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A NEW *GEOTRUPES* LATREILLE
(COLEOPTERA: SCARABAEIDAE) FROM THE
SIERRA DE LAS MINAS RANGE OF GUATEMALA

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ABSTRACT

Geotrupes pinalonensis, new species, from Cerro El Pinalon in the Sierra de las Minas range in Guatemala is described and illustrated. The species belongs in the subgenus *Cnemotrupes* Jekel and has the most southern range of any species in the subgenus.

A new species of *Geotrupes* Latreille has recently been discovered in the Sierra de las Minas range of Guatemala. This species, described below, is of particular interest because it occurs near the southern edge of the New World range of *Geotrupes*.

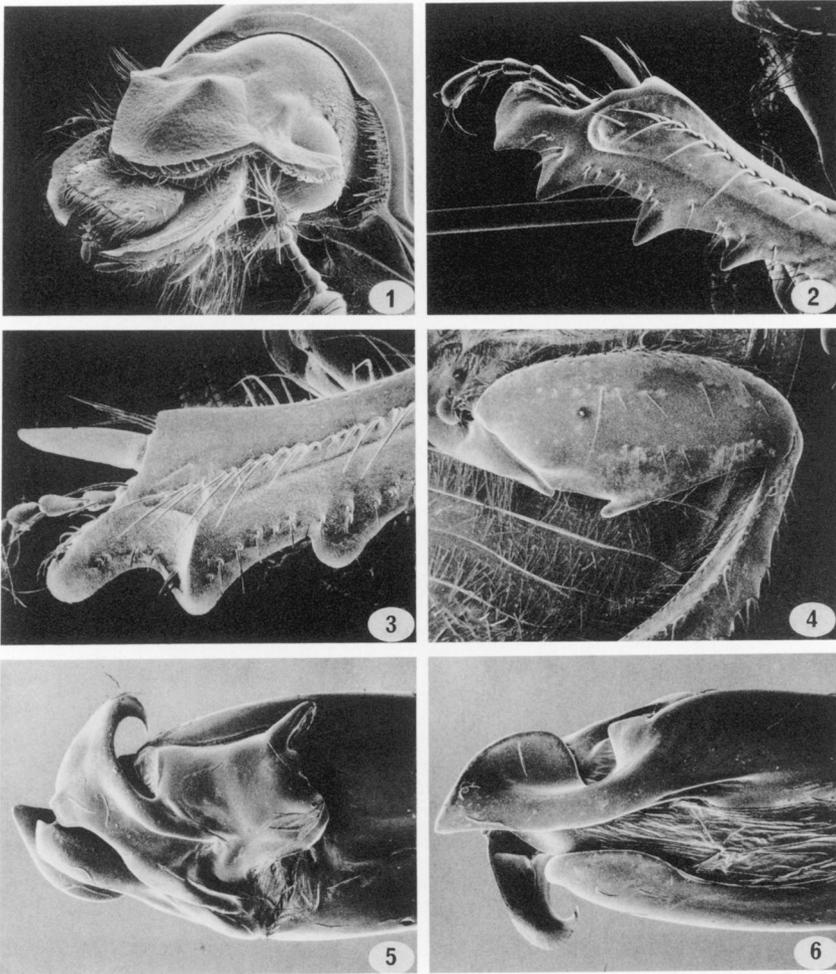
Geotrupes (Cnemotrupes) pinalonensis Howden, **new species**
(Figs. 1-6)

HOLOTYPE. Male, length 23.8 mm, greatest width 12.0 mm. Dorsally black with slight blue to purple tinge on elytra. Antennal club reddish, unmodified, edge of middle segment of club of uniform thickness. Clypeus (Fig. 1) V-shaped with apex rounded and slightly reflexed; disc finely, closely rugose-punctate, with low, longitudinal tubercle with rounded posterior apex. Clypeo-frontal suture deeply indented except near lateral margins. Frons at inner anterior edge of each eye with low, almost tuberculate ridge. Vertex posteriorly convex, surface dull (very feebly alutaceous), with scattered small punctures basally and laterally. Edge of eye canthus abruptly rounded or angulate near anterior sixth, sides thence nearly straight to abrupt posterior angulation.

Pronotum strongly convex, anterior marginal bead widened between eyes and with a slight indentation in bead on each side behind eye (Fig. 1); posterior marginal bead complete, feebly developed in lateral thirds. Pronotal disc with midline feebly impressed in posterior half; fovea on each side moderately deep, circular, with scattered punctures in and below fovea and along lateral margin; pronotal surface dull, similar to that of vertex. Scutellum approximately twice as wide as long, apex broadly angulate, surface dull, midline vaguely impressed.

Elytra approximately 1 mm longer than wide; striae distinctly impressed, striae on disc very slightly crenulate but not punctate, striae near apex and sides distinctly, irregularly crenulate, distinct circular punctures lacking; intervals on disc transversely convex, with occasional feeble transverse indentations and with widely scattered minute punctures; surface otherwise similar to vertex and pronotum.

Fore tibia (Fig. 2) with apical tooth expanded inwardly (a character of the subgenus *Cnemotrupes*); remaining five teeth widely spaced unmodified, ventral or inner tibial surface with three distinct conical tubercles, smallest apical, largest basal. Middle and hind tibiae each with four complete or nearly complete transverse carinae on outer surface; hind tibial apex trilobed on outer margin. Middle femur with distinct denticle near middle of posterior edge. Hind femur (Fig. 4) with row of setigerous punctures over



Figs. 1–6. *Geotrupes pinalonensis*: 1. Head; 2. Male, apex, left fore tibia, outer surface; 3. Female, apex, left fore tibia, outer surface; 4. Male hind femur and trochanter; 5. Male genitalia, dorsal view; 6. Male genitalia, ventral view.

half of ventral posterior surface; posterior edge with strongly developed tooth near middle. Trochanter (Fig. 4) with apex slightly produced. Genitalia as in Figs. 5, 6.

ALLOTYPE. Female, length 25.3 mm, greatest width 13.0 mm. Similar to male except in the following respects: ridge and tubercle on vertex at inner edge of eye more pronounced; anterior marginal bead of pronotum less sharply defined at posterior edge (worn?), with band of small punctures adjacent to bead; pronotal surface laterally more heavily punctate; pronotum less convex, surface and midline with scattered small punctures; fore tibia near apical spur (Fig. 3) with small arcuate indentation on outer surface; apical tooth of fore tibia not expanded; middle femur lacking denticle on posterior edge; hind femur with posterior margin slightly lobed in same area as tooth in male; apex of trochanter with minute knob.

TYPE SERIES. Holotype, male, Guatemala, El Progreso, 19.6 km N Estancia de la Virgen (Finca las Lluciones), 2,000 m, 24 VI 1993, F. Génier, horse dung (in Canadian Museum of Nature). Allotype, female, Guatemala, El Progreso, Arriba de Albores, Cerro Pinalon, 1–7 Marzo 1993, Col. E. Cano, #EER31, cloud forest mist net, 2,500 m. Paratype, 1 male, Guatemala, El Progreso, Cerro Pinalon, arr. Los Albores, alt. 2,450 m, 6–9 VIII 1991. Allotype and paratype in collection of Universidad del Valle de Guatemala.

REMARKS. The single male paratype measures 24.9 mm in length and 13.0 mm in greatest width. The pronotal midline is more distinctly indented and has scattered punctures. In other respects there is no obvious difference between the paratype and holotype.

If the bluish tinge of the elytra is consistent, *G. pinalonensis* will key to *G. (Cnemotrupes) nebularum* Howden in my 1980 key. If there is no trace of color then it may key to either *G. nebularum* or *G. sallei* Jekel. Males of *G. pinalonensis* can be separated from males of *G. nebularum* or *G. sallei* by the presence of the three teeth on the underside of the fore tibia, by the denticle or tooth on the posterior edge of both the middle and hind tibiae and by the shape of the male genitalia. Females of *G. pinalonensis* have a small rounded or angulate lobe on the posterior edge of the hind femur that will serve to distinguish them from related species; the shape of the apical carinae and indentations on the fore tibia (Fig. 3) are also characteristic.

Geotrupes pinalonensis shows a close relationship with *G. nebularum* both in external characters and in the configuration of the male genitalia. The large tooth on the posterior edge of the hind femur of the male of *G. pinalonensis* and the denticle on the middle femur are unusually (strongly) developed for New World species. In this regard the femora of *G. pinalonensis* are similar to those of some Old World species such as *G. spiniger* Marsham, *G. jakovlevi* A. Semenov, or species in the subgenus *Phelotrupes* Jekel. In this and other respects some Mexican and Central American *Geotrupes* seem to be as closely related to Old World groups as they are to other North American species.

It should be mentioned that Zunino (1984) transferred *G. nebularum* and several other Mexican species from *Cnemotrupes* Jekel to *Onthotrupes* Howden based mainly on genitalic similarities. He also elevated both of these subgenera to genera. Since the type species of *Cnemotrupes*, *G. blackburnii* (Fabricius), has several very different genitalic morphs (see Howden 1955), and since only selected species were examined, I believe additional characters should be incorporated in Zunino's analysis before rearranging and elevating the various subgenera. I have therefore continued to follow the nomenclature used in my 1980 paper.

The habitat in which *G. pinalonensis* occurs is wet oak–pine forest merging with a cloud forest formation at the higher elevations.

A second species of *Geotrupes* belonging to the *G. guatemalensis* Bates complex of subspecies occurs on Cerro El Pinalon. Unfortunately only females have been seen, so the specimens cannot be placed with any certainty. It is possible that *Geotrupes felschei* Nonfried (1894) described from Honduras (no exact locality) may belong to the *G. guatemalensis* complex. The subspecies *G. g. tridentatus* Howden (1974) was described from Cerro Monte Cristo, El Salvador, a locality on the border with both Guatemala and Honduras. It is possible that Nonfried's description refers to this subspecies or to a different population of the complex. In 1964 I tentatively synonymized Nonfried's *G. felschei* under *G. viridiobscurus* Jekel, but if Nonfried's type is a female (I believe it is) then the description could equally refer to one of the subspecies of *G.*

guatemalensis. Nonfried's collection was broken up and sold; unfortunately I have not been able to locate his type(s) of *G. felschei* nor have I seen any *Geotrupes* from Honduras.

ZOOGEOGRAPHY

The Sierra de las Minas geologically is on the northern edge of the Motagua suture zone separating the Maya and Chortis terranes (Donnelly 1992). The Maya formation has been contiguous with Mexico over a long period while the Chortis block has drifted into its present position in the Cenozoic. At present no species of *Geotrupes* is known from the range on the south side of the Motagua Valley. The valley may be described as a thorn-scrub area and is not a habitat *Geotrupes* would favor. The close relatives of *G. pinalonensis* are *G. nebularum* and *G. viridiobscurus*; both of these species occur in wet pine-oak situations on the eastern slopes of the Mexican Sierra Madre Oriental facing the Gulf of Mexico. *Geotrupes guatemalensis* ranges from the Chiapas uplift down the volcanic chain of mountains on the Pacific side at least to El Salvador. The population on Cerro El Pinalon represents an extension toward the Caribbean. As more collecting is done on the higher peaks in Guatemala and Honduras other populations of *Geotrupes* may be found.

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