

A cross-sectional survey for peste des petits ruminants virus antibody in African buffalo and Grant's gazelle in the Greater Serengeti Ecosystem of Kenya and Tanzania

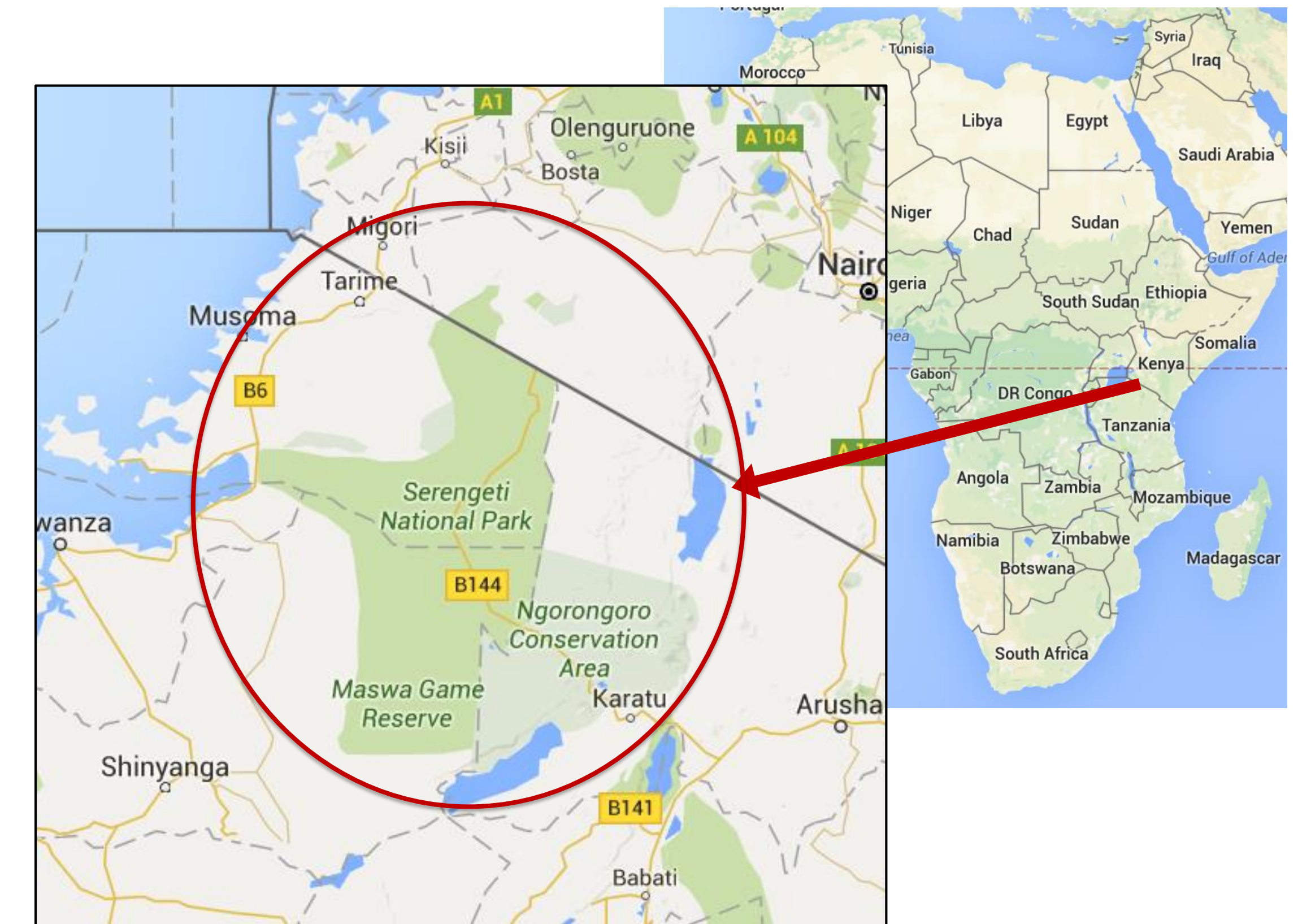


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Peste des petits ruminants virus (PPRV)

- highly infectious disease of goats, sheep, wild artiodactyls in Africa and Asia
- severe impact on food security, livelihoods and livestock trade
- spread by direct contact - animal movement, shared water and grazing, market networks
- role of wild animals in PPRV transmission unclear – are they spillover, bridge or maintenance hosts? Important knowledge gap for the Global PPR Eradication Programme
 - antibody evidence of infection in many artiodactyl species
 - clinical disease only seen in Asia, not Africa (so far) - risk to endangered wild populations.



Greater Serengeti ecosystem

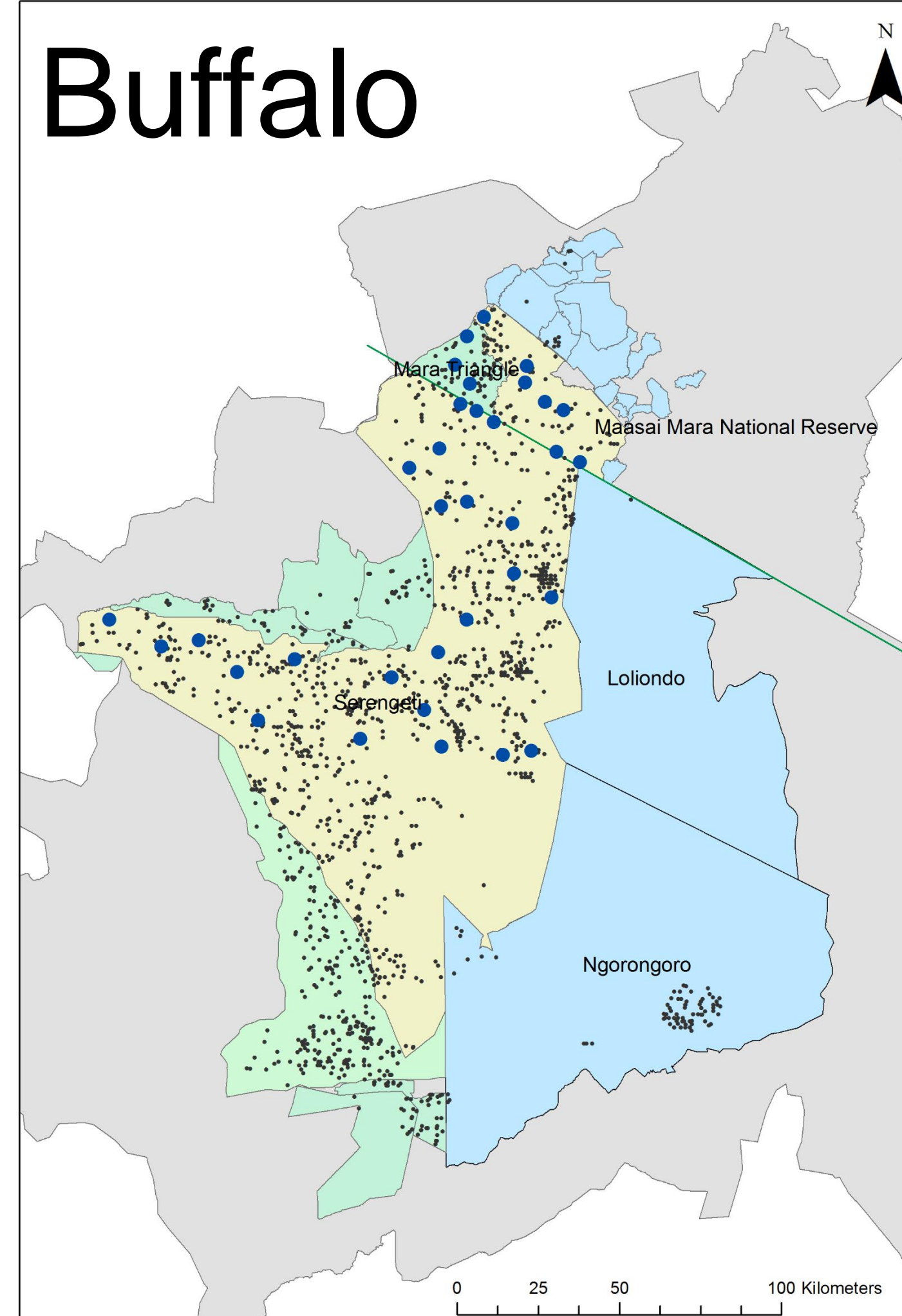
Objectives

Improve understanding of host-pathogen ecosystem of livestock, wildlife and PPR virus, in an important area of wildlife-livestock interaction.

- To determine prevalence of PPR antibody in African buffalo and Grant's gazelle in the Greater Serengeti ecosystem
- To determine absence of PPR antibody in African buffalo with no or minimal contact with small ruminants in Mara Conservancy

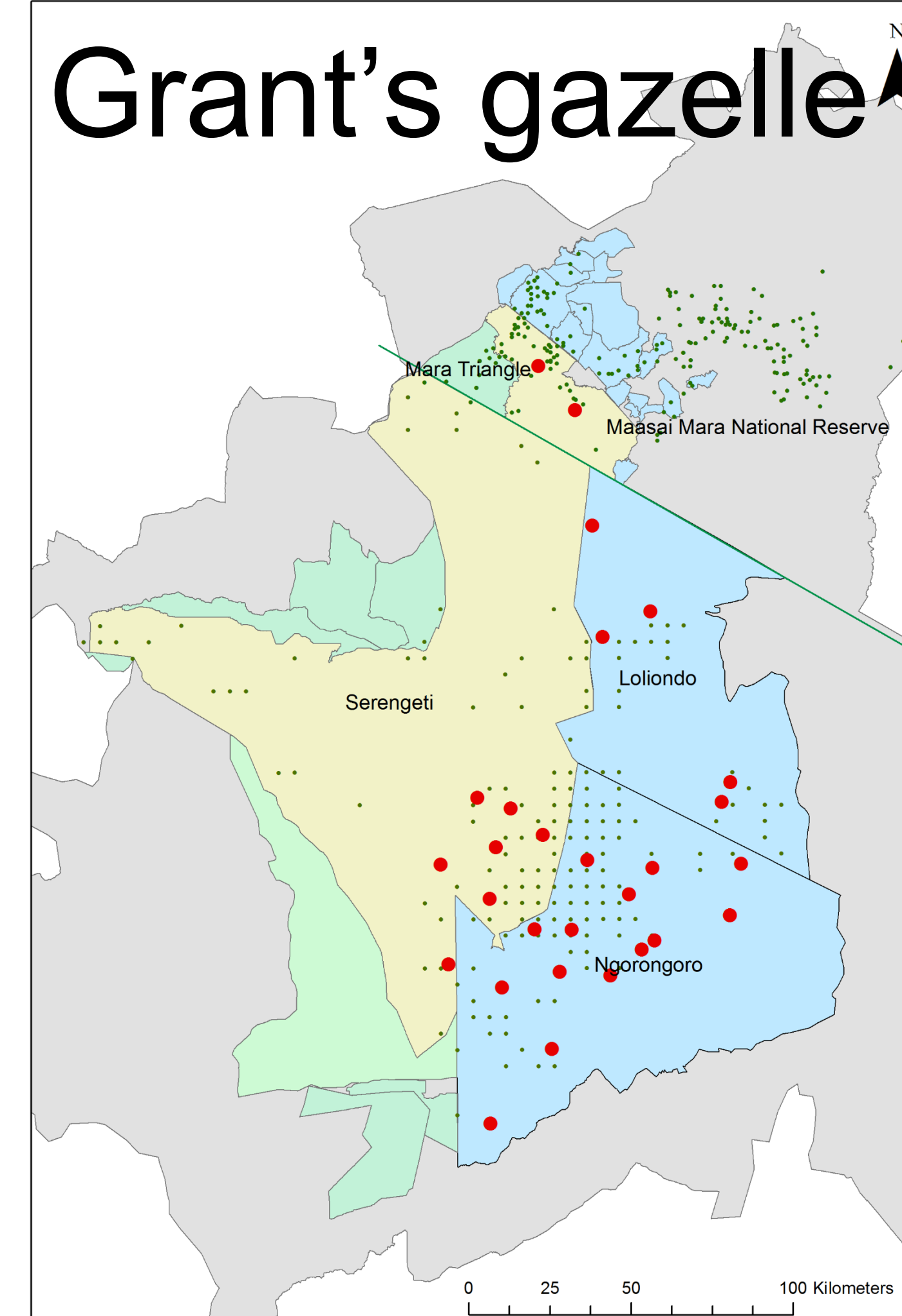
Methods

Buffalo



- sampling sites
 - distribution (aerial survey)
- Population 41,500

Grant's gazelle



- sampling sites
 - distribution (aerial survey)
- Population 125,000

Prevalence survey

- cross-sectional, 2-stage design
- sample size per species, 5 animals x 28 herds = 140 samples (expected prevalence 50%, 90% confidence level, +/-10% error)
- randomly selected GIS coordinates, 1 herd per species

Absence survey

- sample 8 buffalo, all 6 herds in Mara Conservancy = 48 samples

Capture

- darting buffalo, netting gazelle

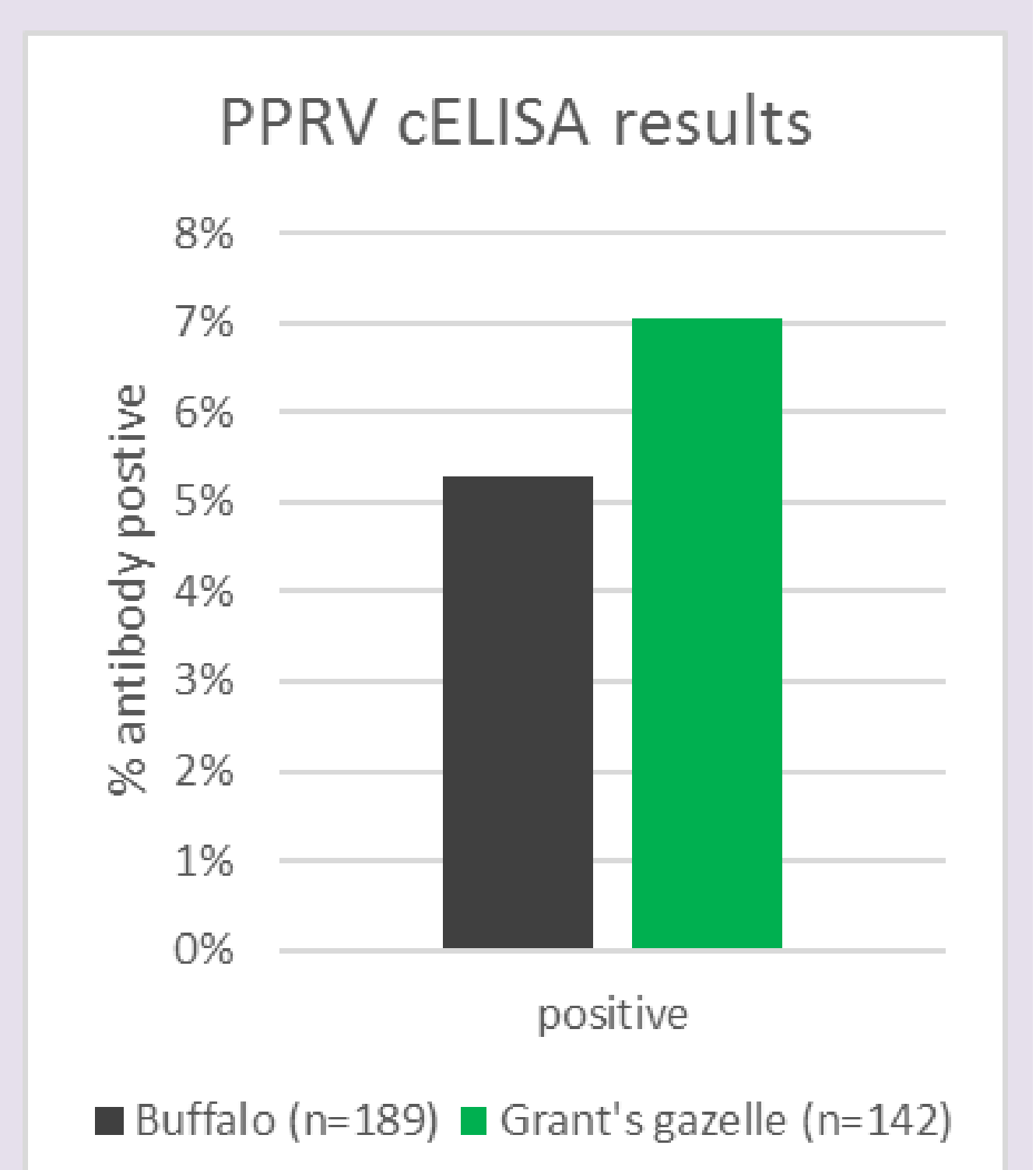
Laboratory testing

- PPRV antibody cELISA (IDVET)
- Se 94.5%, Sp 99.4% for sheep, goats, cattle - not validated for wild species*

Results & Conclusions

- Low sero-prevalence in spite of confirmed PPRV disease in sheep & goats in ecosystem during survey:
 - Buffalo 5.3% seropositive (8.5% Mara Conservancy)
 - Grant's gazelle 7.0% seropositive
- Sustained PPRV transmission in buffalo & Grant's gazelle unlikely
- Infection likely due to spill-over from domestic sheep and goats.

* Need to validate cELISA in wild species – focus of new project.



African buffalo with tranquilizer dart, Mara Conservancy (KWS)