An Overview of Die-Off Events in Wildlife Populations

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Wildlife Conservation Society

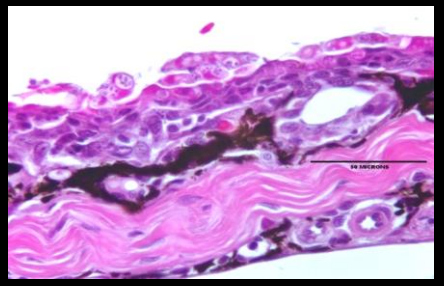
3rd Meeting of the Signatories to the MOU for Conservation, Restoration, and Sustainable Use of Saiga Antelope

Tashkent, Uzbekistan

October 26, 2015

Wildlife Die-Offs

Why?



Why Now??

What To Do???

Wildlife Die-Offs

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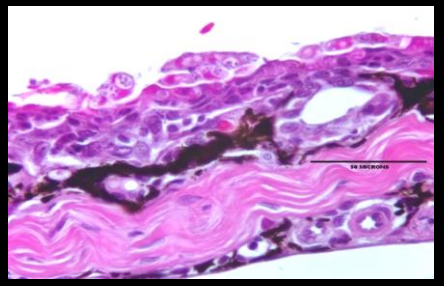

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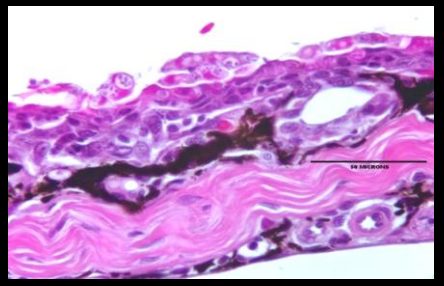

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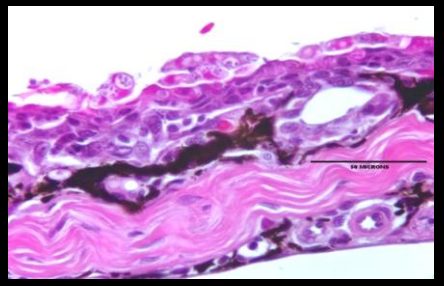


Why Now??

What To Do???

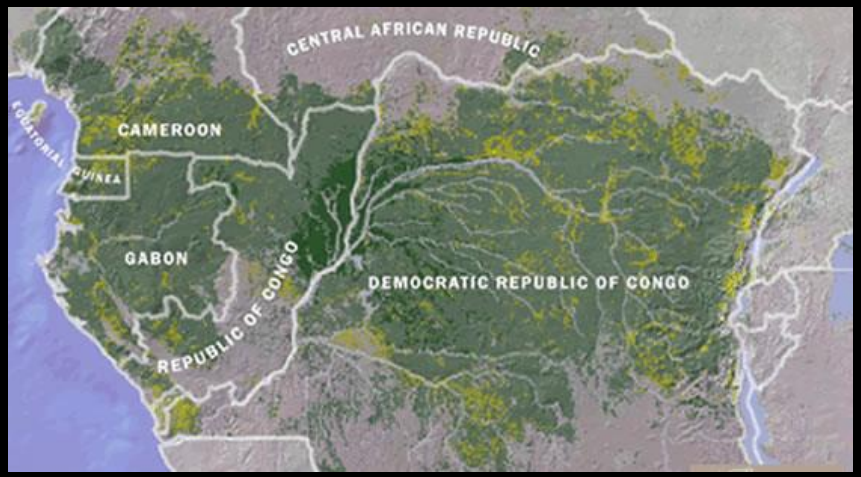
Wildlife Die-Offs

- Many go unnoticed

Wildlife Die-Offs

- Notable exceptions

Central Africa: Gorillas



Human Health
Gorillas: Ebola 2002

Death toll: 350 humans

http://www.ifrc.org/en/nouvelles/nouvelles/africa/congo-republic-of/ebola-still-lurks-in-congos-cuvette-region/

Ebola death toll keeps climbing in Congo

BRAZZAVILLE (Reuters) - Nearly 90 people have beenkilled by the Ebola virus in the remote forests of Congo Republic since the latest outbreak of the disease hit the central African country just over a month ago.

Image:http://wwf.panda.org/what_we_do/where_we_work/congo_basin_forests/congo_basin_forest_information/maps_congo_basin/

Death toll: ~25% of gorillas

Critically endangered (IUCN, 2007)

Ebola Outbreak Kills 5000 Gorillas

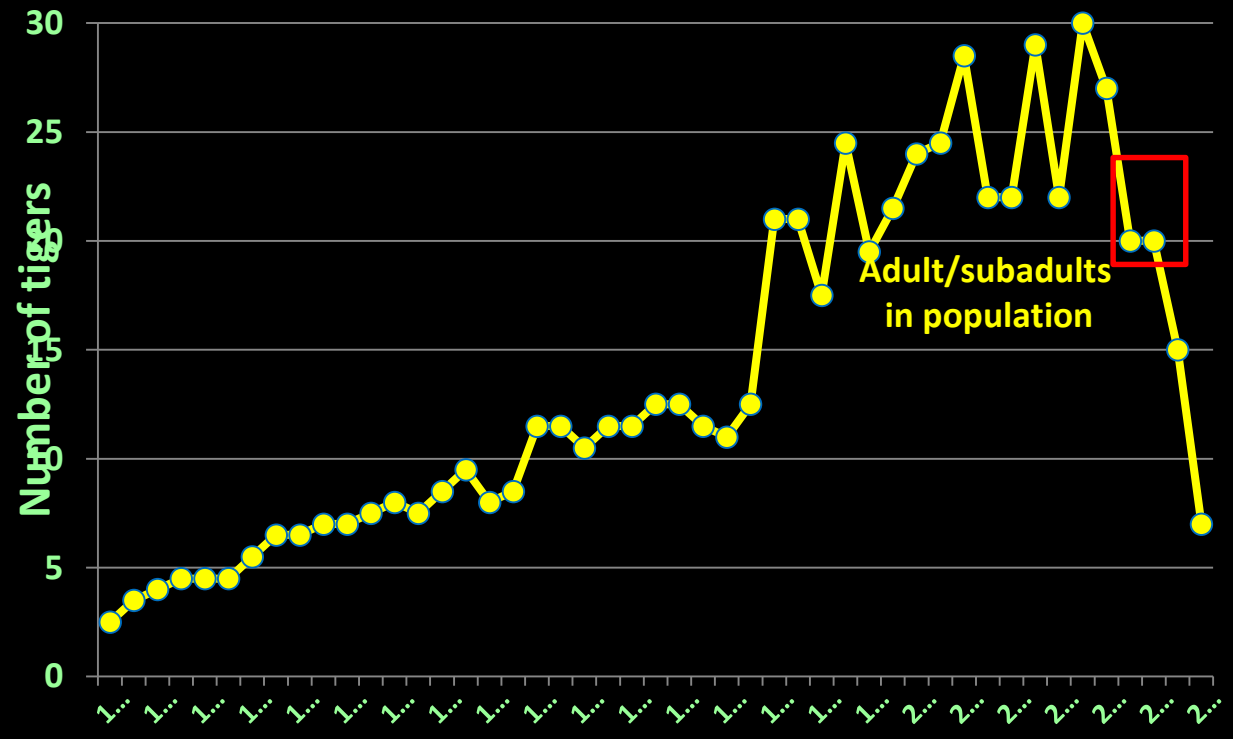
Magdalena Bermejo,[1,2]* José Domingo Rodríguez-Teijeiro,[2] Germán Illera,[1] Alex Barroso,[2] Carles Vilà,[3] Peter D. Walsh[4]

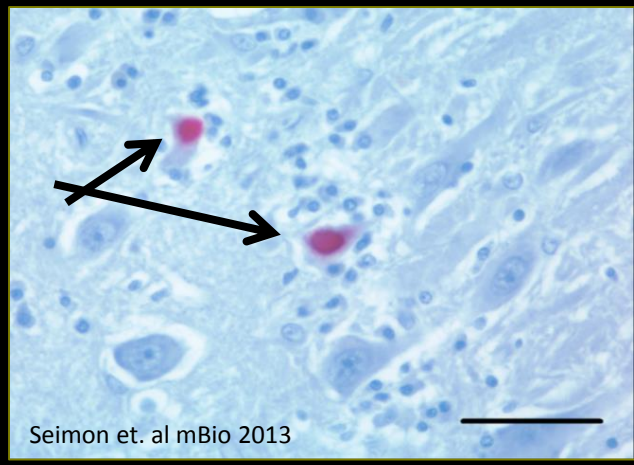
Catastrophic ape decline in western equatorial Africa

Peter D. Walsh*, Kate A. Abernethy†‡, Magdalena Bermejo§, Rene Beyers||, Pauwel De Wachter¶, Marc Ella Akou¶, Bas Huijbregts¶, Daniel Idiata Mambounga#, Andre Kamdem Toham¶, Annelisa M. Kilbourn||, Sally A. Lahm☆, Stefanie Latour||, Fiona Maisels||**, Christian Mbina||, Yves Mihindou||, Sosthène Ndong Obiang#, Ernestine Ntsame Effa#, Malcolm P. Starkey||††, Paul Telfer†‡‡, Marc Thibault¶, Caroline E. G. Tutin†‡, Lee J. T. White|| & David S. Wilkie||

The Economy and Visibility
SRW: 2007-2015

Amur Tiger: Russia 1966-2012





What to Do?

- Do nothing
  - Cheap
  - Avoid risks or complications of intervention

  But…
  - Continued risk of disease outbreak
  - Don’t identify risks to other species (humans)
  - No benefit to local/regional/global communities

What to Do?

- Do Something

Detection

- Optimizing detection
  - Monitoring/surveillance systems
  - Historical baseline

Mongolian Gazelle

Detection

- Networks
  - Biologists
  - Citizen science networks
  - Local or national programs

Generic Plan – First Steps

- Safety first
  - Relevant vaccinations
  - Biosecurity/prevent unintended disease spread
  - PPE
- Expect the unexpected
- Managing logistical, environmental challenges

Communication and Responsibility

- Communication trees and plans
  - Internal & external: media, public, public health, gov't, NGO's
  - Scientific (data sharing during and after) vs lay
  - Identification of communication leads
- Who's responsible
  - Jurisdictional control of wildlife
  - Jurisdictional control for high consequence/OIE reportable diseases

On the Ground – Data Collection

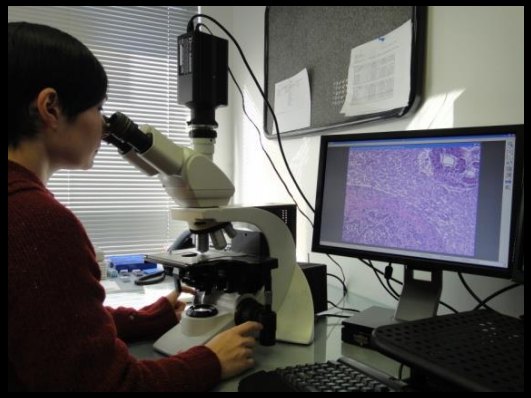
- Observational data – if missed…
  - Environmental
  - Necropsy
  - Photography
  - Data collection

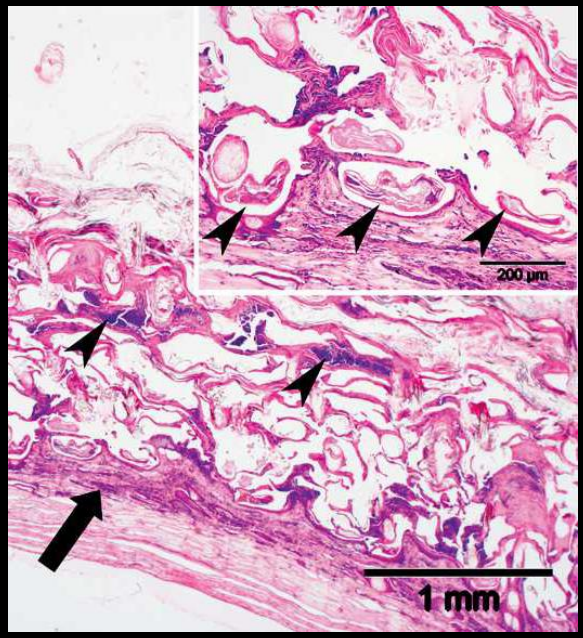
On the Ground - Samples

- Scope/scale (must be practical)
- Logistical/environmental constraints
- Administrative authorizations
- Short and long-term storage plans

Getting Answers
Routine Diagnostics

- Pakistan: 1996 -2006 Blue sheep

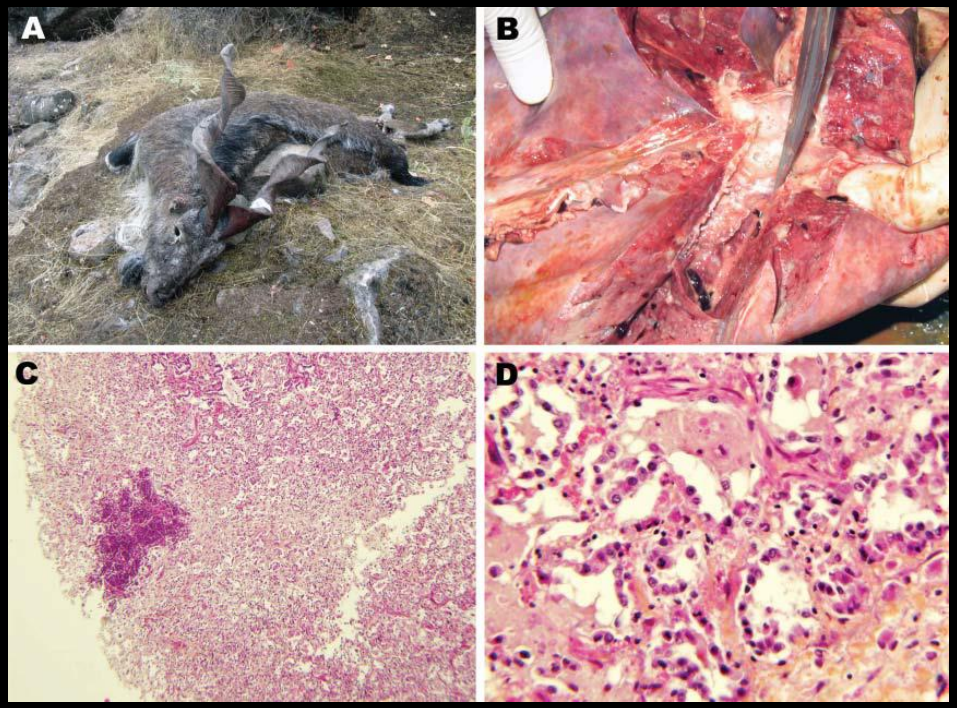


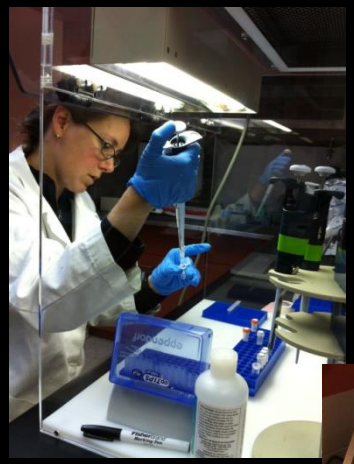


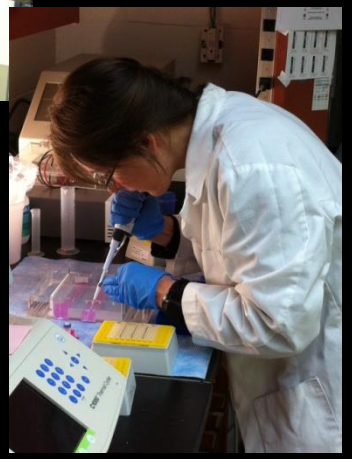
Getting Answers
Advanced Diagnostics

- Tajikistan: Markhor 2010

  Mycoplasma capricolum







Mitigation Options

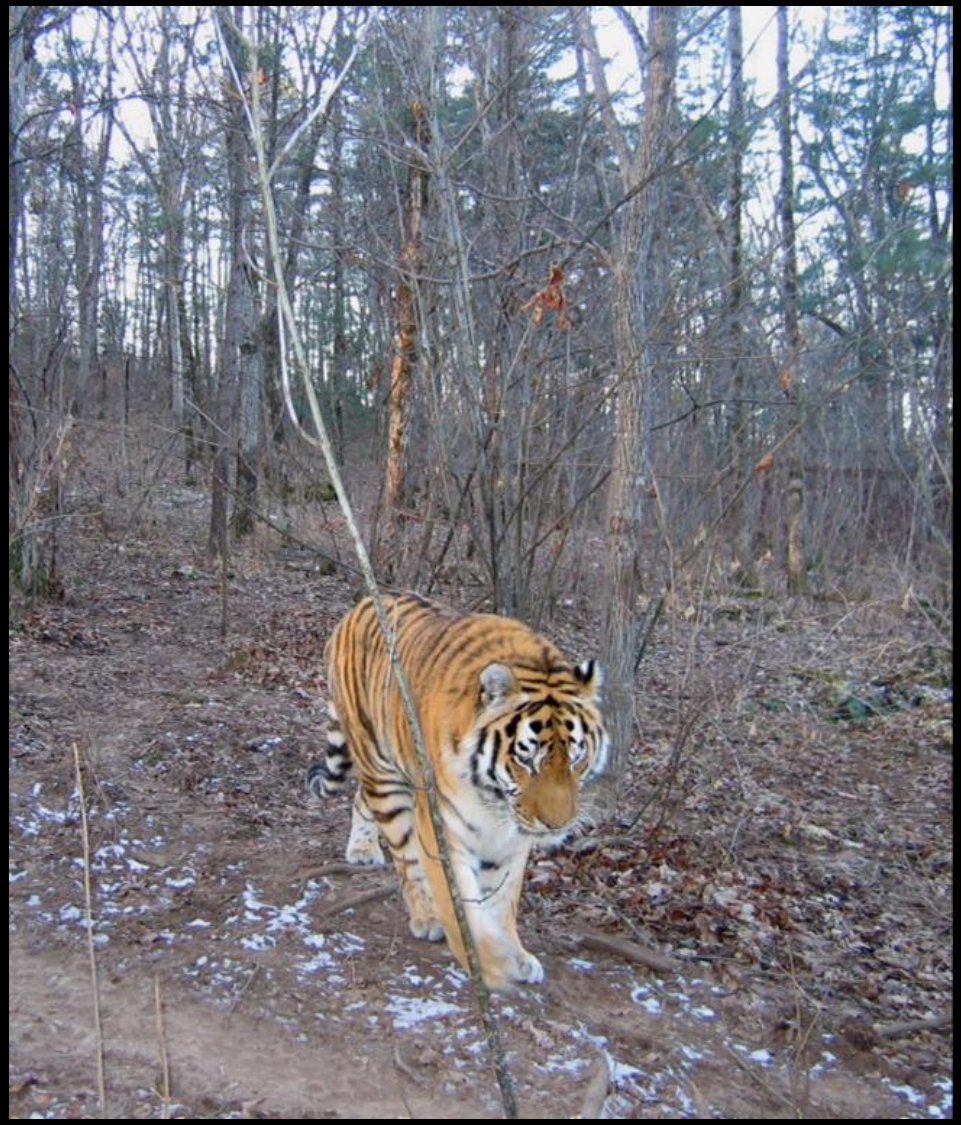
- Vaccination

- Captive breeding & reintroduction

Reporting and Rigor

- Reporting
  - Interim and final
  - When, what, where, who, how (forum)
- Independent scientific review panel

Conclusions

- It is difficult to predict the circumstances under which diseases may pose a problem
- Management strategies for disease outbreak are not well established
- Techniques for preventing disease outbreaks in wildlife are few and poorly developed
- There is usually little funding, political will and time for testing ideas and then putting them into practice

Thank You