



A new species of *Ptomaphagus* (*Appadelopsis*) (Coleoptera: Leiodidae) from Great Smoky Mountains National Park, U.S.A.

Recent activities within the beetle component of the Great Smoky Mountains National Park (GSMNP) All-Taxa Biodiversity Inventory (ATBI) include a substantial collecting effort (Carlton & Bayless in press). Sampling of forest litter-dwelling beetles is an important part of this collecting program, and substantial numbers (217 by the end of 2006) of samples from GSMNP and vicinity has been processed since 2001. The progress of sorting and identification of this material varies depending on taxon, but several new species have been discovered and described (e.g., Konstantinov & Tishechkin 2004; Sokolov *et al.* 2004; Gimmel & Ślipiński 2007). This paper is the first taxonomic treatment of the genus *Ptomaphagus* Illiger, 1798 subgenus *Appadelopsis* Gnaspini, 1996, of the Great Smokies.

Species of *Ptomaphagus* (*Appadelopsis*) assigned to *Adelopsis* Portevin, 1907 prior to 1996 (Peck 1978; Gnaspini 1996), are microphthalmous, wingless leiodids restricted in distribution to the southern and central Appalachian Mountains and their southern and western foothills. Sixteen species are recognized in the most recent taxonomic treatment of the subgenus, many of which are narrow endemics (Peck 1978). Peck (1978) divided *Ptomaphagus* (*Appadelopsis*) into two species groups, *appalachianus* and *mitchellensis* groups. The former comprises most of the species in the subgenus. Its members are morphologically similar and considered to be closely related and have younger evolutionary age (Peck 1978). The *mitchelensis* group includes five morphologically more distinct and diverse species, presumed to be less derived. Species recognition in the subgenus is based exclusively on genitalic characters, primarily of the aedeagus and, to a much lesser extent, spermatheca. Only one species, *P. fumosus* (Peck, 1978), was previously known from the Great Smoky Mountains. Herein, I describe another species from GSMNP in the *mitchelensis* species group and report new localities for *P. fumosus*.

Following are the abbreviations for the institutions where material was deposited, with the names of curators in charge given in parentheses: FMNH: Field Museum of Natural History, Chicago, IL (A. F. Newton, Jr.); GSMNP: Great Smoky Mountains National Park Collection, Gatlinburg, TN (A. Mayor); LSAM: Louisiana State Arthropod Museum, Baton Rouge, LA (V. M. Bayless).

Ptomaphagus (*Appadelopsis*) *merritti* sp. n. (Figs. 1–6)

Type material. Holotype: ♂, labeled: “N CAROLINA: Swain Co., GSMNP, Appalachian Tr. nr. Doe Knob at 35°31.61'N 83°49.18'W. 1370 m. Forest litter. 14.iv.2006, A. Tishechkin / LSAM 0109735 / HOLOTYPE *Ptomaphagus* (*Appadelopsis*) *merritti* sp. n. A. Tishechkin des. 2007” (FMNH). **Paratypes (5): USA: North Carolina:** Swain Co.: same data as holotype (♀, LSAM); GSMNP, jct. of Beech Gap and Hyatt Ridge Trs. 35°37.82'N 83°14.07'W, 1495 m, 2 October 2005, W.D. Merritt, forest litter (♂, LSAM); GSMNP, upper Deep Creek Tr. at 35°35.97'N 83°25.47'W, 22 July 2002, C. E. Carlton, moist upland Berlese (♂, ♀, GSMNP); **Tennessee:** Sevier Co.: GSMNP, Appalachian Tr. at Beech Gap on Clingmans Dome Rd. 35°36.6'N 83°26.63'W, 1750 m, 28 June 2001, V. Moseley, C. E. Carlton & A. K. Tishechkin, forest litter Berlese (♂, LSAM).

Description. A typical member of *Ptomaphagus* (*Appadelopsis*) (Fig. 1). Body length 2.75–2.85 mm, width 1.35–1.40 mm. Pronotum 1.72–1.78 times wider than long, 2.09–2.14 times shorter than elytra. Elytra together 1.23–1.29 times longer than wide. Aedeagus apex is similar to that of *P. suteri* (Peck), with dorsal section upturned into long, wide knob with a distinct depression in the middle (Figs. 2–4). Edges of both dorsal and ventral sections in frontal view deeply asymmetrically sinuate (Fig. 3). Spermatheca (Figs. 5–6) with sharp bend in posterior end, distinctly sinuate central section and anterior crest perpendicular to middle section.

Diagnosis. The genitalia, primarily the aedeagus, of *P. merritti* is similar to the genitalia of only one described *Appadelopsis* species, *P. (A.) suteri* (Peck, 1978). The sinuate margins of the dorsal and ventral sections of the aedeagus are unique to the new species, in *P. suteri* they are almost straight. The shape of the apical knob of the aedeagus is