

# Sampling of Fall-Active Dung Beetles (Coleoptera: Scarabaeidae: Subfamilies Scarabaeinae and Aphodiinae) in Lick Creek Park, College Station, Texas

Brandon Hays  
*Texas A&M University*

Edited by Grayson Tung

---

**Abstract.** Dung beetles (Coleoptera: Scarabaeidae: subfamilies Scarabaeinae and Aphodiinae) are an important component in ecosystems. The author randomly sampled fall-active dung beetles in Lick Creek Park located in College Station, Texas for approximately three hours in the afternoon of 8 November 2014 in order to assess the number of species and how many of each species were present. The apparent feeding preferences of each species are also discussed. Beetles not belonging to the subfamilies Aphodiinae or Scarabaeinae were excluded. Genera included *Onthophagus* (Scarabaeidae: Scarabaeinae), *Canthon* (Scarabaeidae: Scarabaeinae), *Aphodius* (Scarabaeidae: Aphodiinae) and *Pseudagolius* (Scarabaeidae: Aphodiinae). All species determinations were made by the author. The species present included *Onthophagus hecate* (Panzer), *O. medorensis* Brown, *O. tuberculifrons* Harold, *O. gazella* (Fabricius), *Pseudagolius bicolor* (Say), *Aphodius fimetarius* (Linnaeus), and *Canthon viridis* (Palisot de Beauvois).

*Keywords:* Scarabaeidae, Dung Beetle, Aphodiinae, Scarabaeinae

---

Dung beetles are a vital component of ecosystems, found globally in a wide variety of habitats. Many species are generalist scavengers; many of the species belonging to the genus *Deltochilum* (Scarabaeinae) are excellent examples, being found in all manner of decomposing material including dung and carrion. Still other species are restricted to certain types of dung in specific microhabitats; many species in the genus *Oscarinus* (Aphodiinae) are restricted to deer dung in shaded areas. Still others, such as many members of the Aphodiinae and a few members of the genus *Onthophagus*, are restricted to animal burrows and only leave to disperse at certain times of the year. Dung beetles provide an inestimable service; they

reduce the opportunities for flies and other pests to breed and proliferate and prevent the accumulation of animal waste. Many dung beetle species are only active at certain times of the year, with many native specialists being restricted to the cooler months. Dung is an excellent example of an ephemeral habitat; species turnover is high during the brief period that the resource is available. Many dung beetles have evolved numerous means of securing their part of the resource. Many consume it from the inside or live beneath the pat. Others may dig tunnels underneath the dung and stockpile it there. Finally, some species cordon off a section of the dung, roll it into a ball, and transfer it to another location away from the

other colonizers for burial (Hansky and Cambefort 1991). The genera *Canthon* (sensu lato) and *Deltochilum* both have modified legs used for this purpose. In Texas, many native species are fall and winter specialists whereas the exotic species tend to be more frequent in the summer months. Sampling of dung beetles during the fall and winter tend to result in an interesting diversity of species, particularly members of the subfamily Aphodiinae and the genus *Onthophagus*.

## Materials and Methods

Forceps provided by Bioquip (Rancho Dominguez, California) were used to grasp the insects and transfer them from their surroundings into vials containing ethyl acetate, a fast-acting killing agent. Lick Creek Park was transversed during the afternoon for approximately three hours. Dung from a variety of animals was randomly sampled on the soil as it was encountered. This area is an excellent source for dung; many people walk their dogs and ride their horses in this area. In addition, there is a large number of wildlife found in Lick Creek Park, thus offering the opportunity to collect species that may be restricted to specific types of dung. Dung pats from a variety of animals were randomly searched when found and beetles of the family Scarabaeidae collected. The beetles were then transferred into vials containing 80% ethyl alcohol.

## Results

Twenty-one total dung beetles representing seven species were collected. Species breakdown and number of individuals collected are as follows: *Onthophagus gazella* (Fabricius) (1), *O.*

*medorensis* Brown (6), *O. hecate* (Panzer) (5), *O. tuberculifrons* Harold (5), *Canthon viridis* (Palisot de Beauvois) (1), *Pseudagolius bicolor* (Say) (1), and *Aphodius fimetarius* (L.) (2).

## Discussion

The results were unsurprising, both in terms of species present and their relative abundance. *O. gazella* and *A. fimetarius* are both introduced species that have been successful in their population of North America. *O. gazella* and *C. viridis* are typically active during the warmer months of the year, so the fact that only a single specimen of each was found is not unexpected. *O. hecate* and *A. fimetarius* appear to be active all year. The remaining species are typically active in the cooler months. As for feeding preferences, three types of dung were sampled; those types being dog, coyote, and horse dung. *A. fimetarius* appears to prefer horse dung. *P. bicolor*, *C. viridis*, *O. hecate*, *O. tuberculifrons*, *O. gazella* and *O. medorensis* were all found in canid dung. *O. hecate* appears to prefer the dung of coyotes to that of dogs whereas the other five were more typically found in dog dung, though no species was restricted to either dog or coyote dung. The short time period in which random sampling took place and the season obviously played roles determining the numbers collected and the abundance of species. Though not entirely representative of the dung beetle fauna of Lick Creek Park, the results were still rather impressive regarding the number of species collected in such a short period of time.

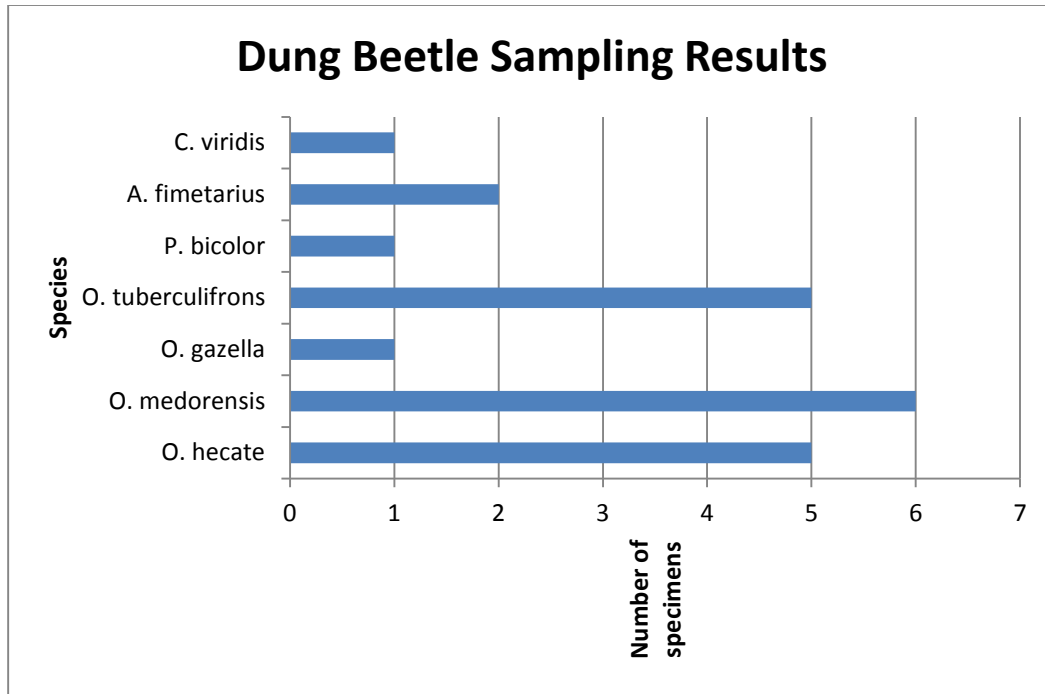


Figure 1. Dung Beetle Sampling Results

### Resources

Hanski, Ilkka and Cambefort, Yvez. **Dung Beetle Ecology** 1991.  
(TAMUIC, Texas A&M Insect Collection Online Database 2014)