

The spatial distribution of ungulates and primates across the vegetation gradient in Bardiya National Park, West Nepal

Michelle J.C. Kral*^{1,2}, Mari van Lunenburg³ and Jacques J.M. van Alphen^{1,3}

¹*Institute for Biodiversity and Ecosystem Dynamics (IBED), University of Amsterdam, P.O. Box 94248, 1090 GE Amsterdam, the Netherlands*

²*Department of Zoology and Entomology, University of Pretoria, Private Bag X20, Hatfield, 0028 Pretoria, South Africa*

³*Naturalis Biodiversity Centre, Darwinweg 2, 2333 CR Leiden, the Netherlands*

*Corresponding Author's E-mail: michellekral@zoology.up.ac.za

(Accepted: July 02, 2017)

ABSTRACT

Bardiya National Park (BNP) in Nepal harbours a significant number of tigers. To ensure the tiger's survival in the future and allow populations to increase in Nepal as aimed by the Tx2 campaign, more ecological knowledge of the region is needed for management of prey. This study gained information on the distribution and density of ungulate and primate prey species and their biomass in BNP across three vegetation types, as changes in prey density will have implications for increasing tiger populations. On average, the total tiger prey population showed a 38.4% decline to a density of 36.47 individuals per km² and biomass a 18.7% decline to 2521.21 kg/km² compared to 1976, when Bardiya became a protected area. Grasslands supported the highest prey biomass and densities over the seasons, making them a crucial habitat type. Currently, BNP has reached its carrying capacity for the number of tigers it can support. As the limited area of floodplain, riverine and grassland vegetation acts as a bottleneck, we propose to optimize the ecosystem of BNP by active management to allow an increase in habitat productivity and thus in the number of ungulates, and consequently in the number of tigers that feed on them.

Keywords: *Panthera tigris*, prey population, biomass, density, Bardiya National Park, Nepal.