

## [200] EFFECTS OF STRESS AND ENVIRONMENTAL FACTORS ON PATTERNS OF INFECTION WITH GASTROINTESTINAL COMMENSALS AND PARASITES IN THE CRITICALLY ENDANGERED BLACK RHINOCEROS (*DICEROS BICORNIS BICORNIS*) IN ADDO ELEPHANT NATIONAL PARK, SOUTH AFRICA

Jennifer T. Aronoff<sup>1,4</sup>, Rachel M. Santymire<sup>2</sup>, Thomas R. Gillespie<sup>1,3</sup>

<sup>1</sup>Department of Environmental Studies, Emory University Math and Science Center, 400 Dowman Drive Atlanta, GA 30307, USA <sup>2</sup>Lincoln Park Zoo, Chicago, IL, USA <sup>3</sup>Department of Environmental Health, Emory Rollins School of Public Health, Emory University, Atlanta, GA, USA <sup>4</sup>Email: Jennifer Aronoff (jtaronoff@emory.edu)

As part of a population health assessment of the critically endangered black rhinoceros (*Diceros bicornis bicornis*), 234 fecal samples were non-invasively collected from January 2008 to June 2011 from known individuals in two black rhino populations in Addo Elephant National Park (AENP), South Africa to examine the effects of stress and environmental factors on patterns of parasitism. The two sections of the park, Main Camp and Nyathi, vary with respect to important environmental factors including higher elephant density, dryer and colder climate, higher predator density, smaller habitat size, and a greater frequency of tourism at Main Camp. Samples were examined via fecal flotation and sedimentation as well as glucocorticoid analyses. Although patterns of parasitism did not differ among sites, Nyathi rhinos had significantly higher prevalence for the majority of commensal species and individual Nyathi rhinos were concurrently infected with significantly more species of commensals compared to Main Camp rhinos. Co-infection occurred significantly more than expected between *Oesophagostomum* sp. and *Necator* sp. as well as *Strongyloides* sp. and *Necator* sp. No relationships were apparent among stress level, total precipitation and parasite/commensal richness. These results demonstrate that commensal communities of herbivores can be sensitive to environmental variability even when parasites and host stress levels are constant.





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