



12-31-1968

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## Recommended Citation

Woolley, Tyler A. and Higgins, Harold G. (1968) "Megeremaeidae, a new family of oribatid mites (Acari: Cryptostigmata)," *Great Basin Naturalist*: Vol. 28 : No. 4 , Article 2.

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## MEGEREMAEIDAE, A NEW FAMILY OF ORIBATID MITES (ACARI: CRYPTOSTIGMATA)<sup>1</sup>

Tyler A. Woolley<sup>2</sup> and Harold G. Higgins<sup>3</sup>

In 1965 we described *Megeremaeus* as a new genus of oribatids from Oregon, Washington, and Wyoming. We tentatively placed the mites in the family Eremaeidae, but qualified the placement as one of general affinity only. Since the mites were larger than any known Eremaeidae, with heavier, robust notogastral setae and distinctive knobs at the anterior margin of the hysterosoma, we assumed they were allied to, but not definitely included in the Eremaeidae. We mentioned that individual variations were evident in the relatively small sample of specimens studied and explained the differences in the appearance of certain of the structures, depending on the angle from which the specimen was viewed.

Additional specimens of *Megeremaeus* have been collected and studied since our original paper. Among them is a new species that is different from the generic type. We have compared both *M. montanus* and the new species with *Eremaeus* and *Tricheremaeus* and others of the general complex. We conclude that the characteristics are such that a new family should be erected for the genus and the two species included.

### Megeremaeidae, fam. nov.

Body and legs covered with cerotegument; color dark reddish brown, nearly black in some specimens; lamellae rugose ridges with short, cylindrical cusps; lamellar hairs barbed, inserted in distal ends of lamellar cusps; tibiae rugose ridges, shorter than lamellae interrupted by a gap and followed posteriorly by a rounded knob; interlamellar hairs finely barbed and setiform or clubbed and barbed, inserted medial to but close to pseudostigmata; pseudostigmata cup-like, rounded sclerotized rim elevated above surface of prodorsum; sensillus clavate, head barbed, rounded or attenuated; dorsosejugal suture sclerotized, with two prominent knobs at shoulders; hysterosoma with ten pairs of barbed setae, some flattened and lanceolate; pseudopores anterior to setae  $r_1$ ; each genital cover with six hairs; two or three pairs of anal setae; trochanters III, IV with large, sharp, dorsal spine; tarsi slightly heterotridactylous, median claw stoutest of the three.

The new family differs prominently from Eremaeidae in size (Megeremaeidae: length 1068-858 $\mu$  X width 678-570 $\mu$ ; Eremaeidae: length 850-390 $\mu$  X width 500-186 $\mu$ ). Eremaeidae are elongated in shape, not rounded; Megeremaeidae have a distinctly rounded hysterosoma, nearly as wide as long. Megeremaeidae are darker in

1. Research supported in part by TG-A-1000094-09-NHI-NIAID.

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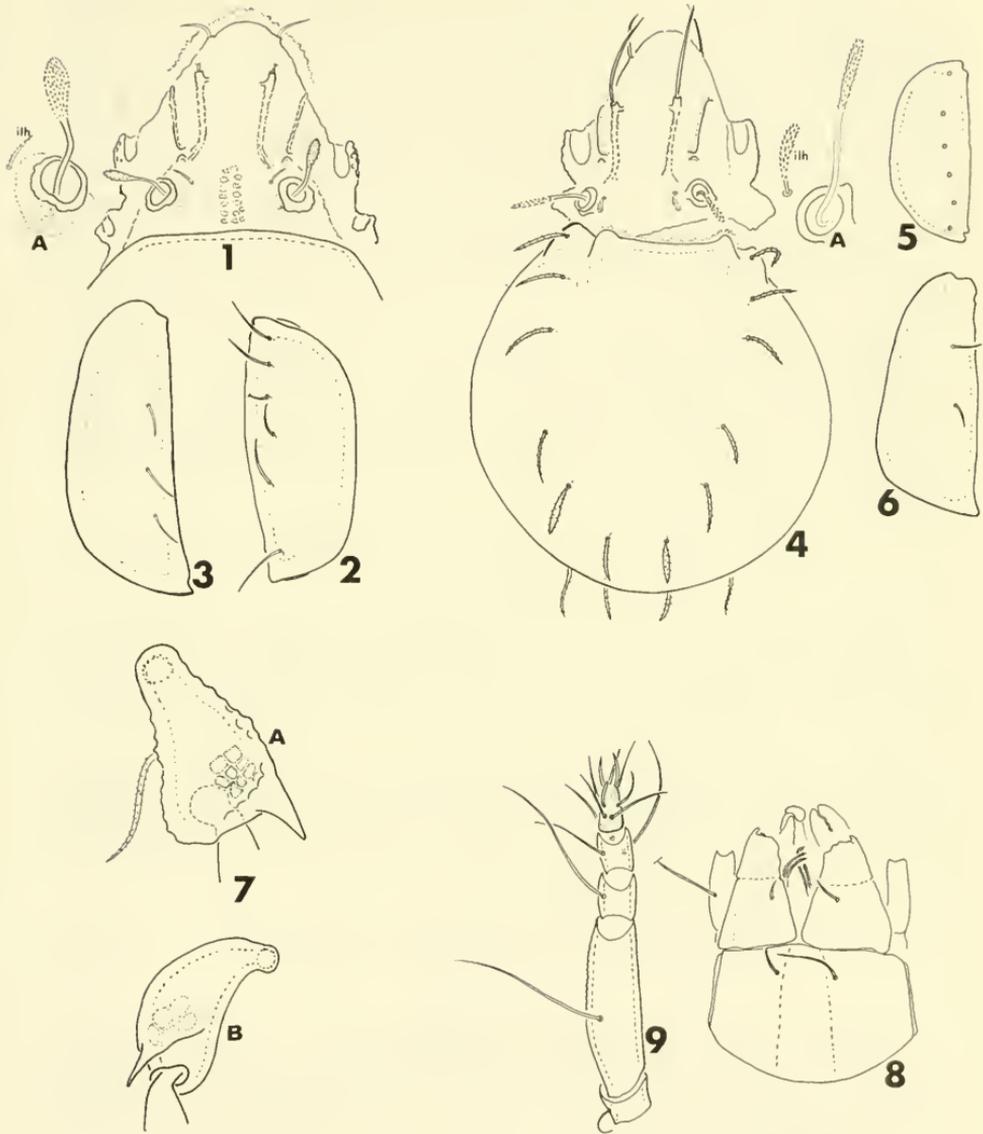


Fig. 1. Pro dorsum of *Megeremacus montanus*; A, enlarged view of sensillus, pseudostigmata and interlamellar hair.

Fig. 2. Genital cover of same.

Fig. 3. Anal cover of same showing three anal hairs.

Fig. 4. Dorsum of *Megeremacus ditrichosus*, legs omitted; A, enlarged view of sensillus, pseudostigmata and interlamellar hair.

Fig. 5. Genital cover of same.

Fig. 6. Anal cover of same showing two anal hairs.

Fig. 7. Trochanteral spines from dissected specimen of *M. ditrichosus*. A, trochanter IV, B, trochanter III.

Fig. 8. Infracapitulum of *M. Ditrichosus*.

Fig. 9. Palp of same.

color. reddish-brown to black where Eremaeidae tend to dark brown and tan shades. Megeremaeidae has 10 pairs of notogastral setae, Eremaeidae 10 or 11 pairs. Megeremaeidae exhibit 2-3 pairs of anal hairs. Eremaeidae 2-9 pairs. Eremaeidae may or may not show a postanal piece; no postanal piece is present in Megeremaeidae. The tibial solenidia of leg I of Eremaeidae are stalked, the trochanters may or may not be keeled; Megeremaeidae show relatively little tubercle at the base of solenidia of tibiae I. all legs are without keels. but trochanters III and IV have prominent dorsal spines (but small spines are also found on femora III and IV of Eremaeidae) and all legs exhibit cerotegument; the setae of the legs of Megeremaeidae are robust, long and barbed.

Balogh (1965) listed characteristics of Eremaeidae and Piffel (1965) made a diagnosis of the family, but the characterizations have been extended by Higgins (research in progress). The details disclosed in this latter research have been in part the basis for the above comparison of Eremaeidae and Megeremaeidae and the designation of the new family.

*Megeremaeus montanus* Higgins and Woolley, 1965

(Figs. 1-3)

The distinctive differences between this species and the new species described below are the slight lamellar hairs, the type of sensillus and the three pairs of anal setae. We have added some figures to aid in the comparison of these species.

New collections should also be noted for this species. Four specimens, 2 male and 2 females were collected at Nahcotta, Washington, 20 September 1957 by T. Kincaid; six specimens, 5 females and 1 male, were collected near the summit of Snoqualmie Pass, Washington, 27 June 1968 by H. Higgins.

*Megeremaeus ditrichosus*, n. sp.

(Figs. 4-9)

DIAGNOSIS.— The new species differs from *M. montanus* in having robust, barbed, clavate interlamellar hairs, a more attenuated, barbed sensillus and two pairs of anal hairs. The trivial name is constructed from the Greek *di-* and *trichos* to designate the distinctive feature of the anal setae.

DESCRIPTION.— Color dark reddish-brown covered with cerotegument; rostrum rounded, rostral hairs about half as long as lamellar hairs, slightly barbed, inserted in short tubercles posterior to rostral tip; lamellae rugose ridges in middle of prodorsum, curved laterally at posterior tips and reduced in height, lamellar cusps short, cylindrical; lamellar hairs about a third longer than rostral hairs, slightly curved, barbed, inserted in distal tips of lamellar cusps; translamella partial, interrupted medially, consisting of short, sclerotized bar extended medially from base of lamellar cusp; tatoria shorter than lamellae, rugose ridges parallel to lamellae, interrupted posteriorly

and with a rounded knob-like projection between tutorium and pseudostigmata; interlamellar hairs about as long as width of pseudostigmatic opening, robust, rounded tips, clavate, barbed, inserted about half their lengths from medial aspect of pseudostigmata; pseudostigmata raised above surface of prodorsum, rounded, cup-like; sensillus about as long as rostral hairs, attenuated, barbed; pedotecta I roughened at about level of tutoria, pedotecta II shorter and more angular than pedotecta I (Fig. 4).

Anterior margins of hysterosoma with two sclerotized knobs at each shoulder, median pair more robust; 10 pairs of barbed, elongate notogastral setae (Fig. 4).

Camerostome elongate; infracapitulum as in Fig. 8; genital aperture nearly rounded, each genital cover with six setae (Fig. 5); adanal setae inserted laterally at level about middle of genital opening; anal opening more elongate than genital, each anal cover with two setae (Fig. 6), three pairs of adanal setae, fissure *iad* near margin of anal opening near anterior end.

Legs heterotridactylous, the median claw only slightly larger than lateral claws; trochanters III, IV with strong dorsal spine; leg setae long, barbed.

MEASUREMENTS.— The range of measurements for the specimens we have of this species is taken in part from dissected forms in which the dorsal plate has been removed.

Length, 930-858 $\mu$ ; hysterosoma 582-606 $\mu$ ; prodorsum 330-276 $\mu$ .  
Width: 618-570 $\mu$ .

COLLECTIONS.— The type, a female, and 4 paratypes, 2 females, 1 male and 1 dissected specimen of undetermined sex, were collected near the top of Mary's Peak, Benton Co., Oregon, 31 July 1962, by T. A. Woolley.

DISCUSSION.— Even though the number of specimens we have observed is small, we are of the opinion that this new family, Megere-maeidae, is a distinctly different group of oribatid mites. The single genus, and the two species included in it, are also distinctive.

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