

Population age-sex ratios of elephants in Rajaji-Corbett National Parks, Uttaranchal

Annual Progress Report on Rajaji NP Elephant age-sex ratios



Reporting period – January 2004 - January 2005

Submitted by

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Introduction

The Asian elephant in India occurs in five major dis-jointed populations totalling 17,000 to 22,000 individuals (Anon 1993). In north-west India, an estimated 800-1000 elephants occur in Rajaji-Corbett National Parks and the adjoining forest areas(Singh 1995, Johnsingh and Joshua 1994) . This range has been designated as Elephant Reserve No. 11 by the Government of India under **Project Elephant**. Though ecological research on elephants in this area began in 1986, a detailed study on the elephant demography in this tract started in 1996. The study on elephant demography concentrated mainly to the areas to the west of the river Ganges between 1996 and 1999. However, the population age-sex ratios in Corbett NP were monitored every year for a month in summer, during this period, when most of the elephants were concentrated around the *Chauras* (grass lands). The study results indicated that the elephant population in this tract had one of the least skewed sex ratios (1:1.87 Male:Females in Rajaji NP and 1:1.5-2.17 Male:Females in Corbett NP).

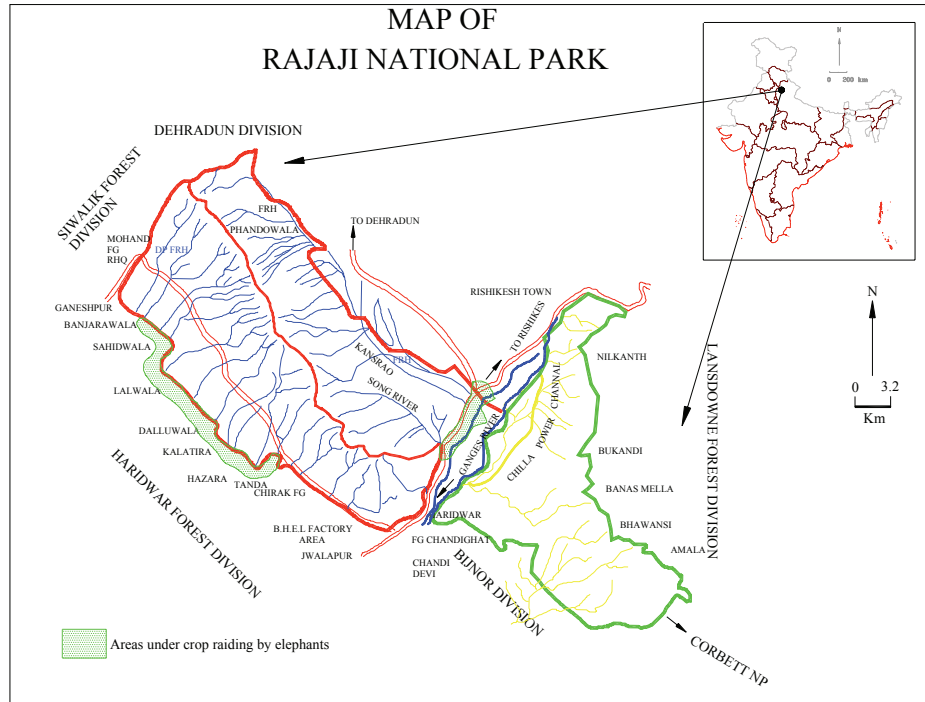
However, increase in mortality of adult males in early 2001 due to poaching in this tract is a cause for worry and this project is being implemented with the aim of adding, in a small way, to the Government efforts to conserve elephants in Uttaranchal State by regular monitoring of elephant age-sex ratios.

The objectives was;

1. To monitor the age-sex ratios of the elephant population across the elephant habitat in Uttaranchal, with special emphasis on Rajaji-Corbett National Parks Jan 2002 to Dec 2007.

Study Area:

In Rajaji National Park our study concentrated on the area between the river Ganges and the Delhi-Dehradun highway.



Methods

Forest blocks starting from east to west were chosen one after another sequentially and searched for elephants for about approximately 4 hours in a single search. Over 250 days of field work was carried out during the period 2nd January 2005 to 31st December 2005. Field assistants collected information on population characteristics like age-sex ratios by observing elephants and capturing them on photographs. Whenever a female group was encountered, the elephants were classified into various age-sex categories based on relative height and morphological characteristics. Younger elephants (< 15-years) will be classified by comparing their height to the oldest adult female in the group (Eisenberg and Lockhart 1972). The older elephants will be classified based on morphological characteristics like degree of ear fold and depression of the buccal cavity and forehead. Elephants were placed in broad age-classes aged groups; calves (< 1 year old), juveniles (1-3 years old), sub-adults (3 -15 years) and adults (> 15 years). Since the digital camera arrived late, we have been able to collect photographic evidence only from March

onwards and therefore we hope to present a report on some identified individual bulls in the next reporting period.

All adult males, whether solitary or in groups, are easy to classify. However female groups are larger and more difficult to classify than males (usually solitary) in a forested habitat like RNP and therefore computing sex ratios using only the fully classified groups led to under estimation of the other age-sex classes proportion in the population. To correct for this underestimation of the other age-sex classes, I applied the age-sex ratios of the fully classified groups to those unclassified groups in which all the elephants were counted.

Progress and preliminary results:

Between January-December 2005, a total of 324 sightings of elephants were made where all the individuals were counted. A hundred and thirty eight adult and sub-adult males were sighted in all male groups or as solitary individuals over 110 sightings. Out of 214 female groups sighted, 163 groups (76%) were fully classified and the rest 51 groups were fully counted, but some members of the group could not be age-sex classified. Using the correction mentioned in the methods section, a total of 1382 elephants were classified. It should be noted that many groups and individual males would be classified repeatedly to derive sex ratios over one year period and therefore this total of 1382 elephants should not be taken as a population count.

It looks from a preliminary analysis of the data that Rajaji National Park still has a very healthy adult sex ratio of 1 male: 3.24 females. This is from all records still among the best sex ratios in South Asia, where elephant population age-sex structures have been studied intensively. However, the sex ratio seems to have become slightly more skewed when compared with data from the previous two reports (2002 - 1 male: 2.05 females and 2004 - 1 male: 2.23 females). Whether this is an artefact of sampling, where there is bound to be some differences in proportions measured from year to year or an actual measurement of skewing of sex ratios can only be found through continuous tracking of the sex ratios over the coming years. The population is relatively healthy and about 92.14% of the adult females were accompanied by a young one less than 5 years. This shows that the reproduction in the Rajaji population is good.

Conclusion

We hope over the next three years we will be able to collect and maintain a good record of the elephant population demography in Rajaji National Park. The report for the Corbett National park area is being written up and will be submitted shortly. The project still has a small amount of support available for supporting emergency activities that the Park Directors may feel are important and need to be carried out immediately. Therefore, we look forward to their recommendations for emergency support, if and when, needed.

Table 1 The age-sex structure of the elephants classified (N = 1382) in Rajaji National Park, January 2004 - January 2005.

Age-class	Percentage	
	Males	Females
Adults	12	38
Sub-adults	8	8
Juveniles	15.3	
Calves	20	

Acknowledgements

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