

Potential Research Questions for 2003 Distributed Graduate Student Research

1.a. How does the relationship between biodiversity and ecosystem function change across gradients of precipitation and soil properties: comparison between southern/east Africa and N. American grasslands, savannas and deserts?

1.b. To what extent is this relationship scale dependent?

2.a. What is the relationship between plant species richness, plant production (biomass) and abiotic factors (e.g., precipitation, nutrients) and:

- a. herbivore species richness
- b. diversity of herbivore body sizes
- c. herbivore functional diversity
- d. herbivore biomass

2.b. To what extent are these relationships scale dependent?

3. What is the relationship between biodiversity and water production?

Potential African Sites with Data:

Amboseli National Park (E. Africa)
Serengeti National Park (E. Africa)
Cape Floristic Province (S. Africa)
Hluhluwe Umfolozi National Park (S. Africa)
Kruger National Park (S. Africa)
Succulent Karoo (S. Africa)

Potential Collaborators (includes their graduate students) & data:

Harry Biggs (South African National Parks)

Kruger burn plot data

William Bond (University of Cape Town)

Hluhluwe Umfolozi plant species richness, biomass, % cover
Hluhluwe Umfolozi herbivore species richness, biomass, etc.

Richard Cowling (University of Port Elizabeth)

plant species richness, abundance Cape Floristic Region
plant species composition and % cover, S. Africa 5 km grid
water production by watershed for all of S. Africa

Kay Gross (Michigan State University)

Norman Owen Smith (University of Witwatersrand)

Dave Roberts (Utah State University)

Mary Scholes (University of Witwatersrand)

Han Olff or Herbet Prins (Wageningen University)

global predicted distribution of herbivore diversity from regression model
global herbivore species richness

Sam MacNaughton or Mark Ritchie (Syracuse University)

Serengeti plant species composition
Serengeti plant biomass

Albert van Jaarsveld (University of Pretoria)