

Effects of habitat overlap on helminth
transmission between sympatric primates and
ungulates in Amboseli ecosystem

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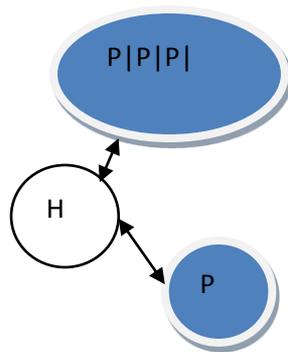
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Overview

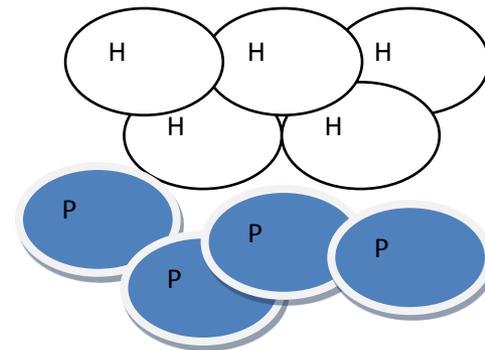
- Introduction
- Hypotheses
- Objectives
- Materials and Methods
 - Study area
 - Hosts
 - Design
 - Analyses
 - Concept
 - Work plan

Introduction

- Important to understand factors that influence parasite transmission in wild populations – better control methods
- Helminths lead to ill-health and sometimes death – risk to conservation of endangered species
- This study focuses on GIT helminths, fecally dispersed in environment, passively transmitted to hosts.



Single (host – helminth) system



Multiple (host – helminth) system

Introduction

- Focus host is baboons, non-human primate; Yellow (*Papio hamadryas cynocephalus*) and Olive (*Papio h. anubis*)
 - – *how other sympatric hosts influence infection patterns of helminths in baboons.*
- Range of the two species overlap in Amboseli, interbreed – subspecies, *P. c. ibeanus*
- Baboons live in social groups with definable hierarchy and home range
- Social groups differ in structure e.g. group size, home range size, age and sex ratio
- Baboons – diverse diet (omnivorous), wide habitat diversity, graze and browse – risk to fecal-oral helminth transmission

Baboon species



Olive baboon, *P. cynocephalus*



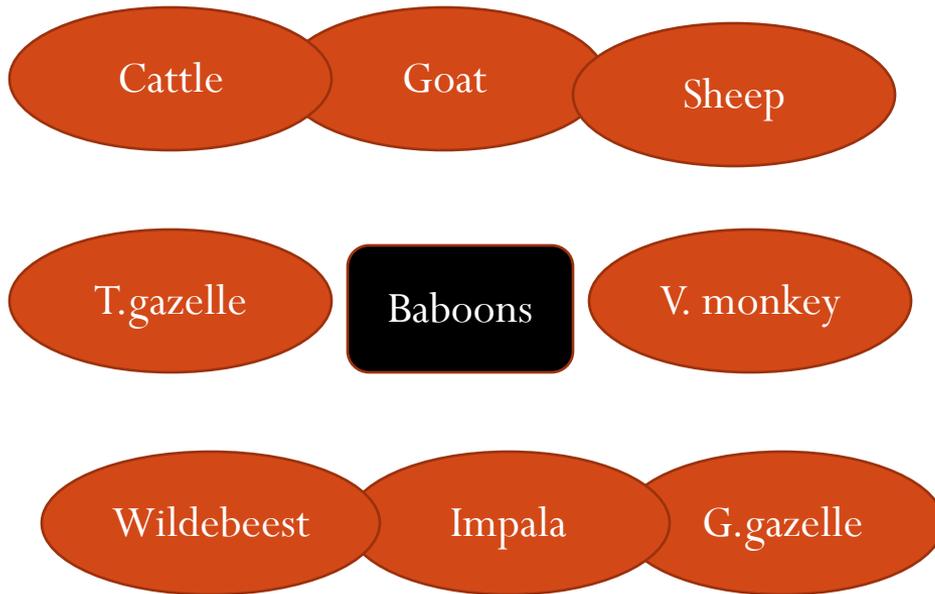
Yellow baboon, *P. anubis*

GIT helminths of baboons

- Helminths in baboons include cestodes, trematodes and nematodes
- Helminths (e.g. *Trichostrongylus sp*, *Trichuris sp*, *Oesophagostomum sp*, *Strongyloides sp*, *Schistosoma sp*) infect baboons, vervet monkeys and diverse ungulates
- Majority of helminths are ‘generalists’ – infect multiple hosts across taxa
- Helminth species in different host taxa may be similar or different

Introduction

- Baboon groups in Amboseli share home ranges with other animal species –



Vervet monkey
(*Cercopithecus aethiops*)

- Share space, pasture and water

Habitat overlap & Transmission dynamics

- Transmission is the process by which susceptible hosts acquire parasites. The rate of transmission depends on the contact rate between hosts or infectious stage and host
- Patterns and dynamics of transmissions depend on how susceptible hosts and infective stages interact, spatially or socially.
- Habitat overlap leads to overall increase in population size and density, thus contact rate, which influences helminth infection pattern (e.g in African bovids, Ezenwa, 2003)
- Habitat overlap enhances cross-species transmission between related and unrelated hosts (Howells et al, 2011)