SOCIOECOLOGY AND DEMOGRAPHY OF THE MALE ELEPHANTS *(Elephas maximus maximus)* IN THE UDAWALAWE NATIONAL PARK SRI LANKA

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Abstract

Female elephants are social animals and live in social groups, whereas male elephants are considered solitary animals. However, some studies reveal that male elephants do have social groups. Thus, the present one year study on "socio-ecology and demography of the Asian male elephants" was undertaken with the objective of determining the social behavior, group formation, and the social network pattern of free ranging Asian male elephants (*Elepahas maximus maximus)*,in Udawalawe national park, located in the southern part of Sri Lanka. Vehicle based transect method was carried out along predetermined routes. Individual animal identification method, Focal animal sampling method and scan sampling method were adopted. Locations of all the elephants were marked using hand held GPS. SOCPROG programme was used to determine the association index of male elephants, which gives the proportion of times in which two individuals were seen together to the total number of times those two animals were seen. Matrix of associations between each animal was used to create the social network graphs, with the aid of UCINET programme. A total of 340 individually identified solitary male elephants and 286 known adult females were used to determine the association patterns and social networks of male elephants in Udawalawe national park. The cumulative number of identified adult males has reached a constant, indicating that almost all the adult males have been identified. The cumulative number of young adult males and sub adult males were still increasing, indicating that there are some more individuals to be identified. Of all the males, a total of 6 were tuskers, which accounts for 1.76%.

The group sizes of male elephants ranged from 1-8, and the average group size was five. In general, the adult males showed the highest tendency to stay solitary, but the young adult males and the sub-adult males preferred to be in "male-female group" category. Male elephants were found to have a complex social group structure. But these social groups were mainly seasonal or occasional. During the wet season, most of the adult males spent their time as solitary males, but during the dry season spent their time in social groups such as male pairs, male-female groups and bull groups. Male elephants showed a vast array of associations with other male and female conspecifics, but the associations were highly randomized. The social group formation of male elephants vary with some external factors such as seasonal changes and some biological factors such as musth. In the wet season, where food is readily available, most of the non-musth males were found alone and spent their time feeding in order to increase their body condition. In contrast, during the dry season, where food is scarce, most of the non-musth males were seen loitering close to musth males looking for a sneaky mating chance. Interestingly, there were not much bull groups to be found in the wet season, but many were found in the dry season. In the wet season, frequency of contact aggression among pairs of musth males was higher than that in the dry season. These indicate that the males show seasonal and occasional association variations and that they have a very complex association pattern. With this knowledge, the traditional belief that the male elephants are solitary animals could be challenged.