One Health and Conservation in practice

Wildlife & Human Risks of Ebola: The Role of Conservation Organizations in Disease Surveillance

OIE Global Conference on Wildlife

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One Health and Conservation in practice

- How does helping wildlife help people?
- How does helping people help wildlife?
WCS and conservation in Congo
Where do we work and what do we do?
Protecting wildlife & its habitat

Helping the government with the creation and management of Protected Areas (National Parks & Community Reserves)
Buffer Zone Projects and working with industry to minimize their impacts
The Ecosystem?
The Ecosystem!
One Health: WCS
Global Health Programs, Rep of Congo

HYGIENE
La Famille
La Maison
L’Environnement

Ou touve t'on les microbes?

Ils adorent la salete et l'eau

Les rats, les mouches, les cafards peuvent les transporter
Ebola Hemorrhagic Fever

- RNA virus
- Family: Filoviridae
  - 5 species:
    - Zaire ebolavirus (ZEBOV)
    - Sudan ebolavirus (SEBOV)
    - Côte d’Ivoire ebolavirus (CIEBOV)
    - Reston ebolavirus (REBOV)
    - Bundibugyo ebolavirus
- Bat reservoir
- ZEBOV highly pathogenic in humans and great apes
  - up to 95% mortality

Still a mystery!
Ebola & great apes

Ebola and the decline of gorilla *Gorilla gorilla* and chimpanzee *Pan troglodytes* populations in Minkebe Forest, north-eastern Gabon

Bas Huijbregts, Pauwel De Wachter, Louis Sosthène Ndong Obiang and Marc Ella Akou

Monitoring population decline: can transect surveys detect the impact of the Ebola virus on apes?

Céline Devos, Peter D. Walsh, Eric Arnhem and Marie-Claude Huynen

Gorilla susceptibility to Ebola virus: The cost of sociality

Damien Caillaud, Florence Levréro, Romane Cristescu, Sylvain Gatt, Maeva Dewas, Mélanie Douadi, Annie Gautier-Hion, Michel Raymond and Nelly Ménard


Sally A. Lahm, Maryvonne Kombila, Robert Swanepoel, Richard F.W. Barnes
Human health connection

- Index cases linked to wildlife: 350 deaths
- Risks associated with wildlife trade
- Preventable with behavioral modification
- All observed human outbreaks followed wildlife outbreaks!!!!
2005 outbreak-chronology

- 2002/2003 border events introduced players

- 2005 Cuvette-Ouest region
  - Five hunters emerged from forest: all died (25 April to 11 May)
  - Wildlife response
    - ECOFAC sent scouts: 4 carcasses found 17 May (30-50 km from town)
    - WCS, ECOFAC, surveyed the “hot zone”: 4 carcasses, + results
  - Human response
    - WHO coordinated human response & sample transfer to lab
    - IRD/CIRMF isolated Ebola virus in one victim
    - Dr. Atsangandoko stopped epidemic (26 May last human death)
Hunter-based surveillance

- Hunters participate in a wildlife health monitoring system
  - Locating wildlife epidemics for the implementation of surveillance activities
- Outreach education/reporting
  - Ebola’s ecology
  - Protection: Don’t touch it, don’t eat it, don’t move it, don’t bury it, and contact WCS immediately
- New stakeholders
Rapid response to animal outbreaks
In situ diagnostics

- In-situ diagnostic facility to identify Ebola & other wildlife pathogens
  - Faster results = quicker response!
Fecal Ebola antibody screens

- Contribute to knowledge regarding virus ecology
- Contribute to development of disease risk models
  - Predict disease spread?
  - Identify where resources are best invested
Surveillance update

- Alerted to 2 outbreaks (negative for Ebola):
  - Great apes, 2007
  - Humans, 2010

- 2009 - WCS has official wildlife surveillance role in the Congolese “National Plan for the prevention, alert and surveillance of epidemics and other health emergencies”

- Human and wildlife samples tested in new lab

- No animal Ebola cases or human outbreaks
Helping wildlife does help people!

- Wildlife disease surveillance systems alert communities
- Improved diagnostic capacity available for public health
  - Trained people in disease transmission, monitoring, husbandry practices
  - Employee health programs in place
  - Healthier people!
  - Healthier livestock = food security!
Helping people does help wildlife!

- We have an audience!
  - Health as a message and tool engages the communities—they support us
  - They want us back
  - Conservation messages (i.e., hunting laws) can be built in

- Discussions about zoonotic diseases with communities often makes them think twice about bush meat consumption

- Healthier people, healthier livestock + responsible behavior = less risk of disease transmission to wildlife!
Thank you for listening
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