(200)

Do Garbage Consuming Elephants in Tissamaharama Adopt Optimal Foraging?

Liyanage D.J.[1], Fernando J.M.P.[2], Dayawansa P.N.[1*]

[1]*Department of Zoology and Environment Sciences, University of Colombo, Colombo 03, Sri Lanka*
[2]*Centre for Conservation and Research, Tissamaharama, Sri Lanka*
nihalday@gmail.com

Abstract

Garbage consumption of elephants at the Uddakandara garbage dump in Tissamaharama of the Southern province of Sri Lanka was studied from April to September 2018. It was hypothesised that elephants adopt the most beneficial foraging strategy ensuring the highest intake of preferred food types among garbage. Direct observations were conducted using binoculars to quantify the foraging behavior pattern of elephants from their arrival to the garbage dump until departure. During the study period, 17 elephants frequently utilised the garbage dump as a food resource. Focal sampling was employed at five-minute intervals to assess the garbage consumption of elephants resulting in 37 sampling episodes making a total observation time of 3,040 minutes. Type of food items ingested and frequency of ingestion were recorded to determine the rate of capture. Mean capture rate was plotted against time to study the change of rate of feeding with the availability of garbage. The most preferred food type based on the frequency of food items ingested by elephants were fruits and vegetables. The mean frequency of ingestion was (mean±standard deviation) 8.65±2.43 per interval. The obtained plot for mean frequency of ingestion vs time interval reached an optimum of 13.97±4.96 per interval and after that showed a decrease in an exponential rate. The capture rate within the garbage patch decreased with time spent in the patch, due to increased searching time caused by depletion of preferred food types. The critical level of mean capture rate was 3.76±0.61 per interval. The threshold of feeding time for elephants at the garbage dump was 70 minutes. When the capture rate drops below the threshold, elephants leave the dump and feed in the adjacent forest until the next fresh garbage dump arrives. Current findings suggest that garbage consuming behavior of elephants could fit to an optimal foraging model.

Keywords: Asian elephants, Garbage, Optimal foraging

Proceedings of the 24th International Forestry and Environment Symposium 2019 of the Department of Forestry and Environmental Science, University of Sri Jayewardenepura, Sri Lanka

57