Fire history and frost in a semi-arid savanna woodland : Understanding their impacts on vegetation structure & species composition in the Waterberg Plateau Park

Student: Vistorina Amputu

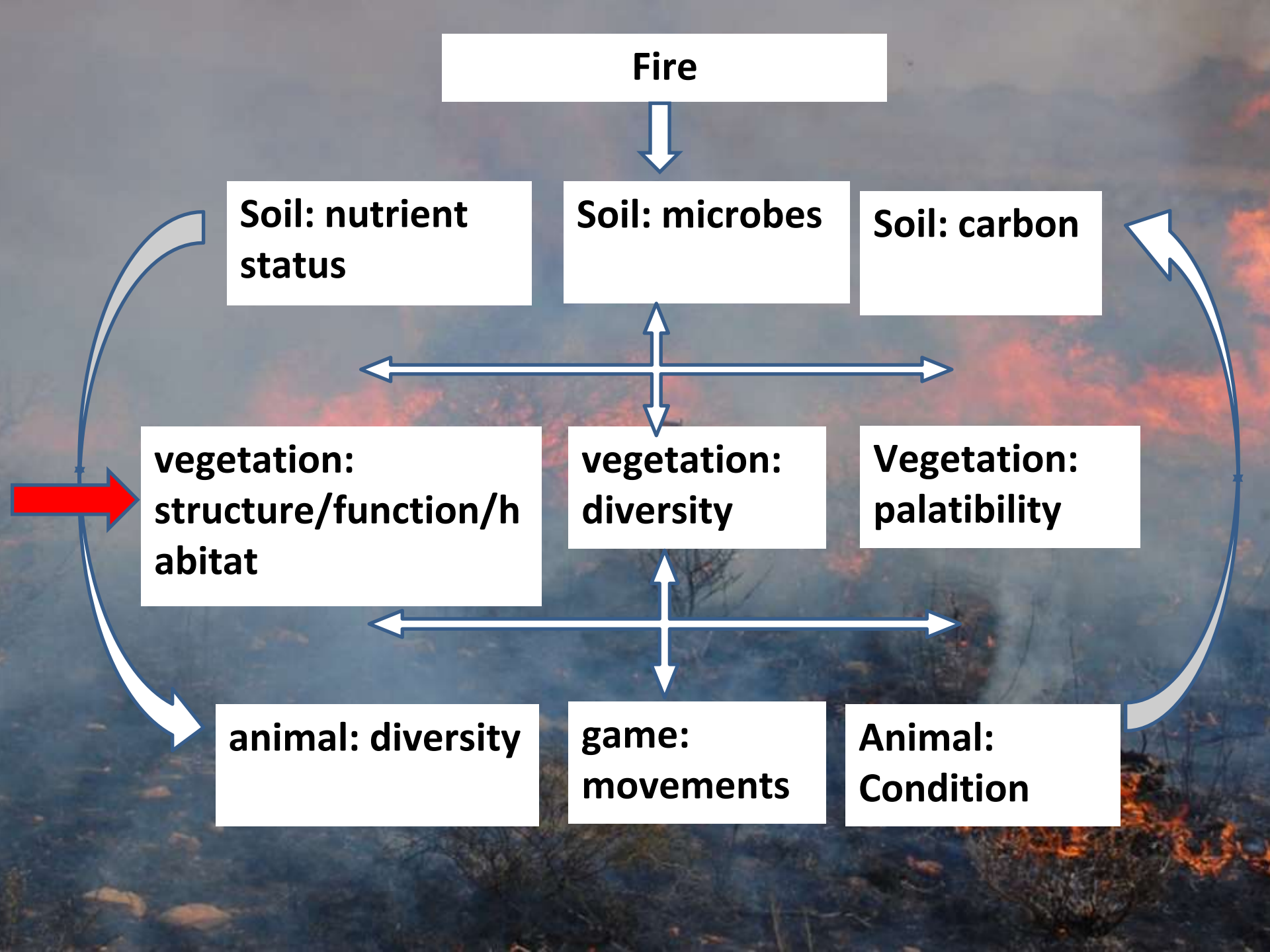
Supervisors:

Dr. D.F. Joubert (Namibia University of Science & Technology)

Prof. I. Mapaure (University of Namibia)

NAMIBIA UNIVERSITY OF SCIENCE AND TECHNOLOGY

SASSCAL


Fire
Soil: nutrient status
Soil: microbes
Soil: carbon
vegetation: structure/function/habitat
vegetation: diversity
Vegetation: palatibility
animal: diversity
game: movements
Animal: Condition

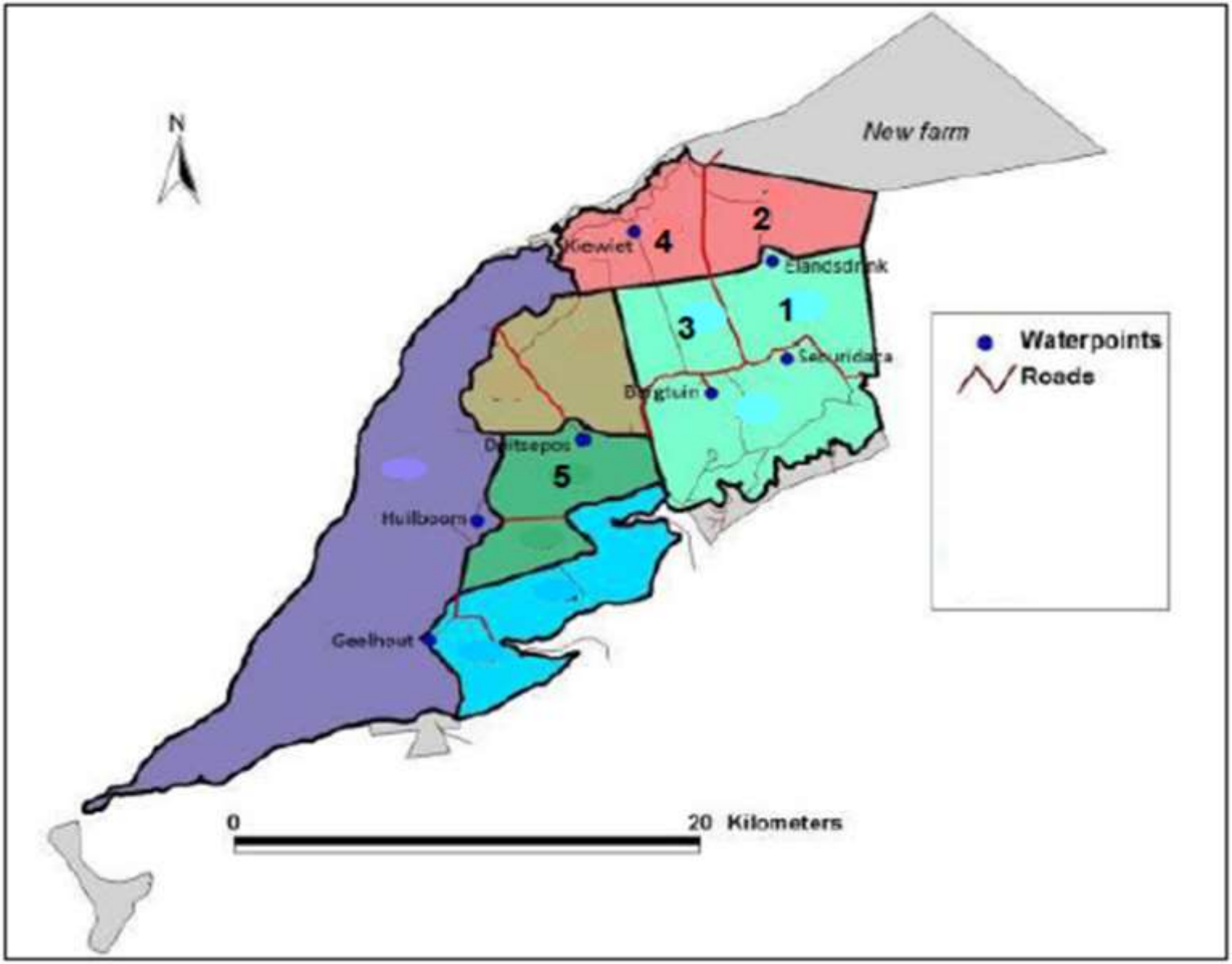
Introduction

- Fire and frost alter vegetation structure and species composition.
- But, frost is rarely studied in savannahs (Whitecross et al., 2012).

Study objectives:

- To determine how fire history and frost affect:
  - Vegetation density
  - Grass biomass
  - Woody cover
  - Species composition

Study site


N
New farm
Kiewiet
4
2
Elandsdrink
3
1
Waterpoints
Roads
Huilboom
5
Geelhout
0
20 Kilometers

Fire history treatments

Frost treatments

Main findings

- Current fire regime:
  - Positive effect on forage for both grazers and browsers
  - Maintains open woodland savanna through top-kill
  - ***No significant*** effect on species composition
- Benefit to burning areas burned > 14 years ago during a very wet year
  - Important to have habitat diversity

Insights from frost study

- Frost occurrence has similar effects as fire on woody structure.
- Indirect positive influence on grass layer.
- ***Significantly*** alters woody species composition:
  - Well adapted species such as *Terminalia sericea*
  - Others adversely affected such as *Ochna pulchra* and *Acacia ataxacantha*

Thank you!!

Let’s chat later @my poster :-)