

Dian Fossey's gorillas 50 years on: research, conservation, and lessons learned



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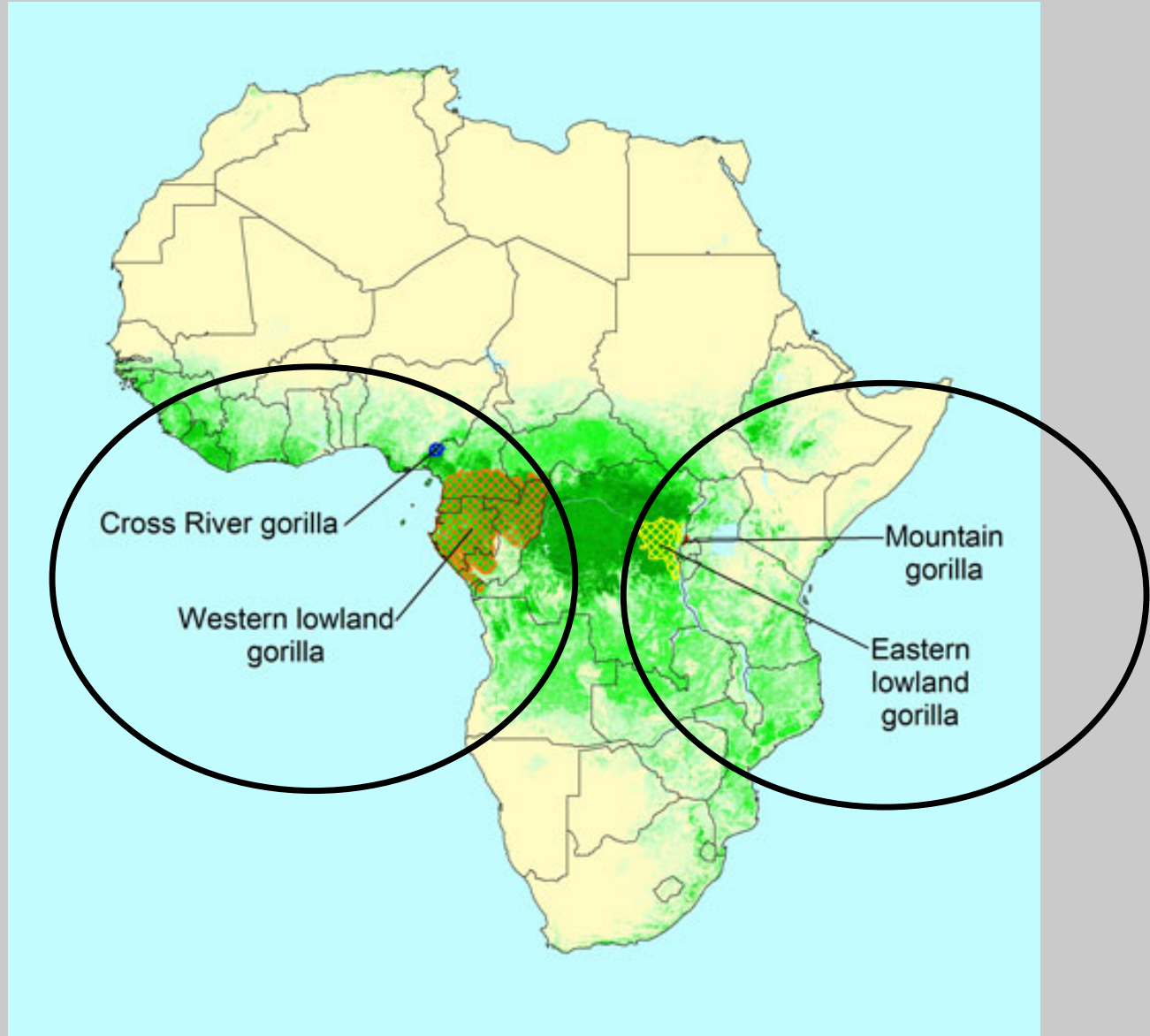


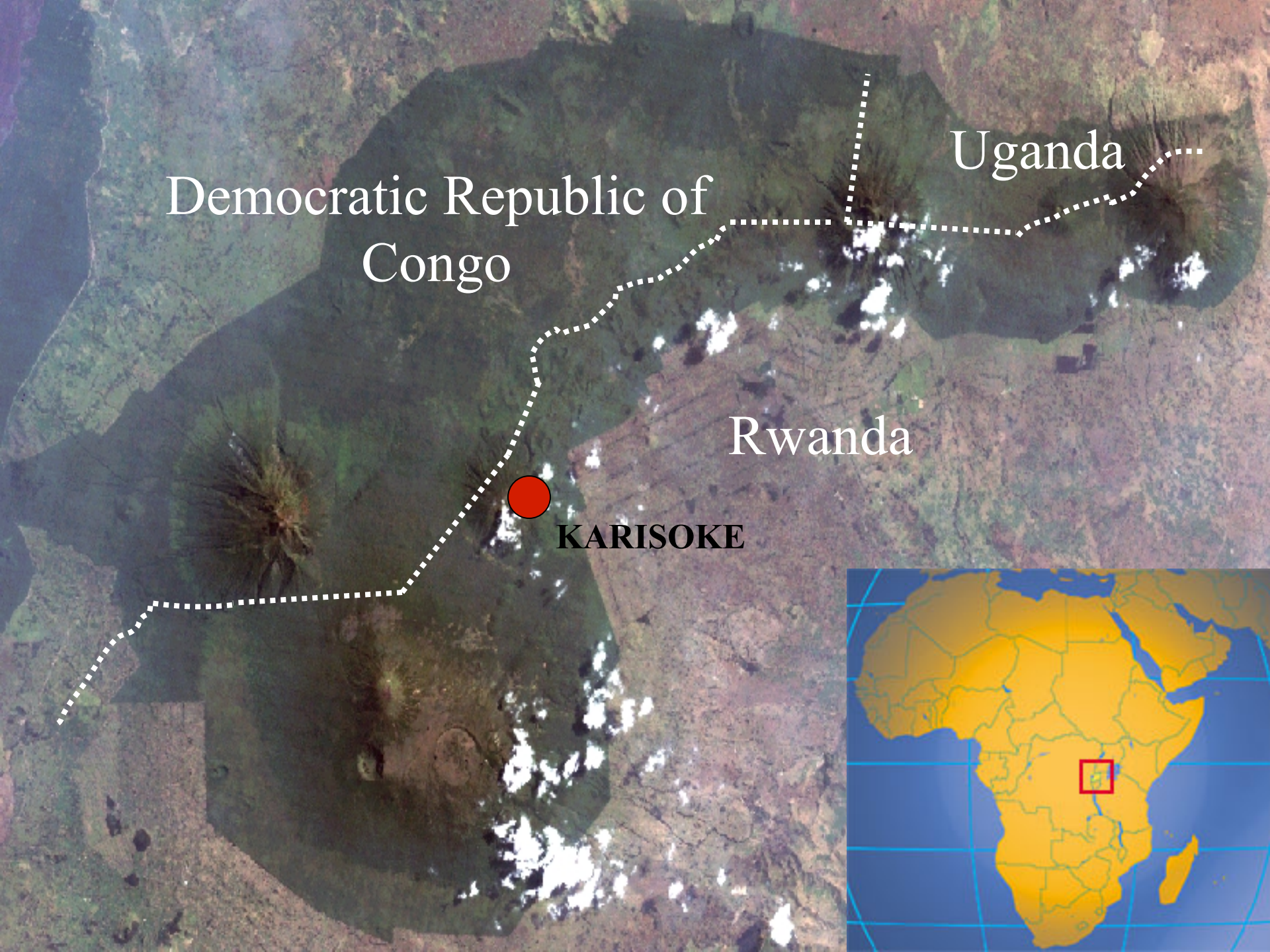
THE DIAN FOSSEY
GORILLA FUND
INTERNATIONAL

An Outline

1. A brief history (natural and human)
2. The mission today
→ Protect, educate, develop, learn
3. My role: ongoing research
4. Successes, lessons learned, and why it all matters

Two gorilla species: western & eastern





Democratic Republic of
Congo

Uganda

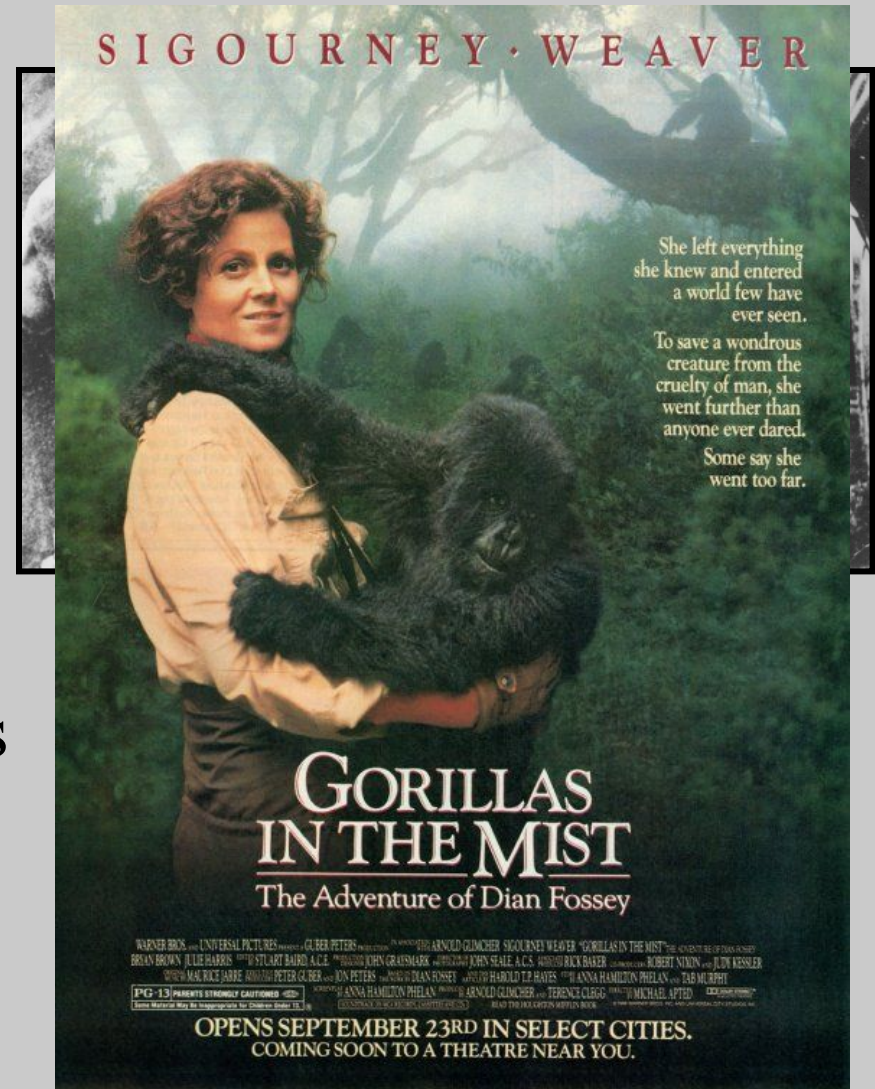
Rwanda

KARISOKE



History of mountain gorillas in western science

- **1901-** Western science ‘discovers’ mountain gorillas
- **1920s** - Carl Akeley expeditions lead to Albert National Park
- **1960** - George Schaller writes first scientific articles
- **1967** – Dian Fossey establishes Karisoke Research Center



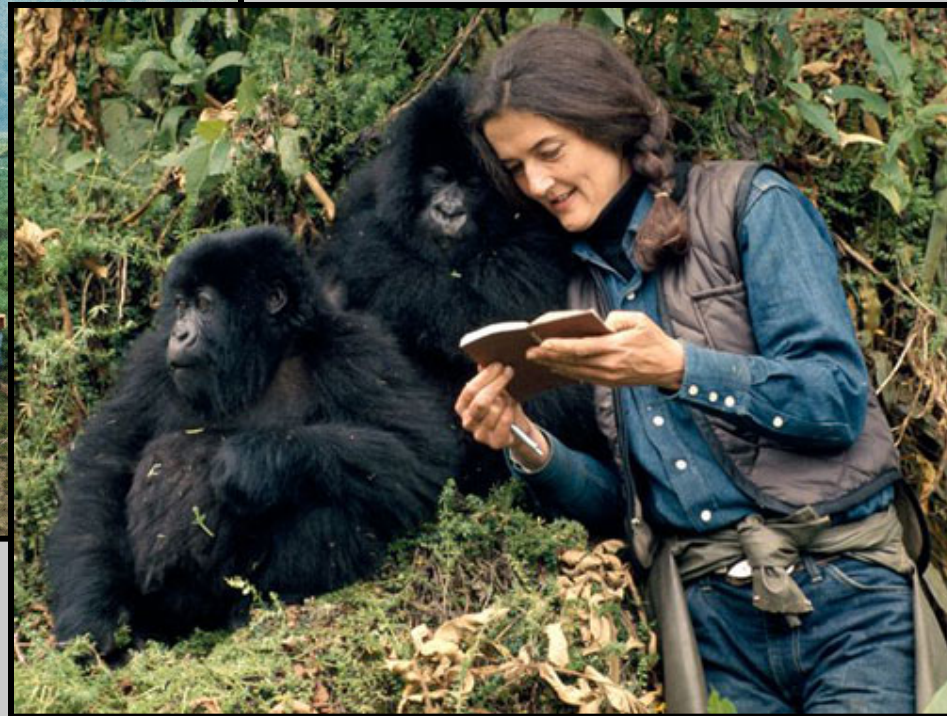
1963: Dian Fossey meets renowned anthropologist Dr. Louis Leakey



She encounters mountain gorillas for the first time, and persuades Leakey to hire her

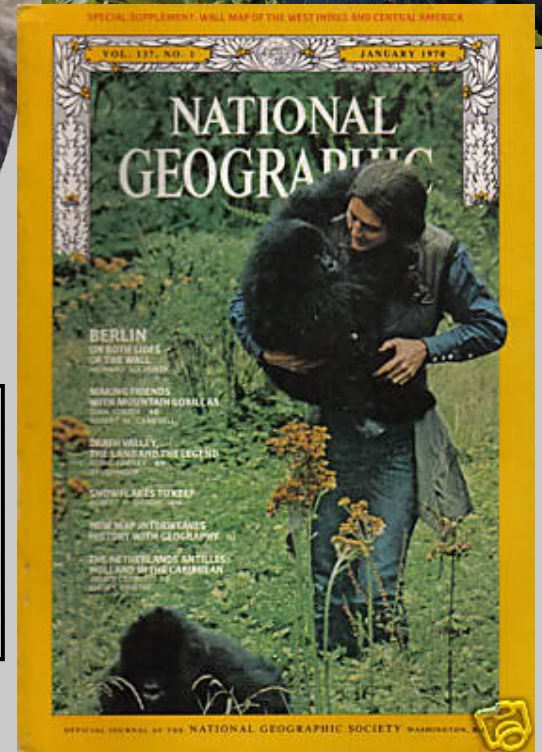


Karisoke Research Center 1967-ongoing...



Observing behavior

- Habituated groups for study
- Fossey learned to observe individuals



Karisoke Research Center 1967-ongoing...



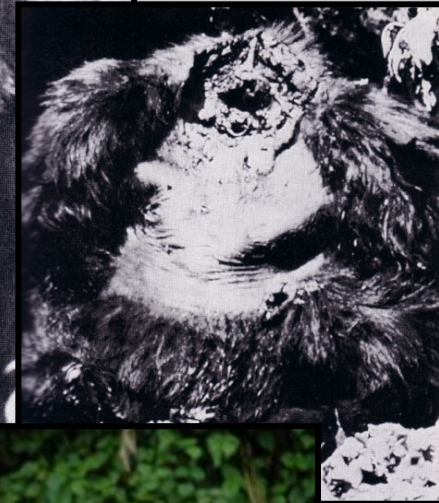
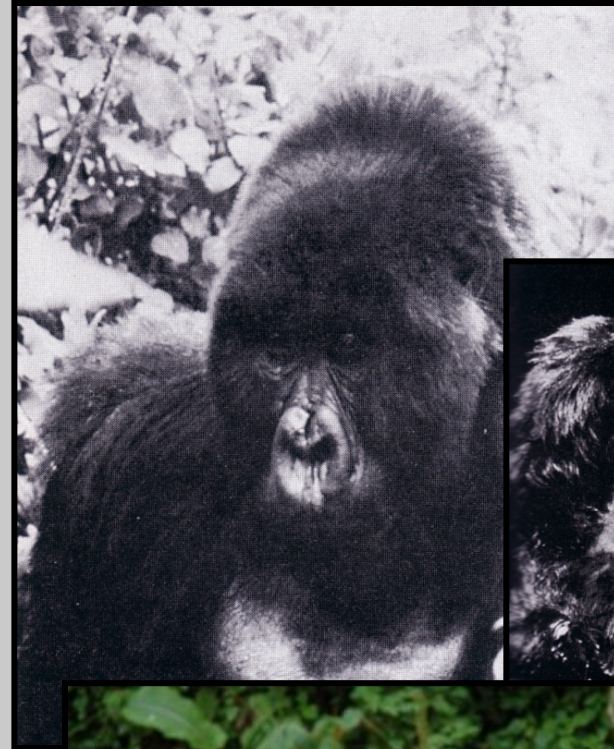
Karisoke's central objectives



- Protection
- Education
- Community Development
- **Research***



Protection & conservation historically



Protection & conservation today



Direct poaching



Disease transmission

Gorilla protection & monitoring

- Protection and monitoring for habituated gorilla groups
- Assistance to national park authorities

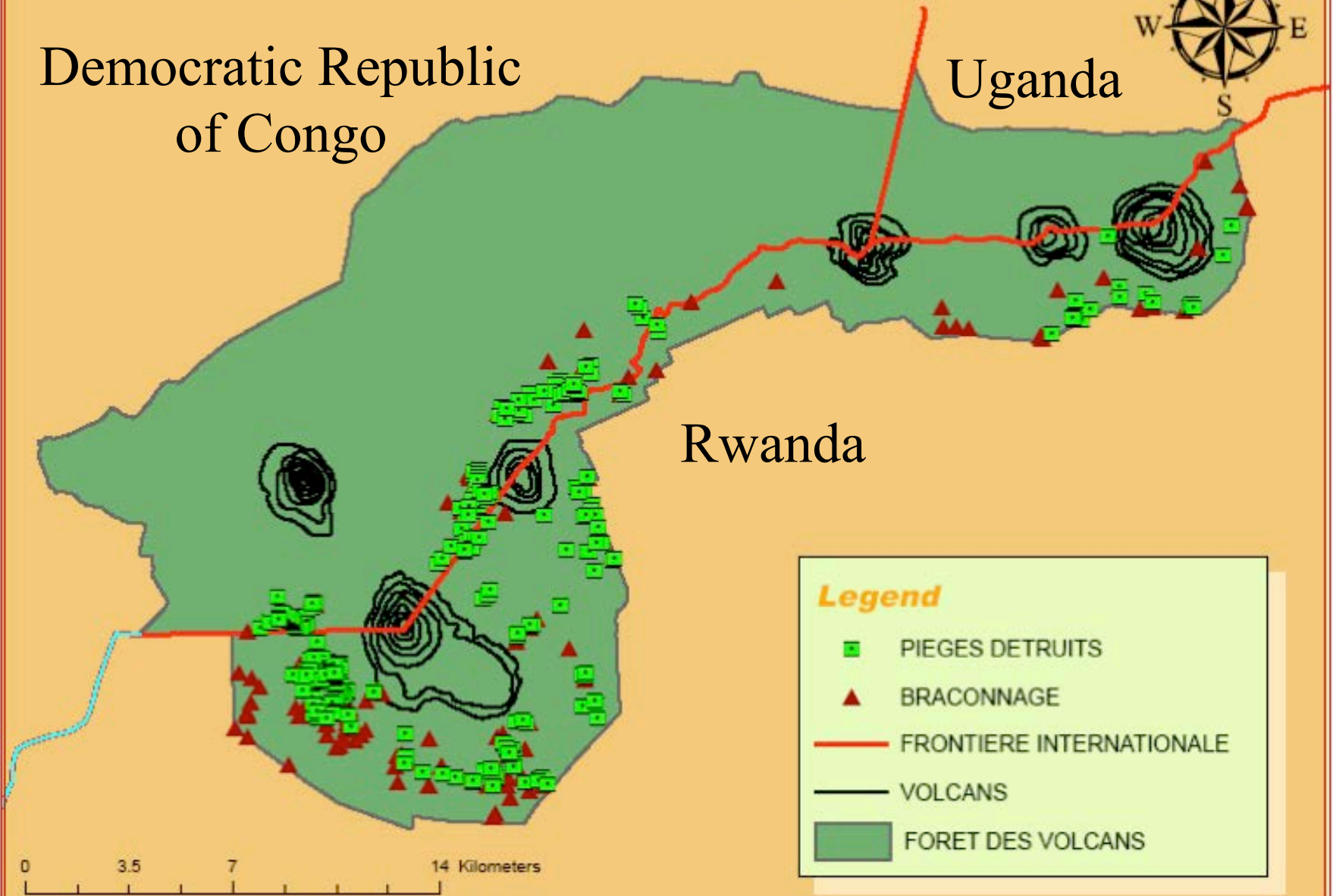


BRACONNAGE AU PNV DE JANVIER A JUILLET

Democratic Republic
of Congo

Uganda

Rwanda



Legend

- PIEGES DETRUITS
- BRACONNAGE
- FRONTIERE INTERNATIONALE
- VOLCANS
- FORET DES VOLCANS

Education

Sites of engagement:

- Primary classrooms
- Zoos (USA)
- Social media
- National University of Rwanda



“Citizen science” project

Community development

Combating poverty = improved conservation outcomes



Hospital building



Toilet facilities

Water tanks



Treating
intestinal
parasites



Solar generators



Gorilla Research Program

Key Karisoke research findings

- Gorillas aren't King Kong!
- Socioecological principles
- Male and female dispersal
- Population census



Ongoing project #1: Mountain gorilla stress physiology



Stress: causes & consequences

Drs. Tara Stoinski & Winnie Eckardt



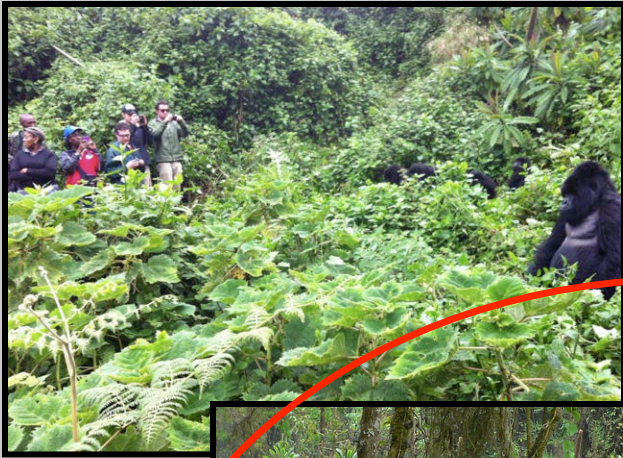
YouTube

Stress: causes & consequences

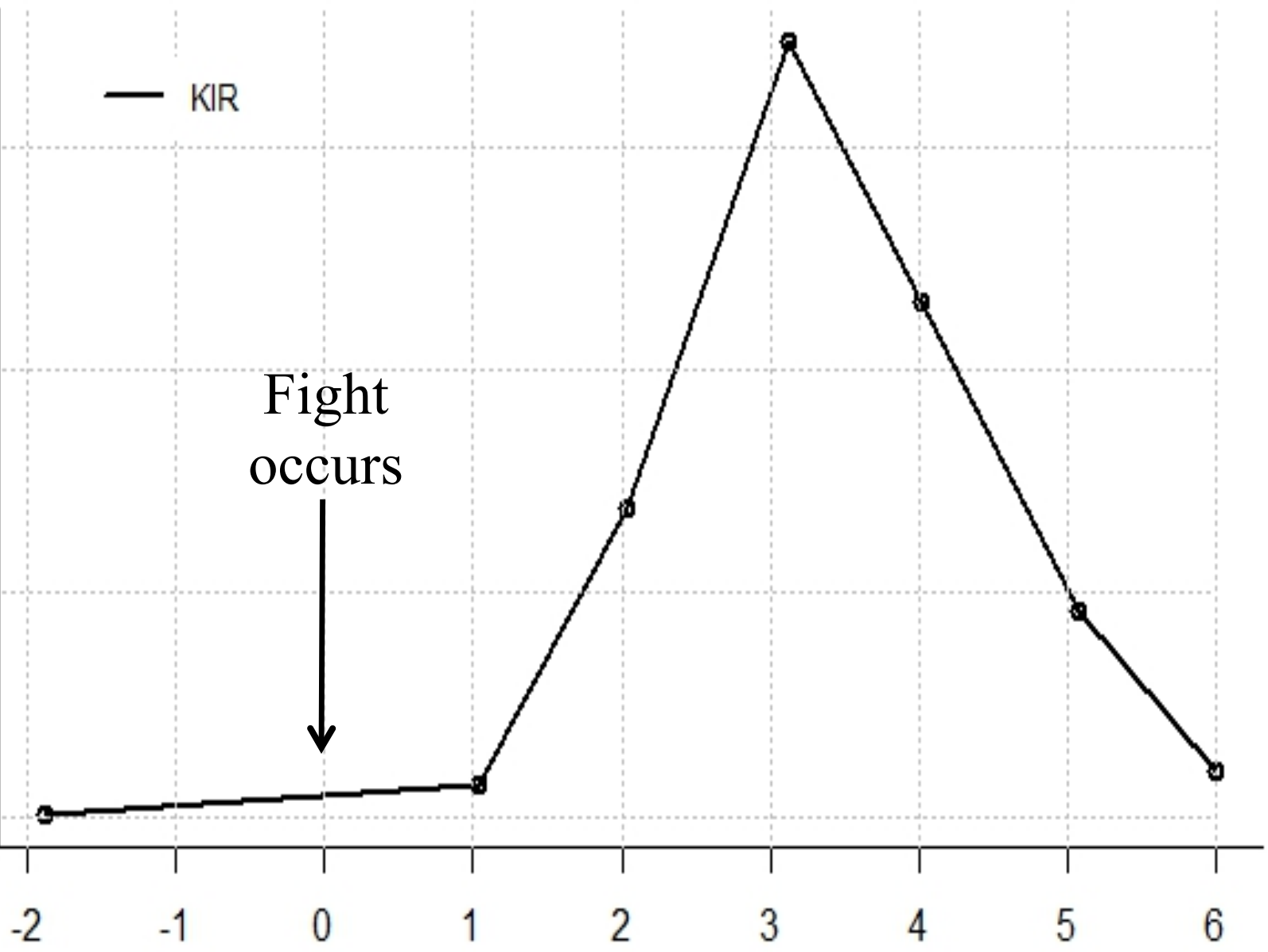
Step 1: Are we measuring what we think we're measuring?



Need to biologically validate our methods



Cortisol concentration in fecal material



Fight
occurs

Days from fight

Success! So now what?

- What kinds of events are stressful?
- Does stress affect their immune systems?
- Do changes in policy mean changes in stress?



Ongoing project #2: Male parenting behavior



Why study male parenting in gorillas?

1. Social and mating systems are flexible, like ours
 - Single, multi, and all-male groups
 - Opposite-sex kin live together for many years
2. Male-infant relationships strong & understudied
3. Long site history = detailed data, demographics



Examples of male-infant interactions



Do males and infants 'know' whose father is whose?



Sexually selected infanticide

Gelada
60% of
infant
mortality

Mountain gorillas: 21%

Northern sea
leopards: 23%



Wolverine
50%

Wolves: 27%

What matters to the male and infant gorillas?

Male rank?



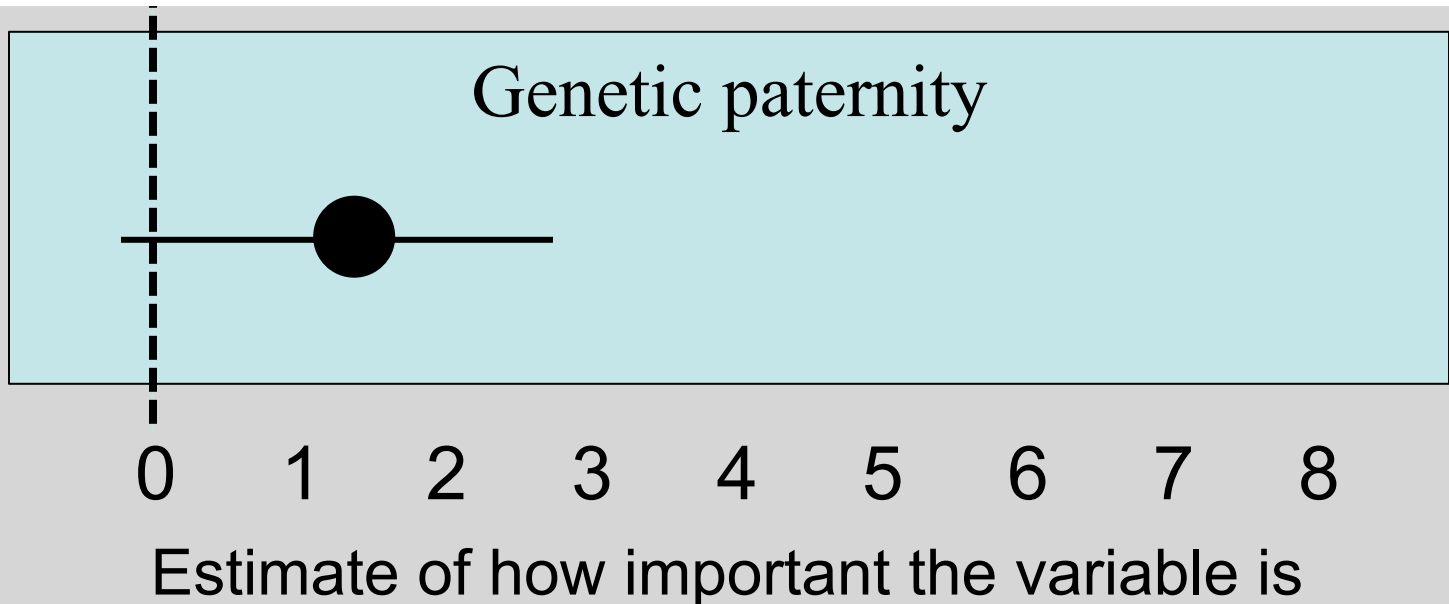
Age
difference?



Paternity?



No indicators they 'know' about paternity



Integrating behavior, genes, and hormones

Does relationship quality influence stress levels?

Do males who 'parent' more have specific hormone profiles?

Cortisol?
(the stress hormone)



Testosterone?
(the 'fighting' hormone)

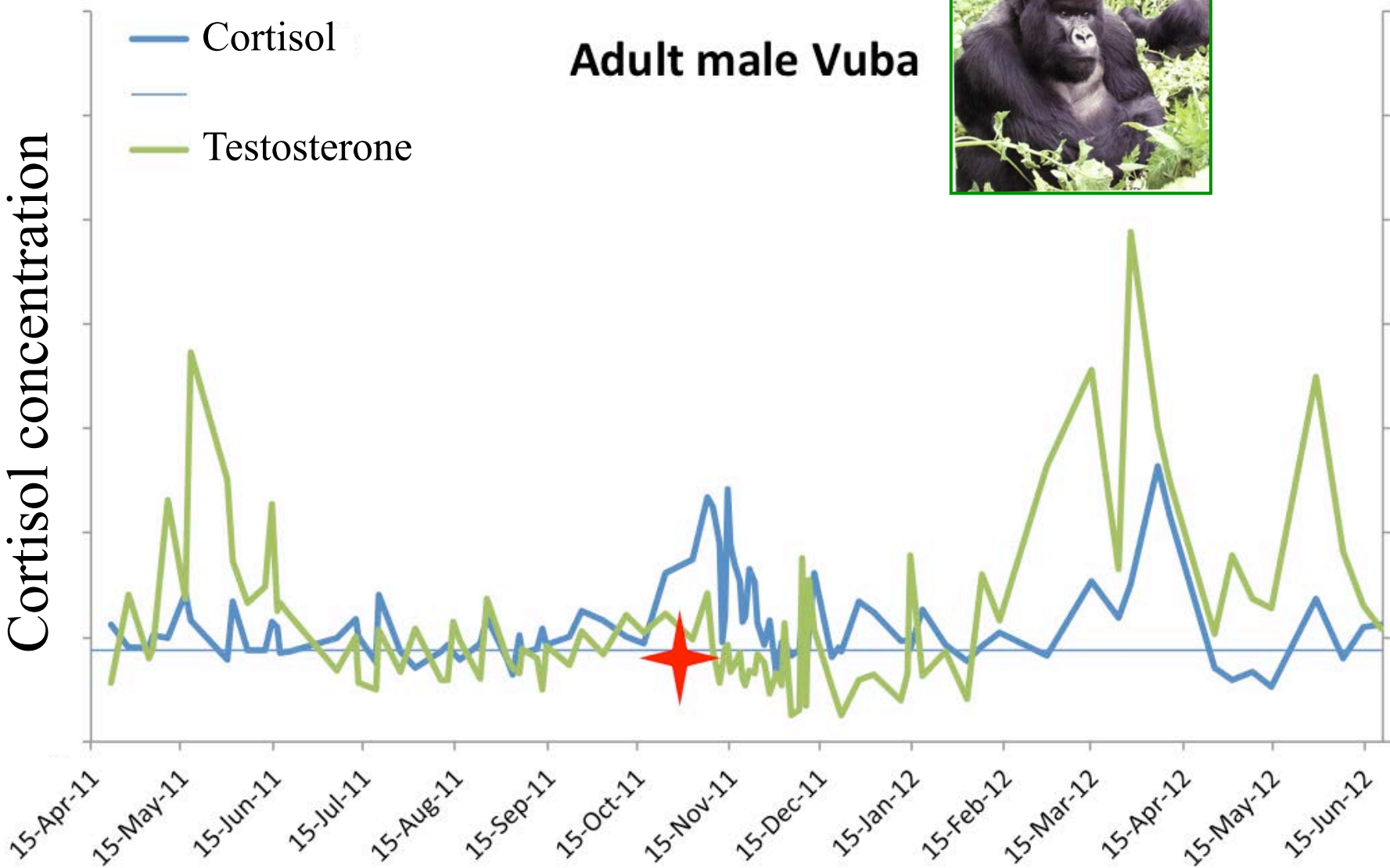
Prolactin?
(the bonding hormone)

Adult male Vuba



- Cortisol
- Testosterone

Cortisol concentration



How do research and conservation fit together?

Effective conservation requires understanding behavior and ecology.

- how many tourists can safely visit?
- is climate change affecting food supply?
- why do they not use all of the forest?
- are we transmitting disease to them?



And basic research, driven by theory questions?

Basic research drives long-term sites

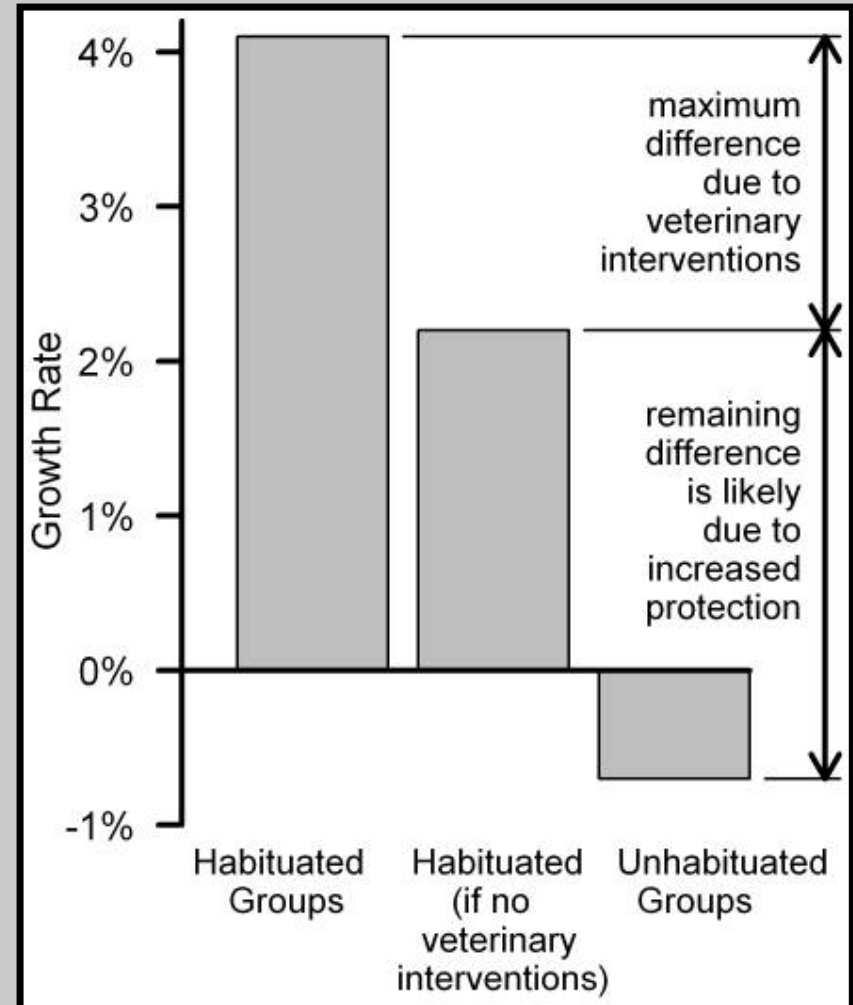
Associated with..

- higher numbers of endangered species
- long-term involvement of local populations

Insight into things that make people curious:
tool use, “war”, cooperation, decision making,
are subjects of basic research...

and curious people are people who care!

Basic research methods make “extreme conservation measures” possible



So how are these mountain gorillas doing?



The only ape population in the world that is growing



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