

## SPECIES COMPOSITION AND ABUNDANCE OF DUNG BEETLES IN CATTLE DUNG

T.N. JAYASEKARA, JAYANTHI P. EDIRISINGHE AND  
W.A. INOKA P. KARUNARATNE

*Department of Zoology, Faculty of Science, University of Peradeniya*

Dung beetles (Coleoptera:Scarabaeidae:Coprinae) play an important role in the degradation and recycling of dung, specifically of herbivores. In forest ecosystems they play a key role by performing subterranean burial and dispersal of seeds. Dung beetle assemblages comprise of 3 distinct guilds; the dung rollers (telecoprids), dwellers (endocoprids) and tunnelers (paracoprids). The species composition of dung beetles belonging to these 3 guilds varies geographically and in different habitats.

Telecoprids collect dung into balls, roll away from the source and deposit in burrows or tunnels. Dung balls are either fed upon or are used for deposition of eggs and thereafter as a source of food for the emerging larvae. Dung dwellers remain within the dung pat, feeding and breeding in the dung. Tunnelers excavate deep tunnels in the soil underneath dung pats and deposit dung balls in the tunnels on which they feed and breed. This study reports preliminary findings on the species composition of dung beetles, their abundance and colonization in cattle dung pats held in a grassy area of the Peradeniya University Park.

Fresh cattle dung pats (1 kg) obtained from a near by cattle shed were used in the study. By exposing pats (d = 23.0 cm) diurnally (8:00-16:00 h) and nocturnally (18:00-6:00 h), the diel variation in dung beetle colonization was examined. Variation in dung beetle community with time was studied by exposing dung pats for 1-10 days. After the exposure period, dung pats and the soil underneath were removed separately and beetles were extracted using the flotation method. Collected dung beetles were counted and identified using keys and descriptions given in the Fauna of British India, Ceylon and Burma and confirmed by F. Krell, Coleopterist of the Natural History Museum, London.

A total of 17 species of dung beetles in 7 genera were recorded. Thirteen species belonged to the endocoprid guild represented by *Aphodius* sp. 1, 2 and 3, *Drepanocerus setosus* (Wied.), *Onthophagus cervus* (F.), *O. centricornis* (F.), *O. pygmaeus* Schall., *O. unifasciatus* (Schall.), *O.dama* (F.), *O. turbatus* Walk., *O. militaris* Bouc., *O. rectecornutus* Lansb., *O. gemma* Sharp. The three species, *Catharsius molossus* (L.), *Copris signatus* Walk. and *Onitis subopacus* Arrow. belonged to the paracoprid guild. Only a single species, *Sisyphus hirtus* Wied. belonging to the telecoprid guild was recorded.

The species first to colonize diurnal pats were *Onthophagus centricornis*. and *Onthophagus pygmaeus* followed by *Sisyphus hirtus*, *Onthophagus unifasciatus*, and *Drepanocerus setosus*. First to colonize nocturnal pats were *Onthophagus cervus* and *O. dama* followed by *Onitis subopacus* and *Copris signatus*. The three species of *Aphodius*, *Catharsius molossus* and *O. turbatus* colonized both day and night pats. The highest abundance of dung beetles (Mean 133, Range 66-175) was in day-old pats. The numbers declined almost threefold by day 3 and reached very low numbers by day 5 and thereafter. The hard crust of the pat remained intact for several more days and the underneath was filled with excavated soil.