

Specific issues related to FMD surveillance in the eastern Africa sub-region



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Why do we do surveillance for FMD?



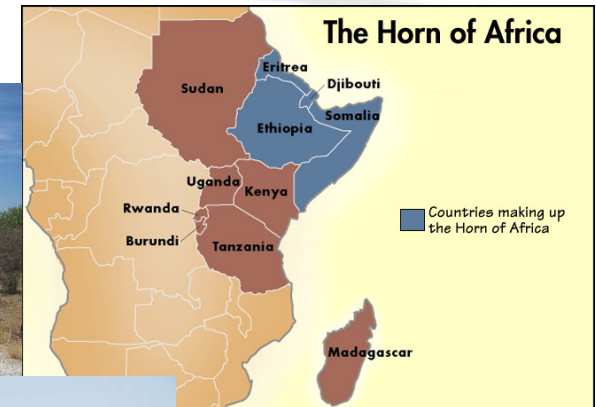
- *Demonstrating freedom from FMD, FMDV infection and/or FMDV transmission*
- *Early detection and investigation of cases*
- *Demonstrating the effectiveness of vaccination, if practised*
- *Contingency planning*
- *Reaction to alerts*

Critical underlying rationale of surveillance

- To demonstrate freedom from infection veterinary services have to search actively for any evidence of its presence and exclude it
- The search for infection(s) is one of the main routine tasks of the veterinary services and is performed using a number of approaches and strategies
- The only difference between countries practicing and not practicing vaccination is that:
 - in the absence of vaccination the presence of infected animals will eventually lead to virus spread, which makes virtually impossible not to detect the presence of the infection
 - in massively vaccinated populations the presence of a single or a few infected animals might not result in virus circulation and the infection might either be undetected or die off naturally

Challenges in Eastern Africa that affects surveillance for FMD

- Buffalo carrier
- Borders between countries
- Movement of animals
- Drought conditions
- Transfrontier Conservation areas
- Ruralisation of the urban environment
- Dipping system of surveillance
- Role of small stock
- Only 5/15 SADC countries in Africa have achieved OIE status for FMD



General observations on FMD surveillance in Eastern Africa



- *Usually well conducted when applying for freedom or endorsement of program*
- *Surveillance for maintenance of status less strict – risk-based – borders, threat*
- *When events affecting surveillance prevails – lack of contingency plan (droughts, floods, other disease outbreaks)*
- *Reactions to alerts (risk of border intrusions) often too slow*
- *Role of small stock under-estimated*
- *Time-line for risk-based surveillance – e.g. calving period of buffalo*
- *Reliance on vaccination as a buffer vs surveillance in adjoining non-vaccinated areas*

Follow-up surveillance and role of NSP tests



- *NSP tests reflects what might have happened in terms of viral circulation in preceding months*
- *Probang tests only reflects current situation – is there active virus circulation? – only 50% sensitive*
- *Negative probang in follow-up only demonstrates no active viral excretion present – not if there was an event of viral transmission*
- *Need to incorporate total epidemiological and risk-based picture in follow-up operations*
- *Need to go back to same herd and same animals – and in-contact herds and animals*

Importance of post-vaccination monitoring tests

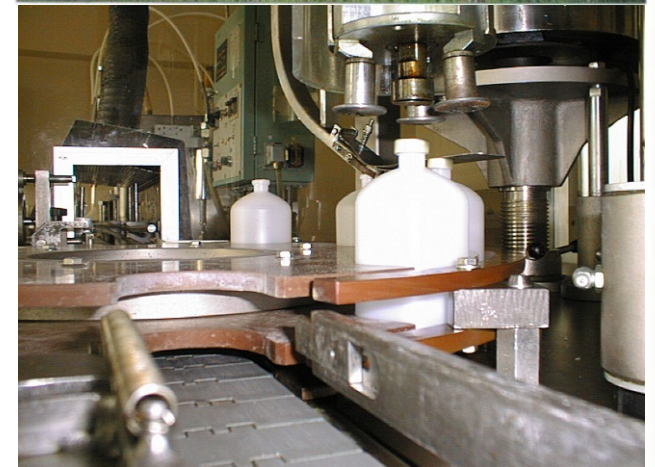


- *Not strictly or routinely applied by all countries*
- *An important tool to monitor vaccination efficiency*
- *An important tool to monitor vaccine efficiency*
- *An important tool to monitor duration of vaccine immunity*

Control actions in Africa

- Endemic countries
 - No actions
 - Limited vaccination
 - Limited movement control

- Free countries
 - Zoning
 - Vaccination (routine and emergency)
 - Movement control (permits, fencing)
 - Stamping out



Role of African buffalo in the epidemiology of FMD



- The 3 SAT serotypes are maintained by African buffalo (*Syncerus caffer*) that can be a source of infection for susceptible livestock in close proximity
- Buffalo can maintain FMDV for up to 5 years in a single animal
- FMD viruses change during persistent infection and may give rise to new antigenic variants



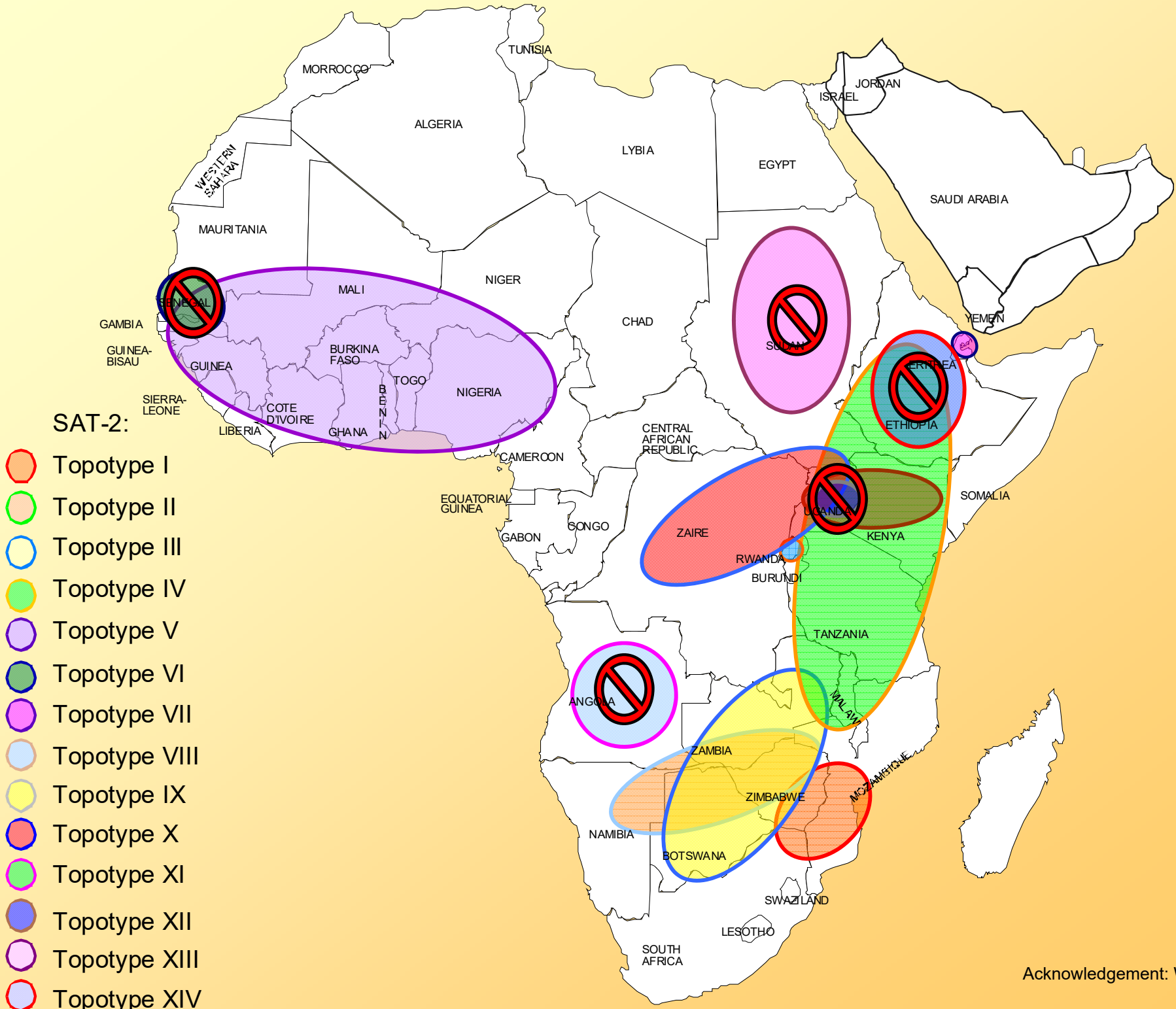
Acknowledgement: W. Vosloo

Role of other wildlife species in FMD persistence and spread








Species/animal	Duration of viral persistence
<i>Domestic animals:</i>	
Cattle	2.5 to 3.5 years
Sheep	9-12 months
Goats	2-3 months
<i>Wildlife:</i>	
Wildebeest (<i>Connochaetes taurinus</i>)	28 days
Sable (<i>Hippotragus niger</i>)	28 days
Eland (<i>Taurotragus oryx</i>)	32 days
Fallow deer (<i>Dama dama</i>)	63 days
Kudu (<i>Tragelaphus strepicerus</i>)	104-160 days
Water buffalo (<i>Bubalis bubalis</i>)	2-24 months
African buffalo (<i>Syncerus caffer</i>)	5 years

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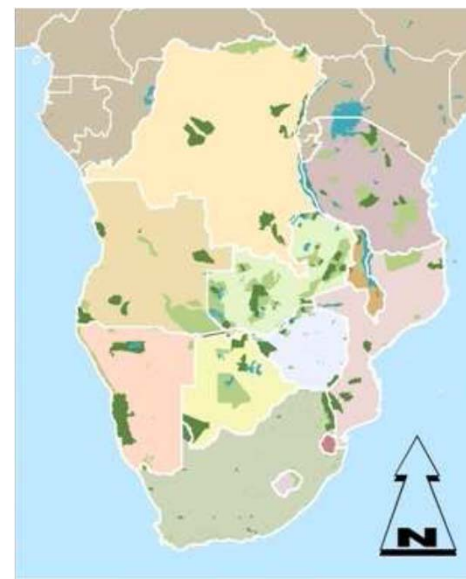
SAT-2:

-  Topotype I
-  Topotype II
-  Topotype III
-  Topotype IV
-  Topotype V
-  Topotype VI
-  Topotype VII
-  Topotype VIII
-  Topotype IX
-  Topotype X
-  Topotype XI
-  Topotype XII
-  Topotype XIII
-  Topotype XIV

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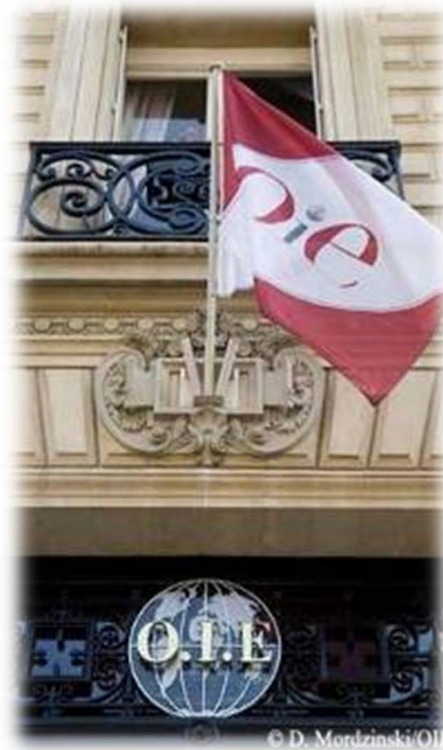
Potential impact on FMD control by Transfrontier Conservation Areas, wildlife

- The establishment of TFCAs
 - Pressure to remove fences
 - Human encroachment into wildlife areas
 - Increased wildlife migration
 - Introduction of novel FMD virus topotypes and impact on vaccines
- Wild animal migratory patterns
- Transhumance patterns



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Thank you for your attention!



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