

## Significance of Dung Beetles in Ecosystem

Kathiresan Ramanathan\*

*Department of Life Science and Systems Biology, University of Turin, Torino, Italy*

### DESCRIPTION

Understanding the role of body mass in the structural-functional relationships of various organisms is very important. This study focused on the effects of body mass on the efficiency of eight dung beetles. To study the effect of weight heterogeneity on beetle productivity. The concept of body size played a crucial role in the removal of dung. In addition, the larger the beetle, the more efficient it is at shedding dung. The efficiency of tunnelers over long and short periods was better than dwellers. However, not including the body mass in the model resulted in different results. This study confirmed that the size of the body is the most crucial factor in determining the efficiency of removing dung.

### SIGNIFICANCE

The scarabaeoid is an enormous coprophagous beetle that plays a crucial role in the soil and dung removal method. We use a variety of nesting strategies to maintain their ecological balance. There are many patterns of dispersal and consumption of dung. The main one is the laying of eggs and raising larvae inside the mass. The tunneler species bury balls near the original site. We have studied different types of dung beetles in high mountain pastures and have found that most of them are medium and large species. The decline of the large tunnelers has raised concerns about the extinction of certain species. There is some empirical evidence of the ecological importance of dung beetles in Finland and the United Kingdom. However, there is limited research on their organic role in the Italian Alps. The percentage

of dung removed from the tunneler treatment group was significantly higher than that of the control group after one month. The treatment group with the highest percentage of dung removal was T4. Compared to the control group, tunnelers had a significantly higher success rate in removing dung. The differences in the efficiency of these treatments were no longer significant after a year. Although the percentage of removed dung increased with four species, differences in body mass heterogeneity were not significant over time. The portion of dung taken off also increased with higher body mass heterogeneity. The percentage of dung removed gradually increased with increasing body mass heterogeneity (BH) over one month. However, this effect was not significant after one year. The models with offset and without offset showed different results. The biomass of nocturnal beetles that were large-bodied was positively correlated with the removal of dung.

### CONCLUSION

The biomass and communities of dung beetle species were robust to low-intensity selective logging. However, these effects may be related to changes in biomass and abundance of definite species or guilds, which could be affected by habitat modification. The study shows that rotational grazing can affect the dung beetle community's behavior on rangelands. This method can help improve the diversity and abundance of the dung beetle population. The study revealed significant differences in the range of mountain-based dung beetle species between different forest types and altitude zones. These findings have important conservation implications.

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**Correspondence to:** Kathiresan Ramanathan, Department of Life Science and Systems Biology, University of Turin, Torino, Italy, E-mail: rmkathiresan@gmail.com

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