Lessons from the field: the importance of trans boundary collaboration

Comfort Nkgowe (DVM, MVS-Con Med)
District Wildlife Veterinarian
Ngamiland Region

Lesson Learnt; collaboration

- Suspect Anthrax outbreak in KAZA conservancies (Namibia and Botswana?)
- Possible spill over effect (question of a chicken and egg)?
- Tuberculosis approach of a primary lesion could be used to establish the source of the outbreak (the bigger the lesion is the primary lesion)

Anthrax outbreak: Collaboration

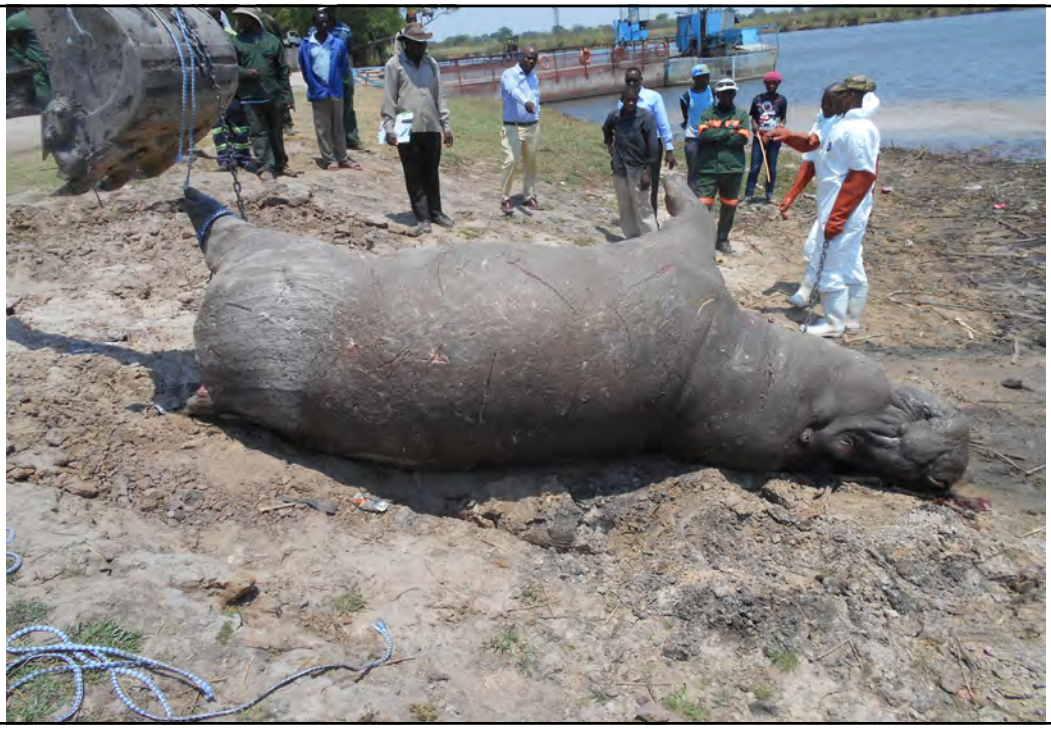
- During the inter-outbreak periods, the anthrax bacterium survives in the environment as a highly resistant spore.
- Anthrax spores survive best in **alkaline soils that are rich in calcium** and have a relatively high moisture and organic content.
- Where there to intervene or NOT
- Decision tree analysis

Anthrax Outbreak: Collaboration

- "Anthrax outbreaks are commonly associated with low-lying depressions with high moisture and an **alkaline pH**.
- Successive cycles of flood runoff and evaporation appear to concentrate the anthrax spores in these depressions, which may be referred to as concentrator areas.
- With the seasonal decrease in water levels in these concentrator areas, the resident wildlife using this water source may be increasingly exposed to higher concentrations of accumulated spores"
- The aforementioned picture was empirical evidence of the outbreak
- More mortalities were found in drying Lagoons that forms part of Okavango river branches (Important to note the Number of hippos in these lagoons)

Lesson Learnt: Outbreak Investigation In Botswana

- History ; Dead Hippos were reported floating past Mohembo through Okavango river
- Department of Veterinary Services (DVS) and Department of Wildlife and National Parks Veterinarians started investigations.
- Floating Hippos were noted by investigating officers
- Floating hippos was confirmed to be from the other side of the boarder



Lesson Learnt; Outbreak investigation

- Cross boarder communication was done and a visit to Namibia was done to meet with relevant authorites
- Investigation and sampling was done in Namibia by collaborating technicians
- Post mortem findings was consistent with Anthrax case
- Microscopic laboratory findings demonstrated a Gram-positive rod shaped bacilli

Lesson Learnt: outbreak Investigation

- Sampling in Botswana was failing to demonstrate Anthrax
- Failure to find a fresh sample was also a challenge (easily identifiable within 12 to 24 hours)
- No. of fresh samples were not as many as in Namibia

Lesson Learnt; outbreak investigation

- It was also difficult to sample a fresh hippo in a flowing river
- Weekly meeting with Namibian authorities helped us to manage the outbreak because we were able to understand the dynamic of the outbreaks
- It was a privilege to cross the boarder without a Passport!!

Investigation and New cases

- It was important to define a new case because most carcasses were floating from the other side of the Boarder
- First five different groups of hippos were identified 10 Km along the slowly flowing river from the boarder fence where we identified an Index case (first case)
- It was also established that the low currency of flowing river couldn't carry and or float a fresh carcass

Lesson Learnt; outbreak investigation

- Defining a case that belong to Botswana

❖An animal that is found dead in Botswana lagoons (Whether fresh or old)

❖An animal that is seen fresh and trapped near the identified five groups of Hippos within 10KM from the index case

❖Early morning survey with a boat

❖Late afternoon aerial survey and ground survey with a boat were done to identify a new case within 10km

Carcass disposals; Lesson Learnt

- Field investigation supported by postmortem finding concluded the outbreak to be Anthrax
- Epidemiologic linking of similarity of cases within the same river ecosystem (same epidemiologic Unit)
- The outbreak was handled to be anthrax as confirmed in Namibia
- Collaboration worked effectively for our advantage

Lesson Learnt: Outbreak Handling

- One health approach to a disease investigation (stakeholders engagement)
- Public Private Partnership (engaged Public and Private on donation of basic equipment while waiting for government procurement processes)
- Information dissemination and Public education

Lesson Learnt: Outbreak Handling

- Emergency vaccination of cattle population
- Participatory epidemiology

(Kgotla meetings:Meeting at community gathering center's)

- Prophylactic treatment of communities that harvested dead hippo carcasses
- Weekly cross boarder meeting

Lesson Learnt: Outbreak Handling

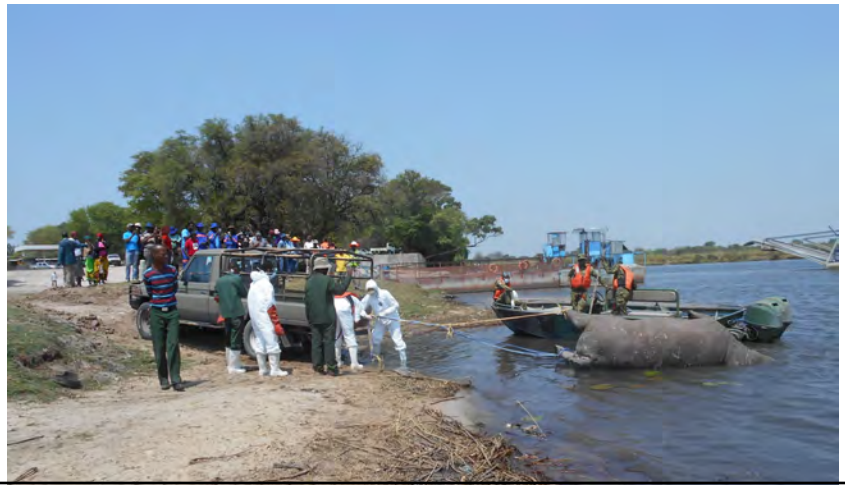
- Temporary fence along the river system
- This was to stop floating carcasses that are carried to another side of the boarder
- Hippos are reported to be facultative carnivores (eat intestines of others)
- This helped to curb the outbreak in time
- Dilution effect of flowing water helped to reduce the number of cases in Botswana (21 cases compared to Hundreds on the other side of the Boarder)

Lesson Leant: Fencing

- Fencing will still maintain its importance in the control of animal diseases
- The cessation of new cases recorded in Botswana was associated with temporary fencing at the boarder across the river targeting floating hippos
- The temporary fence was maintained until the end of Anthrax outbreak on the other side of the boarder
- For emerging diseases not to wipe all wildlife KAZA conservancies, we would need to think of temporary fencing that does not affect ecological processes of other species but targeting the species concerned during the time of an outbreak

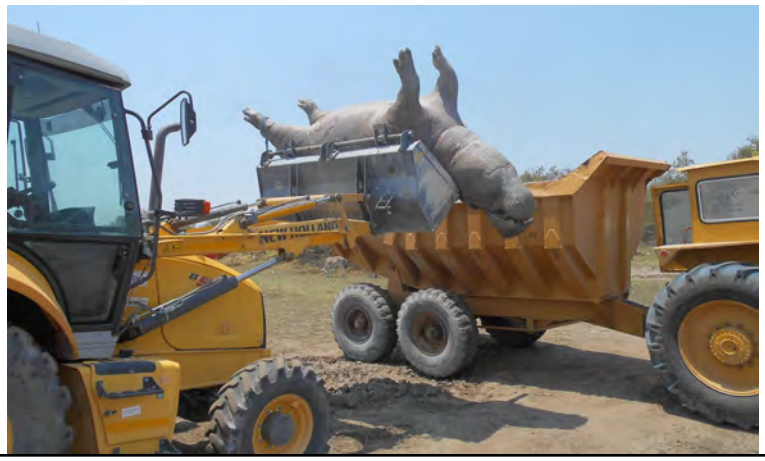
Lesson learnt; Disease investigation

- One health approach to a disease investigation



Lesson Learnt;

- Machinery offered by a Local Private company



Lessons Learnt ;Disease investigation

- It is important to engage our biologist or ecologist colleagues during Wildlife disease investigations
- The understanding of a species biology is important in a wildlife diseases investigation

Lesson Learnt; collaboration

- Surveillance and health monitoring are important towards providing appropriate level of understanding the health status of wildlife populations
- It appears that most of the KAZA countries doesn't have documented surveillance programmes for wildlife diseases,
- it has been recorded elsewhere that some wildlife population declines (extinctions) are attributed to diseases

Lesson Learnt; collaboration

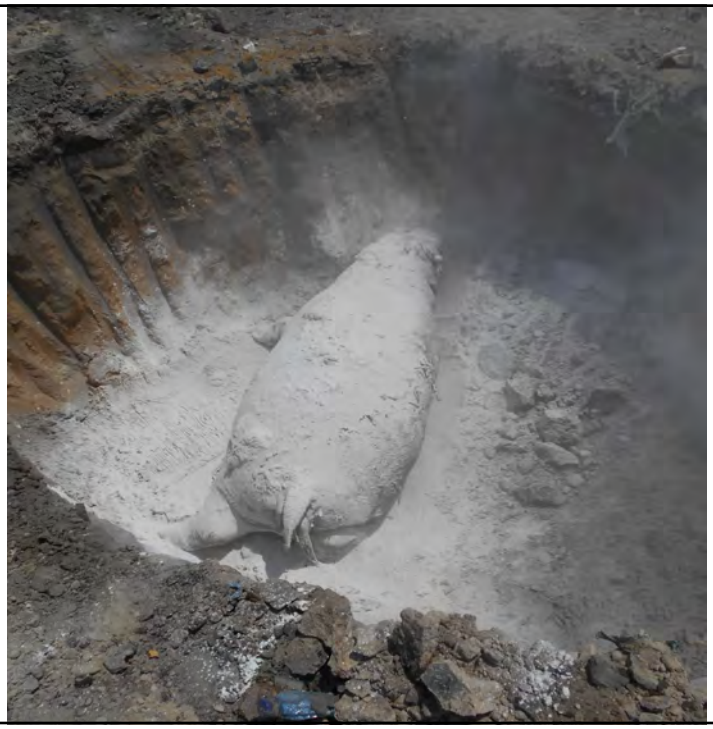
- Collaboration between KAZA member countries should be intensified in terms of Wildlife disease surveillance and outbreak Controls
- OIE-WAHIS-WILD is rarely updated by member countries
- No Coordination effort by KAZA animal health committee during Outbreaks

Lesson Learnt: Disposal of carcasses

- Burning of the carcass on the other side of the Border
- Smokes all over Shakawe and Mohembo (stopped during collaboration meeting)
- Research showed that fire wood spread Anthrax in RSA
- Fire without incinerator doesn't qualify OIE recommendation, guidelines and standards

Lesson Learnt

- Lime disposal



Lesson Learnt: Practicing Veterinarians

- Not registered to practice in the neighboring borders
- Shortage of Veterinarians in particular Wildlife Veterinarians
- Strengthen animal health collaboration within KAZA conservancies by adequate coordination

Lesson learnt: Recommendation

- Harmonized **practical Disease Control Procedures** should be made available for KAZA members
- For Mega wildlife herbivores species, it is difficult to implement the OIE standards, guidelines or recommendation for carcass disposal's
- Develop a harmonized Guidelines and standard for investigating wildlife diseases within KAZA conservancies, however, without undermining international standards
- Firewood is the practical method but temperatures produced are variable

LESSON LEARNT: Recommendation

- Develop a harmonized Guidelines and standard for investigating wildlife diseases within KAZA conservancies, however, without undermining international standards
- Vets should be registered across the borders with conditions to enable rapid detection of wildlife diseases (Only for Veterinarians who work in KAZA conservancies)

KE A LEBOGA, THANK YOU

Biodiversity conservation