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A NEW SPECIES OF *APHODIUS* (COLEOPTERA: SCARABAEIDAE:
APHODIINAE) FROM NEBRASKA

Brett C. Ratcliffe

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Aphodius gordonii Ratcliffe, new species, is described from the Sandhills of Nebraska. Its larval stages and life history remain unknown, but it may be a sand detritivore.

† † †

INTRODUCTION

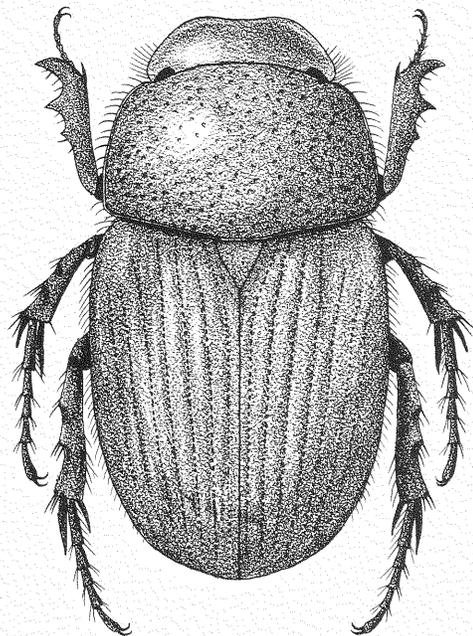
Species in the subfamily Aphodiinae are usually referred to as dung beetles because most (though not all) feed on feces. These small beetles are usually brown, black or gray, the elytra are with or without markings, and the pronotum is with or without sculpturing. The mandibles are hidden in all but the tribe Aegialiini. The Aphodiinae are best characterized by the presence of 9-segmented antennae, a 3-segmented tomentose antennal club, and small size (less than 15 mm). The subfamily Aphodiinae contains over 300 species in North America, and 49 species are found in Nebraska to date.

Aphodius is in great need of revision. Worldwide, there are over 1,000 species, with approximately 210 species in the United States (Gordon, 1983). In Nebraska, there are 33 species. I believe that with more thorough collecting of mammal burrow habitats in particular, additional species will be added to the list of those known to occur in Nebraska. The last comprehensive treatments of North American *Aphodius* were by Horn (1887) and Schmidt (1922). The classification proposed by Horn is still largely followed today. Gordon (1976, 1983, and in preparation) has begun a revision of the North American species of *Aphodius*.

The life history for some species is well known, but for many others nothing is known. Some *Aphodius* are attracted to light while others are not. Several species are active only during the late fall and early spring when they may be missed by most collectors used to collecting during warmer parts of the year. The adults of many species are surface dung feeders. Other species (detritivores) feed on organic material in the soil or on

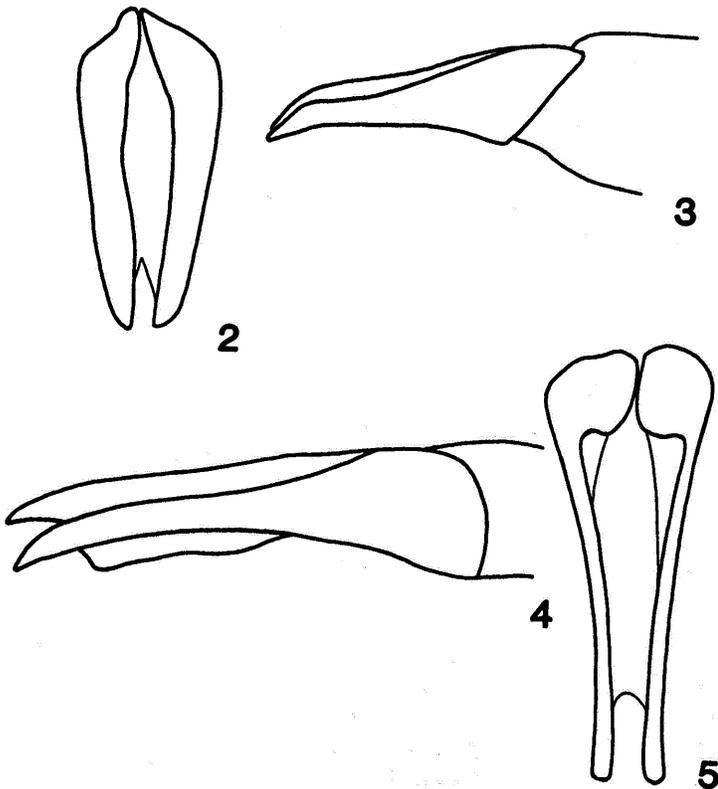
fungi (Ritcher, 1966). Gordon (1983) stated that in eastern North America, species associated with deer dung were most important in terms of number of species and biological significance. Some species are known primarily by associations with the burrows of different mammals. Gordon (1983) indicated that approximately 43% of the North American species of *Aphodius* whose habits are known are associated with rodent burrows or nests. The majority of these species are found in the midwestern and western United States.

Aphodius gordonii Ratcliffe, new species (Figs. 1–3)



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FIGURE 1. Habitus of *Aphodius gordonii*. Length 4.7 mm.



FIGURES 2-5. Parameres: 2, 3, *A. gordonii*; 4, 5, *A. phalerioides*.

Type Material — Holotype male labeled "Halsey, Thomas Co., Nebraska, VII-4-1968, B.C. Ratcliffe, taken in cow manure." One male paratype labeled as holotype except with date of VI-22-1969 and taken at lights, and one additional male paratype labeled "Dismal River, Nebr., July." Holotype deposited in the collection of the University of Nebraska State Museum. Paratypes deposited in the collections of the National Museum of Natural History and Brett C. Ratcliffe.

Holotype — Male. Length 4.7 mm. *Head*: Color testaceous, shining. Surface sparsely punctate, punctures small. Center of head weakly tumid, tubercles absent. Frontoclypeal suture not visible. Clypeus with apex broadly truncate, center barely emarginate; anterior angles rounded. Gena in front of eye with long, testaceous setae. Antenna testaceous. *Pronotum*: Color as head. Surface very finely alutaceous, moderately punctate; punctures minute and moderate in size mixed, larger punctures sparser on disc. Sides and base either side of middle weakly margined. Pronotum widest at base; center base slightly produced posteriorly. Lateral margin with long, testaceous setae. Scutellum small. *Elytra*: Color slightly lighter than head and pronotum. Surface with moderately impressed, closely punctate striae. Intervals finely alutaceous, weakly convex, sparsely punctate; punctures small, some appearing as if in a row. Humerus rounded, not dentate. Lateral margins with long, tes-

taceous setae. *Legs*: Color testaceous. Foretibia tridentate, teeth becoming progressively larger towards apex; dorsal surface impunctate; apical spur acuminate, curved slightly downward. Anterior tarsus with first segment slightly shorter than second. Meso- and metatibia with distinct, transverse ridge. Apex of meso- and metatibia with fringe of spines unequal in length. Apical spurs of meso- and metatibia with one a little shorter than basal tarsomere and other a little longer than basal tarsomere. Meso- and metatarsus with basal segment twice as long as second. *Abdomen*: Color testaceous. Metasternum with a few moderately sized punctures. Sterna convex, slightly roughened, impunctate. *Parameres*: Figs. 2, 3.

Variation — Males (2 paratypes): Length 4.1–5.1 mm. The paratypes do not differ appreciably from the holotype.

Remarks — This species is distinctive among the Nebraska *Aphodius* because of its uniform testaceous coloration in combination with the long setae on the lateral margins of the genae, pronotum, and elytra. No other species of *Aphodius* in Nebraska has this combination of characters.

Aphodius gordonii belongs to Horn's (1887) group I-c. It most closely resembles *Aphodius phalerioides* Horn, but lacks fuscous markings on the elytra of that species. Moreover, the parameres of *A. gordonii* (Figs. 2, 3) are considerably stouter than those of *A. phalerioides* (Figs. 4–5). *A. phalerioides* is not known from Nebraska.

Females as well as the larval stages are unknown for this species.

The life history of *A. gordonii* is also unknown. Considering the sandy habitat from which it was taken, it might be considered a sand detritivore. One specimen was taken in cow manure, and another at lights.

Etymology — This species is named in honor of Robert D. Gordon (U.S. National Museum) in recognition of his studies of North American *Aphodius*.

ACKNOWLEDGMENTS

I thank Mark Marcuson (Scientific Illustrator, University of Nebraska State Museum) for providing the illustrations. Robert D. Gordon (U.S. National Museum) provided assistance and confirmation of the new species status of the species described herein as well as valuable commentary on other *Aphodius*. Gail Littrell (University of Nebraska State Museum) typed the manuscript.

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