THREE NEW HYPOPIAL NYMPHS
(Acari: Acaridae)
PHORETIC ON FLEAS PARASITIC ON RODENTS
IN CALIFORNIA, USA*

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Introduction

The phoretic association of hypopi (heteromorphic deutonymphs) of some Acaridid mites on fleas is well documented but poorly understood. The significance of this interesting ecological relationship, other than mite dispersal, remains to be demonstrated. From September 1980 to June 1983 approximately 15,000 fleas were examined for phoretic mites during surveillance activities for plague in California. Hypopi were observed most frequently on fleas parasitizing chipmunks (Eutamias spp.) and ground squirrels (Spermophilus spp.) occurring at higher elevations in the Sierra Nevada and Cascade Mountains (unpublished records). Herein we describe three new species of hypopi belonging to three genera of Acaridae. Fleas were collected by staff of the Vector Biology & Control Branch, California Department of Health Services. All measurements are in microns (μm). Holotypes are deposited in the United States National Museum, Washington, D.C. Paratypes are deposited in the Institut royal des Sciences Naturelles de Belgique and the authors' collections.

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Acarus L. 1758

Acarus monopsyllus sp. n.

_Hypopus_ (Fig. 1, 2, 5-7): Holotype 228 long and 160 wide. Two paratypes are 237 × 156 and 240 × 162. Dorsum: cuticle well sclerotized and pitted. Setae short, comprising _vi_ (length 18), _ve_ (9), _s cx_, _sc i_ longer (15) than _sc e_ (12), _d 1_ to _d 5_ (12), _l 1_ to _l 4_ shorter (12) than _l 5_ (18) and _h_. Oil gland orifices slightly behind _l 2_. Venter: epimeres I fused in a sternum much shorter than epimeres II, the latter not reaching the posterior margin of coxae II. Epimeres III and IV slightly more sclerotized than in

Fig. 1 - 2. — _Acarus monopsyllus_ sp. n. Hypopus in ventral (1) and dorsal (2) view.
other species of the genus, and form more or less closed coxal fields separated in the midline. Setae sb short; cx I and cx III are microsetae; gm thin and short, ga longer (15), gp are conoids. Palposoma longer (18) than wide (12), bearing two long apical solenidia (length 40) and two pairs of simple setae. Legs: tarsi I-IV 36-30-21-15 long, respectively. Suctorial plate 51 wide. Chaetotaxy of legs: same number of setae as in other species of genus; setae d of tarsi IV as long as these tarsi. Solenidiotaxy: tarsus I with w 1 inflated apically, 15 long; w 3 24 long and situated in the middle of the tarsus.


Remarks: This species is distinguished from all other species in the genus by the much shorter d setae of tarsi IV. It is most like Acarus nidicolous Griffiths, 1970 and A. avicolus Fain & Beaucournu, 1972 but is distinguished from them by the more anterior position of setae ga and the relatively longer tarsi.

Viedebantitia OuDEMANS, 1929

Viedebantitia diamanus sp. n.

Hypopus (Fig. 3, 4, 8-10): Holotype (flattened) 295 long and 240 wide. One paratype 273 × 210. Dorsum: covered by a punctate shield. In the holotype this shield bears a very faint, irregular network that is absent in the paratype and was probably produced by crushing the specimen. Sejugal furrow very anterior. Setae short. Scapular setae in a straight line, setae s cx abnormally long (36), setae v e absent. Venter: sternum shorter than epimeres II, the latter short, not reaching the posterior margin of coxae II. Setae l 5 40 long. Epimeres III and IV short, not fused in the midline. Setae c x I, c x III, and gp are conoids. Suctorial plate 75 wide (lateral membranes not measured). Anterior suckers rounded, 15 wide, posterior suckers longer (15) than wide (11). Oil gland orifices between setae h and sb. Palposoma 32 long and 12 wide, its apex divided into two fingers bearing a pair of solenidia
Fig. 3 - 4. — Viedebantia diamanus sp. n. Hypopus in ventral (3) and dorsal (4) view.
50 long and a pair of short setae on their base; base of palposoma with a second pair of short setae. Coxae I and II distinctly punctate, coxae III-IV distinctly punctate only in their anterior and internal regions. Legs long. All tarsi long and narrow. Tarsi I-IV 64-49-28-30 long, respectively. Tibae I-IV 39-30-15-15 long, respectively. Chaetotaxy of legs: tarsi I-IV with 8-9-8-8 setae, respectively;

![Figures 5-10](image)

Fig. 5 - 10. — *Acarus monopsyllus* sp. n. Hypopus: apical segments of legs I (5), III (6), and IV (7). *Viedebantitia diamanus* sp. n. Hypopus: apical segments of legs I (8), III (9), and IV (10).

tarsi I-II each with 5 foliate and 1 saucer-like setae; tarsi III-IV with 6 and 5 foliate setae, respectively. Solenidiotaxy: tarsus I with basal $\omega 1$ inflated apically and 24 long; $\omega 3$ cylindrical, 30 long and very close to base of tarsus; $\omega 2$ short and proximal to $\omega 1$.

**Host and locality:** Holotype and one paratype from two *Diamanhus montanus* from burrows of *Spermophilus beecheyi*, Vandenberg Air Force Base, Santa Barbara Co., California, U.S.A., 2.IX.1980.
Remarks: Both the genus Viedebanttia and its one species, *V. schmitzi* Oudemans, 1929 were based on a single specimen collected from a nest of a mole (*Talpa europaea*) in Nederland. These taxa were described briefly and not figured. We have examined the holotype of *V. schmitzi*, still the only known specimen of that species. It is characterized by the abnormally long anterior tibiae, especially on leg I, the long setae s cx, the very short propodonotum, and the absence of setae ve. All the tarsi are long and narrow. These characters separate Viedebanttia from *Rhizoglyphus, Caloglyphus*, and the other genera of the Rhizoglyphinae.

*Viedebanttia diamanus* sp. n. differs from *V. schmitzi* by the following characters: coxae III and IV much less punctate; solenidion o 3 much closer to o 1 and much shorter (26 instead of 45 in *V. schmitzi*); setae vi longer (22 instead of 5 in *V. schmitzi*); setae d 1 to d 5 longer (12 instead of 5); basal setae of palposoma closer to base.

*Paraceroglyphlls* Fain and Beaucournu, 1973

**Paraceroglyphlls californicus** sp. n.

*Hypopus*: Holotype 180 long and 120 wide. Seven paratypes are 186 x 135, 185 x 130, 170 x 125, 168 x 120, 167 x 123, 165 x 117, and 163 x 119. Dorsum as in *Paraceroglyphlls xenopsylla* Fain & Schwan, 1976 however setae ve are present and sc i are distinctly anterior to sc e. Venter as in *P. xenopsylla* except coxal fields III distinctly separated in the midline (these are contiguous in *P. xenopsylla*). Legs as in *P. xenopsylla* but o 3 of tarsus I is slightly more apical. Tarsi I-IV 24-20-14-14 long, respectively. External lengths of tarsal claws I-IV 5-5-4-4, respectively. Palposoma longer (15) than wide (10).

Host and locality: Holotype and 11 paratypes from several *Diamanus montanus* ex *Spermophilus lateralis*, Lake Almanor, Plumas Co., California, 7.VI.1983 (n° PLU 49); 4 paratypes from *Oropsylla idahoensis* ex *Spermophilus beldingi*, Lake Almanor, 7.VI.1983 (n° PLU 60); 2 paratypes from *Oropsylla idahoensis* ♀, ex *Eutamias townsendii*, Lassen National Park, Shasta Co., California, 30.IX.1982 (n° V82-2149).
Remarks: This species is distinguished from Paraceroglyphus xenopsylla by the presence of setae ve, setae sc i anterior to sc e, coxal III fields distinctly separate in the midline, and the more apical and relatively shorter solenidion \(\omega 1\) on tarsus I.

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Summary

Three new species of mites are described from hypopi (Acari: Acaridae) phoretic on fleas of chipmunks and ground squirrels in California, U.S.A.: Acarus monopsyllus sp. n. from Monopsyllus eumolpi ex Eutamias amoenus and E. townsendii; Viedebanttia diamanus sp. n. from Diamanus montanus in burrows of Spermophilus beecheyi; Paraceroglyphus californicus sp. n. from Diamanus montanus ex Spermophilus lateralis and from Oropsylla idaboensis ex Eutamias townsendii and Spermophilus beldingi.

Résumé

Trois espèces nouvelles d'acariens (Acaridae) représentées seulement par leur stade hypope sont décrites. Elles furent découvertes sur des puces de rongeurs en Californie, U.S.A.: Acarus monopsyllus sp. n. ex Monopsyllus eumolpi de Eutamias amoenus et E. townsendii ; Viedebanttia diamanus sp. n. ex Diamanus montanus trouvées dans des nids de Spermophilus beecheyi ; Paraceroglyphus californicus sp. n. ex Diamanus montanus de Spermophilus lateralis et ex Oropsylla idaboensis de Eutamias townsendii et de Spermophilus beldingi.

References


