

## A preliminary investigation of seed dispersal by Asian elephants (*Elephas maximus*), in and around Kaudulla National Park, Sri Lanka

Perera MS and Vandercone R

*Department of Biological Sciences, Faculty of Applied Sciences, Rajarata University, Sri Lanka*

Corresponding author: maheshaper89@gmail.com

Elephants are capable of modifying their environment through actions such as herbivory and seed dispersal. Their broad dietary breadth, large gape size, and extensive home ranges make elephants ideal seed dispersal agents. While a significant number of studies have focused on seed dispersal by the African elephants, relatively few have examined seed dispersal by Asian elephants. These studies indicate a high degree of variability in seed dispersal between elephant populations, and hence a few studies may be insufficient to evaluate the seed dispersal potential of Asian elephants. Thus our understanding of seed dispersal potential of Asian elephants is at its infancy. Here, we explored the role of elephants as seed dispersers in and around the Kaudulla National Park, Sri Lanka through the analysis of 66 elephant dung piles. We specifically focused on investigating the quantitative aspects of seed dispersal by analysing the diversity of dispersed plant species and also the qualitative aspects of dispersal by investigating the germination potential of dispersed seeds. Additionally, we examined the influence of gut passage on seed germination and latency of *Bauhinia racemosa*, a seed frequently encountered in dung piles. The seeds of ten species belonging to the plant families Solanaceae, Fabaceae, Poaceae, Euphorbiaceae, Scrophulariaceae, Moraceae and Cucurbitaceae were dispersed. The germination potential of majority of the seeds dispersed was poor. In the case of *B. racemosa*, gut passage significantly reduced the time taken for germination (seeds in faeces =  $11 \pm 2$  days, control =  $15 \pm 2$  days,  $P \leq 0.021$ ) but did not affect germination success (seeds in faeces =  $60\% \pm 2$ , control =  $40\% \pm 2$ ,  $P \leq 0.868$ ) (30% - 54%). In comparison to other elephant populations, the elephant population at Kaudulla was not highly frugivorous and hence dispersed only the seeds of ten plant species. Further, long term research on frugivory, gut passage times of seeds and ranging behaviour are essential to determine the seed dispersal potential of Asian elephant populations.

**Keywords:** Asian elephant, Latency, Seed dispersal