

## ABSTRACT

The Sigiriya Sanctuary represents biodiversity in a protected environment under varying degrees of human disturbance with heterogeneous sub habitats and fragmented forest. The study objectives were to evaluate seasonal variation and Human Elephant Conflict (HEC) and make recommendations for mitigating HEC and conserving elephants in the Sigiriya Sanctuary between January and June 2013 discussions were held with Grama Niladharis, a grid based questionnaire survey was conducted to cover the entire area of the Sanctuary, and additional information collected from the Department of Wildlife Conservation. I investigated the present cultivation pattern, intensity and frequency of HEC, elephant use of the area based on GPS tracking data, and current management actions for HEC mitigation and elephant conservation.

Of 116 respondents to the questionnaire, 60% were males, 40% females and 92% were farmers from the age groups of 21 to 90. The mean size of lowland cultivation area was 1.91 acres ranging from 0.25 to 7 acres with 80% of lowland cultivation in Maha season. The mean size of upland cultivation areas was 1.28 acres ranging from 0.25 to 4 acres, with 81% of upland cultivation in Yala season. A considerable part of state land was used illegally for cultivation and encroachments are increasing day by day. The seasonal variation appear to lead to high HEC, as highland and lowland plots tend to be cultivated in two different seasons and secondary vegetation between the seasons attracts elephants, thus leading to HEC throughout the year. HEC mainly consisted of crop and property raids by single male elephants or male elephant groups. Of the respondents 95% said that HEC was present from the time they originally settled in the Sanctuary. Most (95%) of respondents felt that electric fences are necessary to mitigate HEC and most were willing to spend for them, construct and maintain them.

GPS tracking confirmed that Sigiriya Sanctuary is used by different herds in addition to resident elephants. It also showed that elephants use the adjoining areas intensively and that home ranges of elephants from Minneriya National Park and Hurulu Forest Reserve extended to Sigiriya Sanctuary.

It is very clear that the current electric fences in Sigiriya were erected dividing the forest into two portions and both sides are used by elephants. As the fences cut off home ranges of elephants, it would negatively impact herds that do not break fences. Also breaking of fences by elephants- mostly males - was regularly reported. However, the fences did not prevent elephants from entering settlements and cultivated areas on the side of the fence they were in. This situation has aggravated HEC all over the Sanctuary and probably surrounding areas.

A more effective approach to mitigate HEC is to construct farmer based temporary fences around seasonal cultivations and community based permanent fences around settlements. For conservation, HEC mitigation needs to focus on single males and male groups, and the remaining forest demarcated with boundary posts to prevent further encroachment.