

# **Effects of Host Movement Patterns on Helminth Infections in Zebras of Maasai Mara National Reserve and Lake Nakuru National Park**

**Linda Gatwiri Maina**

*Bsc (Baraton); Msc (Bonn); Msc (Nairobi)*

**PhD Proposal Presentation**

**Department of Veterinary Pathology, Microbiology and Parasitology**

**University of Nairobi**

# **SUPERVISORS**

**1. Prof. N. Maingi, BVM, MSc, PhD**

Department of Veterinary Pathology, Microbiology and  
Parasitology

University of Nairobi

**2. Dr. R. M. Waruiru, BVM, MSc., PhD**

Department of Veterinary Pathology, Microbiology and  
Parasitology

University of Nairobi,

**3. Dr. J. C. Ng'ang'a, BVM, MSc., PhD**

Department of Veterinary Pathology, Microbiology and  
Parasitology

University of Nairobi

# Introduction (1)



Plains zebra (*Equus quagga*)



The mountain zebra (*Equus zebra*)



Grevys zebra (*Equus grevyi*)

# INTRODUCTION (2)

- Nematodes from five families have been reported in Zebras in Kenya;
  - i. *Strongylidae*  
(*Cyathostominae*,  
*Strongylinae*)
  - ii. *Atractidae*,
  - iii. *Oxyuridae*,
  - iv. *Habronematidae* and
  - v. *Setariidae*
  
- One Cestode from the family *Anoplocephalidae* also isolated.
  
- Studies from other countries have revealed similar spectrum of helminths.



# INTRODUCTION (3)

- Parasitism is a growing conservation problem;
  - Many wild animal populations are increasingly threatened by parasitic infections
- It is therefore important to understand factors that contribute to parasitic infections;
  - Important in disease management
  - Contribute to our understanding of the role parasites play in host population dynamics
- Zebras harbor diverse species of helminth parasites

# INTRODUCTION (4)

- The factors that influence parasite infections in grazing mammalian hosts are multiple and complex.
- The movement pattern and size of space available for a host is one such factor'
  - Restricted host movement (territoriality or sedentary) reduces parasite diversity but increases intensity.
  - Extensive movement leads to higher parasite diversity though effects of long distance movement by the host on parasite intensity are equivocal.

# INTRODUCTION (5)

- Migration also reduces disease levels;
  - When infected animals do not migrate successfully, it may lead to the evolution of less-virulent pathogens.
  - Migratory demands can also reduce immune function, with consequences for host susceptibility and mortality (Altizer *et al.*, 2011).