

Nota Científica

**THE CHIAPAN DEER MOUSE, *PEROMYSCUS ZARHYNCHUS* MERRIAM, 1898
(RODENTIA: MURIDAE), A NEW HOST FOR *AMBLYOPINUS SCHMIDTI*
SCHMIDTI SEEVERS, 1944 (COLEOPTERA: STAPHYLINIDAE)**

Resumen: Se documenta por primera vez la presencia de *Amblyopinus schmidti schmidti* (Coleoptera: Staphylinidae) en el ratón *Peromyscus zarhynchus* en el Parque Nacional Lagunas de Montebello, Chiapas, México, con lo que se actualiza el rango de distribución del ambliopinino en el Estado, y al mismo tiempo *P. zarhynchus* se reporta como nuevo hospedero para *A. schmidti schmidti*. Este ambliopinino sólo se había registrado en *Peromyscus guatemalensis* y dos especies desconocidas del género *Peromyscus*, procedentes de "El Triunfo" en la Sierra Madre de Chiapas, que se ubica a unos 250 km al Suroeste de la nueva localidad.

The staphylinid beetles of the tribe Amblyopinini have been collected on the fur of neotropical and Australian mammals, especially on rodents and marsupials of South America (Timm & Ashe, 1987. *Proc. Biol. Soc. Washington* 100(1):13-20; Ashe & Timm, 1987. *J. Zool. London* 212:429-437). The nature of the relationship between the beetles and small mammals was not completely understood when they were found for the first time; it was even believed that the staphylinids were ectoparasites of mice. However, it has been demonstrated that the amblyopinine beetles maintain a mutualistic association since they predate on the actual ectoparasites of the mammalian hosts (Ashe & Timm, 1987. *J. Zool. London* 212:429-437; Ashe & Timm, 1987. *J. Trop. Ecol.* 3:177-181).

The five species of *Amblyopinus* known from Mexico and Central America show high host specificity; in fact, each species has been associated with a particular group or even with a single species within the rodent genera *Microtus*, *Oryzomys*, *Neotoma*, *Peromyscus* and *Reithrodontomys* (Ashe & Timm, 1995. *Tropical Zoology* 8:373-399). Particularly, before this study, the staphylinid beetle *A. schmidti schmidti* Seevers, 1944 has been recorded only from the highlands of the Sierra Madre of Chiapas, Mexico and in Guatemala, founded on the Guatemalan Deer Mouse, *Peromyscus guatemalensis* Merriam, 1898 and on two more undetermined species of *Peromyscus* (Ashe & Timm, 1995. *Tropical Zoology* 8:373-399).

During a study on the diversity of rodents in the Lagunas de Montebello National Park, Chiapas, Mexico (Horváth & Navarrete-Gutiérrez, 1997. *Rev. Mex. Mast.* 2:122-125; Horváth *et al.*, 2001. *Stud. Neotrop. Fauna & Environ.* 36:169-176), 31 specimens of *Amblyopinus schmidti schmidti* were collected from 25 individuals of Chiapan Deer Mouse, *Peromyscus zarhynchus* Merriam, 1898. These amblyopinine specimens constitute the first record in the zone and expand the species distribution range

approximately 250 km to the northeast in the Mexican State of Chiapas (Fig. 1). Also, these records document a new host for this staphylinid beetle.

Collecting of the amblyopinines was carried out between 1996 and 1999, in two localities within the Lagunas de Montebello National Park: Las Grutas 16°08'07"N, -91°43'33"W, and Yalmuz 16°07'67"N, -91°43'57"W. The area is located in eastern Chiapas at the borderline with Guatemala (Fig. 1), in the transitional zone between the regions of the Central Plateau and the Lacandona Rainforest of Chiapas in Mexico and Los Cuchumatanes in Guatemala.

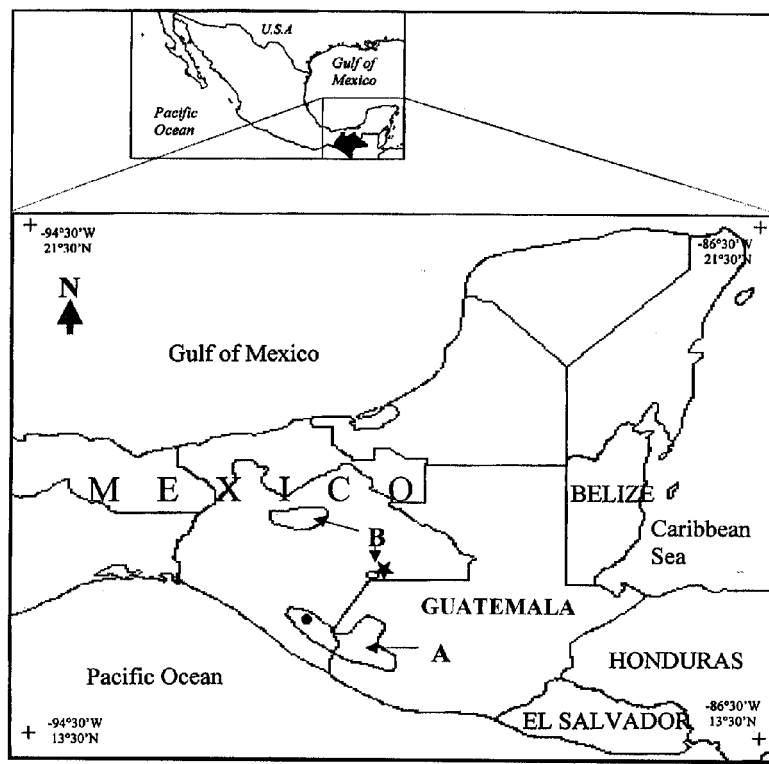


Figure 1

Distribution range of *Peromyscus guatemalensis* (A) and *P. zarhynchus* (B) with new (★) and previous (●) records of *A. schmidti schmidti* at Lagunas de Montebello National Park and El Triunfo, respectively.

Despite the nine species of murids and one species of heteromyid documented in the study area (Horváth *et al.*, 2001. *Stud. Neotrop. Fauna & Environ.* 36:169-176), the amblyopinines were found only on *Peromyscus zarhynchus*. In fact, 8.8% of the captured individuals of *P. zarhynchus* hosted amblyopinines on the neck or head, mostly behind the ears, and some rodents carried two or four staphylinid beetles. All hosts were mature individuals, and no differences between sexes, conditions of health or reproductive state of the mice were noted.

This amblyopinine was formerly recorded at Chiapas in El Triunfo (10 km SSE of the Finca Prusia, 1900 m; Fig. 1) from *Peromyscus guatemalensis* and two more undetermined species of this genus (Ashe & Timm, 1995. *Tropical Zoology* 8:373-399).

Both *Peromyscus zarhynchus* and *P. guatemalensis* are within the *mexicanus* group of the genus, and though, they are morphologically very similar, their distribution ranges are separated (Huckaby, 1980. *Contrib. Sci. Nat. Hist. Mus. L. A. County.* 326:1-24.). *Peromyscus guatemalensis* is distributed in the Sierra Madre in the south of Chiapas, Mexico, and southwest of Guatemala; while *P. zarhynchus* is an endemic species restricted to the Central Plateau and the region of Lagos de Montebello in Chiapas, Mexico. Both species are exclusive inhabitants of the cloud forests and the pine-oak-liquidambar forests in the highlands above 1000 m (Hall, 1981. John Wiley & Sons, New York, USA, 1181 pp.; Horváth & Navarrete-Gutiérrez, 1997. *Rev. Mex. Mast.* 2:122-125; Huckaby, 1980. *Contrib. Sci. Nat. Hist. Mus. L. A. County.* 326:1-24; Reid, 1997. Oxford Univ. Press, New York, 334 pp.). We lack enough information about the biology and natural history of both *A. schmidtii schmidtii* and its two rodent hosts. However, due to the very similar morphology and habitat requirements of the latter in separate distribution ranges, they probably represent ecological equivalents (Shmida & Wilson, 1985. *J. Biogeography* 12(1):1-20), sharing similar natural histories. We believe that both species of mice carry on similar nesting behavior, which seemingly is a determinant factor in the coevolutionary process of this highly specific and unusual relationship between the mice and their amblyopinine "hair-cleaners" (Timm & Ashe, 1988. *Natural History* 9:6-8). Due to the specificity of this relationship, the distribution range of *A. schmidtii schmidtii* might be highly correlated with the distribution range of its hosts. Further studies are needed to confirm the presence of *A. schmidtii schmidtii* within the currently known distribution range of *Peromyscus zarhynchus* and *P. guatemalensis*, as well as to obtain more information about the little-known biology and ecology of both the mice and staphylinid beetle.

Specimens examined: 2 male and 7 female labeled: MEXICO: Chiapas, Lagos de Montebello, Yalmuz. 5-VIII-1997, pine-oak-liquidambar forest, 1500 m asl, A. Horváth coll.; 3 male and 4 female labeled: MEXICO: Chiapas, Lagos de Montebello, Las Grutas. 4-XII-1997, cloud forest, 1500 m asl, A. Horváth coll.; 3 male and 2 female labeled: MEXICO: Chiapas, Lagos de Montebello, Las Grutas. 3-V-1998, cloud forest, 1500 m asl,

A. Horváth coll.; 6 male and 3 female labeled: MEXICO: Chiapas, Lagos de Montebello, Las Grutas. 22-VII-1999, cloud forest, 1500 m asl, A. Horváth coll.; 1 male labeled: MEXICO: Chiapas, Lagos de Montebello, Las Grutas. 5-VIII-1997, cloud forest, 1500 m asl, A. Horváth coll. The specimens are deposited in the Entomological Collection of ECOSUR, Tapachula, Chiapas, with catalog numbers from 005345/ECO-TAP-E to 005376/ECO-TAP-E.

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Anna HORVÁTH

División de Conservación de la Biodiversidad.
El Colegio de la Frontera Sur (ECOSUR),
Carretera Panamericana y Periférico Sur S/N,
San Cristóbal de Las Casas, Chiapas CP 29290, MEXICO.
E-mail: ahorvath@sclc.ecosur.mx

y

Benigno GÓMEZ Y GÓMEZ

Colección de Insectos Asociados a Plantas Cultivadas en la Frontera Sur.
El Colegio de la Frontera Sur (ECOSUR),
Carretera Antiguo Aeropuerto Km. 2.5 Tapachula,
Chiapas CP 30700, MEXICO.
E-mail: bgomez@tap-ecosur.edu.mx