

Seasonal Changes in Home Range and Habitat Use of Elephants in Southern and North Central Provinces of Sri Lanka

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ABSTRACT: *Elephants generally require a large area of habitat, and usually avoid human settlements and agricultural lands. However, less protected agricultural lands such as Chenas are vulnerable during droughts where food is scarce. If available, grasslands are highly preferred by elephants, and forest lands are less preferred compared to scrub lands. According to past research, it was estimated that Sri Lankan female elephants have home ranges of about 29.6 – 160.7 km². The objective of this study was to access the seasonal changes of home ranges and the habitat selection of elephants in Southern and North Central Provinces of Sri Lanka. This study also attempted to estimate the size of the home range using satellite telemetry data collected for two study sites with minimum convex polygon approach. Seasonal home ranges and home range core areas were derived using 95% and 50% Nonparametric Kernel Utilization Distribution. The land use selection was analysed using the Jacob's Index and the expected proportional usage of habitats were calculated. The estimates were evaluated against the Bonferroni's simultaneous confidence intervals. The results identified that average size of the home range of female herds during the dry season is about 73 km². The seasonal fluctuation of elephant home range lies within 12.12- 73.07 km². As identified by the present study, the maximum size of the core of the home range where elephants spend more time is 25.76 km². It suggests that preferences and spatial requirements highlighted by this study should be taken into consideration when the interventions are made on manipulation of the home range of elephants for management requirements. The geo-informatics approach used in the study could also be used effectively in implementing such interventions.*

Keywords: *Asian elephant, home range, seasonal habitat preference, geo-informatics*

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