An Assesment of the Coexistance of Humans and Elephants in Sri Lanka

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Sri Lanka has globally significant biodiversity that is currently threatened by deforestation, land degradation and unregulated exploitation of natural resources. With the increase in human population density and changes in land-use patterns, elephant habitat is being continuously reduced, and there is no longer much room for elephants to move about and adjust their densities to changes in the land-use. As a result, much of the present day elephant range extends into and overlaps with agricultural lands, hence aggravating the Human-Elephant Conflict (HEC). Mitigation of HEC requires a complete understanding of the problem and its specific causes.

This study was conducted by Feld Entertainment, Inc. and the Ringling Center for Elephant Conservation (CEC) in Florida, USA. The main objective was to get a clear idea on the significant factors affecting coexistence of humans and elephants. Secondary data collected by the third and fourth authors were used for the analysis. The assessment of the HEC was carried out by them from July to December 2009 during which information on HEC was collected through the use of a designed questionnaire in 185 villages selected by using judgmental sampling technique from seven provinces (North, North Central, North Western, Eastern, Central, Uva and South) within the elephants range.

An ordinal logistic regression model was fitted for the data by taking the "Severity levels of HEC" as the dependent variable. Independent variables such as elephant movement, group size, distance from the closest elephant habitat border and the availability of a water source were identified as significant factors affecting coexistence of humans and elephants. This model, with a logit link, appeared to be the best model in this study based on model fitting statistics, the accuracy of classification results and the principle of parsimony.

It can be assessed whether coexistence of humans and elephants is possible or not in each area according to the predicted probabilities of the severity level of HEC from the above model. As elephants are incompatible with peasant agriculture at high densities, if they are to coexist with humans, then the level of conflict must be substantially reduced. Although it is unlikely that the HEC can be eliminated altogether, every effort must be taken to reduce it to tolerable levels.