WORLD ORGANISATION FOR ANIMAL HEALTH
Protecting animals, preserving our future

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Anthrax in wildlife in Africa

Wildlife health globe-trotting

OIE Webinar **World Wildlife Day**

Global wildlife health
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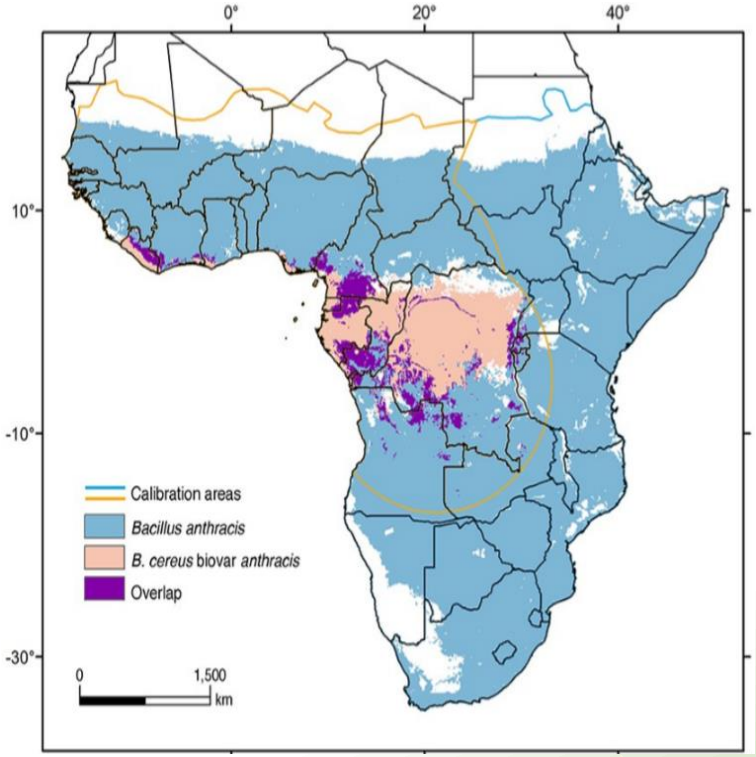
Anthrax in wildlife in Africa

- Anthrax is a soil-borne disease
- Caused by spore forming bacteria
  - *Bacillus cereus* biovar *anthracis* (Bcbva) and *Bacillus anthracis*
- Causing are periodic and localized outbreaks in **wildlife** and **domestic** livestock, sometimes with spillovers to **people**, leading most often to **cutaneous** anthrax and sometimes to **pulmonary** and **gastro-intestinal** forms of anthrax
- Most of the wildlife in Africa lives in the savanna ecosystem



Overlapping regions for both pathogens *Bacillus anthracis* and *Bacillus cereus biovar anthracis* causing anthrax in Africa (Romero-Alvarez D, et al., 2020)

Wildlife and livestock grazing together, in a savanna ecosystem, in Africa.

Unfortunately, anthrax is not easily detected in wildlife (surveillance) ; therefore people and livestock often serve as sentinels for the disease in wildlife.

Spillovers to people result from the butchering and consumption of wild and domestic animals that have died or are diseased from anthrax

Nakuru residents contract cutaneous anthrax after eating bad meat

Friday, July 01, 2016 — updated on July 02, 2020

By Magdalene Wanja

Situation of anthrax in Africa

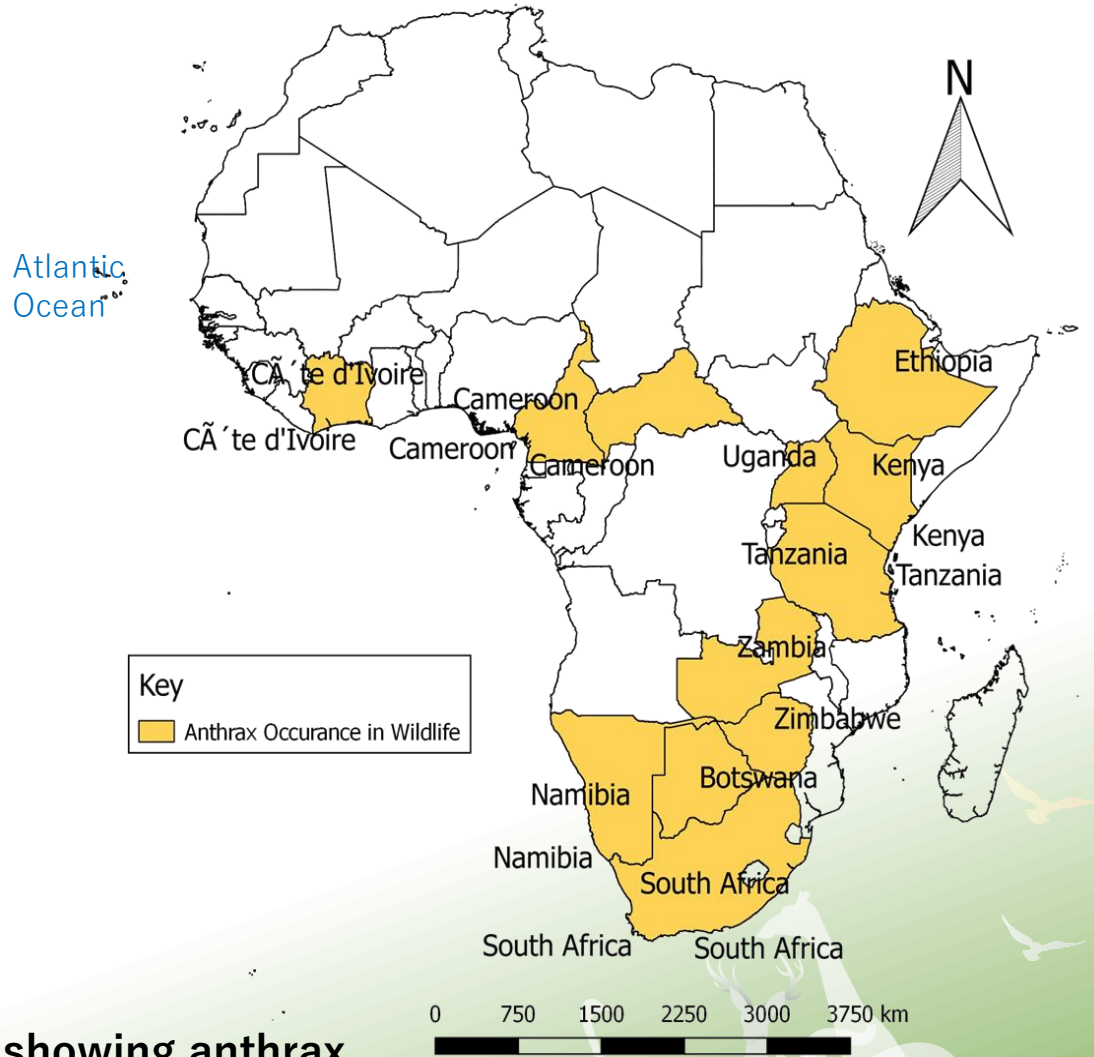
- One of the oldest diseases **in animals** in Africa
  - Quoted in the bible in Egypt in 1491 BC
  - Genotyping studies suggested anthrax origin to be in Sub-Saharan Africa with spread to the rest of the world

- Earliest records of anthrax **in wildlife** date back to over 150 years ago (Henning, 1956)
- Herbivores are the most susceptible to anthrax
- Outbreaks mostly occur during the dry seasons

Anthrax in hippo, Lake Nakuru National Park, 2015

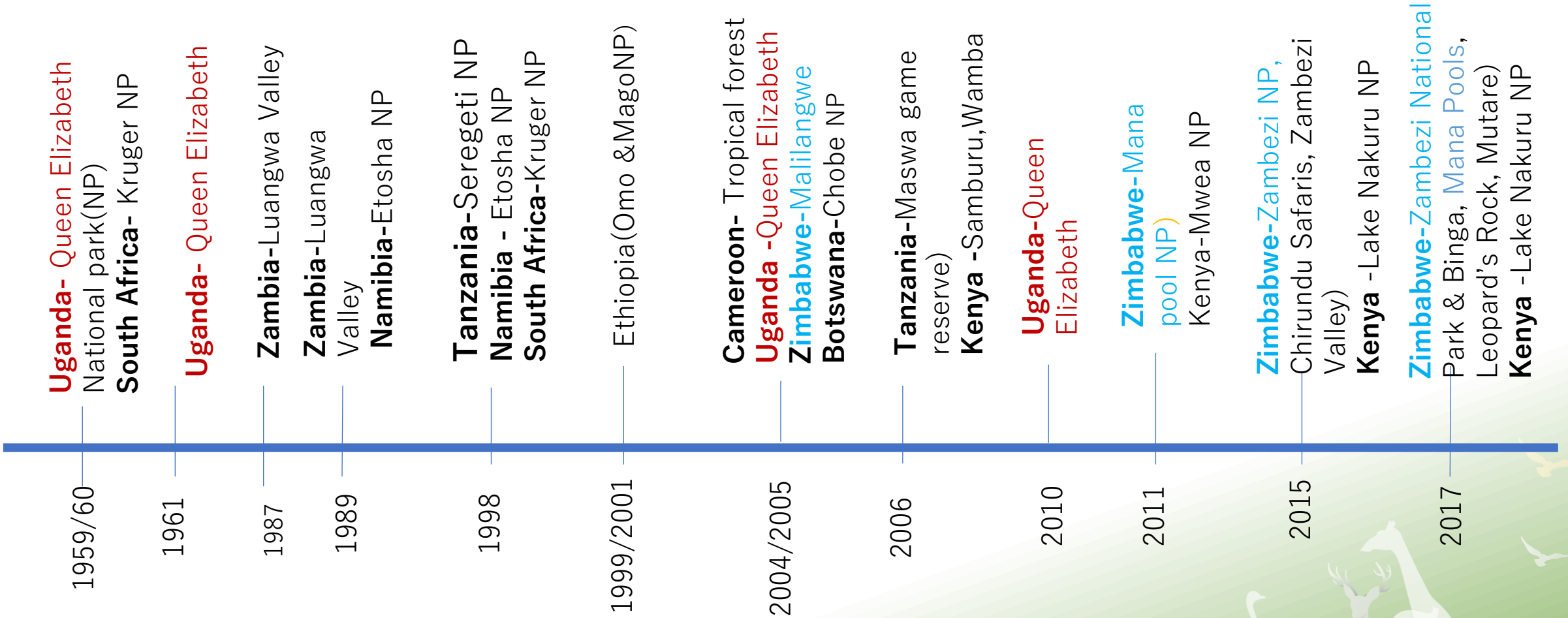
Occurrence of anthrax in wildlife in Sub-Saharan Africa

- Anthrax in wildlife is documented in 12+ countries
- Southern Africa
  - Five countries
- Eastern Africa
  - Four countries
- West and central Africa
  - Three countries
- Likely under-reported



A map of Africa showing anthrax occurrence in Sub-Saharan Africa.
Source. Presenter

Timeline of documented anthrax outbreaks in wildlife, in Africa



Distribution of anthrax in wildlife in Southern Africa

Country	National park(NP)	Species affected	Reference
Zambia	Luangwa Valley, South Luangwa River	4,000+ hippos, Cape buffaloes and elephants; 85 hippos	Turnbull *et al.,* 1991, Lehman *et al.,* 2017, OIE reports
Namibia	Etosha NP Bwabwata NP	76 cases: elephant, zebra, wildebeest and springbok 155 hippo, 86 Cape buffalo	OIE website Cossaboom *et al.,* 2017
Zimbabwe	10 outbreaks in 5 wildlife conservancies	3,171 different animals died; hippos, buffaloes, elephants, kudu among others	Clegg etal.,2007, Mukarati *et al.,*2020
South Africa	Kruger National Park	Zebra, hartebeest , springbok and kudu; 160 cases; 52 species, 68% being kudu and buffalo	Thomas & Neitz, 1933; De Villiers, 1943; Neitz, 1965), OIE website
Botswana	Chobe National Park	14 elephants	

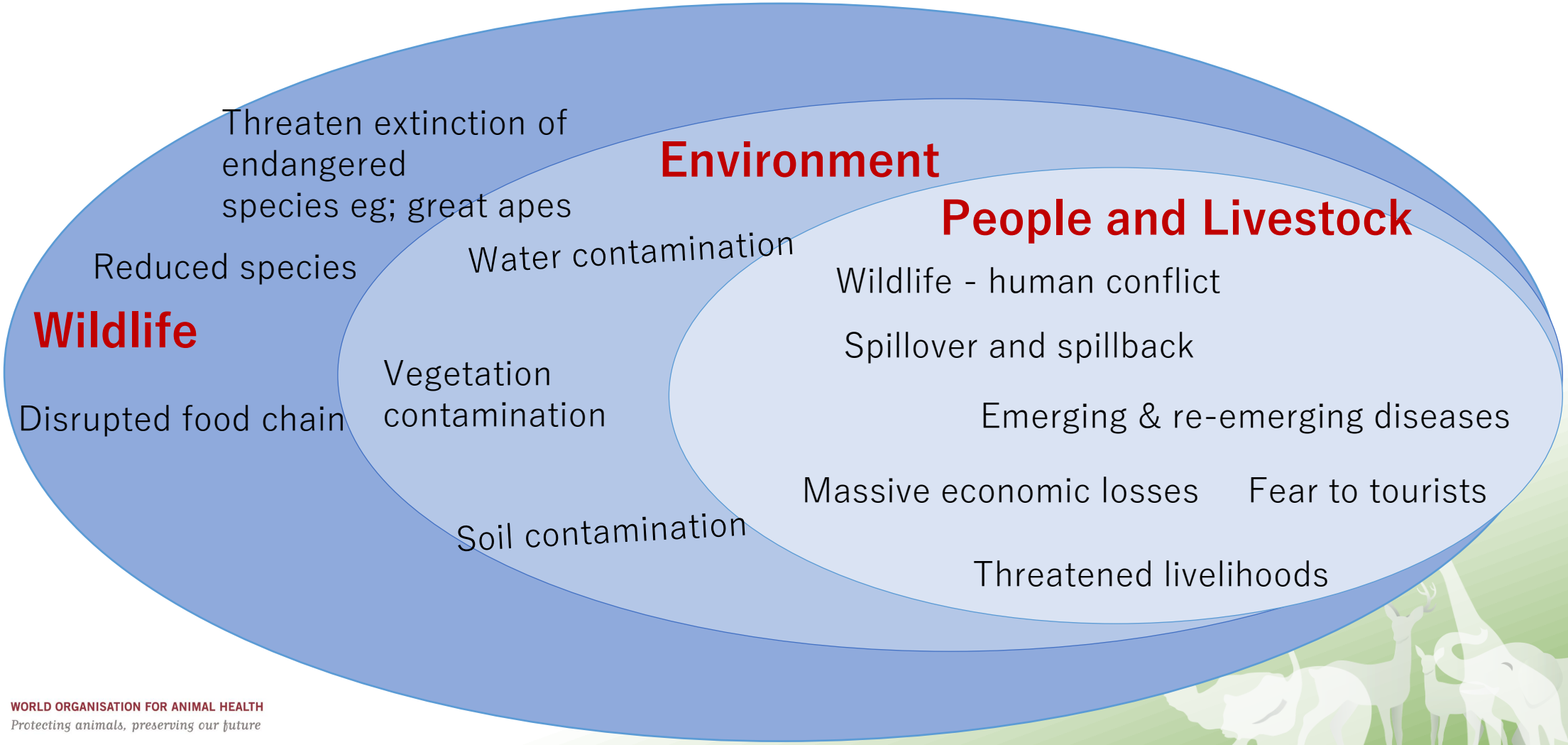
Distribution of anthrax in wildlife in Eastern Africa

Country	National park(NP)	Species (deaths)	Reference
Uganda	Queen Elizabeth NP	437 hippos	Driciru *et al.,* 2018 Mapesa *et al.,* 2007
Ethiopia	Omo and Mago NP	Lesser kudus	
Tanzania	Manyara Seregeti Maswa Game Reserve	Buffalo	Mwakapeje *et al.,* 2018, Richard Hoare & Robert Fyumagwa,2010
Kenya	20 (1/3) wildlife conservation area in Kenya, 51 Anthrax outbreaks	1,014 deaths, 24 different wildlife species, 90% being herbivores	Kaitho *et al.,* 2013, Muoria *et al.,* 2006, Mathew Muturi *et al.,* 2018, Gachohi *et al.,* 2019

Distribution of anthrax in wildlife in West and Central Africa

Country	**National park(NP)**	**Species affected**	**Reference**
Ivory Coast	Taï National Park	8 wild chimpanzees *(Pan troglodytes verus)*	Leendertz, F. *et al.,* 2004
Cameroon	Tropical forest	1 gorilla, 3 wild chimpanzees	Leendertz, F. *et al.,* 2006

Effects of anthrax in wildlife on ecosystem health and biodiversity



What can be done to control anthrax in wildlife in Africa

Shared lessons from anthrax outbreaks in wildlife in Africa

- **One Health** approach to surveillance: gives better data and improved response
- **Early warning systems -** Real- time reporting to prevent spillover to people
- Regional coordinated anthrax **network** should be considered in order to bridge data gaps and address underreporting
- Control of anthrax involves **breaking the anthrax cycle-of-infection** (vaccination of livestock and endangered species, destruction of carcasses, decontamination of the environment)
- Anthrax outbreaks range from **sporadic to high-mortality epizootics**
  - No consistency in space and time (naïve populations)
- Anthrax drivers are a complex
  - Climate, soil conditions, animal community structure, socio-cultural behaviours (traditions, poverty and food insecurity), and movement of animals


Thank you for your attention