



Wildlife Conservation Society

Challenges Managing Foot and Mouth Disease at Wildlife/Livestock Interface level on Mongolia's Eastern Steppe



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The Grasslands of Mongolia's Eastern Steppe



**“The eastern steppes of
Mongolia represent one of
the last great unspoiled
grazing ecosystems in the
world” -George Schaller**

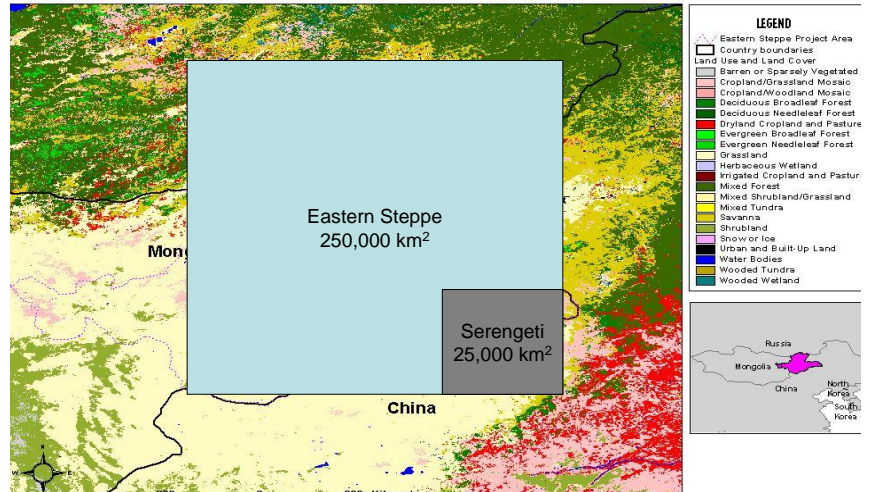


Mongolia's Eastern Steppe



THE EASTERN STEPPE LIVING LANDSCAPE: WILDLIFE AND TRADITIONAL LIVELIHOODS IN THE ARID GRASSLANDS OF MONGOLIA

LAND COVER CHARACTERIZATION OF THE EASTERN STEPPE REGION

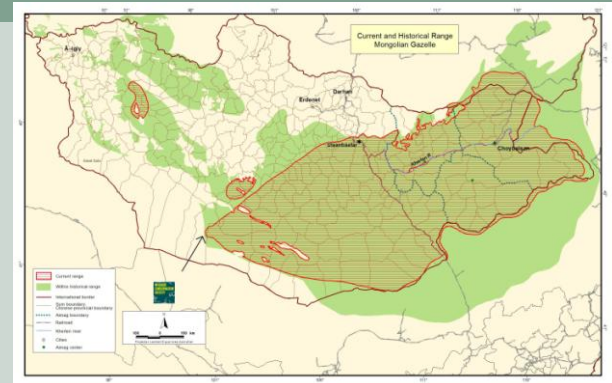


Mongolian Gazelle (*Procapra gutturosa*)



Mongolian Gazelle

- Population Decline
 - 18 million?
 - 1994: 2.67 million
 - 2005: 1.13 million

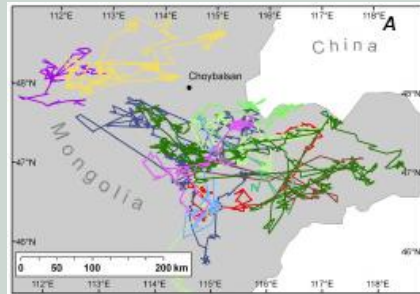


- Range Reduction
 - 1.1 million km² (1950) to 435,000 km² (2000)



Mongolian Gazelle: Current Status

- Population Estimates
 - 1.13 million (+/- 250,000)
- Population Density
 - 15 gazelle/km²
- Range
 - Individual gazelle ranges over 25,000 km²



Mongolian Gazelle: Population Dynamics

- Nomadic "Unpredictable Distribution"
- Extreme spatiotemporal variability in food availability (stochastic rainfall events)
- Large area requirements for range



Conservation Challenges



Rangeland Resources & Pasture Degradation

- Grassland competition with livestock
- Pasture overgrazing
- Climate Change
 - Drying of the steppe
- Land development
 - oil extraction and mining





Disease issues

- Disease at the interface of wildlife and livestock is an emerging issue
 - Example of Foot & Mouth Disease (FMD)
 - FMD consultant Dr. Gavin Thomson's visit from South Africa



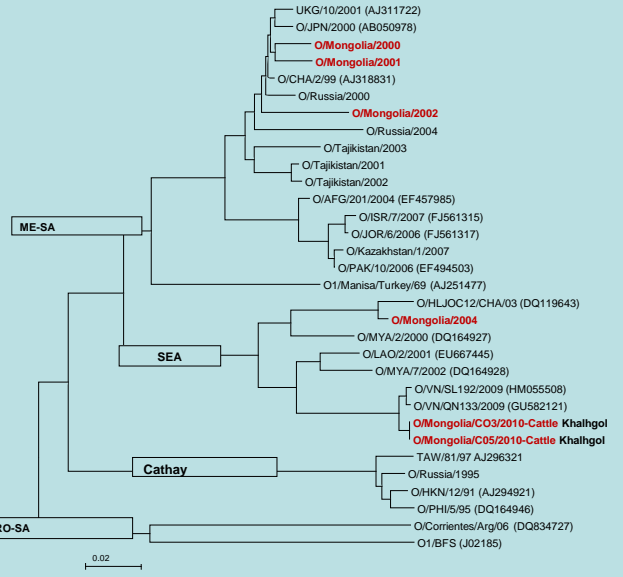
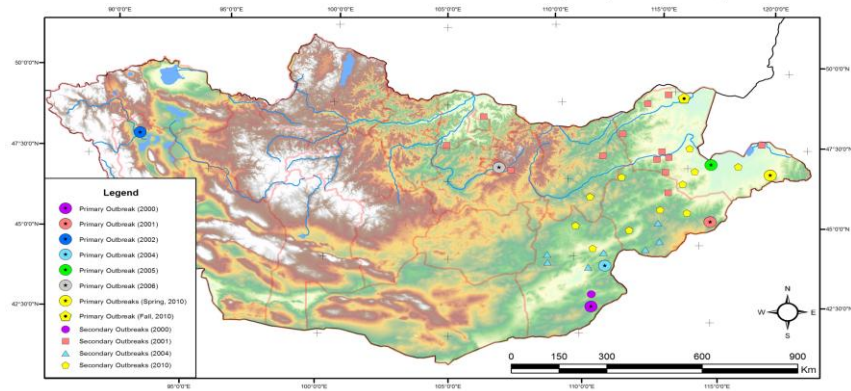
FMD outbreaks in Mongolia historically and recently

OFFICIALLY RECORDED OUTBREAKS OF FMD IN MONGOLIA



Recent FMD outbreaks in Mongolia

Foot and Mouth Disease Outbreaks in Mongolia (2000 - 2010)





Disease issues: FMD control and prevention

- **Creation of Control zone**
This includes outbreak zone, buffer zone, vaccination zone, and healthy zone
- **Quarantine and disinfection activities**
Quarantine and disinfection of livestock, livestock products, human and traffic movements and disinfection of livestock premises
- **Modified stamping out**
Modified stamping out of clinically ill livestock and gazelles as of 2010 experience. The compensation for stamping out is calculated to equal 90% of the livestock market price
- **Ring vaccination:** Vaccination of high risk or outbreak areas from government without any fees



FMD control activities

Total number of livestock and wildlife destroyed during 2010 FMD outbreaks

Year	Species	Number Destroyed
2010	Cattle	6,730
2010	Sheep	13,495
2010	Goats	5,698
2010	Camels	10
2010	Gazelles	1,616
	Total	27,549



WCS FMD serosurveillance study summary in Gazelles

1998-99	Found no evidence of FMD infection in population of 78 adult gazelles
2001	FMDV-NS was detected in 67% out of 33 adult gazelles
2005-07	FMDV-NS was detected in 10.9% out of 57 gazelle calves (maternal immunity)
2008	Found no evidence of FMD in population of 36 adult gazelles

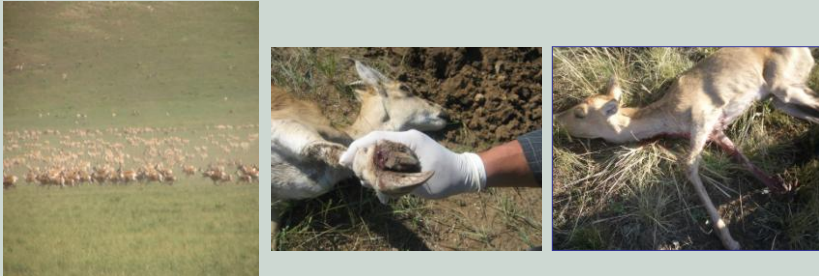


FMD outbreaks in Gazelles in 2010

The State Central Veterinary Laboratory detected following infections in Gazelles:

- ❖ FMDV gene from 8 (57.1%) samples out of 14 gazelles and FMDV antibody from 11 serum out of 14 gazelle samples collected from Eastern Steppe.
- ❖ 32 serum samples were positive with FMDV -NS antibody ELISA out of 62 serum samples collected from Eastern Steppe.

FMD outbreaks in Gazelles



Gazelles were detected with FMD clinical signs such as lameness, weight loss, fallen hoof. Gazelles are suspected for the spread of FMD in livestock (since 2001, 2004 & 2010) therefore, a selective cull of clinically ill gazelles was ordered. A total of 1,616 Mongolian gazelle were destroyed on the Eastern Steppe.

What is the FMD conclusion

- FMD outbreaks have:
 - usually been extensions of livestock-associated Asian pandemics (e.g. 2000/1/2; 2005; 2010)
 - These viruses did not persist in Mongolia therefore, FMD is not endemic
 - Mongolia has an FMD high-risk area Eastern Steppe bordering with China and Russia (primary outbreaks detected 50-100 km from borders)



What is the FMD conclusion

- Once FMD occurs on eastern Steppe, do gazelles contribute to spread of the infection?
 - answer unknown
 - pending further investigation needed, but should be assumed they spread the infection
 - but, they are likely to be less effective spreaders than cattle or other livestock
- The issue of 'carriers' (for both livestock & gazelles) is misunderstood in Mongolia and therefore modified stamping out is a major part of the FMD control activity



WCS Activities

- Provide government organizations with correct FMD epidemiology information and recommendations for future FMD control and prevention activities and policies
- Promote the adoption of FMD control activities to support wildlife conservation
- Promote high level of livestock herd immunity at FMD high risk areas
- Cross pollination with approaches from international AHEAD/SCAPES and other health programs





Collaboration with Environmental organizations

- Landscape-Level Conservation Planning
- International Conservation Policy development
- Development of Community-Based Natural Resource Management
- Transboundary conservation activities



Collaboration with Veterinary Agencies

- Long term disease surveillance studies in livestock and wildlife such as Mongolian gazelles
- Environmentally friendly disease control and prevention activities favoring wildlife conservation





Thank You for Your Attention!

Acknowledgements

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