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A NEW GENUS AND SPECIES OF ORIBATID MITE
FROM COLORADO
(ACARI: ORIBATEI, CERATOPPIIDAE)¹

Tyler A. Woolley² and Harold G. Higgins³

Observations of collections of some montane oribatid mites disclosed what appeared to be a new genus and species related to *Ceratoppia bipilis* (Herm.) and *Pyroppia lanceolata* Hammer, yet different from either. Additional study and morphological comparisons of the new species with descriptions of *Pyroppia* and available specimens of *Ceratoppia* disclosed some marked differences in the lamellae, chelicerae and other structures. These differences indicated conclusively that the mite was distinct and new, so other diagnostic features were studied.

Although some similarities exist among these genera, several differences were observed, most striking of which was the discovery of pelopiform chelicerae, with a swollen base, narrow shaft, and small dentate shears. It was this discovery which prompted further investigation and comparison of the lamellae, infracapitulum and legs of the new species and those of established genera.

Because of these comparisons other details were disclosed that extend beyond the scope of this paper. It was apparent that further study would be necessary to determine final relationships and delimitations of these species. Research on this comparative morphology has begun to assess the generic and specific features of the ceratoppiids and liacarids. A few pertinent facts will be delineated below, but disclosure of many others will await completion of the study currently being conducted.

Paenoppia n. gen.

With sclerotized, tuberculated prodorsum and lamellae; lamellar cusps smooth, not tuberculated, finger-like, extended above prodorsum; chelicerae pelopiform; sensillus setiform, with small barbules along nearly parallel sides except for filiform tip, slightly swollen at beginning of terminal flagellum. Differs from *Pyroppia* in the wider, tuberculate lamellae; the setiform sensillus compared to the lanceolate sensillus of *Pyroppia*; the rounded body shape compared to the pear-shaped body of *Pyroppia*. The generic name is compounded to indicate a postulated relationship with other ceratoppiids.

Paenoppia forficula, n. sp.

(Figs. 1-7)

DIAGNOSIS: Pelopiform chelicerae; lamellae broader than lamellar cusps, and each with a longitudinal dorsal ridge extending from base

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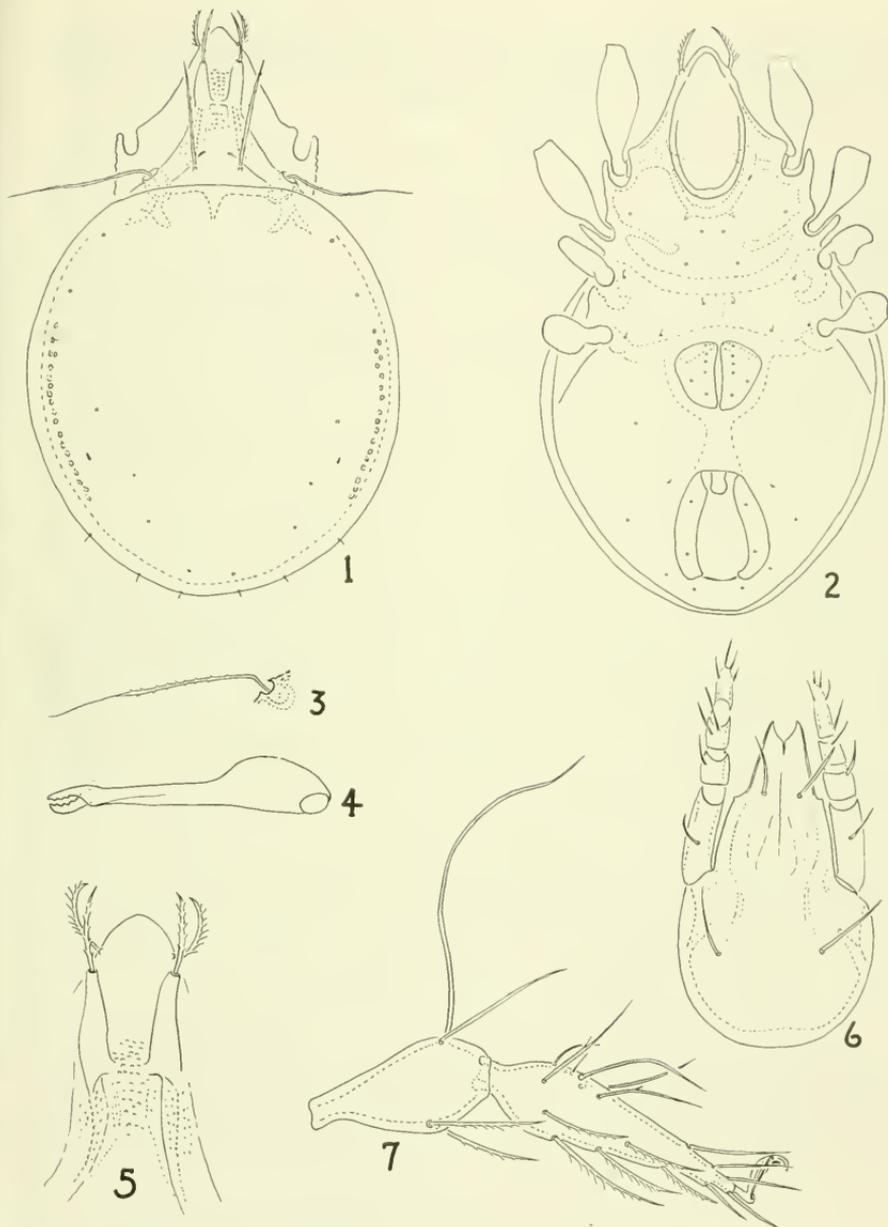
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of cusp toward insertions of lamellar hairs, surface of lamellae and prodorsum tuberculate; lamellar cusps stout, finger-like, narrower than lamellae, cylindrical and smooth, projected above prodorsum; translamella incomplete, interrupted medially; sensillus bristle-like, with small barbules along proximal two-thirds, with a thin terminal filament. Differs from other species of Ceratoppiidae in the lamellae and lamellar cusps, but principally in the pelopiform chelicerae. The specific name is descriptive of the small shears of the distinctive chelicerae.

DESCRIPTION: Color yellowish-brown; prodorsum broadly triangular, surface finely tuberculate, tubercles more prominent between lamellae; rostrum rounded; rostral hairs plumose, curved, shorter than lamellar hairs, inserted in raised tubercles at lateral margins about half their lengths posterior to rostral tip (Figs. 1, 5); lamellae about as wide as width of pseudostigmata, with tuberculated surface, a dorsal longitudinal ridge extending from base of cusp to toward insertion of interlamellar hairs, lamellar cusps smooth, cylindrical, projected above surface of prodorsum, tapered anteriorly; lamellar hairs setose, longer and less plumose than rostral hairs, extending beyond tip of rostrum, inserted in tips of cusps; translamella incomplete medially; interlamellar hairs setose, projected slightly beyond tips of lamellar cusps, inserted posterior to longitudinal ridge of lamellar cusps, inserted posterior to longitudinal ridge of lamellae, insertions slightly raised; pseudostigmata cup-shaped, at posterior end of lamellae, slightly postero-mediad of pedotecta I; sensillus longer than length of lamella, proximal two-thirds setiform with fine barbules on shaft, slightly swollen near fine, terminal flagellum (Fig. 3); pedotecta I as seen in figures 1, 2.

Hysterosoma glabrous, nearly spherical, much more rounded than in *Pyroppia lanceolata*; nine pairs of dorsal setae; muscle scars and/or *pseudoporosae*, and fissures as seen in figure 1.

Camerostome elongated, with sclerotized rim; mentum, mental hairs, rutellum as in figures 2, 6; chelicerae pelopiform (Fig. 4), with swollen base, elongated shaft and tiny, serrate shears; post-camerostomal apodemata and ventral setae as seen in figure 2; pedotecta II smaller than pedotecta I, extended antero-laterally; apodemata II divided, a broad, decurved band between coxae, an incomplete incurved apodeme anterior to main band; a slightly sclerotized, vertical, medial apodematal bar extending from posterior margin of apodemata II to anterior margin of apodemata IV; apodemata IV an arched band investing anterior margin of genital aperture and confluent with perigenital ring; genital aperture about its length anterior to anal opening, trapezoidal; each cover angled antero-laterally, with a diagonal sclerotized bar near anterior margin and extending width of cover, each cover with six genital setae, g:1, g:2, g:3, g:4 about equidistant from each other, g:5 displaced laterally on cover, g:6 near postero-medial corner, but in line with first four setae; aggenital setae inserted about length of genital cover postero-lateral to genital opening; fissure *iad* postero-lateral to anterior margin of



- Fig. 1: *Paenoppia forficula*, n. gen., n. sp., from the dorsal aspect. legs omitted.
 Fig. 2: *P. forficula*, n. gen., n. sp., from the ventral aspect. legs partially omitted.
 Fig. 3: Pseudostigmata and sensillus of *P. forficula* to show barbules and terminal flagellum.
 Fig. 3: Pseudostigmata and sensillus of *P. forficula*, n. gen., n. sp. to show barbules and terminal flagellum.
 Fig. 4: Pelopiform chelicera of *P. forficula*, n. gen., n. sp.
 Fig. 5: Enlarged detail of lamellae and rostrum of *P. forficula*, n. gen., n. sp. from the dorsal aspect.
 Fig. 6: Infracapitulum of *P. forficula*, n. gen., n. sp.
 Fig. 7: Tibia and tarsus I of *P. forficula*, n. gen., n. sp.

elongated anal opening; anal aperture with prominent preanal piece; each anal cover with two setae; three pairs of adanal setae, ada:1. ada:2 mainly posterior to anal opening, ada:3 lateral and farther from anal opening than *iad* fissure.

Legs heterotridactylous, median claw only slightly larger than laterals; tibia and tarsus I as in figure 7; trochanter III with thin, slightly plumose seta, similar to larger, more plumose seta of trochanter II in *Ceratoppia* and *Pyroppia*.

Length: 384 μ , prodorsum 102 μ , hysterosoma 282 μ ; width 312 μ .

Nine specimens of this species were collected near the summit of Berthoud Pass, Colorado, 13 September 1958, by T. A. Woolley. The type and one paratype are deposited in the USNM.

DISCUSSION: Aside from its smaller size, *Paenoppia forficula*, n. gen., n. sp., differs from known species of *Ceratoppia* and *Pyroppia* in the tuberculate prodorsum and lamellae. The most distinctive difference is the pelopiform chelicerae of *P. forficula* as contrasted to the more robust chelicerae of *Ceratoppia* and *Pyroppia*.

Hammer (1955, p. 15) states for *Pyroppia lanceolata* that "The long feathered hair on coxa III, which is characteristic of the genus *Ceratoppia*, is very short in *Pyroppia*." This seems to be a perpetuation of an error of Michael (1887, p. 357) concerning *Ceratoppia bipilis* that the prominent "spine on the coxa of each leg of the third pair near the proximal end, at the outer corner: . . . usually stands more or less parallel to the pseudostigmatic organ, and it is from these two spines on each side that the name is given." Willmann (1931) indicates that this bristle is located on trochanter III—not coxa III—and observations of representatives of *Ceratoppia* and *Paenoppia* confirm this location. We did not have access to specimens of *Pyroppia* for examination, but it appears conclusively from the literature and observations that these erect hairs are on trochanter III and are common to this complex of mites. Such hairs are found in *Paenoppia forficula*, n. gen., n. sp., but are less robust than those found in species of *Ceratoppia* and *Pyroppia*.

Although no specific relationships can be established, it appears that *Paenoppia forficula* is intermediate between *Ceratoppia* and *Pyroppia*, but probably related within the complex of *Astigestes*, *Cultroribula*, *Ceratoppia* and *Pyroppia*. Research currently underway should disclose information that will elucidate these relationships.

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