and intermediate tarsi more or less distinctly so; posterior claws simple; fifth ventral segment of male moderately deeply arcuate-emarginate; last dorsal segment at apex emarginate at middle in the male, broadly rounded in the female..... *femoralis* Schaeffer.
3. Antennae with joints six to eight in the male, or seven and eight in the female, triangularly dilated and intermediate in size between the preceding joints and the club, more strongly pronounced in the male than in the female..... 8
Antennal club abruptly three-jointed..... 4
4. Sutural vitta above the submedian fascia broadly arcuately dilated near base, subcordiform..... 5
Sutural vitta never broadly, arcuately dilated near base, the sides subparallel or gradually diverging toward base..... 6
5. Palpi red; under side bluish-black, except the first three or four ventral segments, which are reddish; legs black or piceous, femora more or less reddish; last ventral segment of male deeply arcuate-emarginate; last dorsal segment of male at apex deeply emarginate at middle; outer claws of the first and second pair and the inner claws of the posterior tarsi distinctly cleft in the male; small species about 6.5 mm..... *fissipes*, new species.
Palpi black or piceous; underside and legs bluish-black, ventral segments sometimes narrowly reddish at sides; fifth ventral segment of male broadly emarginate at apex; last dorsal segment subtriangularly emarginate at apex in the male and truncate in the female; claws in both sexes simple; large species, about 8-10 mm. *nigriventris*, new species.
6. Large species about 10 mm. long; form rather elongate; blue sutural vitta above the median fascia broad and wider than the red humeral space; underside and legs bluish-black, ventral segments at sides and fifth at apex largely red, fifth ventral segment of male at apex broadly arcuate-emarginate, and last dorsal feebly emarginate..... *nero* Spinola.
Smaller species about 8 mm. long or less; form rather robust; all the claws, or the inner claw of anterior and middle tarsi of male toothed..... 7
7. Elytra densely and relatively coarsely punctate; blue sutural vitta above the median fascia as wide or wider than the red humeral space; humeri with a black spot; body below metallic blue; ventral segments red, but sometimes at sides more or less black; fifth ventral segment in the male deeply arcuate-emarginate at apex; last dorsal segment in the male emarginate at middle and broadly rounded in the female; male with inner claw of anterior and middle tarsi more or less distinctly dentate, posterior claws simple..... *femoralis* Schaeffer.
Elytra relatively sparsely punctate, the punctures well separated; sutural vitta above the median fascia narrow, not as wide as the red humeral space; humeri without black spot; body below blue or bluish-black; all ventral segments at sides and last at apex red; fifth ventral and last dorsal segment of the male scarcely emarginate, last dorsal segment of the female emarginate at apex; all the claws of the male cleft, with the inner tooth shorter than the outer. *dentipes*, new species.
8. Body below and legs entirely metallic blue; sutural vitta above the median fascia as wide or wider than the red humeral space; humeral spot absent; fifth ventral segment rather deeply arcuate-emarginate and last dorsal segment rounded at apex in the male, the latter in the female narrowly, subtriangularly emarginate at apex. The inner claw of the front tarsi toothed in the male. *antennatus*, new species.

AULICUS MONTICOLA Gorham.

Aulicus monticola GORHAM, Biol. Cent.-Amer., Col., vol. 3, pt. 2, 1882, p. 146, pl. 8, fig. 18.—SCHENKING, Deutsche Ent. Zeitschrift, 1907, p. 306.—WOLCOTT, Field Mus. Nat. Hist., Zool. Ser., 1910, p. 364; Canad. Entom., vol 42, 1910, p. 245.

Head red, rather sparsely punctate, below with a black median spot, palpi black; antennae black, first joint below and the two following often more or less reddish. Prothorax red with a black median vitta extending along apex and base; surface sparsely punctate. Elytra rather densely and coarsely punctate, intervals between the punctures more or less rugose; median fascia in form of a transversely oval spot; sutural vitta above the median fascia, narrow, either parallel or narrowing obliquely to the scutellum, scarcely attaining the base; dark humeral spot absent. Body beneath and legs black, last ventral segment red, penultimate segment red at sides and black at middle; ventral segments rather sparsely punctate. Claws simple in both sexes. Fifth ventral segment of male feebly emarginate, last dorsal segment subtruncate at apex in the male and broadly rounded in the female; length 8.5–13.5 mm. Alpine, Texas (Wickham); Mexico (Dugès).

I have seen about eighteen specimens of this species from Texas and Mexico, and though the markings are variable, they are less so than in most of the other species.

Generally a species of medium size; the largest measurements above were taken from a Mexican specimen in the collection of the United States National Museum. It is an easily recognizable species.

AULICUS FEMORALIS Schaeffer.

Aulicus femoralis SCHAEFFER, Journ. N. Y. Ent. Soc., vol. 25, 1917, p. 132.

Head red, coarsely and closely punctate; palpi black or piceous rarely reddish; the outer joints of antennae black or piceous, but the club of the male often pale. Prothorax black at middle, apex and base, red at sides; surface moderately punctate, punctures rather coarse. Elytra closely and coarsely punctate, intervals between the punctures rugose; basal part of sutural vitta broad, as wide or wider than the red humeral space, sometimes gradually widening towards base; median vitta more or less constricted at middle and wider laterally and in heavily marked specimens nearly uniting laterally with the apical blue spot; black humeral spot sometimes absent. Underside and all the femora largely red, except apex of the latter and tibiae and tarsi black; fifth ventral segment occasionally more or less blackish and in the male rather deeply arcuate-emarginate at apex, in the female truncate. Last dorsal segment at apex emarginate at middle in the male, broadly rounded in the female. The inner claw of anterior tarsi of the male distinctly dentate, of the

middle tarsi less distinctly so, posterior claws simple. Length 6-8 mm.

Arizona: Nogales (Nunenmacher); Santa Rita Mountains, (Wickham); Chiricahua Mountains, (Owen); Coyote Mountains, (Lutz); Tucson, (Horn coll.).

This species is the only one which differs very much in the coloration of head, prothorax, and underside. Specimens taken with the typical form by Doctor Lutz have the head and prothorax above and below, also the mesosternum, metasternum, and all the femora bluish-black; the ventral segments in these are either red or red with black spots at sides; otherwise they do not differ from the typical form.

AULICUS FISSIPES, new species.

Male.—Head black, moderately coarsely punctate, punctures more dense anteriorly and posteriorly than at middle; palpi and antennae pale reddish. Prothorax black, sides moderately arcuate; surface rather sparsely punctate with moderately large punctures; anterior constriction as usual more feeble at middle than at sides. Elytra with moderate, not closely placed punctures, pubescence short and sparse; intervals between these punctures scarcely rugose; common blue sutural vitta broadly, arcuately dilated around the scutellum, narrowing behind to the median fascia but absent between the latter and the apical blue spot; median fascia subtriangular, broadest laterally and narrowing toward suture, anterior margin of this fascia very oblique; apical blue spot divided narrowly for half its length by the red suture. Underside obscure metallic-green; abdomen red, last ventral segment black at middle and deeply, arcuately emarginate at apex; ventral segments rather sparsely punctate; femora red, apically black; tibiae black, but anterior and intermediate pair reddish at apex; tarsi black, the inner claws of the front and middle tarsi and outer claws of hind tarsi distinctly cleft. Last dorsal segment at apex emarginate at middle.

Female.—Palpi pale reddish; antennal joints less stout and the three-jointed club black; elytra more rugose than in the male and the blue median vitta more fully developed, reaching to the lateral margin and about as wide at suture as near lateral margin, anterior margin of vitta laterally strongly angulate, posterior margin less strongly; posterior femora largely black and fourth and fifth ventral segment black; sides red; all the claws simple. Length 6.5 mm.

Type.—Cat. No. 23083, U.S.N.M.

Tucson, Arizona (type, male); San Jose del Cabo, Lower California (female).

Of this species I have seen only two specimens of which the type, preserved in the United States National Museum, was collected on August 24, 1913, by W. D. Pierce on cotton, and the allotype is in the Brooklyn Museum.

The shape of the median fascia in the fully colored female is different from any of the other species which, with the more slender form, entirely pale palpi, basally arcuately dilated sutural vitta, and the inner claws of the male distinctly cleft should make this an easily recognizable species. Occasionally specimens of typical *femoralis* have the palpi more or less reddish and the basal part of the sutural vitta gradually dilated toward base but these differ, besides the more robust form, in having the head, sides of prothorax and the entire underside red.

AULICUS NIGRIVENTRIS, new species.

Head black, coarsely and moderately closely punctate, denser at sides and apex; palpi black; antennae black, the first three or four joints reddish, basal joint black above. Prothorax black, rather sparsely punctate, punctures coarse. Elytra moderately closely punctate; intervals between the punctures more or less rugose; black humeral spot present; sutural vitta towards base rather strongly arcuately dilated; median fascia broad and generally arcuate laterally; underside and legs black with metallic blue tint; ventral segments either entirely bluish-black or very narrowly margined at sides with red; fifth ventral segment of male broadly emarginate at apex and last dorsal segment subtriangularly emarginate, in the female truncate, all the claws of both sexes simple. Length, 8-10 mm.

Mexico (Van Zwaluwenburg); Torreon, Coahuila, Mexico (McKinney and Loftin); Chiricahua Mountains, Arizona (Owen).

Type and allotype.—Cat. No. 23084, U.S.N.M.

Described from fifteen specimens, as follows: Type a male from Mexico without definite locality and allotype from Torreon, Coahuila, Mexico, June 28, 1918 (McKinney and Loftin) in United States National Museum; paratypes from Mexico (Van Zwaluwenburg) in collections of the Massachusetts Agricultural College, the Brooklyn Museum, and Mr. Chapin, and from the Chiricahua Mountains, Arizona, in the collection of Dr. E. C. Van Dyke.

A large robust species, which varies very little in elytral maculation, though the elytral sculpture is perhaps more variable than in any of our other species. The subcordiform basal part of the sutural vitta is very pronounced and separates this species readily from the other, except *fissipes*, which is a much smaller and less robust insect, with pale palpi, differently colored abdomen, and the male with one claw of all the tarsi distinctly cleft.

AULICUS NERO Spinola.

Aulicus nero SPINOLA, Essay monogr. sur les Clerites, vol. 1, 1844, p. 330, pl. 27, fig. 5.—CHENU, Encycl. d Hist. Nat. Col., vol. 2, 1860, p. 180.—SCHENKLING, Bull. Mus. Paris, vol. 8, 1902, p. 325.—HORN, Trans. Amer. Ent. Soc., vol. 2, 1868, p. 134; Proc. California Acad. Sci., ser. 2, vol. 4, 1894, p. 331.—WOLCOTT, Field Mus. Chicago, Zool. Series, vol. 7, 1910, p. 364.

Head black, coarsely and densely punctuate; palpi black; antennae, including the club, pale, or the outer joints, or only the club, black.

Prothorax black, coarsely and moderately closely punctate. Elytra rather coarsely rugose, punctuation scarcely evident; basal part of sutural vitta broad, of nearly equal width and wider than the red humeral space; humeri without black spot; median vitta normally broad and subtruncate laterally, but becoming much reduced by the extension of the red humeral and postmedian spaces. Underside and legs black, ventral segments at sides and fifth at apex largely red; the latter moderately arcuate-emarginate in the male and all the claws simple. Last dorsal segment at apex at most feebly emarginate. Length, 10 mm. California (Wm. S. Gabb).

Of this species I have seen only five specimens, all males, three from the collection of Dr. George H. Horn and two from Mr. Charles Liebeck, which all came undoubtedly from the same lot, and were, according to Doctor Horn, collected in the coast region of southern California or Lower California.

The specimens do not agree exactly with Spinola's description of the type, in which the median fascia of the elytra is absent, with only the suture and apex blue, the ventral segments red. However, he describes and figures a variation with median fascia, and with this the above specimens agree fairly, and better in form, size, and markings than any other species known to me. Mr. Sigmund Schenkling, who has seen the type and other specimens in the Paris Museum, mentions also the variability of the elytral maculation of this species. There is a possibility that more than one species are included under that name in the Paris Museum; but judging from the variation of the elytral fascia in the five specimens before me, it is possible that specimens occur with the fascia entirely absent. The extent of the red color on the ventral segments is also variable in the few specimens, and specimens may occur in which the black fasciæ on the ventral segments are considerably reduced or entirely absent. In consideration of all this I feel more inclined to accept Doctor Horn's identification of these specimens than to give them a new name.

This is one of the few large species of the genus and of more elongate and slender form than *nigriventris*, the only other large species with black head and prothorax, from which the form of the basal part of the sutural vitta, the absence of the black humeral spot, the ventral segments largely red at sides, etc., will separate it. The sides of prothorax are broadly rounded in *nigriventris*, in *nero* more feebly. The punctuation of the elytra in *nero* is feeble, almost absent, but the surface is more or less and rather coarsely rugose.

AULICUS DENTIPES, new species.

Head black, coarsely and moderately closely punctate; palpi black; antennæ with the first four or five joints reddish, the outer black. Prothorax black, moderately punctate. Elytra not densely punctate, surface between the punctures more or less distinctly

rugose; black humeral spot absent; sutural vitta narrow, smaller than the red humeral space; blue median vitta moderate and more or less arcuate laterally. Body below and legs black, ventral segments at sides and fifth at apex largely red. Fifth ventral and last dorsal segment of the male scarcely emarginate, last dorsal of the female emarginate at apex. All the claws of the male cleft, the inner tooth shorter than the outer, of the female simple. Length, 5.5 mm.

San Diego (Schwarz) and Alpine (Wickham), Texas; Luna (Wickham) and Water Canon (Snow), New Mexico; San Bernardino Ranch (Snow) and Chircahua Mountains (Owen), Arizona; San Diego (Orcutt), California.

Type, allotype, and two paratypes.—Cat. No. 23085, U. S. N. M.

The type, a male, and a female allotype from San Diego, Texas, in the United States National Museum, paratypes in collections of Prof. W. F. Wickham, American Entomological Society, University of Kansas, and Brooklyn Museum.

This is the most widely distributed species of the genus, of which I have seen about thirty specimens. I have also a specimen which possibly was collected in Mexico. It is one of our smallest species, measuring from 5.5 to 8 mm. and of the same form as *femoralis* and *nigriventris*. The blue median fascia is never very strong and reduced in some specimens to a small rounded spot on each elytron near suture, and the sutural vitta does not reach the scutellum in some specimens. The sculpture of the elytra is in some specimens more coarsely rugose than in others, though the punctuation is always rather sparse. The males are readily separated from the other species by having all the claws toothed, or rather cleft, and the females, besides the coloration and markings, by the distinctly emarginate apex of the last dorsal segment. This latter character is rather unusual and is present only in the female of *antennatus*, which differs in antennal and other characters from *dentipes*.

AULICUS ANTENNATUS, new species.

Male.—Head black, rather closely and coarsely punctate; palpi black; antennae black, the first joint below and the second and third reddish; joints three and four rather elongate and subparallel, five slightly dilated, six to ten subtriangularly dilated but joints nine and ten much larger than any of the preceding joints, joint eleven longer than ten, oval, pointed near apex. Prothorax bluish-black, rather sparsely punctate. Elytra sparsely and not coarsely punctate, surface between the punctures more or less rugose; basal part of sutural vitta nearly parallel to suture and wider than the red humeral space; median vitta moderately large, arcuate laterally. Body beneath and legs entirely bluish black, fifth ventral segment rather deeply arcuate-emarginate and last dorsal rounded at apex; the inner claw of the front tarsi distinctly toothed. Length, 6.5 mm.

Female.—Similar to the male except that the blue markings are heavier on the elytra, only the seventh and eighth antennal joints dilated, and the last dorsal segment narrowly but rather deeply emarginate at apex. Length, 6.5 mm.

Palm Spring, California (Fenyés).

Of this very distinct species I have seen only two specimens. The male (type) is in the collection of Professor Wickham and the female (allotype) in the collection of the Brooklyn Museum.

By the structure of the antennae this is rather an aberrant species.

The form and also number of the antennal joints is considered important from the generic point of view, and I was at one time inclined to propose a new genus for this species. However, it seems that a number of genera in this family are founded on too slight characters and that a critical revision of the genera of the Cleridae is very much needed and for the present prefer to leave it in this genus.

This species can perhaps be equally well placed as an aberrant member of the genus *Xenoclerus*, which is in all its characters an *Aulicus* but with a five-jointed antennal club and smooth, not pubescent, elytra.