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The *Athyreus tribuliformis* Felsche complex with descriptions of three new species (Coleoptera: Scarabaeoidea: Geotrupidae: Athyreini)

Henry F. Howden
Canadian Museum of Nature. PO Box 3443, Station "D". Ottawa, ON K1P 6P4, Canada

Abstract

HOWDEN HF. 2002. The *Athyreus tribuliformis* Felsche complex with descriptions of three new species (Scarabaeoidea: Geotrupidae: Athyreini). Entomotropica 17(1):25-35.

The *Athyreus tribuliformis* Felsche complex is reviewed, all species are pictured, and a key to males is included. Three new species are described: *Athyreus mouraensis* Howden from Brazil, and *A. bicornus* Howden and *A. larseni* Howden from Peru.

Additional key words: Dung beetles, Neotropics, taxonomy.

Resumen

HOWDEN HF. 2002. El complejo de especies *Athyreus tribuliformis* Felsche y descripciones de tres nuevas especies (Scarabaeoidea: Geotrupidae: Athyreini). Entomotropica 17(1):25-35.

Se realiza una revisión del complejo de especies *Athyreus tribuliformis* Felsche, se presentan ilustraciones de todas las especies, y se incluye una clave para separar los machos. Se describen tres especies nuevas: *Athyreus mouraensis* Howden de Brasil, y *A. bicornus* Howden y *A. larseni* Howden ambos del Perú

Palabras clave adicionales: Escarabajos peloteros, Neotrópico, taxonomía.

In 1909 Felsche described and figured *Athyreus tribuliformis*. In his description Felsche (p.760) mentioned three pronotal horns, but in his illustration (Taf.X, fig.30) the pronotum in dorsal view shows only two horns. This bit of confusion caused Howden and Martínez (1978) to apply the name *A. tribuliformis* to an undescribed species with only two horns. Recently, through the kindness of Dr. Dirk Ahrens, I have been able to examine the two syntypes on which Felsche based his description of *A. tribuliformis*. Since neither of Felsche's specimens were designated as the "type", it is necessary to select one as the lectotype. As the two syntypes are not identical, it is necessary to redescribe and figure the lectotype of *A. tribuliformis* Felsche, designated herein, and to describe three new species related to it. Also a brief diagnosis of the four other described species is given, and a key to male major specimens is included for all of the species in the *A. tribuliformis* complex.

Males belonging to the *Athyreus tribuliformis* complex may be recognized by the following combination of characters: clypeus with long, upright horn; pronotum on each side with horn posterior to deep circular or oval concavity; concavity separated from concavity on opposite side by rounded, longitudinal ridge of variable width; pronotum in a number of species with posterior median horn in addition to the two more anterior ones. Females in the complex are difficult to identify except by association with males.

Key to male majors of the *Athyreus tribuliformis* complex

1 Pronotum with three horns.....2
1' Pronotum with two horns.....6

2(1) Lateral pronotal horns separated by approximately width of vertex or more; apices of lateral horns separated by more than 3 mm; concavities broadly separated by about same distance as horns.....3
2' Lateral pronotal horns separated by less than width of vertex; apices of lateral horns separated by less than 3 mm; concavities narrowly separated, similar to separation of horns.....5

3(2) Clypeal horn in basal 1/3 lacking distinct anterior carina on each side, anterior surface of basal 1/5 slightly convex.....4

3' Clypeal horn on each side with distinct carina extending from anterior clypeal angle to anterior basal 1/5 of horn, enclosing triangular area very slightly, transversely concave; genitalia as in figure 20; Iquitos, Peru.....***A. tribuliformis*** Felsche

4(3) Posterior median pronotal horn almost vertical or inclined posteriorly, horn not bent near base; each lateral pronotal horn with anterior edge curved upward, apex almost vertical; Bolivia; Peru.....***A. zischkai*** Martínez

4' Posterior median pronotal horn abruptly curved posteriorly, extending over scutellum; each lateral pronotal horn slanted anteriorly, anterior edge of horn almost straight; Amazonas, Brazil.....***A. mouraensis*** Howden, n.sp.

5(2') Anterior pronotal margin elevated and thickened to distinct median tubercle; pronotum with small pit (fovea) near lateral anterior edge of each concavity; Táchira, Venezuela.....
.....***A. peckorum*** Howden

5' Anterior pronotal margin elevated, not thickened, to very small median tubercle; pronotum with distinct pit (fovea) near lateral anterior edge of each concavity; Peru. .....***A. martinezi*** Howden.

6(1') Labrum in anterior median 1/2 with large, smooth concave area occupying 1/2 or more of length of labrum (Figure16).....7

6' Labrum with small, narrow, anterior emargination, length distinctly less than 1/2 length of labrum; Peru.....***A. bicornis*** Howden, n.sp.

7(6) Elytron with basal edge abruptly elevated at basal end of striae (1-6) between suture and humeral umbone; striae 2-4 no wider than distinctly elevated adjacent intervals; Venezuela.....
.....***A. nebulosus*** Howden

7' Elytron with basal edge not abruptly elevated at basal ends of striae (1-6) between suture and humeral umbone; 1 or 2 of striae 2-4 wider than moderately elevated, adjacent intervals; Peru.....***A. larseni*** Howden, n.sp.

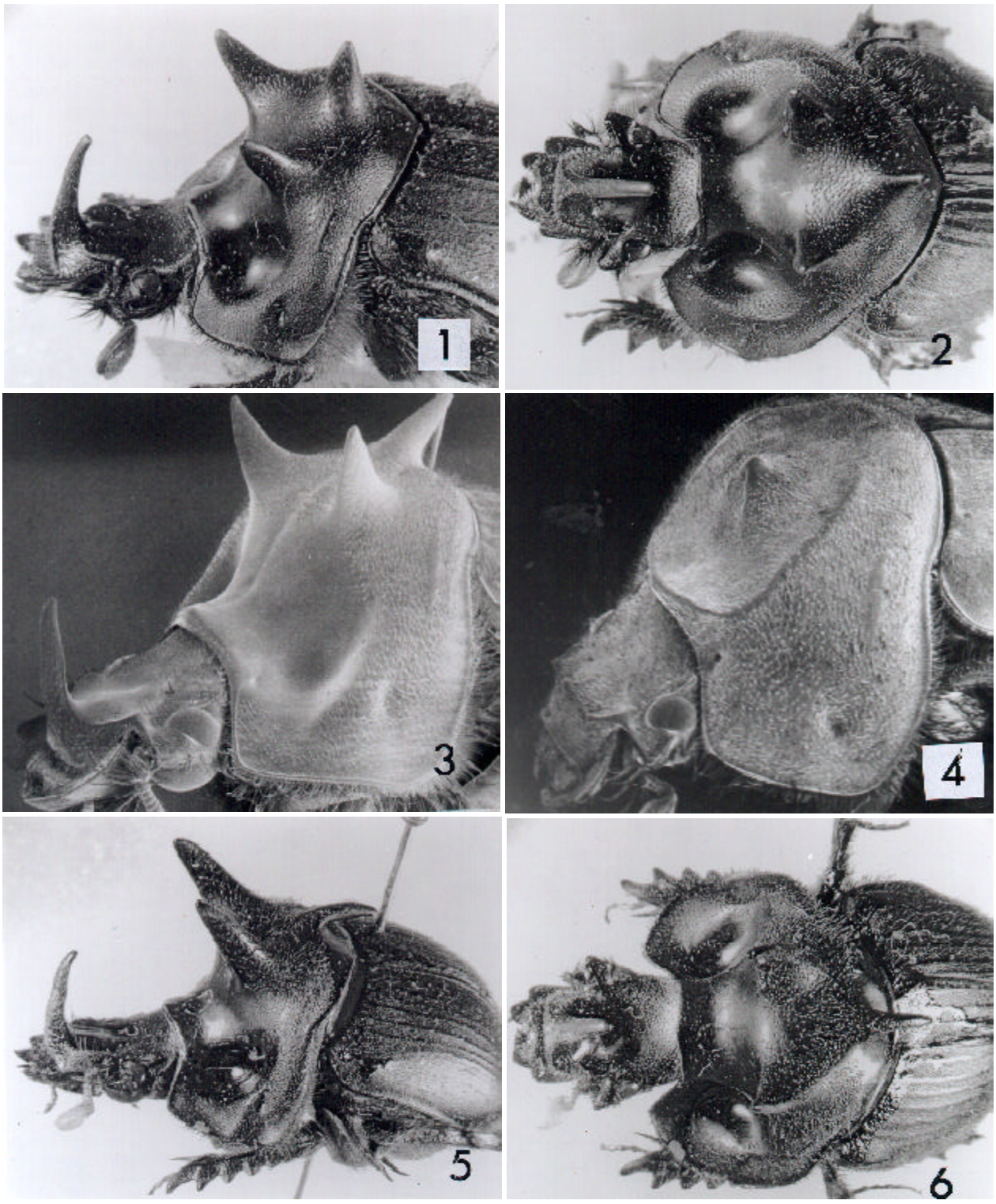
Athyreus tribuliformis Felsche

(Figures 1, 2, 20)

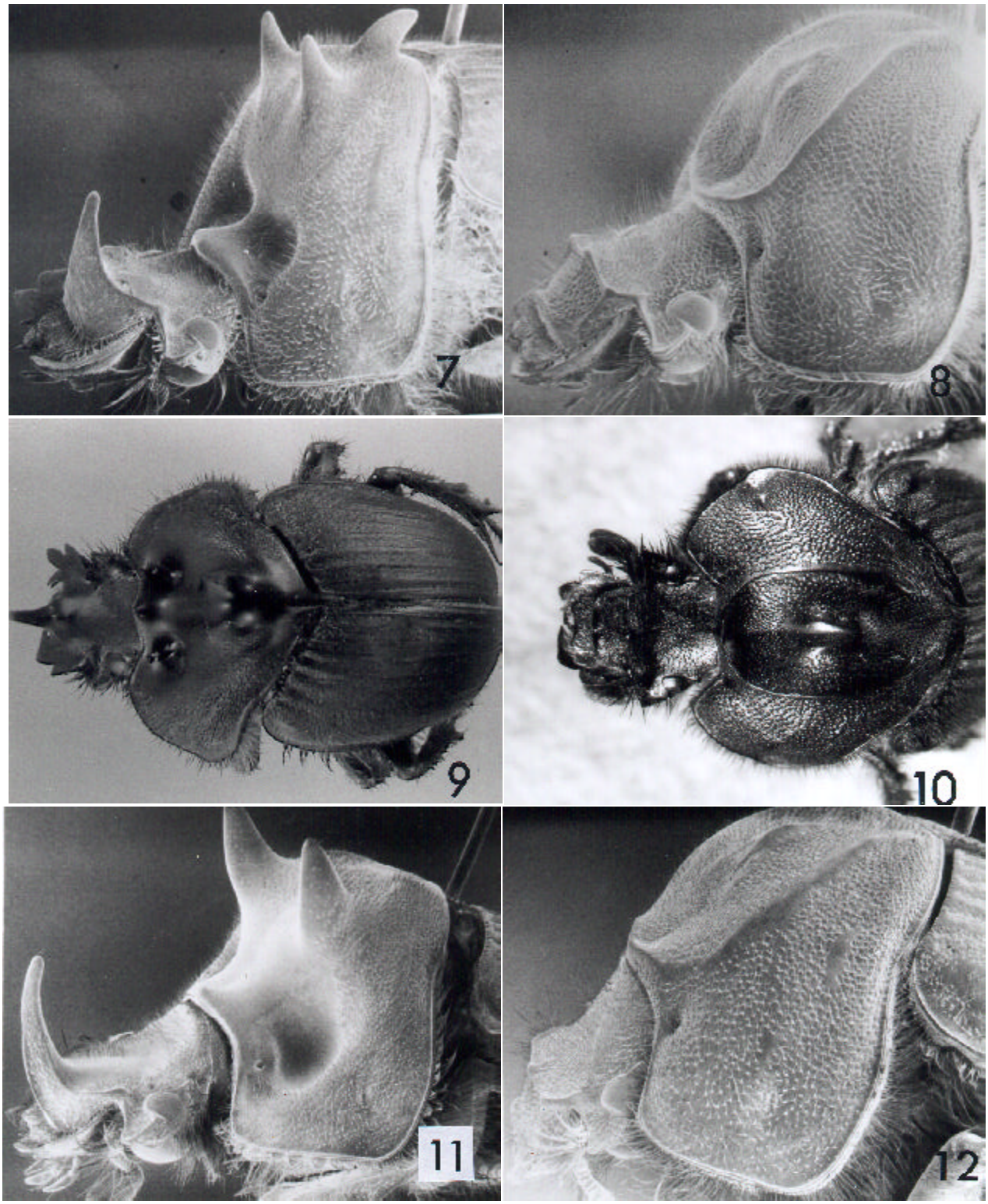
Athyreus tribuliformis Felsche, 1909, p.760; Howden, 1955, p.671; Howden and Martínez, 1978, p.46 (misidentification).

Lectotype. Male (Figure 1, 2), length 20.5 mm, greatest width 13.5 mm. Dorsally dark brown, lateral pronotal margins reddish brown. Labrum anteriorly broadly emarginate, margin with glabrous, downwardly inclined edge with small, broad, median lobe; dorsal, flat surface of labrum rugose. Clypeus with upright, slightly posteriorly curved horn approximately 6.0 mm long from anterior base to apex; anterior face of horn with carina on each side extending from anterior clypeal angle onto anterior third of horn, forming distinct, slightly concave triangle, surface with scattered punctures; horn posteriorly flattened with carina on each side extending from vertex above antennal insertion anteriorly onto each side; carina on each side of vertex obtusely angled above mandibular base, becoming obsolete near apex of horn; sides of clypeus and horn rugose; transverse width of horn approximately equal for apical 2/3 of length, apex rounded. Vertex anterior to genae with irregular line of punctures adjacent to marginal carinae, disc flat, impunctate to transversely depressed middle of vertex, surface posteriorly punctate except medially near depression. Gena with margins narrowly reflexed, outer anterior angle abruptly rounded, acute; dorsal surface irregularly punctate. Pronotum (Figure1) with anterior margin posterior to vertex slanted upward on each side to small median tubercle, marginal bead complete except on anterior elevated margin near tubercle; circular concavity present on pronotum on each side posterior to eye, surface between concavities forming broadly rounded median ridge; width of each concavity approximately 2.5 mm, width of ridge between about 3.0 mm. Center of pronotal disc (Figure 2) with blade-like horn on each side above inner posterior edge of concavity; distance between bases of horns approximately 4.0 mm, between apices approximately 7.0 mm; third, vertical horn on midline midway between bases of horns and posterior margin; disc lateral to horn posterior to concavity with vaguely indicated inner carina and short, distinct outer carina parallel with margin anterior to posterior angle; surface of disc laterally granulate-setose, between and near base of horns punctate-setose; smooth and impunctate in concavities, on median ridge and in area posterior to base of posterior horn. Scutellum small, elongate. Elytral disc, excluding sutural interval, with six slightly elevated intervals, intervals 4 and 5 becoming obsolete in basal fifth; surface between intervals with many small punctures, each with erect, black seta. Pygidium apically broadly, shallowly emarginate. Apex of apical abdominal sternite broad, almost truncate, medially with slightly indented, very obtuse angle, sternite laterally on each side obtusely angled. Left fore tibia with 5 teeth on outer margin, right fore tibia with six teeth. Ventral lobe of genital capsule rounded apically. Genitalia as in Figure 20.

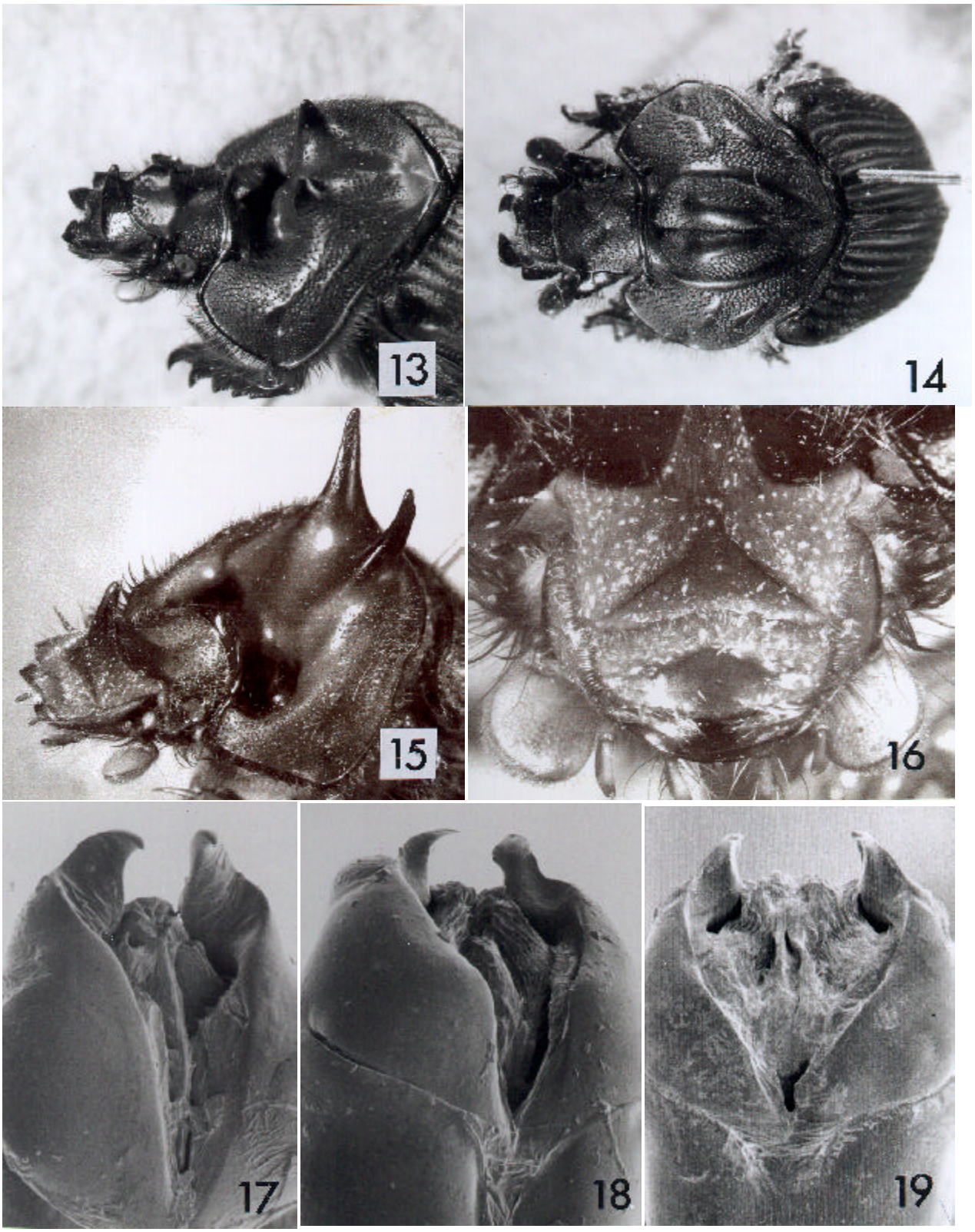
Female. Unknown.



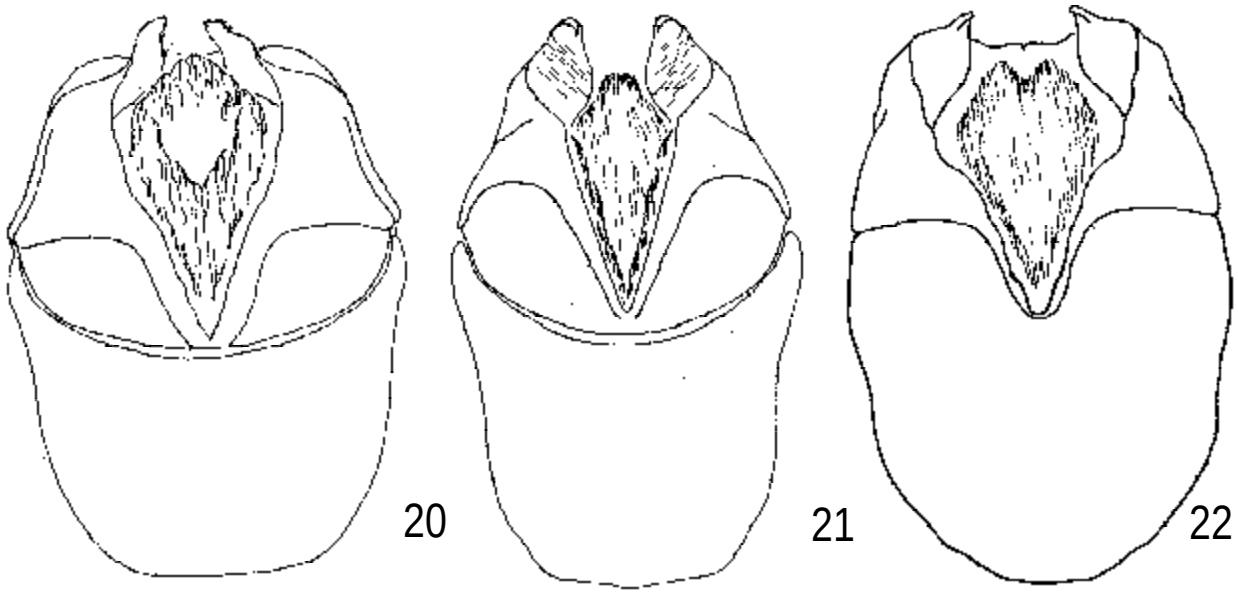
FIGURES 1-6. *Athyreus* spp. 1-2, *A. tribuliformis:* **1)** male, head and pronotum, lateral view ; **2)** male, head and pronotum, dorsal view. 3-4, *A. zischkai:* **3)** male, head and pronotum; **4)** female, head and pronotum. 5-6, *A. mouraensis*, holotype: **5)** male, lateral view; **6)** male dorsal view.



FIGURES 7-12. *Athyreus* spp. 7-8, *A. martinezi:* **7)** male, head and pronotum; **8)** female, head and pronotum. 9-10, *A. peckorum:* **9)** male, dorsal view; **10)** female, head and pronotum, dorsal view. 11-12, *A. bicornus:* **11)** holotype, male, head and pronotum; **12)** female, head and pronotum.



FIGURES 13-19. *Athyreus* spp. 13-14, *A. nebulosus:* **13)** holotype, male, head and pronotum, dorsal view; **14)** female, dorsal view. 15-16, *A. larseni:* **15)** holotype, head and pronotum; **16)** male, frontal view showing labrum with oval concavity and triangle at base of horn. 17-19, apex of male genitalia, dorsal view. **17)** *A. zischkai*; **18)** *A. martinezi*; **19)** *A. peckorum.*



FIGURES 20-22. *Athyreus* spp., male genitalia, dorsal view: **20)** *A. tribuliformis*; **21)** *A. zischkai*; **22)** *A. bicornus.*

Material examined. Lectotype here designated: male, [Peru] Rio Cachiyacu [lat 05°43'S long 76°28'W], Iquitos, Stuart. 93; Typus [red label]; Coll. C. Felsche, Kauf 20, 1918 [green]; tribuliformis Felsche [folded]; and my Lectotype label; [in] Staatl. Museum für Tierkunde, Dresden.

Paralectotype: male, same data as lectotype [with my paralectotype label]; Dresden.

Remarks. The paralectotype measures 20.1 mm in length and 13.1 mm in greatest width. It differs from the lectotype as follows: the clypeal horn is 5.1 mm long; all three pronotal horns are similarly shortened and thickened, the two anterior horns are slightly more erect and the posterior horn is slanted posteriorly; the median tubercle on the anterior margin of the pronotum is more elevated and the adjacent margin is somewhat thicker; elytral intervals five and six are reduced but evident basally; each fore tibia has five teeth on the outer margin; apex of the pygidium is only very slightly emarginate; the two small apical lobes of the genitalia are wider and resemble those illustrated for *A. zischkai* (Figure 21). No other obvious differences were noted.

The lectotype has the right fore femur with some dermestid damage near the base and the tarsi of the hind legs and one middle leg are broken. Despite this, it is better developed than the paralectotype and more closely matches Felsche's description.

I have not seen other specimens that exactly match the lectotype. However there seem to be either one or more very similar species occurring in Peru and Bolivia or the various "forms" represent an extremely variable species. For a further discussion of this problem see the Remarks under *A. zischkai*.

Athyreus zischkai Martínez

(Figures 3, 4, 17, 21)

Athyreus zischkai Martínez, 1953, p.227; Howden, 1955, p.671; Howden and Martínez, 1978, p.47.

Holotype. Male, Bolivia, Dept. de Cochabamba, Pcia. de Chapare, Villa Gral. Román, 400 m, R. Zischka; [in] Museo Argentino de Ciencias Naturales "Bernardino Rivadavia", Buenos Aires.

Diagnosis. This species is very close to *A. tribuliformis* if not conspecific. Major differences are as follows: *A. zischkai* lacks the anterior carinae on the clypeal horn, anterior surface of horn in basal third convex and closely punctate or rugose; carina on each side of vertex posterior to horn not distinctly, obtusely angulate above base of mandible; posterior pronotal horn slanted posteriorly over scutellum, fore tibia with six teeth in oth sexes. Female pronotum as in Figure 4.

Other characters seem to vary geographically.

Specimens examined. 8 males, 6 females. Bolivia: 1 male, holotype, see above; Santa Cruz, Pcia. Sara, Nueva Moka, xii.1960, Martínez, 2 males, 2 females; Reys, x.1921, Mulford Exp, 1 male. Brazil: Amazonas, Tres Casas, Rio Madeira, xi.1941, Dr. Nick, 1 male; Acre, Pôrto Walter, ix.1951, H. Rueth, 2 females. Peru: Chanchamayo, 15.v.1973, J. Schunke, 1 female; Loreto, Pucallpa, 1939, Hocking, 6.iv.1973, xi.1969, J. Schunke, 2 males, 1 female; Loreto, Ucayali Riv., Yarina Cocha, 26.xi.1956, P. Hocking, 1 male.

Remarks. Specimens that both Martínez and Howden identified as *A. zischkai* were seen from Brazil, Bolivia and Peru, and only one or two males were seen from each locality. Males vary considerably from country to country and all differ from the lectotype of *A. tribuliformis* in the characters listed above. In a Bolivian male from near the type locality, the genitalia has the two small, apically projecting lobes stout basally, tapering to acute, rounded apices (Figure 17). The type of *A. zischkai* did not have the genitalia illustrated by Martínez (1953), and I have not been able to examine it closely. The apical lobes of the male genitalia (Figures17, 21) illustrated here differ from those of the lectotype of *A. tribuliformis* but are very similar to those of the paralectotype. In all males seen of *A. zischkai* from different localities, there are small differences in the shape of the apical lobes of the genitalia. How taxonomically meaningful these differences are remains an unsolved problem.

Variation seen in some of the other characters may be the result of either allometry or geography or a combination of both. Within the series identified as *A. zischkai*, males of similar size from different countries vary noticeably as follows: Brazil- clypeal horn with trace of anterior carina on each side; vertex posterior to horn punctate, paired pronotal horns curved upward, almost vertical, less separated than in Bolivian males; lobes of male genitalia more slender than in Figure 21; Bolivia- clypeal horn without trace of anterior carinae, basal surface anteriorly slightly convex; vertex anterior to genae impunctate; paired pronotal horns slanted anteriorly; male genitalia as illustrated in Figure 17; Peru- clypeal horn with anterior carinae indicated only adjacent to anterior angles, horn almost cylindrical; vertex anterior to genae impunctate; paired pronotal horns slanted anteriorly, posterior pronotal horn slightly slanted posteriorly, less so than those from other countries; lobes of male genitalia varying from relatively slender to moderately so, but narrower basally than shown in Figure 21.

Despite the fact that the genitalia of the male holotype of *A. zischkai* has not been illustrated, it seems that the species is either highly variable, is a complex of sibling species, or is conspecific with *A. tribuliformis*. Additional specimens are needed to determine its status.

Athyreus mouraensis Howden, n.sp.

(Figures 5, 6)

Holotype. Male, length 22.1 mm, greatest width 14.9 mm. Dorsally very dark brownish black. Labrum short, concave median emargination smooth, occupying over 2/3 of length of labrum, flat median surface about 0.2 mm long. Clypeal horn vertical, lacking both anterior and posterior carinae, horn 5.6 mm long, slightly recurved, more strongly so near rounded apex. Vertex anterior to genae impunctate, otherwise vertex and gena as described for *A. tribuliformis*. Pronotum (Figure 5) with anterior margin posterior to vertex slanted upward on each side to small median tubercle; marginal bead lacking on elevated portion of anterior margin and at posterior midline, otherwise complete; circular concavity present on each side of pronotum posterior to eye, between with rounded median ridge; width of each concavity approximately 3.0 mm, width of ridge about 4.5 mm. Center of pronotal disc (Figures 5, 6) with blade-like horn 6.0 mm long on each side and posterior to inner edge of concavity, horn slanted anteriorly, anterior edge straight, not curved upward; horns separated at base by approximately 4.5 mm, horns divergent, then curved slightly inward apically, apices separated by 6.5 mm; posterior median horn cylindrical, curved posteriorly over scutellum, apical third almost parallel with adjacent dorsum; lateral carina and surface of pronotal disc as described for *A. tribuliformis* except posterior surface on either side and posterior to median horn impunctate. Scutellum small, narrow, elongate. Elytral disc excluding sutural interval with seven slightly elevated intervals, seventh interval not extended to base; surface between intervals with close, small punctures, most with posteriorly inclined, reddish setae. Abdomen and right hind leg missing. Fore tibia with six teeth on outer margin.

Type Material. Holotype, male, Brazil, Amazonas, Moura, viii.1943, A. Parko, H. & A. Howden collection ex Martínez coll., [in] Canadian Museum of Nature.

Remarks. The Moura specimen was placed under the name of *A. zischkai* in Howden and Martinez (1978), partly because the genitalia could not be studied. However, since that time no other specimens have been seen that match its several unique characters. The species can be easily distinguished by its very short labrum; unusually long, anteriorly directed pair of pronotal horns and its cylindrical, posteriorly curved, posterior median horn. The seven elevated intervals on each elytron may vary in number. The nearest relative to *A. mouraensis* appears to be *A. zischkai*; all related species are widely separated geographically.

Etymology. The species is named for the type locality, Moura, Brazil.

Athyreus martinezi Howden

(Figs.7,8,18)

Athyreus martinezi Howden, 1955, p.667; Howden and Martínez, 1978, p.48; Howden, 1999, p.349.

Holotype, male, Peru, ex coll. Gerstner, 1912, [in] Staatl. Museum für Naturkunde, Stuttgart.

Diagnosis. The following combination of characters will separate *A. martinezi* from the other species in the complex having threepronotal horns: dorsally brown; clypeal horn rounded anteriorly with posterior carinae lacking; pronotal concavities broadly rounded at bottom, ridge between concavities narrow, about 2.2 mm or less (in the original description there was a mistake in the distance given for the basal separation of the pair of pronotal horns (0.5 mm should read 2.5 mm); posterior pronotal horn (Figure 7) laterally compressed, blade-like, curved posteriorly over scutellum; fore tibia with five teeth on outer margin. Male genitalia as in Figure 18. Female pronotum as in figure 8.

Specimens examined. 3 males. 2 females. Peru: holotype, male, see above; Junín, Chanchamayo, 1200-1500 m, 4.iii.1976, 15.v.1973, 10.xii.1968, J. Schunke, 1 male, 2, females; Loreto, Pucallpa, 200 m, 22.x.1960, J. Schunke, 1 male.

Remarks. In the description of *A. martinezi* as given in Howden and Martínez (1978) another closely related "form" may have been included. At present the differences noted are considered to represent variation, but more specimens may prove that two species are represented. In the type of *A. martinezi* the clypeal horn is rounded anteriorly and lacks posterior carinae. It is a reasonably well-developed male, since there is a single lateral carina on each side of the pronotum in line with the paired horns. The pair of pronotal horns are essentially vertical, and the median posterior one is curved posteriorly. Each elytron has seven elevated intervals.

Specimens seen since the original description have the same pronotal configuration as described for the holotype except that the specimens seen appear to be male minors with two carinae on each side of the paired pronotal horns. These males (seen only from Peru) differ from the holotype in that the clypeal horns have the anterior and posterior carinae and anterior concave base as described for *A. tribuliformis.* In addition, two males, one from Pucallpa, the other from Chanchamayo, have the pronotal concavities separated by different widths. Since all males seen from different localities are represented by single specimens with very similar genitalia (Figure 18), it seems reasonable, at present, to consider that the specimens all belong to one variable species.

Athyreus peckorum Howden

(Figures 9, 10, 19)

Athyreus peckorum Howden, 1999, p.346.

Holotype. Male, Venezuela, Tách., Pregonero, Presa Las Cuevas, 650 m, 9-31.vii.1989, rainforest FIT, S. & J. Peck, [in] Canadian Museum of Nature.

Diagnosis. Dorsally black or nearly so; labrum broadly emarginate, edge of emargination almost vertical, smooth and slightly lobed medially; clypeal horn not uniformly curved and tapered, basally with anterior and posterior carinae, anterior basal surface flat, finely rugose; pronotal concavities narrowed to base, slightly cone-shaped, ridge between distinctly less than 2.0 mm wide; paired pronotal horns (Figure 9) in male majors vertical or slightly curved posteriorly; posterior median horn cylindrical or nearly so, curved posteriorly over scutellum; fore tibia with five teeth on outer margin. Male genitalia as in Figure 19. Female pronotum as in Figure 10.

Specimens examined. 10 males, 5 females; Venezuela, 9 males, 5 females from type locality (see above); Táchira, Rubio, 2.IV.1983, Jorge, 1 male.

Remarks. This is the only species in the *A. tribuliformis* complex that has an adequate series collected from nearby localities, all from the state of Táchira. In the series available, males vary from 18.1 to 21.8 mm in length and from 11.2 to 13.0 in greatest width. In small males the clypeal horn is about 3.5 mm long and in large males about 7.0 mm long. The paired pronotal horns in small males may resemble acute triangles (in lateral view) measuring about 1.5 mm in height with the posterior median horn about the same length and curved or slanted posteriorly. Small males have two lateral carinae on each side of the paired pronotal horns, while larger males have only one, or, in some cases, the carinae may be obsolete. I suspect that there is an equal amount of allometric difference in the size of horns, etc., in all of the related species. In my opinion the closest relative of *A. peckorum* appears to be *A. martinezi*; the black color, slightly cone-shaped pronotal concavities and the nearly cylindrical posterior pronotal horn of *A. peckorum* will distinguish it from *A. martinezi*.

Athyreus bicornus Howden, n.sp.

(Figures11, 12, 22)

Athyreus tribuliformis; sensu Howden & Martínez, 1978, p.46; not Felsche (1909).

Holotype. Male, length 19.0 mm, greatest width 10.9 mm. Dorsally brown, sides of pronotum and elytral disc reddish brown. Labrum short, broadly, shallowly emarginate. Clypeal horn (Figure 11) nearly vertical, carinae extending from anterior lateral angle on each side to midline of horn at basal third, resulting triangle slightly concave, surface irregularly punctate; posterior carina of clypeus on each side extending from edge of gena onto sides of horn almost to apex; posterior surface of horn transversely almost flat. Frons and vertex smooth medially, laterally setose-punctate. Pronotum (Figure 11) anteriorly with large, circular concavity on each side behind eye; surface of concavity and longitudinal ridge between smooth; ridge separating concavities about 2.5 mm wide at narrowest point; horn posterior to concavity on each side of pronotum with elongate oval base, each horn slanted slightly anteriorly, apical fifth slightly curved toward midline; posterior median horn absent; lateral margins of pronotum and between horns setose-granulate, median surface near posterior margin impunctate, smooth; single short, lateral carina present on each side anterior to humeral angle; lateral pronotal fovea adjacent to median angle, small, circular, resembling deep puncture (possibly unique for species). Elytron with 6 striae between suture and humeral umbone, each stria as wide or wider than 1 adjacent, moderately elevated interval; each stria with 2-3 irregular rows of setose punctures. Pygidium deeply emarginate apically. Fore tibia with 5 teeth on outer margin. Genitalia as in Figure 22.

Allotype. Female, length 18.5 mm, greatest width 11.4 mm. Head with both anterior and posterior clypeal carinae transverse, posterior carina trituberculate, median tubercle most pronounced. Pronotum (Figure 12) with U-shaped carina in median third, base forming part of anterior margin; U-shaped carina with central swelling low, shiny, vaguely v-shaped with apex directed posteriorly; lateral carina present anterior to humeral angle as in male; second slightly indicated carina present above lateral fovea, extending from fovea inward toward U-shaped carina. Elytron as described for male. Pygidium apically narrowly, shallowly emarginate.

Type material. Holotype, male, Peru, Pucallpa, 200 m, 22.x.1962, J. Schunke, at light. H. & A. Howden collection [in] Canadian Museum of Nature. Allotype, female, same data as holotype except 16.vii.1960 [in] Canadian Museum of Nature. Paratypes, 2 males, 2 females. Peru: same data as allotype, 1 male; same data as holotype except 25.ix.1963, 1 female; Pucallpa, Hocking, 1 male; Pucallpa, 12.x.1964, 1 female. Paratypes are in the A. Hardy collection, H.& A. Howden collection and in the National Museum of Natural History, Washington.

Remarks. In the few specimens seen, males vary from 17.0 to 19.0 mm in length and from 10.9 to 11.5 mm in greatest width. Females vary from 17.0 to 20.0 mm in length and from 11.0 to 12.0 mm in greatest width. The fore tibia may have either five or six teeth on the outer margin; one male has five teeth on the left fore tibia and six on the right, the basal tooth being very small. In males both the clypeal and pronotal horns vary slightly in length, but there are no major differences in the three males seen; the same is true of the females.

This species was misidentified by Howden and Martínez (1978) as *A. tribuliformis*. It, and the two related species described below, will key to *A. tribuliformis* in the 1978 publication, but all species with two pronotal horns are not closely related to *A. tribuliformis*. *Athyreus bicornus* can be recognized by the two widely separated pronotal horns, each horn posterior to the adjacent concavity; third, median horn lacking. In both sexes the lateral pronotal fovea is represented by a deep, large puncture; in related species this is represented by a much wider depression. Both sexes have the labrum short and broadly, shallowly emarginate and the elytral striae basally as wide or wider than the adjacent intervals. Based on the six specimens seen, the relatively small size may also be useful for recognition.

Etymology. The name *bicornus* refers to the two pronotal horns present on the pronota of males.

Athyreus nebulosus Howden

(Figures 13, 14)

Athyreus nebulosus Howden, 1999, p.343.

Holotype. Male, Venezuela, T.F.Amaz.[now Estado Amazonas], Cerro de la Neblina base camp, 140m, lat 0°50'N long 66°10'W, 10-20.II.1985, flight intercept pan-trap in rainforest, P.J.& P.M.Spangler, R.A.Faitoute, W.E.Steiner colrs. [in] Museo del Instituto de Zoología Agrícola, Maracay.

Diagnosis. Of the species with two pronotal horns, the male of *A. nebulosus* can be identified by the following combination of characters: length 19.5 mm or more; labrum with large, concave emargination with smooth surface occupying 1/2 of length of labrum;

triangle on anterior basal 1/3 of clypeal horn surrounded by anterior carinae; triangle with three basal punctures, central area impunctate; pronotal horns (Figure 13) laterally punctate at base; elytral striae between suture and humeral umbone with basal end abrupt, not gradually slanted upward to basal margin; third and fourth striae with single, moderately straight row of setose punctures, intervals distinctly elevated; fore tibia with five teeth on outer margin; median genital lobe of male genital capsule apically truncate, blunt and expanded, not rounded. Male genitalia illustrated in Howden (1999, Figures 23, 24). Females with clypeal emargination slightly narrower than in male; horns lacking; pronotum with well-developed U-shaped carina (Figure 14) enclosing short, straight, distinctly elevated carina on each side of midline, carinae converging posteriorly but not joining; laterad to U-shaped carina, each side with two carinae, anterior carina extending from near U-shaped carina to anterior edge of shallow lateral fovea; posterior lateral carina parallel to and halfway between anterior carina and posterior margin; elytron as described for male except third and fourth striae slightly wider with row of punctures irregular.

Materal examined. Holotype and allotype with same data, see above. Paratypes, 2 females: Brazil, Amazonas, Uaupés, Tapuruquara, x.1954, A. Aquirre, 1; Venezuela, Bolivar, 6 km S. San Isidro (Km 88), 25.vi-11.vii.1987, S.& J. Peck, lowland rainforest FIT, 1. [in] H.& A. Howden collection.

Remarks. Variation in the specimens seen is mainly evident in size; length varies from 19.5 to 20.9 mm and from 11.1 to 13.2 mm in greatest width. In females the development of the lateral pronotal carinae varies slightly, but overall the characters show little variation. The closest relative to *A. nebulosus* appears to be the species from Peru described below.

Athyreus larseni Howden, n.sp.

(Figures 15, 16)

Holotype. Male, length 22.1 mm, greatest width 13.4 mm. Dorsally dark brown. Labrum (Figure16) medially 1.5 mm long, anterior median 2/3 of length concave with smooth surface; lower edge of concavity almost truncate. Clypeus with upright, slightly posteriorly curved horn; horn 4.7 mm long from anterior base to apex; horn with anterior face in lower 1/3 triangular (Figure 16), sides delimited by anterior clypeal carinae; above triangle, anterior edge of horn narrowed to apex; posterior surface of horn wide, flat, delimited on each side almost to apex by posterior clypeal carina; triangle of horn, sides and posterior surface with numerous, closely spaced, small punctures. Vertex in line with genae transversely concave, surface smooth; posterior 1/2 of vertex and near eyes with many small, setose punctures. Gena with evenly, moderately reflexed margins; anterior lateral angle acutely rounded; surface with scattered, small, setose punctures. Pronotum (Figure 15) anteriorly lacking marginal bead medially, greatly thickened with indication of small tubercle at midline; posterior to anterior margin on each side in line with eyes with deep, almost circular concavity, concavities separated by rounded, somewhat depressed longitudinal ridge; posterior to inner edge of each concavity with an upright, slender horn; anterior face of horn curved slightly anteriorly; each horn slightly over 4 mm long, horns separated at base by about 2 mm, apices separated by approximately 4 mm; surface of concavities, longitudinal ridge, area before, between and behind horns smooth, elsewhere closely punctate-setose; each side of pronotum with one carina, feebly developed at inner end, at and above anterior fovea; second short carina present about 1 mm anterior to posterior margin in line with elytral humeral umbone. Scutellum small, slender, setose. Elytron in basal 1/2 with seven striae between suture and humeral umbone, second and fifth striae wide, with two or three irregular rows of setose punctures, other striae narrower, with one or two irregular rows of setose punctures, striae at base sloped gradually upward to elytral base, intervals moderately elevated, rounded. Pygidium broadly emarginate. Fore tibia with five teeth on outer margin. Genital capsule with median ventral lobe apically truncate, slightly expanded. Genitalia similar to *A. nebulosus* (Howden, 1999, Figures 23, 24), apical lobes broad, curved to acute apices.

Female. Unknown.

Type material. Holotype, male, Peru, Madre de Dios: Rio Palma Real Grande, Limón Camp, lat 12°32'20"S long 68°51'40"W, Flt. intercept trap 3, 220 m, 8-9.x.1999, T. Larsen [in] Canadian Museum of Nature.

Remarks. This species can be separated from the other two species having only two pronotal horns by the following combination of characters: labrum approximately 1.5 mm long, anterior median two-thirds of length concave, smooth; pronotal horns slender, anterior edges curved slightly anteriorly; elytral intervals varying in width, narrower ones with one or two irregular rows of setose punctures, basal ends of striae sloped gradually upward to elytral base; genital capsule with apex of ventral lobe truncate.

Athyreus larseni is close to *A. nebulosus,* but the differences listed above, along with their geographic distributions, will separate the two species.

Etymology. The species is named for its collector, Trond Larsen, who has collected and generously given me a number of interesting Athyreini.

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