

August 1974

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MOUSE (RODENTIA: HETEROMYIDAE)

Danny B. Pence

Texas Tech University School of Medicine

Hugh H. Genoways

Texas Tech University, Lubbock, h.h.genoways@gmail.com

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NEOLABIDOPHORUS YUCATANENSIS GEN. ET SP. N. AND A NEW RECORD FOR *DERMACARUS ORNATUS* FAIN, 1967 (ACARINA: GLYCYPHAGIDAE) FROM *HETEROMYS GAUMERI* ALLEN AND CHAPMAN, 1897, GAUMER'S SPINY POCKET MOUSE (RODENTIA: HETEROMYIDAE)

Danny B. Pence* and Hugh H. Genoways†

ABSTRACT: Two species of hypopial nymphs of mites of the family Glycyphagidae were recovered from *Heteromys gaumeri* from Yucatán, Mexico. Numerous specimens of a hypopus identified as *Dermacarus ornatus* Fain were recovered from the hair and skin. A single specimen of an endoparasitic hypopus identified as a new genus and species, *Neolabidophorus yucatanensis*, was recovered from the hair follicles. The new genus differs from similar forms of the subfamily Metalabidophorinae in having a rudimentary clasper organ represented by a median sclerite behind legs IV without external serrated claspers, structure and slightly dorsal position of the tarsal solenidia on legs I and II, and a modified pair of subpalposomal setae on the median venter.

Hypopial nymphs of mites of the family Glycyphagidae were recovered from Gaumer's spiny pocket mouse, *Heteromys gaumeri*, from Yucatán, Mexico. Numerous specimens, representing a new host record, of *Dermacarus ornatus* Fain were recovered from the skin and hair. Also, a new endoparasitic genus and species, *Neolabidophorus yucatanensis*, is described from the hair follicles of this host.

In the following description all measurements are in microns. Drawings were made with the aid of a camera lucida. Setal designations follow those outlined by Fain (1969).

Neolabidophorus gen. n.

Family Glycyphagidae Berlese, 1887, Subfamily Metalabidophorinae Fain, 1967.

Definition: Known only from the hypopus. Hair organ median, behind legs IV, well sclerotized, rudimentary, without serrated claspers, apparently nonfunctional. Genital suckers displaced laterally with their posteriors diverging outward. A secondary sclerotized plate located posteriorly on ventral surface. Epimera I well developed, fused, forming well-developed sternum. Epimera II strong. Tarsus III considerably longer than tarsus

IV. Two pairs subpalposomal setae (Ve?) located posteriorly to palposoma on venter. A pair of strong setae on tibiae I and II, one on genua I and II, and one on femur II. A single barbed flattened seta on tibia III, genu III, and tibia IV. Palposoma with a pair of barbed setae. Claws I and II long and fine, curved at tip. Claws of tarsus III straight. No setae seen on dorsal idiosoma. Tarsal chaetotaxy: 4-4-8-3. Tibial chaetotaxy: 4-4-2-1.

Type species: *Neolabidophorus yucatanensis* sp. n.

Neolabidophorus yucatanensis sp. n.

(Figs. 1-6)

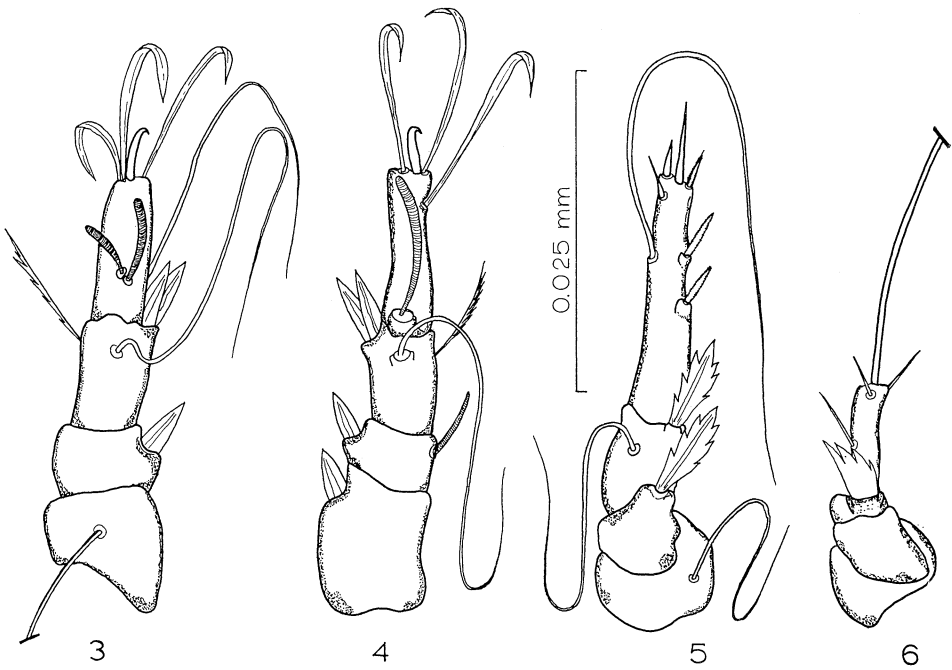
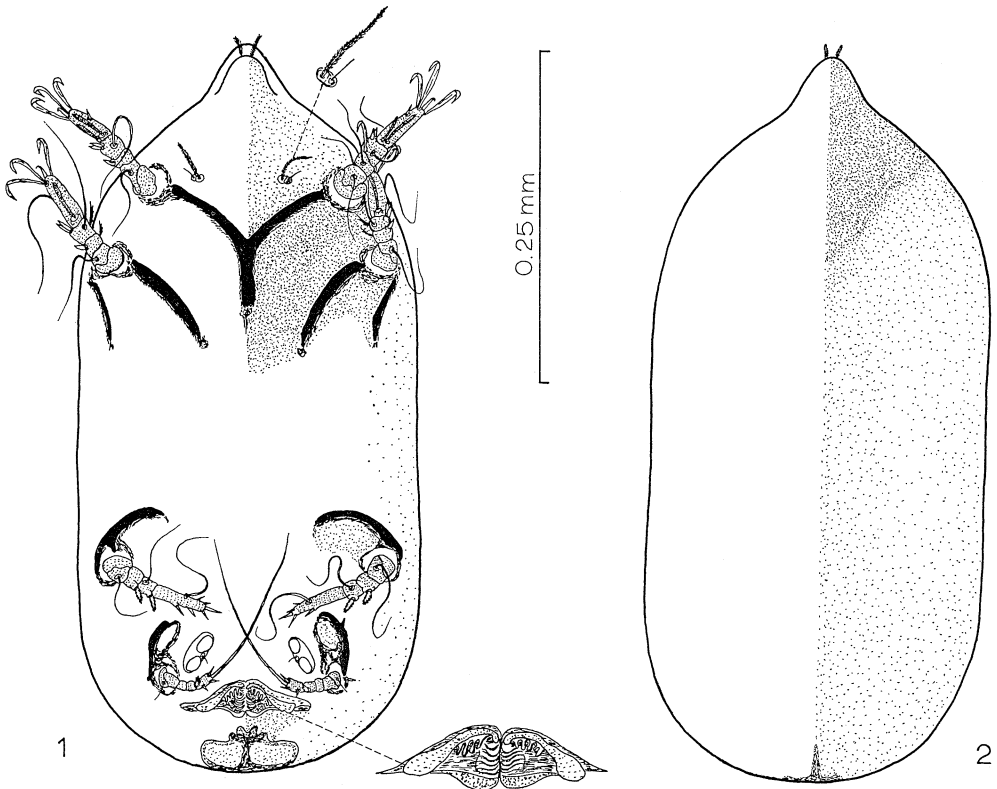
Hypopus (description based on a single specimen, the holotype): Body small, cylindrical, white. Idiosoma 554 long, 285 wide (maximum). Anterior dorsal cuticle punctate, remainder of dorsal cuticle finely punctate, venter punctate in area of palposoma and epimera and epimerites, remainder of cuticle smooth. Dorsal sejugal furrow not seen. Coxosternal skeleton of legs I to IV well developed. Epimera I fused into a "Y" forming well-developed sternum, epimera I 57 long, sternum 56 long. Epimera II free, 85 long. Epimerite II free. Epimera III and IV open and well sclerotized. Genital suckers widely separated, divergent posteriorly, 33 long. Hair organ rudimentary with several ridgelike structures but without hair claspers, probably nonfunctional, located just behind genital suckers. A secondary sclerotized plate on ventral opisthosoma posterior to the hair clasp- ing organ extending a very short distance into dorsal opisthosoma. Palposoma with 1 pair short solenidia and a single pair of spinous setae. One

Received for publication 25 January 1974.

* Department of Veterinary and Zoological Medicine, Texas Tech University School of Medicine.

† The Museum, Texas Tech University, Lubbock, Texas 79409.

FIGURES 1-6. *Neolabidophorus yucatanensis* gen. et sp. n. hypopus. 1. Venter. 2. Dorsum. 3-6. Tarsi, tibiae, genua, and femora of legs I, II, III, and IV, respectively.



pair subpalposomal setae barbed; one pair smaller, smooth. No setae seen on dorsal idiosoma, setae absent on venter, gm present on genital suckers. Legs I, II, III, and IV 94, 98, 83, and 47 long, respectively. Tarsi I and II terminating distally in a single curved claw 5 to 7 long. Tarsus III terminating in a single long straight spinelike claw. Tarsus IV without claws, with a single long terminal macroseta without serrations. Chaetotaxy of legs: Tarsus 4-4-8-3. Tibia 4-4-2-1. Genu 1-2-1-0. Femur 1-1-1-0. Trochanter 0-0-0-1. Terminal setae of tarsi I and II flattened, blade-like. A pair of large conical spinelike setae on tibiae I and II 20 to 27 long, a single similar seta on genua I and II and femur II 16 to 17 long. A single large flattened serrated or barbed seta on tibia and genu III 28 to 31 long and a smaller conical seta on tibia IV serrated on one side. Remaining setae long and whiplike or short and spinelike. Solenidiotaxy: Trochanters, femora, genua, tibiae, and tarsi III and IV devoid of solenidia. Tarsus I with 2 (ω_1 and ω_2) solenidia and tarsus II with 1 (ω_1) solenidion 9, 16, and 13 long, respectively.

Adults, larva: Unknown.

Host: *Heteromys gaumeri*, Gaumer's spiny pocket mouse.

Location: Endoparasitic in the hair follicles.

Pathology: None apparent.

Locality: 3 km north of Pisté, Yucatán, Mexico.

Holotype: USNM, Natural History, Acarology Collection. No. 3597.

Remarks

Representative genera of the subfamily Metalabidophorinae are known only from the hypopial stage. The subfamily as described by Fain (1967) is a very heterogeneous group representing several divergent genera. The new genus *Neolabidophorus* appears to have closest affinities with *Metalabidophorus* and *Microlabidopus* both of which have the hair organ reduced to an apparently nonfunctional structure (reduced to a sclerotized plate without claspers in the new genus), the presence of a secondary plate posterior to the hair organ (on the dorsal surface in the above two genera), the widely divergent genital suckers in all three genera, and similar leg chaetotaxy and solenidiotaxy. The new genus is distinguished from the above and others of the family by the rudimentary and highly modified structure of the hair organ without claspers, ventral location of the secondary sclerotized plate posterior to the hair organ, different form of the genital suckers, and the highly modified spinelike setae on the tibiae and genua of legs

I and II. Other distinguishing characteristics of the new genus are the apparent lack of dorsal setation and the occurrence of a pair of setae in close proximity to the epimera on the ventral anterior opisthosoma.

Dermacarus ornatus Fain, 1967

Fain, 1967, *Acarologia* 9: 415.

New host record: Numerous hypopi from 2 *Heteromys gaumeri* collected 3 km north of Pisté and 2 km east of Chichén-Itzá, Yucatán, Mexico, respectively.

Remarks

These specimens appear identical to those described as *Dermacarus ornatus* by Fain (1967) from *Heteromys anomalus* from Trinidad and South America. Indeed, the same species of hypopus would be expected from such closely related hosts of the same genus.

DISCUSSION

The relationships of the host of *Neolabidophorus* to the hosts of the closely related genera *Metalabidophorus* and *Microlabidopus* would support the generic distinctness of *Neolabidophorus*. *Heteromys gaumeri* (host of *Neolabidophorus*) is a member of the family Heteromyidae [superfamily Geomyoidea, suborder Myomorpha, order Rodentia (Romer, 1966)], whereas *Spalax microphthalmus* (host of *Metalabidophorus*) is of the family Spalacidae (superfamily Spalacoidea, suborder Myomorpha, order Rodentia), and *Aplodontia rufa* (host of *Microlabidopus*) is a member of the family Aplodontidae (superfamily Aplodontioidea, suborder Sciuromorpha, order Rodentia). Therefore, members of the genus *Heteromys* are related to one of these hosts at the subordinal level and the other at the ordinal level indicating a high degree of phylogenetic distinctness of the hosts of these three genera of mites.

Ecologically and geographically the three host genera are also extremely diverse (Hall and Kelson, 1959; Walker et al., 1964). The genus *Heteromys* occurs in the Neotropical region from Veracruz, Mexico to northern South America. Within this region *Heteromys* generally inhabits wet forest, although *Heteromys gaumeri* occurs in lowland dry forest and thorn forest. Members of the genus *Spalax* are the blind mole-rats of eastern Mediterranean, eastern Europe, Asia Minor, and

southern Russia. They are fossorial and forage only for short periods on the surface. They inhabit dry areas but do not occur in true desert. The members of the genus *Aplodontia* are called mountain beavers although they are not true beavers, but are considered the most primitive living rodents. Mountain beavers occur in the Pacific Northwest of the United States and southwestern Canada. Within this area they frequent forests or densely vegetated thickets. Generally, they inhabit areas of heavy rainfall or areas along seepages or streams where the ground is usually saturated with water. Mountain beavers are not known to occur above 2,200 m and are generally at lower elevations. Although they make extensive burrow systems, all foraging is done above-ground. The diverse ecological and geographical relationships of the hosts of these three genera of mites would tend to support the generic distinctness of *Neolabidophorus* as did their phylogenetic relationships.

The discovery of the external hypopus of *Dermacarus ornatus* Fain on another species of *Heteromys* was not totally unexpected, because these external species tend to be host-specific at the generic level. The relationships of the species within the genus *Heteromys* are not fully understood at present. However, it appears that *Heteromys anomalus* (type host) and *H. gaumeri* are probably quite distantly related within the genus. *Heteromys gaumeri* shares several characteristics with the closely related genus *Liomys* that are not found in other species of *Heteromys*. This may indicate that *H. gaumeri* is one of the more primitive species in the genus (Genoways, 1973). Goldman (1911), in his review of the genus, placed *H. anomalus* and *H. gaumeri* in separate species groups within the subgenus *Heteromys*.

Geographically, *Heteromys gaumeri* is known only from the Yucatán Peninsula including the Mexican states of Yucatán and Campeche and the federal territory of Quintana Roo (Jones et al., 1974) and the Petén of Guatemala. *Heteromys anomalus* occurs along the northern coast of South America in Venezuela and Columbia and on the island of Trinidad (Cabrera, 1961). Ecologically *H.*

gaumeri inhabits somewhat more arid situations (Jones et al., 1974) than does *H. anomalus* (Rood and Test, 1968). Considering the diverse relationships of these two species within the genus *Heteromys*, it is probable that *Dermacarus ornatus* will be found on other species of the genus.

ACKNOWLEDGMENTS

We would like to thank Mr. Stephen L. Williams and Dr. Elmer C. Birney for collecting the *Heteromys gaumeri*. Field studies were supported by the Institute of Museum Research, Texas Tech University.

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