

**NEW SPECIES OF THE GENUS *RHINOSEIUS* BAKER AND YUNKER, 1964
(MESOSTIGMATA: ASCIDAE) PHORETIC ON COLOMBIAN HUMMINGBIRDS**

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----- ABSTRACT—Eight new species of the genus *Rhinoseius* Baker & Yunker, 1964 (Ascidae) are described from Colombian hummingbirds: *Rh. antioquiensis* sp. n., *Rh. androdon* sp. n., *Rh. ornatus* sp. n., *Rh. waidei* sp. n., *Rh. colombiensis* sp. n., *Rh. eutoxeres* sp. n., *Rh. adsimilis* sp. n. and *Rh. analis* sp. n. -----

Recently, Fain et al. (1977a, b) revised the mites of the family Ascidae phoretic on hummingbirds, and Hyland et al. (1978) reported 6 species, 3 of which were new, from a collection of birds from Mexico. These mites belong to three genera: *Rhinoseius* Baker & Yunker, 1964, *Proctolaelaps* Berlese, 1923 and *Lasioseius* Berlese, 1916.

In the present paper we describe 8 new species of the genus *Rhinoseius*. They were collected on the head feathers of hummingbirds by Dr. R. B. Waide in Colombia. None of these birds had been dissected in order to search for mites in the nasal cavities. If we include the new species described here, the genus *Rhinoseius* now comprises 30 species.

The length given in the descriptions is that of the idiosoma and the width is the maximum width. For nomenclature of setae and of internal organs see Fain et al. 1977b.

The holotypes are deposited in the U. S. National Museum of Natural History, Washington, D. C. Paratypes will be deposited in the Museum of the Colombian National University, Bogata; University of Rhode Island, Kingston; University of Wisconsin, Madison; Institut de Médecine Tropicale, Antwerpen, Belgium; Institut des Sciences Naturelles, Bruxelles, Belgium; and Instituto Biológico, São Paulo, Brasil.

Genus *Rhinoseius* Baker & Yunker, 1964

Rhinoseius Baker & Yunker, 1964: 103. Type species: *Rh. tiptoni* Baker & Yunker, 1964.

Tropicoseius Baker & Yunker, 1964: 104. Type species: *T. wetmorei* Baker & Yunker, 1964.

The genus *Rhinoseius* is divided into two well-defined groups characterized as follows:

1. "*Tiptoni*" group—With one or several rows of denticles on ventral surface of coxae I; tectum rounded or straight with or without denticles; in most species the peritremes are relatively short. In males all the setae of tibiae II-IV are much shorter than length of these tibiae. This group contains 10 species, among which is *Rh. tiptoni*, the type species of the genus *Rhinoseius*.

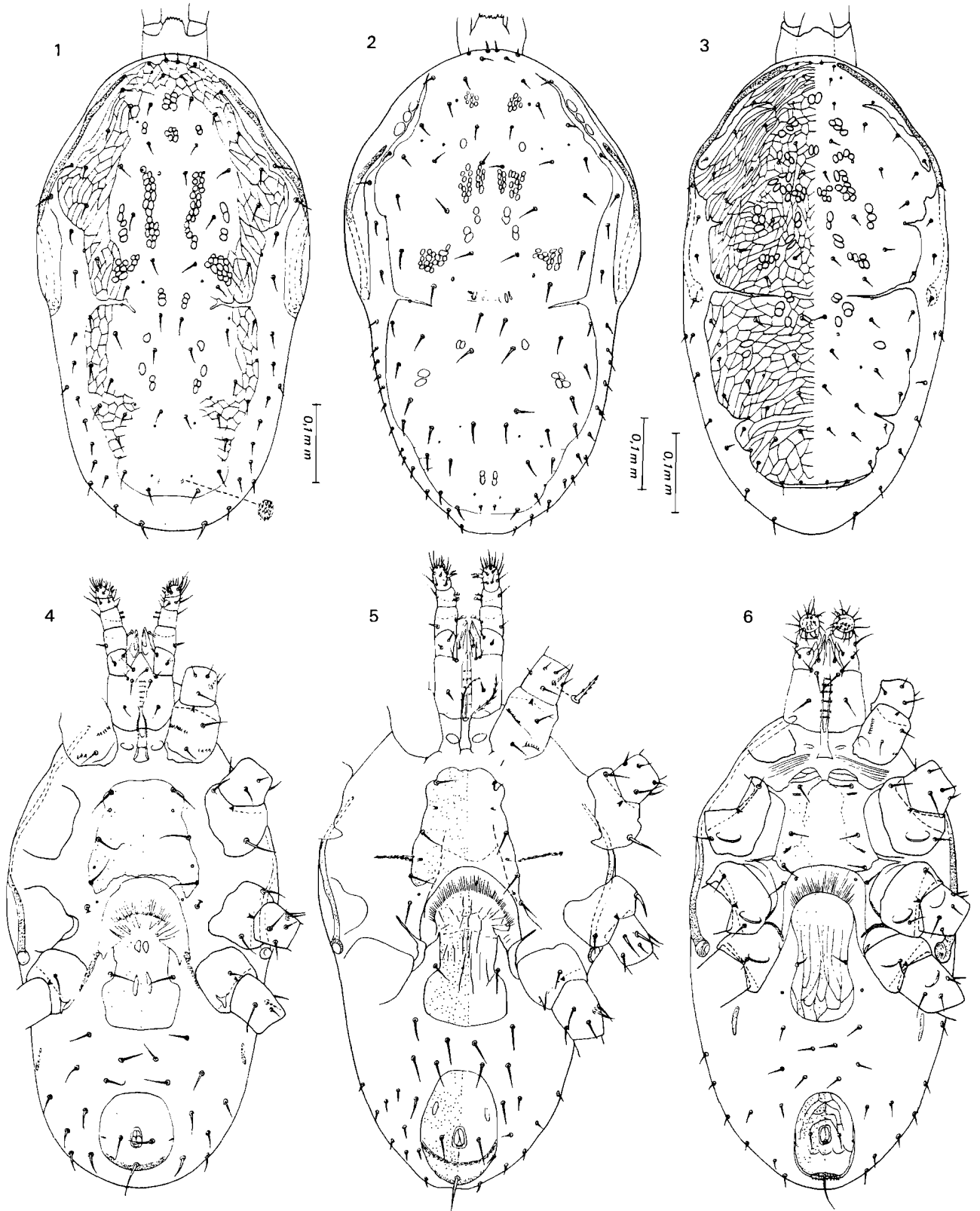
2. "*Wetmorei*" group—Without denticles on coxae I; tectum very narrow and ending in a fine point; peritremes long. In males some setae of tibiae II-IV are generally longer than these tibiae. This group contains 20 species, among which is *Rh. wetmorei*, the type species of the genus *Tropicoseius*. The latter was placed in synonymy with *Rhinoseius* by Lindquist and Evans (1965).

A. Species of the "*tiptoni*" group

1. *Rhinoseius antioquiensis* spec. nov.

The male of this species bears dorsally 2 pairs of very strong paramedian spines situated close together as in *Rh. richardsoni* Hunter, 1972 and *Rh. panamensis* Fain et al. 1977. It is

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Figs. 1-3: Dorsum of holotype females of: 1, *Rhinoseius antioquiensis* sp. n. ; 2, *Rh. androdon* sp. n. ; 3, *Rh. ornatus* sp. n. ; Figs. 4-6: Venter of holotype females of: 4, *Rhinoseius antioquiensis* sp. n. ; 5, *Rh. androdon* sp. n. ; 6, *Rh. ornatus* sp. n.

distinguished from these species by the much greater length of the peritremes (arriving close to coxae I), the presence on tibia II of an ovoidal spine (absent in the other species). The female is distinguished from that of *Rh. richardsoni* by the presence of 12 pairs of setae in posterior part of dorsal shield (13 pairs in *Rh. richardsoni*) and the greater length of peritreme. It should be noted that the female of *Rh. panamensis* is unknown.

FEMALE (Figs. 1, 4)—Holotype 605 μ m x 333 μ m. **DORSUM**—Dorsal plate with only a few antero-lateral striations; the middle of plate without striations; the lateral incisions are well formed. Inseminating apparatus with a sclerotized distal and ovoid maturation pouch, 30 μ m long, 20 μ m wide, and with a very thin proximal tube. Peritreme ending near the middle of coxa I, the apices of peritremes are 114 μ m apart (in straight line). Scutal setae 12-25 μ m long, the *j* 1, *j* 2 and *z* 1 being the shortest, the *S* 4 and *S* 5 being the longest. Setae *J* 5 are replaced by a bundle of 10 microspinules. **VENTER**—Sternal plate punctate, without lines or anterior lobes. Genital plate abruptly widened behind the genital setae. Anal plate subcircular, 96 μ m long and 89 μ m wide, without striations. Setae *Jv* 1 to *Jv* 3 27 μ m long, the *Jv* 4 and *Jv* 5 22 μ m and 19 μ m. Chelicerae 100 μ m long, movable digit 23 μ m. Tectum denticulate.

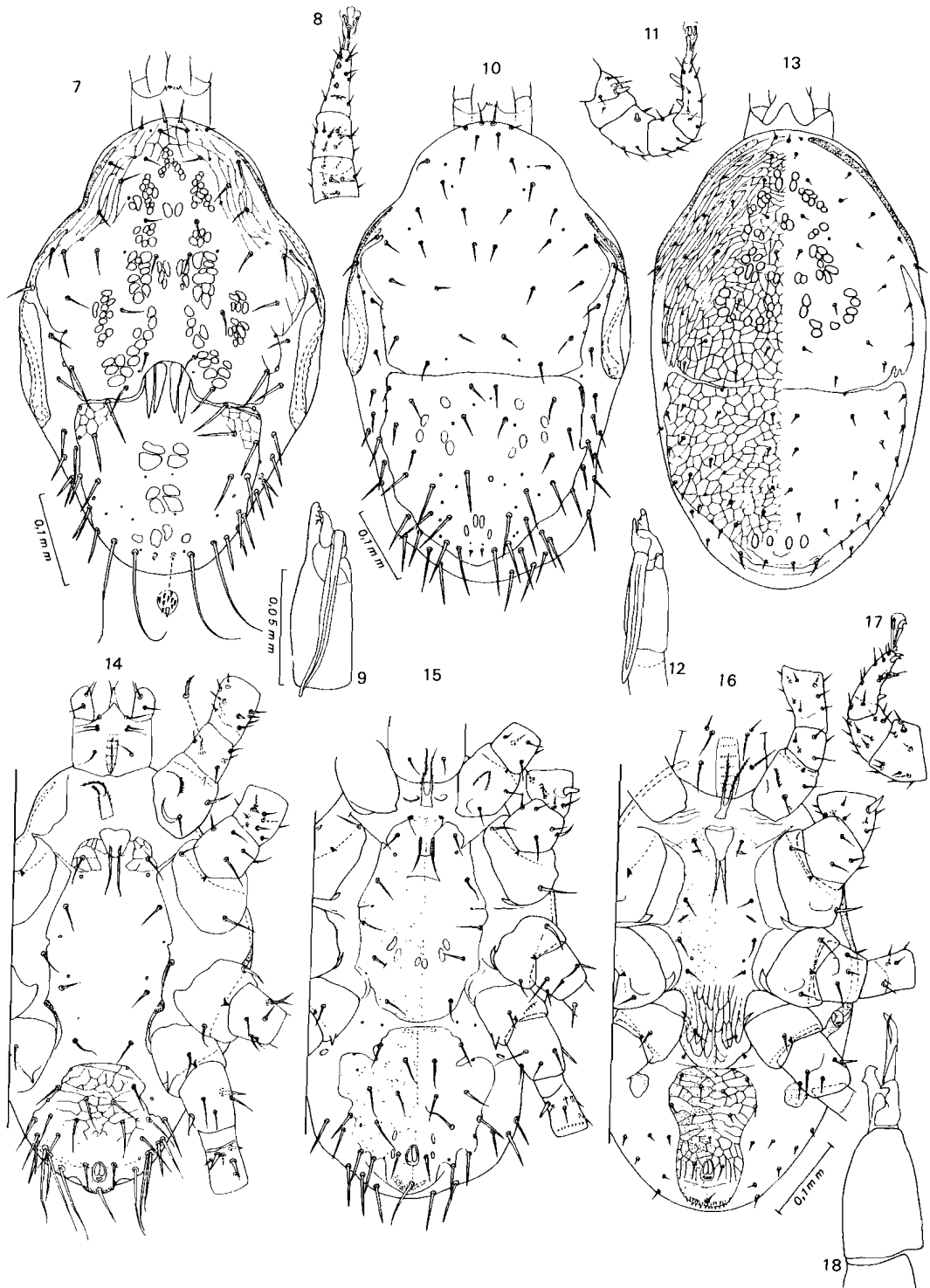
MALE (Figs. 7-9, 14)—Allotype 468 μ m x 306 μ m. **DORSUM**—There are 2 separate but closely positioned dorsal plates. These plates bear a few striations in their antero-lateral part. Anterior plate with 16 pairs of setae, posterior plate with 9 pairs of setae. Between these plates there are 2 pairs of very strong paramedian spines, 50 μ m long and 10-12 μ m thick (near their base). Setae *Z* 1, *Z* 5 and *S* 1 40 μ m, 105 μ m and 30 μ m respectively. *Z* 5 very thin apically. Peritremes ending at level of coxae I, their apices are 110 μ m apart (in straight line). **VENTER**—Ventrional plate longer (138 μ m) than wide (130 μ m). **GNATHOSOMA**—Tectum very short with a median part straight and denticulate. Chelicerae 105 μ m and spermatodactyl 66 μ m long. Legs II—Tarsus with 2 ovoid spines, tibia with spinuous setae, genu and femur with 1 conical spine.

HOST AND LOCALITY—On the head feathers of following hosts from Antioquia, Colombia. (1) *Chalybura urochrysis*, 11. V. 1971 (holotype and 5 paratype females, 2 paratype males); 17. IV. 1971 (1 paratype male). (2) *Androdon aequatorialis*, 22. IV. 1971 (allotype and 1 paratype male, 7 paratype females) and 14. VI. 1971 (1 paratype male); 16. VI. 1971 (1 paratype male). (3) *Phaethornis guy* 10. V. 1971 (1 paratype female). (4) Unidentified hosts: 19. IV. 1971 and 6. V. 1971 (1 male and 1 female paratypes).

2. *Rhinoseius androdon* spec. nov.

This species is characterized in both sexes by the short length of the peritremes which do not go beyond the middle of coxae II and by the presence of a triangular process on coxae IV. These characters also exist in *Rh. richardsoni* and *Rh. panamensis*. This new species is distinguished from the female of *Rh. richardsoni* by the shape of the anal plate which is longer and narrower, the presence of barbed setae on dorsal surface of femora I-II, the very small size of setae *Jv* 4 and *Jv* 5 (10 μ m long). In the male, the absence of strong spines in the middle of the dorsum distinguishes this species from *Rh. richardsoni* and *Rh. panamensis*.

FEMALE (Figs. 2, 5)—Holotype 648 μ m x 375 μ m (severely flattened). **DORSUM**—Dorsal plate with 2 narrow lateral incisions and devoid of striations. Peritremes not going beyond coxae II. Scutal setae 9-27 μ m long, the *z* 1 are the shortest (9 μ m). Setae *j* 1 to *j* 3 15 μ m; the *j* 6 27 μ m; *Z* 5 21 μ m. **VENTER**—Sternal plate punctate, without network of lines and lacking anterior lobes. Genital plate abruptly widened behind genital setae. Anal plate without striations or pattern, 160 μ m long, 93 μ m wide. Setae *Jv* 1 to *Jv* 3 30 μ m, the *Jv* 4 and *Jv* 5 10 μ m long. Coxae IV with a ventral triangular process. Inseminating tube poorly defined, long, very thin and with a distal part slightly widened. Chelicerae 120 μ m long, movable digit 27 μ m long. Tectum short, with straight strongly denticulate margin. Some dorsal setae of femora and trochanters I-II are barbed.



Figs. 7-13: Males of: 7-9, *Rhinoseius antioquiensis* sp. n., paratype, dorsum (7), leg II (8) and chelicera (9); 10-12, *Rh. androdon* sp. n., allotype, dorsum (10), leg II (11) and chelicera (12); 13, *Rh. ornatus* sp. n., allotype, dorsum.; Figs. 14-18: Males of: 14, *Rhinoseius antioquiensis* sp. n., paratype, venter; 15, *Rh. androdon* sp. n., allotype, venter; 16-18, *Rh. ornatus* sp. n., allotype, venter (16), leg II (17) and chelicera (18).

MALE (Figs. 10-12, 15)—Allotype 585 μ m x 345 μ m. DORSUM—Dorsal plate with narrow but deep lateral incisions, without striations or other pattern. Setae of anterior part of the plate 12 to 27 μ m long; the setae of posterior part of plate much more unequal, the *J* 1 (25 μ m) and *S* 1 (20 μ m) are the shortest, the *J* 3 (54 μ m), *Z* 3 to *Z* 5 (48-60 μ m) and *S* 4 and *S* 5 (48-57 μ m) are the longest. Peritremes reaching the middle of coxae II, their apices are 240 μ m apart (in straight line). VENTER—Ventrianal plate very large, triangular, 210 μ m long and 205 μ m wide. It bears setae *Jv* 1 to *Jv* 5 and *Zv* 1 to *Zv* 3 and the anal setae. Chelicerae 126 μ m long, spermatodactyl 100 μ m long. Tectum as in female.

HOST AND LOCALITY—On the head of two hummingbirds, *Androdon aequatorialis*, Antioquia, Columbia, 22. IV. 1971 (holotype female and paratype male); 15. VI. 1971 (allotype male).

3. *Rhinoseius ornatus* spec. nov.

This species is characterized in both sexes by the combination of the following characters: great length of peritremes, presence of numerous parallel striations in the antero-lateral parts of dorsal plate, presence of lobes in anterior part of sternal plate (in female), very small size of setae *Jv* 4 and *Jv* 5 (9-15 μ m in female and 9 μ m in male).

FEMALE (Figs. 3, 6)—Holotype 584 μ m x 315 μ m. DORSUM—Dorsal plate with 2 deep lateral incisions and bearing numerous parallel striations on its antero-lateral regions. Scutal setae 4-18 μ m long. Apices of peritremes 30-60 μ m apart. VENTER—There are 2 striated sternal lobes, the rest of the sternal plate is devoid of striations. Genital plate not abruptly widened posteriorly. Anal plate oval, 115 μ m long, 80 μ m wide. Setae *Jv* 1 to *Jv* 5 not longer than 18 μ m. Setae *Zv* 1 to *Zv* 3 12-15 μ m. Chelicerae 135-140 μ m long, movable digit 33 μ m. Tectum very short, rounded, smooth.

MALE (Figs. 13, 16-18)—Allotype 525 μ m x 315 μ m. DORSUM—Dorsal plate as in female. Scutal setae 9-15 μ m long and straight except *Z* 5 which are 28 μ m long and bent inward. Apices of peritremes 80 μ m apart. VENTER—Ventrianal plate bearing setae *Jv* 1, *Jv* 2, *Zv* 1, *Zv* 2 and the anal setae. Opisthogastric setae short. Chelicerae 150 μ m long, spermatodactyl 48 μ m long. Tactum rounded. Legs: tibiae II without an ovoid spine.

HOST AND LOCALITY—On head feathers of following hummingbirds from Colombia:

(1) *Phaethornis superciliosus*, 2. VIII. 1971 (holotype, 1 paratype female and allotype male), 12. VI. 1971 (1 paratype female). (2) *Phaethornis syrmatophorus*, 5. X. 1971 (2 paratype females). (3) *Phaethornis guy*, 1971 (1 paratype female). (4) *Androdon aequatorialis*, 21. VIII. 1971 (2 paratype females).

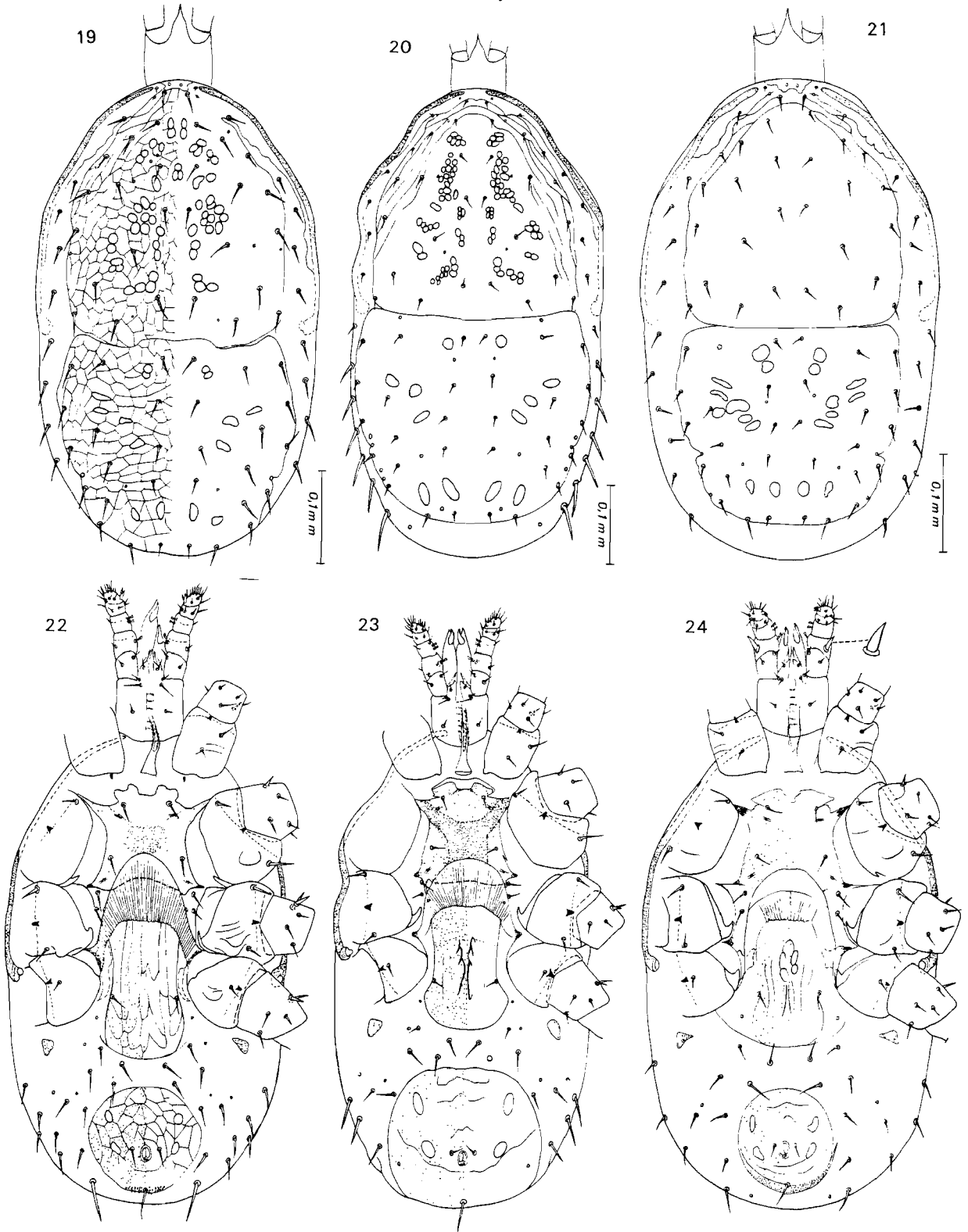
B. Species of the "wetmorei" group

4. *Rhinoseius waidei* spec. nov.

Only the female is known. It resembles *Rh. fairchildi* Baker & Yunker, but is distinguished from the latter by the following characters: anal plate wider than long and bearing a distinct pattern of lines, presence on dorsal plate of well-developed network of lines, maturation pouch shorter, opisthogastric setae longer notably the *Jv* 5, tectum shorter and without denticles. In *Rh. fairchildi* the anal plate is longer than wide and lacks a distinct network. The dorsal plate bears a very weak network.

This species is named for Dr. Robert B. Waide, Department of Zoology, University of Wisconsin, U. S. A., who collected the mites that are studied here.

FEMALE (Figs. 19, 22)—Holotype 495 μ m long, 295 μ m wide. DORSUM—Dorsal plate with well-developed lateral incisions and bearing a very distinct network of lines covering all its surface. There are 17 pairs of setae in anterior part and 15 pairs in posterior part of plate. Scutal setae 18-25 μ m long, except *j* 1 and *z* 1 which are very short. Apices of peritremes are



Figs. 19-21: Dorsum of holotype females of: 19, *Rhinoseius waidei* sp. n.; 20, *Rh. colombiensis* sp. n.; 21, *Rh. eutoxeres* sp. n.; Figs. 22-24: Venter of holotype females of: 22, *Rhinoseius waidei* sp. n.; 23, *Rh. colombiensis* sp. n.; 24, *Rh. eutoxeres* sp. n.

45 μ m apart. VENTER—Sternal plate without striations, with 2 poorly developed punctate but non-striated anterior lobes. Anterior sternal setae 48 μ m apart. The 3rd and 4th pairs of sternal setae are situated on the soft cuticle behind the sternal plate. Genital plate with rounded posterior margin. Anal plate subcircular with a network of lines, 108 μ m long and 120 μ m wide. The anus is situated in the posterior half of the plate. Maturation pouch proximal, 60 μ m long, distinctly widened in its anterior part. GNATHOSOMA—Capitular setae short. Tectum ending in a fine point, without denticles.

HOST AND LOCALITY—On the head feathers of hummingbirds from Antioquia, Colombia: (1) *Eutoxeres aquila*, 2. VIII. 1971 (holotype and 8 paratype females). From same host, on 10. V. 1971 (9 paratype females) and 14. VI. 1971 (5 paratype females). (2) *Phaethornis guy*: 16. VII. 1971 (10 paratype females). (3) *Threnetes ruckeri*, 22. IV. 1971 (1 paratype female).

5. *Rhinoseius colombiensis* spec. nov.

This species is easily recognizable by the particular shape of the anal plate. In the female it is abnormally broad, more or less trapezoidal and wider than long. In the male the plate is also trapezoidal but much longer than wide.

FEMALE (Figs. 20, 23)—Holotype 580 μ m x 315 μ m. DORSUM—Dorsal plate with narrow but deep lateral incisions; only the anterior part bears a few antero-lateral striations, the rest of the plate lacks striations. Scutal setae 1–15 μ m long. Apices of peritremes 24 μ m apart. VENTER—Sternal plate punctate, without striations, with 2 small anterior non-striated lobes. The 3rd pair of sternal setae is situated immediately behind the plate. Genital plate rather abruptly widened behind genital setae. Anal plate 165 μ m long, 180 μ m wide; the maximum width of this plate is situated at the level of anus. Setae *Jv* 1 and *Jv* 2 27 μ m, the *Jv* 3 and *Jv* 4 are 21 and 23 μ m and the *Jv* 5 is 39 μ m long. Inseminating tube with a sclerotized cylindrical proximal maturation pouch 70 μ m long. Chelicerae 87 μ m long, the movable digit 21 μ m. Tectum strongly narrowed and ending in a very fine point.

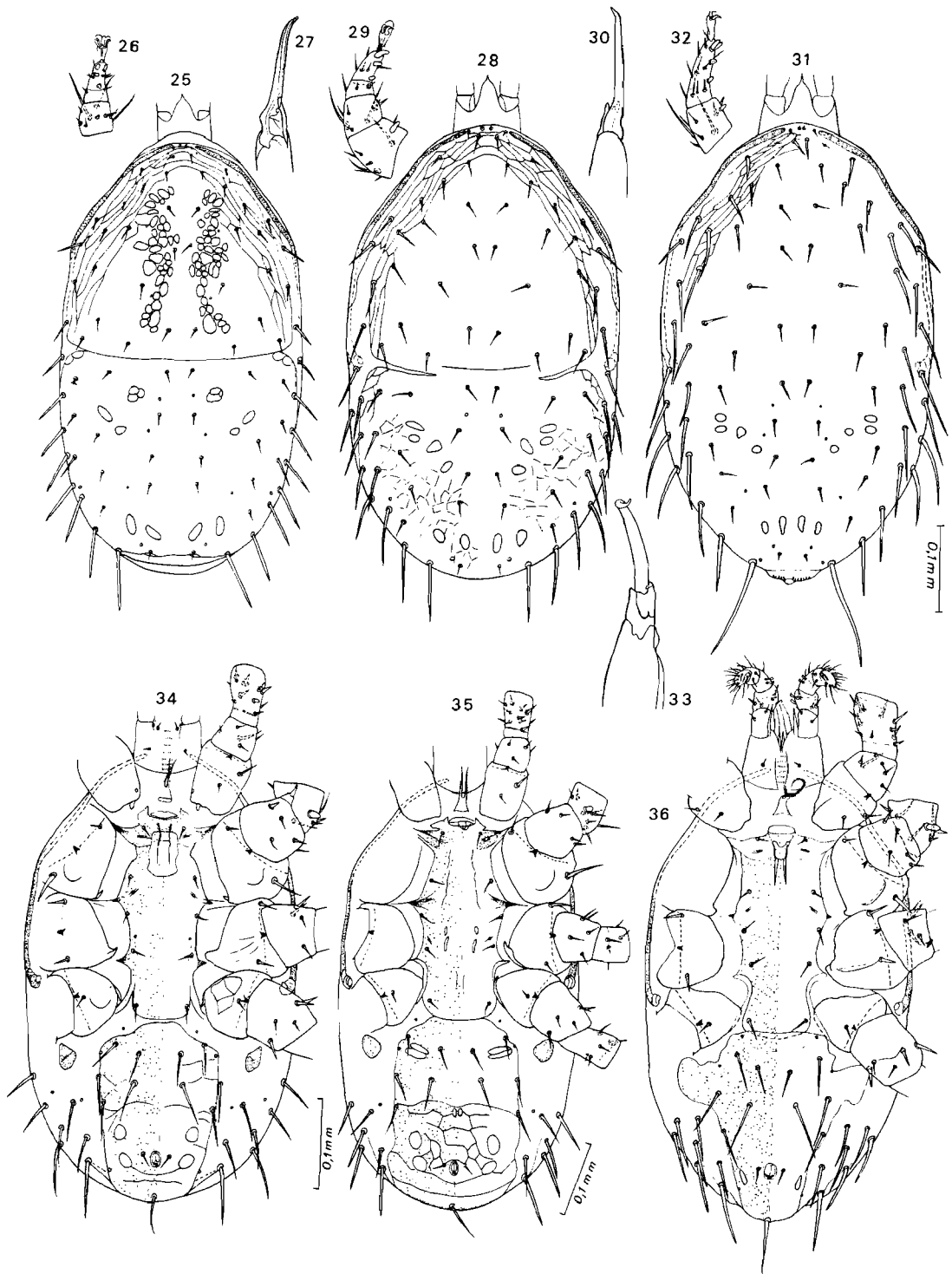
MALE (Figs. 25–27, 35)—Allotype 555 μ m x 316 μ m. DORSUM—Dorsal plate as in female. Scutal setae 2 μ m to 78 μ m long; the *j* 1–*j* 6, *J* 1–*J* 6, *z* 1–*z* 6 and *Z* 1–*Z* 4 are the shortest (2 to 19 μ m); the longest are the *S* 3 (33 μ m), *S* 4 (60 μ m), *S* 5 (69 μ m) and the *Z* 5 (78 μ m). Apices of peritremes 30 μ m apart. VENTER—Ventrional 240 μ m long, 168 μ m wide along its posterior border. Setae *Jv* 1–*Jv* 5 33 μ m, 48 μ m, 45 μ m, 45 μ m and 66 μ m long respectively. Chelicerae 100 μ m long, spermatodactyl 60 μ m. Tectum as in female. Legs: Some of setae of tibiae II–IV are approximately 1.5 to 2 times longer than the respective tibiae.

HOST AND LOCALITY—On the head feathers of various hummingbirds in Antioquia, Colombia: (1) *Phaethornis guy*, 21. IV. 1971 (holotype and 1 paratype females, allotype male). (2) *Phaethornis syrmatophorus*, 17. 19 and 23. IV. 1971 (6 paratype females and 1 paratype male); 10. V. 1971 (2 paratype females). (3) *Phaethornis superciliosus*, 22. VI. 1971 (7 paratype female). (4) *Eutoxeres aquila*, 14. VI. 1971 (1 paratype female).

6. *Rhinoseius eutoxeres* spec. nov.

The female of this species has a subcircular anal plate as in *Rh. fairchildi* B. & Y. and *Rh. waidei*. It is distinguished from these species by the presence on the palpal femur of a strong conical ventrolateral spine 15 μ m long and 3.6 μ m thick, and by the shape of the inseminating tube which is very narrow except near its proximal base where it possesses a slight enlargement 9–12 μ m long. The male is characterized by the shape of the ventrional plate which is very wide posteriorly.

FEMALE (Figs. 21, 24)—Holotype 468 μ m x 285 μ m. DORSUM—Plate with very few striations restricted in anterolateral regions and with 2 deep lateral incisions. Scutal setae 8–21 μ m long, except the *j* 1 and *z* 1 which are very short. Apices of peritremes 60 μ m apart. VENTER—Sternal plate without striations, with 2 well developed non-striated lobes; first pair of sternal setae 48 μ m apart, the 3rd pair is situated behind the plate. Anal plate subcircular with an indistinct pattern.



Figs. 25-31: Males of: 25-27, *Rhinoseius colombiensis* sp. n., allotype, dorsum (25), leg II (26) and chelicera (27); 28-30, *Rh. eutoxeres* sp. n., allotype, dorsum (28), leg II (29) and chelicera (30); 31-33, *Rh. analis* sp. n., holotype, dorsum (31), leg II (32) and apical part of chelicera (33). Figs. 34-36: Males, ventrally, of: 34, *Rhinoseius eutoxeres* sp. n., allotype; 35, *Rh. colombiensis* sp. n., allotype; 36, *Rh. analis* sp. n., holotype.

99 μ m long and 96 μ m wide. Setae *Jv* 1-*Jv* 5 18 μ m, 21 μ m, 15 μ m, 12 μ m and 24 μ m long respectively. Chelicerae 84 μ m long, movable digit 20 μ m. Tectum very narrow anteriorly. Legs: Coxa II with a thin seta on its posterior part.

MALE (Figs. 28-30, 34)—Allotype 489 μ m x 293 μ m. DORSUM—Plate as in female. Apices of peritremes 42 μ m apart. Scutal setae: *j* 2-*j* 6 24 μ m, 18 μ m, 16 μ m, 18 μ m and 16 μ m long respectively; *J* 1-*J* 4 15 to 18 μ m; *Z* 1 and *Z* 5 18 and 63 μ m; *S* 1-*S* 5 24 μ m, 30 μ m, 51 μ m, 60 μ m and 60 μ m long respectively. VENTER—Ventrional plate bearing setae *Jv* 1, *Jv* 2, *Zv* 1, *Zv* 2 and the anal seta; its maximum width is 122 μ m. Setae *Jv* 1-*Jv* 5 36 μ m, 50 μ m, 42 μ m, 40 μ m and 60 μ m long respectively. Chelicerae 96 μ m long, spermatodactyl 60 μ m. Tectum as in female. Legs: Tibiae III-IV with some setae nearly twice as long as the respective tibiae; tibiae II with longest setae subequal to these tibiae.

HOST AND LOCALITY—From head feathers of two hummingbirds from Antioquia, Colombia: *Eutoxeres aquila*, 10. V. 1971 (holotype and 5 paratype females, allotype male) and 8. II. 1971 (1 paratype female).

7. *Rhinozeius adsimilis* spec. nov.

Only the female is known. It resembles *Rh. eutoxeres* but is distinguished from it by the elongate shape of anal plate, the presence on the posterior half of coxa II of a strong spine 21 μ m long, the striated aspect of anterior sternal lobes, the width of the scutal and opisthogastric setae, the presence on the palpal femur of a narrower lateroventral spine, and the presence of a well-developed network of lines on dorsal plate.

FEMALE (Figs. 37, 38)—Holotype 570 μ m x 344 μ m. DORSUM—Dorsal plate with a well-developed network of lines and rather poorly marked lateral incisions; scutal setae relatively strong, the *j* 1 and *z* 1 are microsetae, the other setae are 7 to 24 μ m long. Apices of peritremes 63 μ m apart. VENTER—Sternal lobes very large and striate; rest of sternum lacking lines. First pair of sternal setae 66 μ m apart. Anal plate 120 μ m long and 78 μ m wide. Setae *Jv* 1-*Jv* 5 18 μ m, 18 μ m, 15 μ m, 18 μ m and 70 μ m long respectively. Chelicerae 108 μ m long, movable digit 24 μ m. Tectum strongly attenuated and thin anteriorly. Inseminating tube as in *Rh. eutoxeres* but slightly wider.

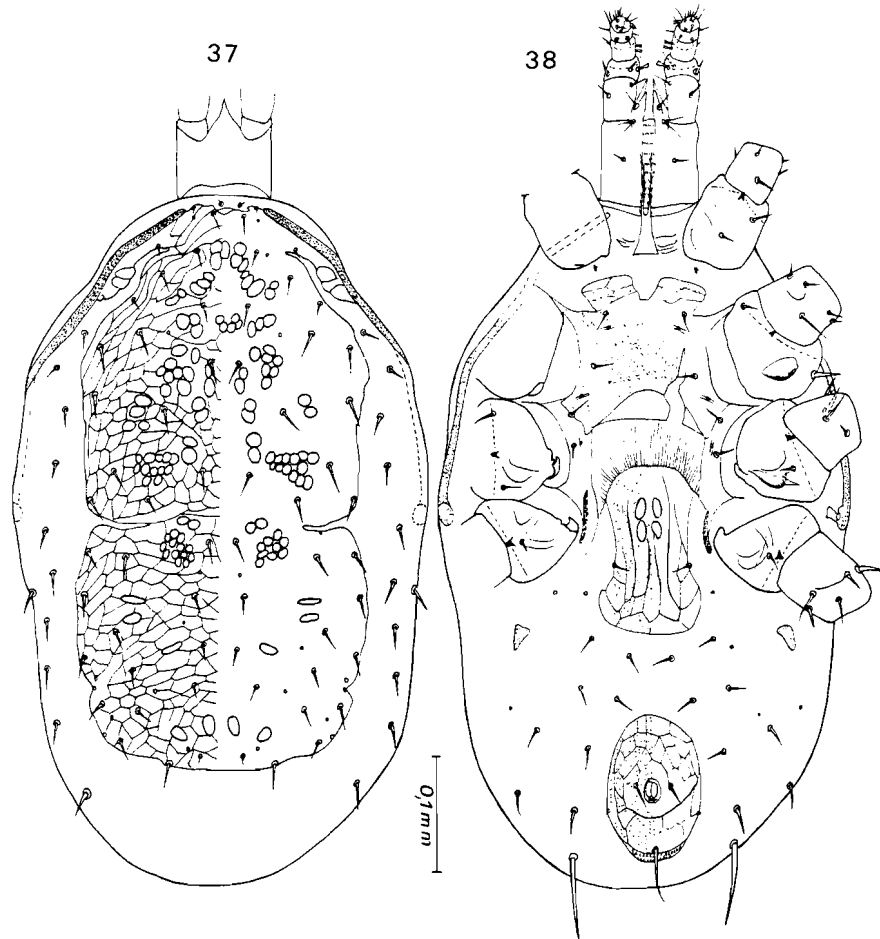
HOST AND LOCALITY—On the head feathers of *Phaethornis syrmatophorus*, from Antioquia, Colombia, 23. VI. 1971 (holotype) and 10. V. 1971 (3 paratype females).

8. *Rhinozeius analis* spec. nov.

Only the male is known. It has a very broad ventrional plate as in *Rh. colombiensis* and *Rh. eutoxeres* but this plate is triangular and much wider anteriorly (210 μ m) than in these species. Moreover, the scutal setae are much longer in this new species. We do not think that it represents the male of *Rh. adsimilis*, because of its great size and also because the dorsal plate shows another structure with poorly marked lines all confined in a narrow anterior band of the shield.

MALE (Figs. 31-33, 36)—Holotype 546 μ m x 330 μ m. DORSUM—Dorsal plate with striations only in a narrow anterior and anterolateral band; scutal setae strongly unequal, the *j* 1 3 μ m, the *j* 2 24 μ m, the *j* 3-*j* 6 18-21 μ m, *J* 1-*J* 4 15 to 18 μ m. The setae *s* are strong and 36-63 μ m long; *S* 1 are strong and 60-70 μ m long. *Z* 5 135 μ m. Apices of peritremes 39 μ m apart. VENTER—Ventrional plate 210 μ m wide anteriorly and 90 μ m wide at the level of anus. Setae *Jv* 1-*Jv* 5 36 μ m, 63 μ m, 51 μ m, 48 μ m and 75 μ m long respectively. Chelicerae 100 μ m, spermatodactyl 48 μ m. Legs: tibiae II-IV with some setae 1.5 times longer than respective tibiae.

HOST AND LOCALITY—On head feathers of *Phaethornis superciliosus*, from Antioquia, Colombia, 12. VI. 1971 (holotype male and only known specimen).



Figs. 37, 38: *Rhinoseius adsimilis* sp. n., holotype female—37, dorsum; 38, venter.

ACKNOWLEDGMENT

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