

What is this infamous wildlife – livestock disease interface?

A REVIEW OF CURRENT KNOWLEDGE ON THE SUBJECT
FOR THE AFRICAN CONTINENT



**WORLD'S PARKS CONGRESS
“BENEFITS BEYOND BOUNDARIES”
DURBAN SOUTH AFRICA 8-17TH SEPTEMBER 2003**



**Richard Kock PACE Epidemiology
Unit AU IBAR OFFICE Nairobi Kenya
& IUCN Veterinary Specialist Group**



What is this infamous wildlife livestock disease interface?

- The African rural context
- The health constraints on livestock and on marketing.
- Misconceptions about the interface.
- Past and future veterinary intervention.
- Definition of the contact zone and the diseases of concern.
- Conflicts and Conclusions.

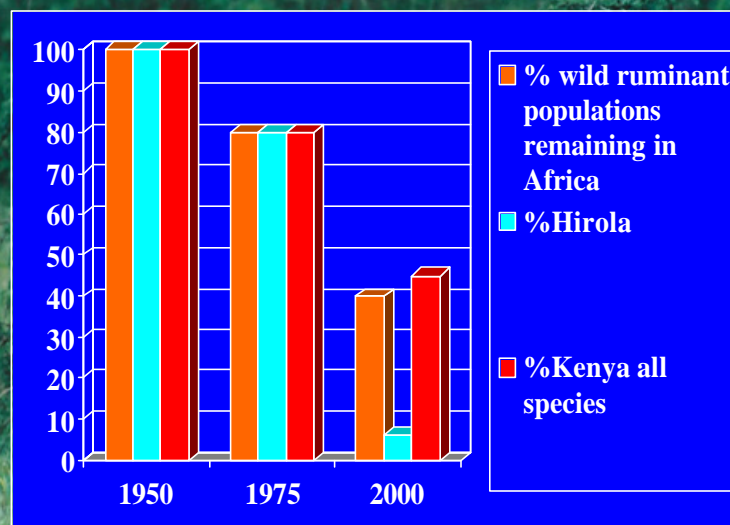


THE AFRICAN RURAL CONTEXT



- Africans survive through agriculture, livestock and use of natural resources.
- 70 million people depend wholly on livestock.
- Africa accounts for only 2% of world livestock trade and imports increase at 4% as the human population grows at 2-3% per annum.
- Natural resources are in decline.
- A rural cash dilemma: What can 80% of the continent's people achieve with < \$ 1 a day?

DRAMATIC CHANGE IN WILDLIFE POPULATIONS IN AFRICA OVER THE LAST 50 YEARS EXTINCTION CRISIS

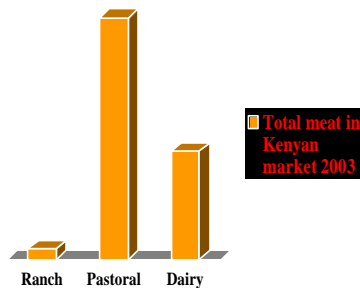


CAUSES OF DECLINE IN WILDLIFE RESOURCES



- Starvation – competition for forage/water resources with man and domestic animals.
- Disease – e.g. rinderpest.
- Bush meat.
- Disturbance and loss of habitat to other land uses.

Health constraints to livestock and marketing – **Solutions?**

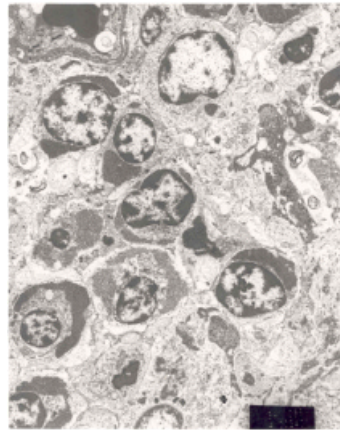


- Trade sensitive diseases persist – exports blocked.
- Disease is constraint on rural livestock production (with poor veterinary services).

Focus needs to be on pastoral systems, improved vet services and on linkage to markets.

EMERGING DISEASE

- The changing global ecological conditions are leading to more fertile ground for disease, affecting many regions.
- Pastoral systems are vulnerable as there is a close physical association between people, livestock and wild animals.



LAND DEGRADATION AND LIVESTOCK – FACT OR FANCY?

Many preconceptions – overstocking can be a problem but not a major issue in arid systems. Overall traditional pastoralism has positive benefits for the environment and wildlife

WILDLIFE OR LIVESTOCK OR BOTH?

Economic and environmental benefits of mixed systems are being reported but health issues remain a constraint.

WHAT DO AFRICANS WANT?

•**Livestock** – why? They provide livelihoods and there is a strong cultural and spiritual attachment.

•**Wildlife** – why? – they are a resource and there is a strong cultural and spiritual attachment.

So why separate the issues?

And not to forget they would appreciate: **A healthier life and > \$1 a day.**



Veterinary intervention at the interface?

- **Some controversial** – tsetse, FMD (CBPP) fencing.
- **Lack of knowledge** – a lot of ignorance on the disease interface.
- **Lack of veterinary services** – this should be through community based systems.



Definition of the wildlife-livestock interface

- Rarely physical.



Definition of the wildlife-livestock interface

- Transmission of disease agents takes place more usually at points of common use e.g. waterpoints, key grazing areas
- through contact with pasture contaminated with urine, faeces, saliva and other bodily fluids.



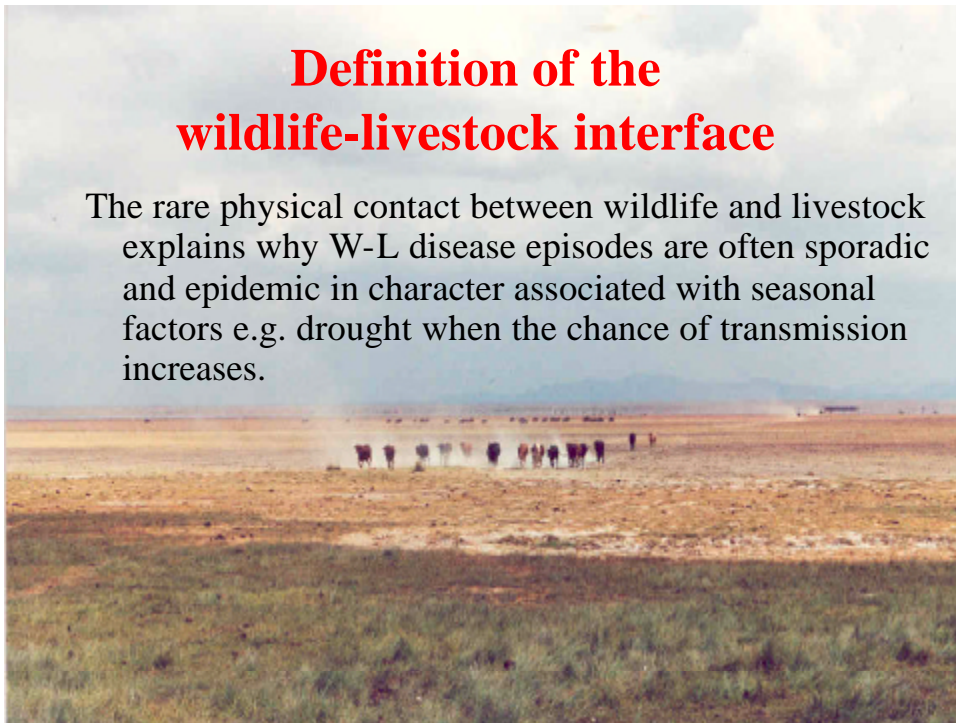
Definition of the wildlife-livestock interface

- Or through vectors..



Definition of the wildlife-livestock interface

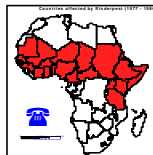
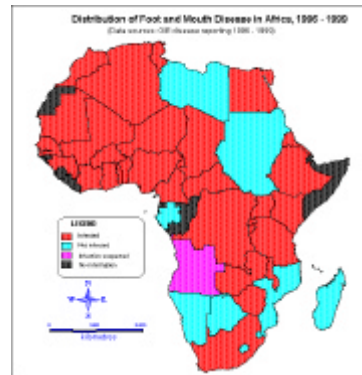
The rare physical contact between wildlife and livestock explains why W-L disease episodes are often sporadic and epidemic in character associated with seasonal factors e.g. drought when the chance of transmission increases.



Diseases at the interface

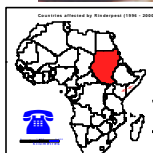
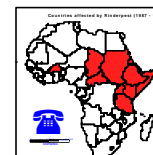
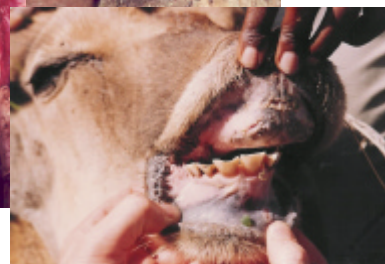
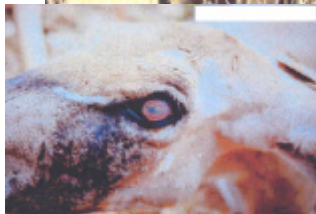
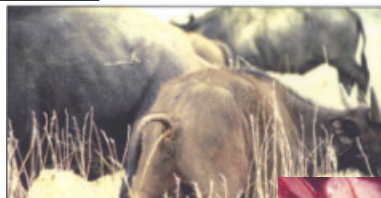


Foot and Mouth Disease

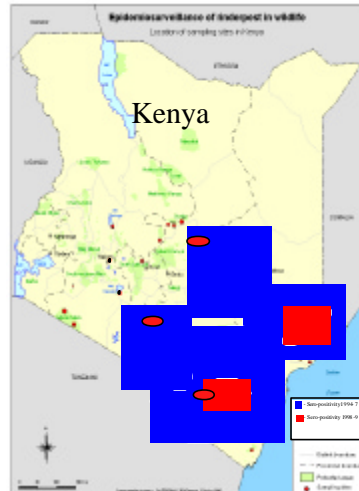


Diseases at the interface

Rinderpest



RP Epidemic zone Kenya

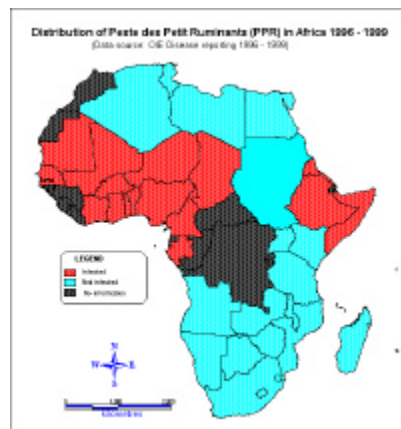


Rinderpest Virus, in Kenya 1994 -2001

- surveillance under PARC & PACE demonstrated over the period lineage II virus activity and continued emergence of antibody positive young animals within the shaded (epidemic) area, with the probable origin of infection – **Somalia**
- **virus isolation**

Diseases at the interface

PPR



OTHER DISEASE THREATS

With increasing contact at the interface a number of other diseases are having an impact:

Anthrax

Tuberculosis

Brucellosis

Piroplasmosis

MCF



CONFLICTS



- **Conservationists and environmentalists** blame people and livestock for the decline in biodiversity and land degradation.
- **Livestock keepers** blame the Government for a lack of services, security and access to resources. They blame wildlife for spreading and maintaining disease without understanding the epidemiology.

CONFLICTS



- **Veterinary authorities** blame the wildlife for acting as disease reservoirs and the pastoralists for not following disease control regulations. They argue that lack of control over wildlife and people who ignore government laws and regulations are the reason for the poor zoonosanitary condition.

CONFLICTS



- **Different Government Ministries** often in conflict at a policy level and frequently change policy direction according to prevailing political conditions.
- **Donors and the International community** blame the governments and seek quick fashionable solutions..



KEY QUESTIONS

- How much conserved land is necessary to maintain biodiversity?
- How much land is required to sustain pastoralism?
- What is the optimal “shape” for the interface in the the future.

CONCLUSIONS

- WILDLIFE AND TRADITIONAL PASTORAL COMMUNITIES OF AFRICA ARE IN DECLINE.
- MIXED LAND USE SYSTEMS IN ARIDLANDS ARE OPTIMAL FOR THE ENVIRONMENT AND CAN PROVIDE SUSTAINED LIVELIHOODS.
- AGRICULTURAL DEVELOPMENT AND SUSTAINABLE USE OF NATURAL RESOURCES ARE PROBABLY THE ONLY ROUTES OUT OF POVERTY FOR AFRICA.
- THE WILDLIFE-LIVESTOCK INTERFACE IS POORLY UNDERSTOOD AND THIS LEADS TO CONFLICT.
- DEVELOPMENT OF THE LIVESTOCK ECONOMY IS CONSTRAINED BY A LACK OF MARKETING SYSTEMS AND BLOCKS ON EXPORT DUE TO PERSISTING (TRADE SENSITIVE) DISEASES, WHICH ARE MAINLY A RESULT OF UNCONTROLLED TRANSBOUNDARY LIVESTOCK AND WILDLIFE MOVEMENTS AND POOR VETERINARY SERVICES.

SOLUTIONS TO THE WILDLIFE LIVESTOCK “INTERFACE PROBLEM” INCLUDE :

- DEVELOPMENT OF EXPORT ZONES FOR LIVESTOCK (EXCLUDING WILDLIFE AND PASTORAL CATTLE) WHILST IN OTHER AREAS REMOVING CONSTRAINTS ON MARKETING AND MOVEMENT OF PASTORAL CATTLE.
- CREATING A NEW SHAPE TO THE WILDLIFE LIVESTOCK INTERFACE ESPECIALLY AROUND PROTECTED AREAS.
- CREATING NEW LIVELIHOOD OPPORTUNITIES IN MIXED PASTORAL WILDLIFE ARID LAND SYSTEMS THROUGH DEVELOPMENT OF THE LIVESTOCK AND WILDLIFE RESOURCES.
- IMPROVING VETERINARY AND LIVESTOCK MARKETING SERVICES TO “INTERFACE” COMMUNITIES.
- PROMOTE A BETTER UNDERSTANDING OF THE WILDLIFE-LIVESTOCK DISEASE INTERFACE AMONGST CONCERNED COMMUNITIES THROUGH RESEARCH AND DIALOGUE.