

International Workshop „Implementing wildlife-friendly measures in infrastructure planning and design in Mongolia“, 25 – 29 August 2015, Ulaanbaatar, Mongolia

Impact of barriers to migration in Mongolia (overview of planned and newly built roads/railways/pipelines and their effects on ungulates)

Dr. Lkhagvasuren Badamjav
Institute of General & Experimental Biology
Mongolian Academy of Sciences

Technical workshop
Mongolian experience in developing wildlife-friendly
infrastructure:
Identifying strengths and gaps

Outlines

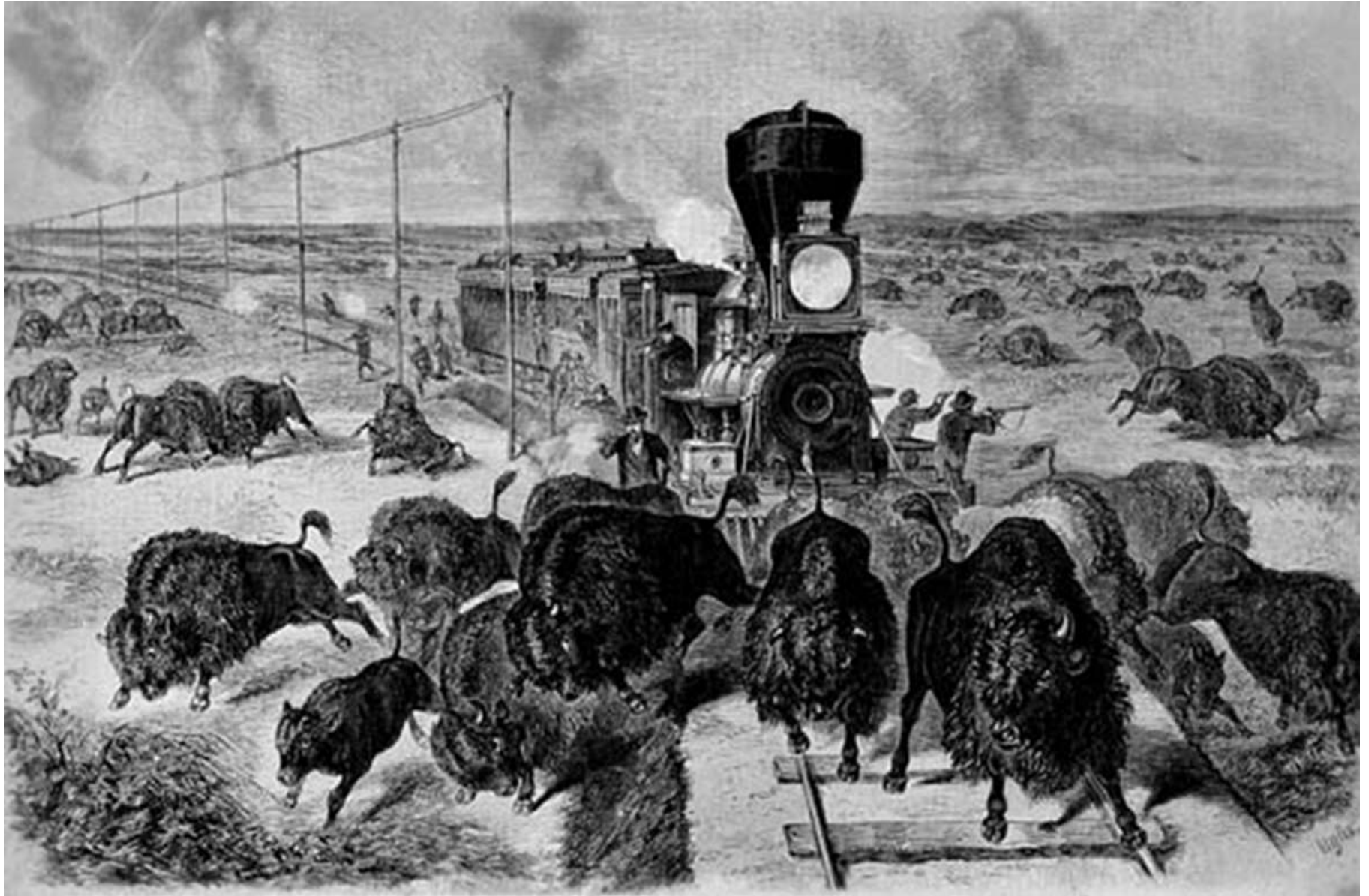
- Great migrations of the world & threats
- Great migrations of Mongolia and threats
- Developments and migratory species

Great migrations of the world

Bison - 60 mln to 15.000



Threats ...



Saiga – 2 mln to 60.000



- Threats for saiga: -
- Railroads
 - Roads
 - Irrigation canals
 - Poaching

Caribou – > 4 mln



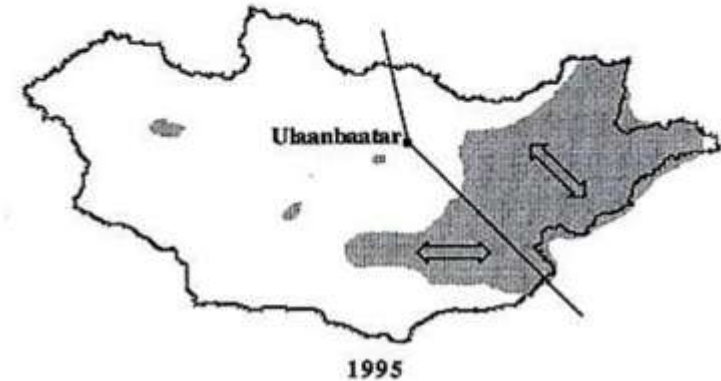
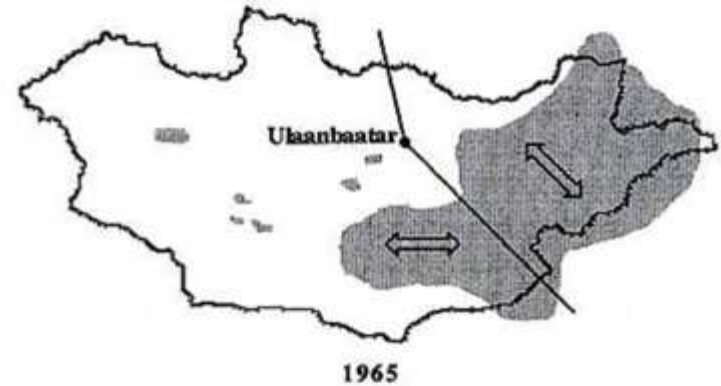
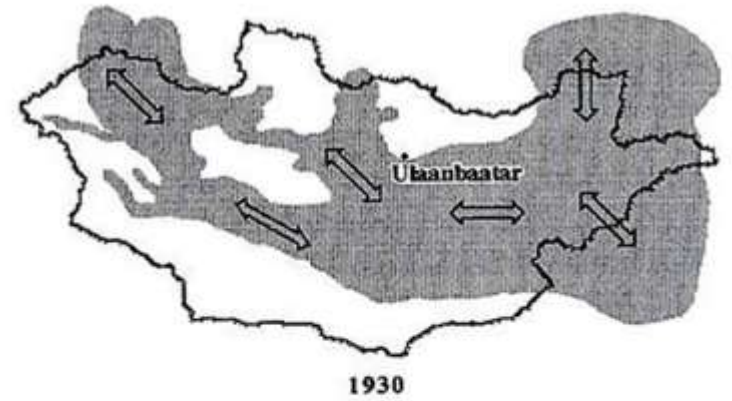
Threats: oil and gas pipelines



Great migrations of Mongolia: Mongolian gazelle (*Procapra gutturosa*) 4.5 mln 1.0 mln



Mongolian gazelle distribution changes



Sources: Lkhagvasuren, 2000, Ito et al.
Reading et al. 1998

and the threats ...



... barbed fences in border areas are as death traps ...







...unsustainable oil mining and ...



... associated infrastructure developments in sensitive and fragile habitats ...



Mongolian khulan or Asiatic wild ass (*Equus hemionus*)
80.000 to 20.000?

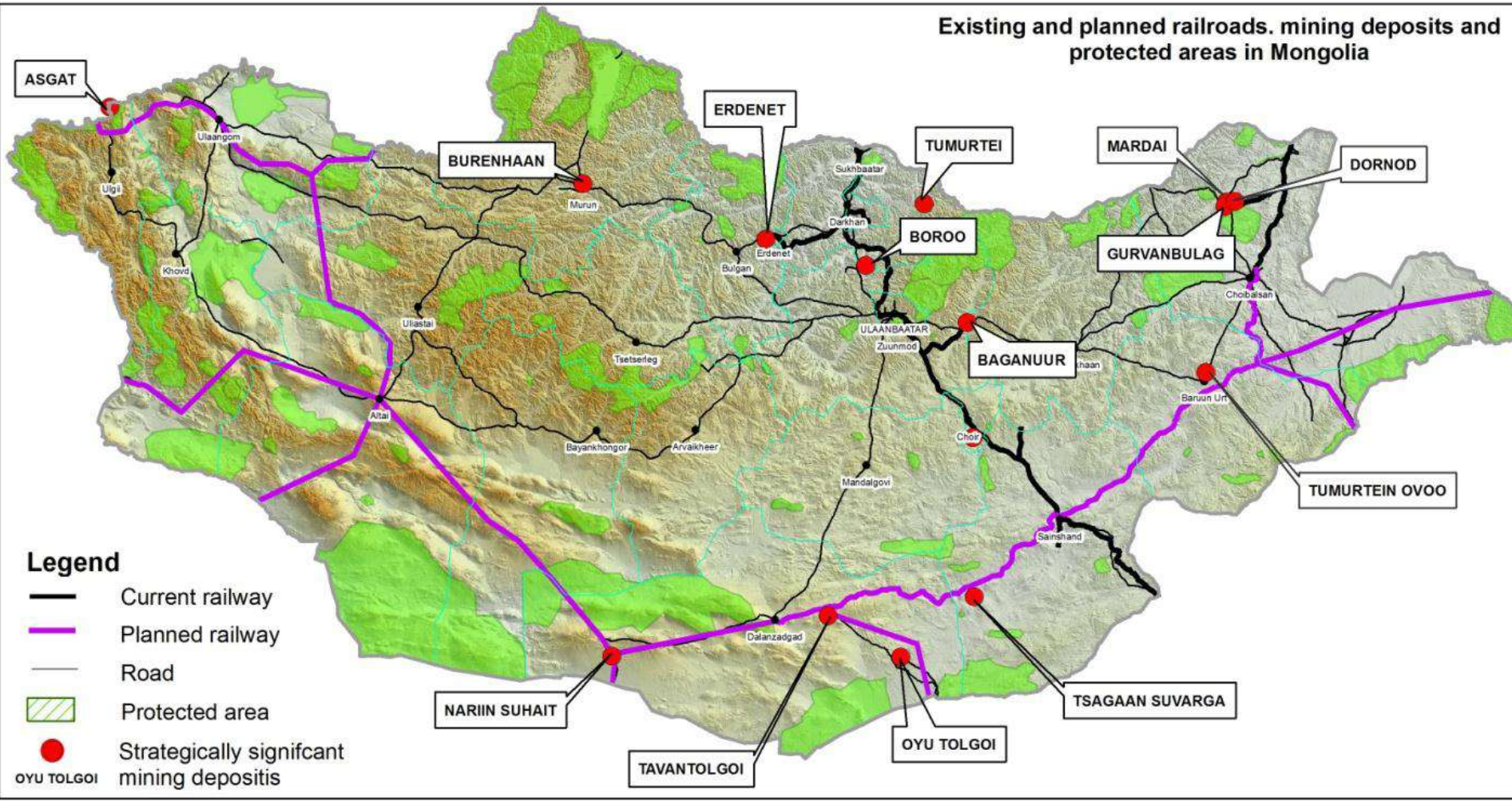


Main threat ...



Strategically significant mining deposits of Mongolia

Existing and planned railroads, mining deposits and protected areas in Mongolia



Mining as a threat ...





Road development: 2016



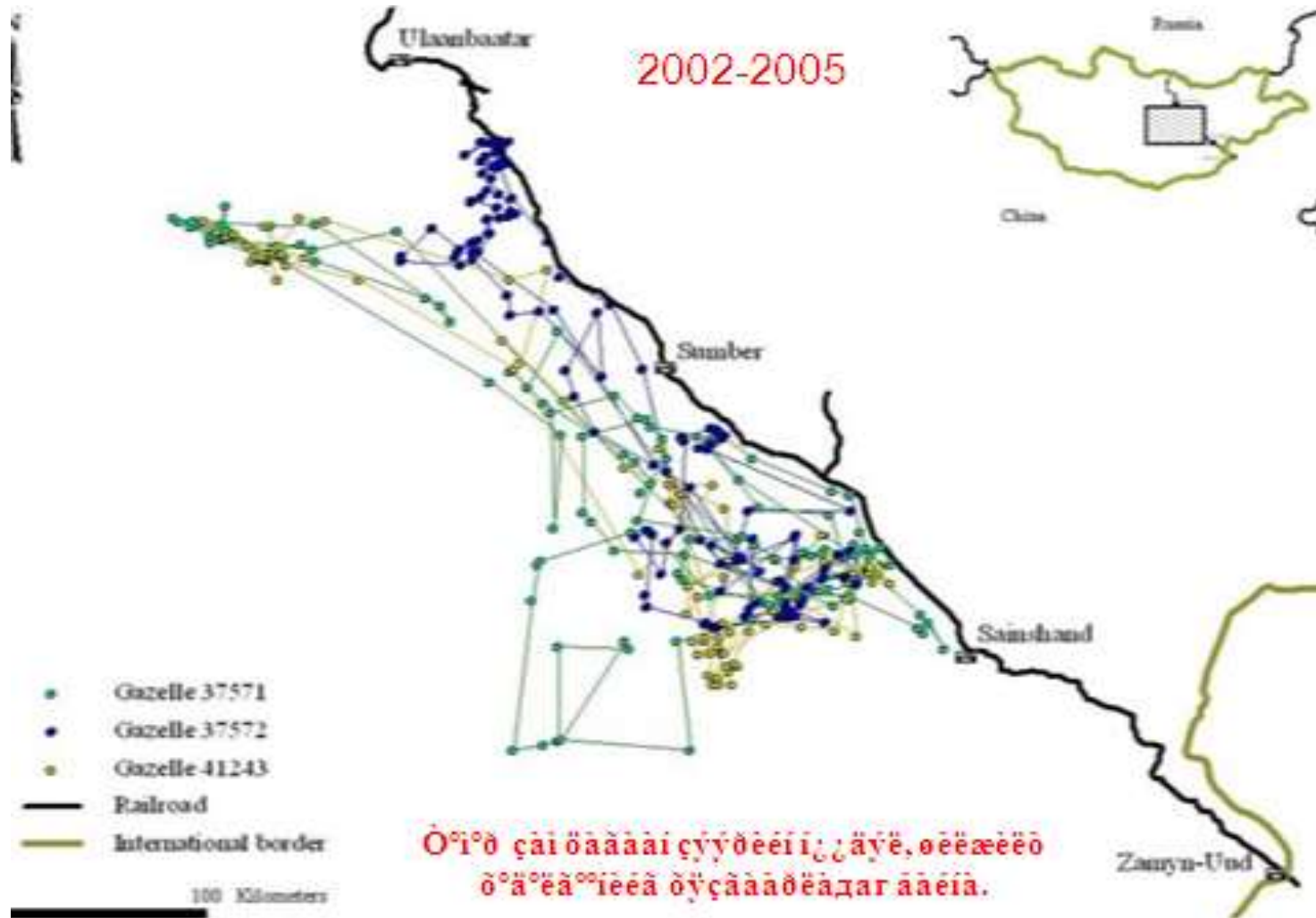
Railroad development: 2025



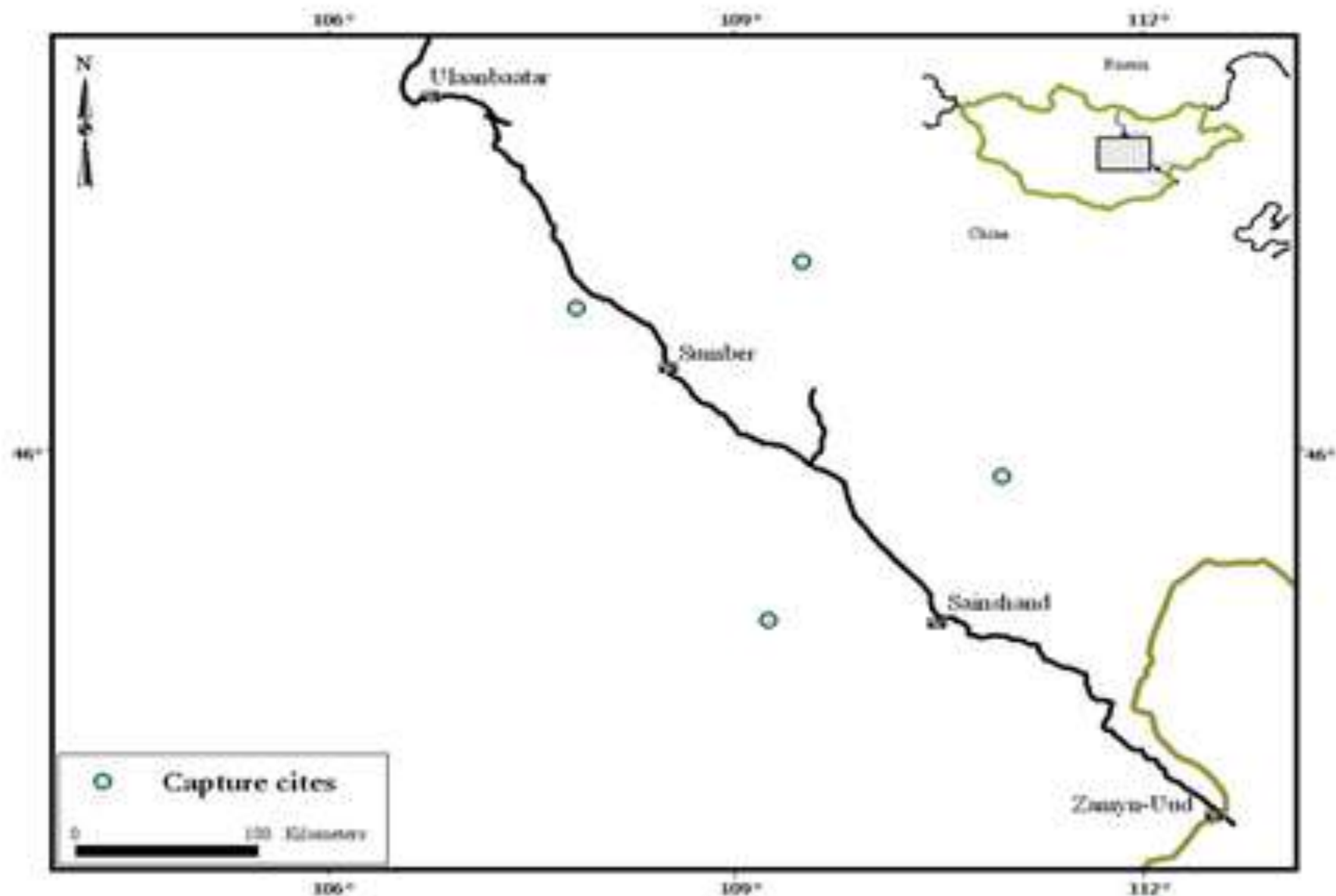
Are fences the barriers to migration?



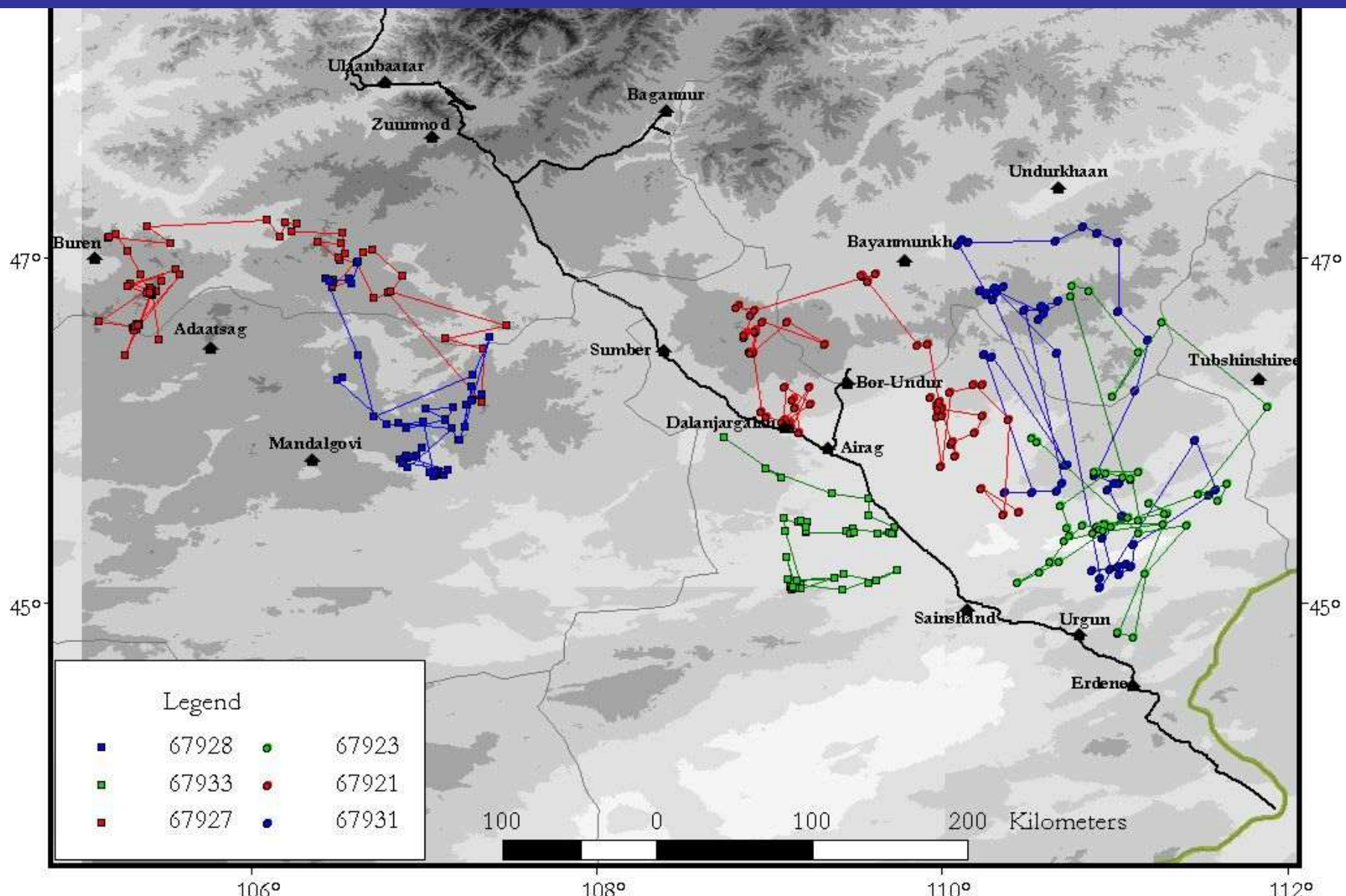
Mongolian gazelle migration study 2002-2005



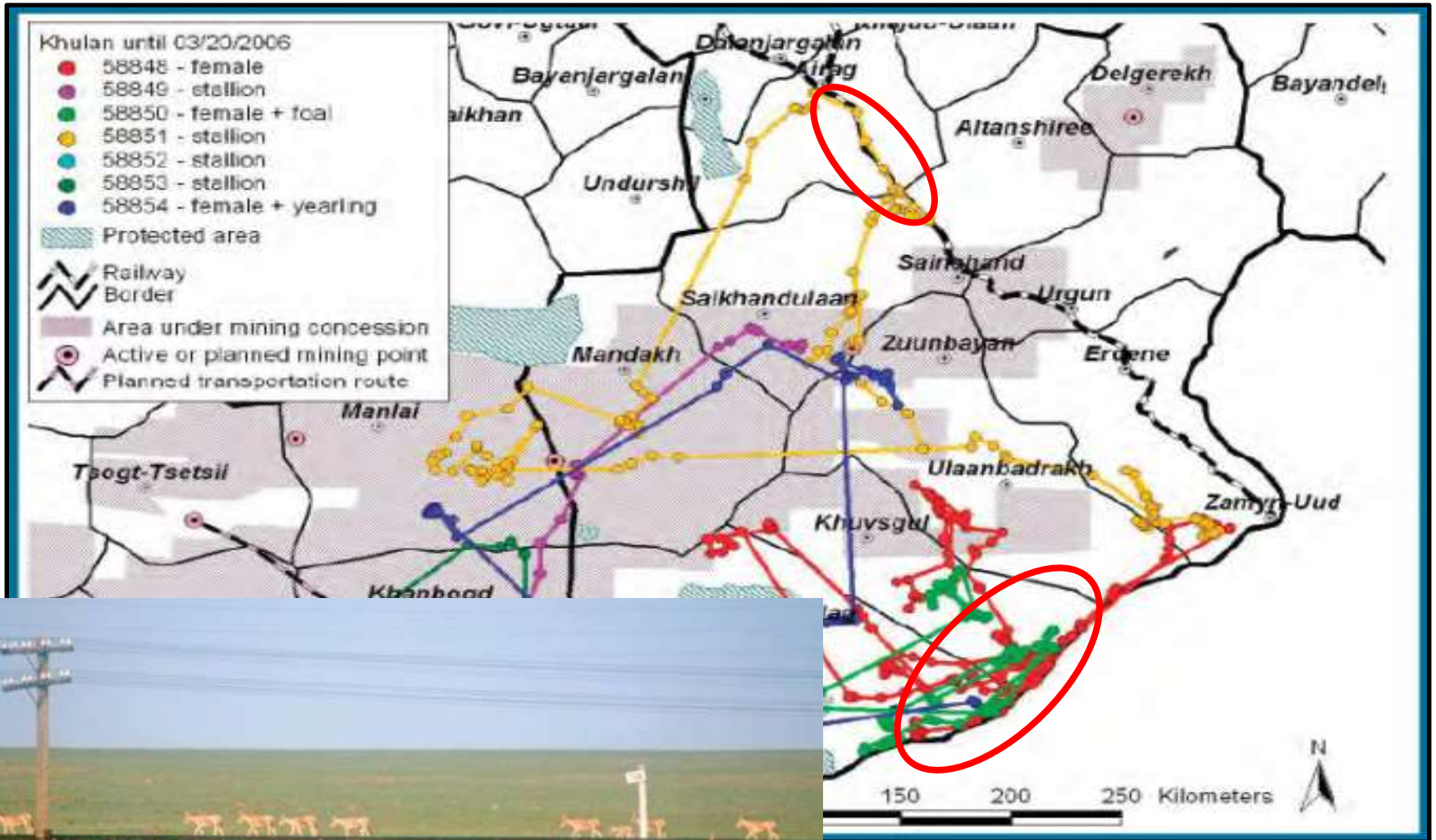
Tracking of Mongolian gazelles migration in 2007



Gazelle migration tracking (2007-2008)



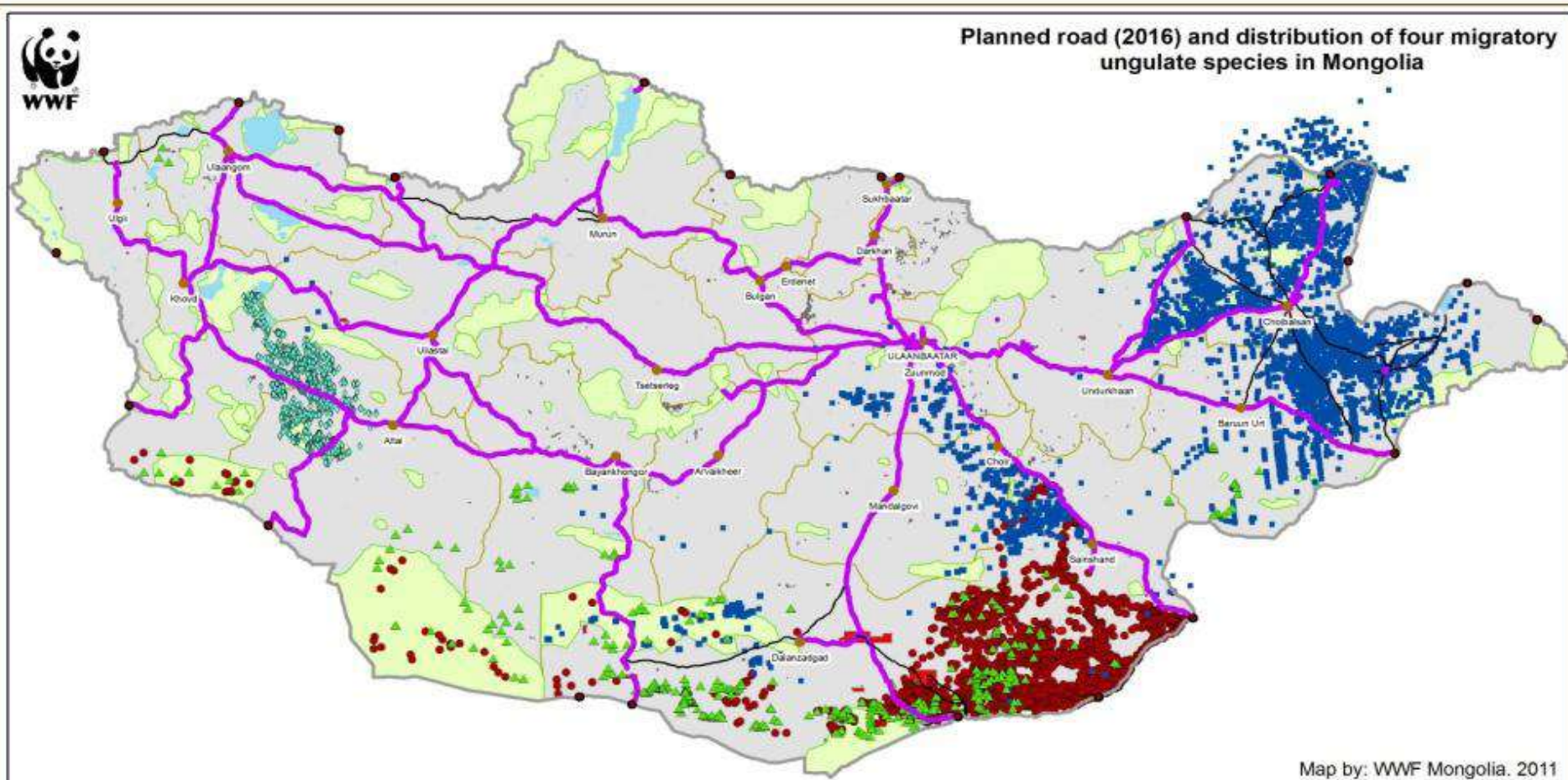
Khulan migration tracking



Conclusion: Barbed fences along linear infrastructures are barriers!



Potential negative impacts of roads to migratory species



Planned road (2016) and distribution of four migratory ungulate species in Mongolia

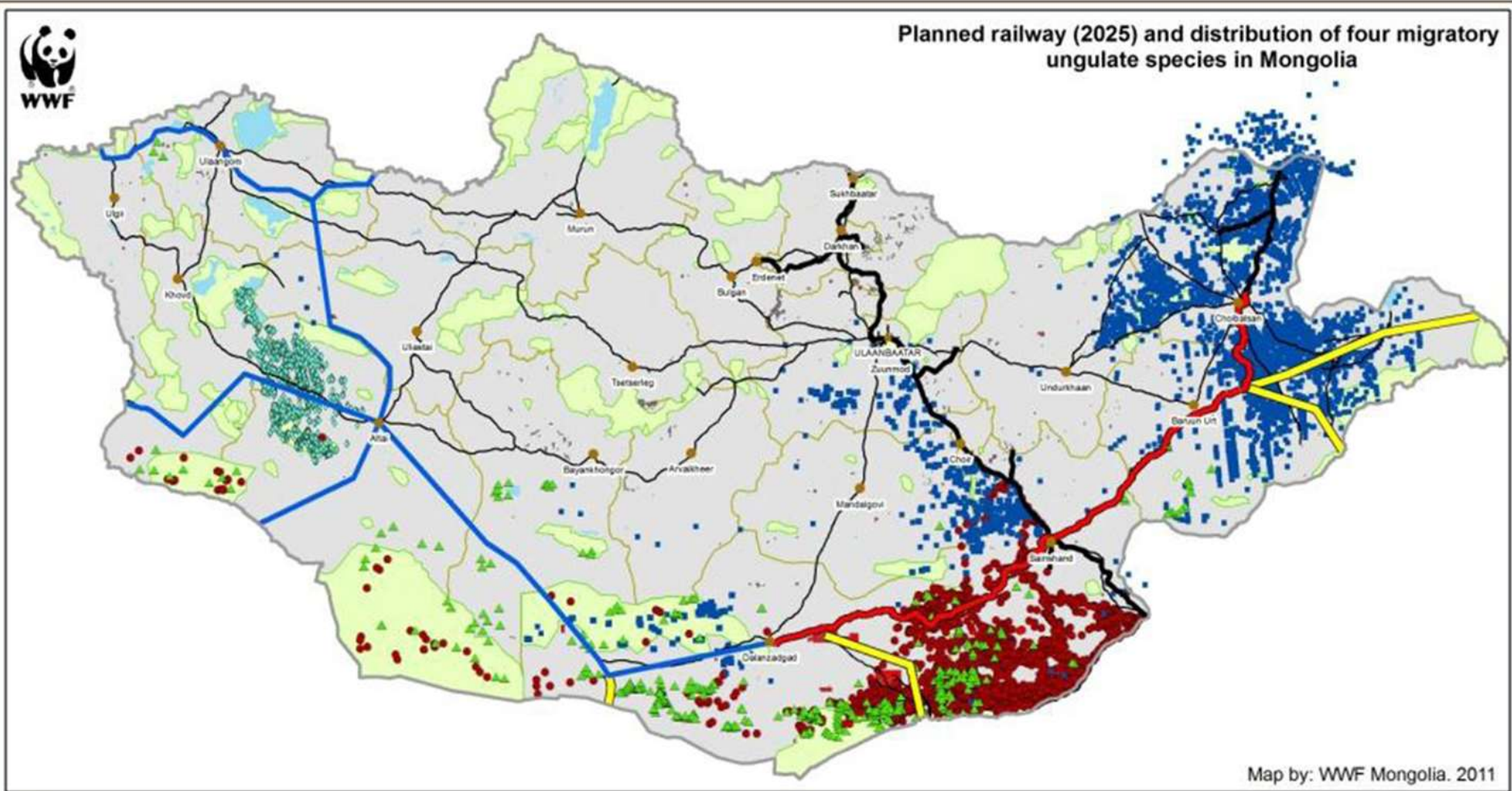
Map by: WWF Mongolia. 2011

- Protected area
- Paved roads
- Equus hemionus location
Source: 2003-2005 N.Batsaikhan, M.Shtubbe, Petra Kaszensky, B.Lkhagvasuren, B.Chimeddorj, 2007-2008 N.Batsaikhan, M.Shtubbe, 2009 Institute of Biology, 2010 WWF Mongolia
- Saiga tatarica location
Source: 2010 WWF Mongolia
- Goitered gazelle location
Source: 2003-2007 N.Batsaikhan, M.Shtubbe, 2009 Institute of Biology, 2010 WWF Mongolia
- Procopre gutturosa location
Source: 2002-2005 B.Lkhagvasuren, B.Chimeddorj, B.Buuveibaatar, Ito Takehiko, Kirk Olson, 2009 Institute of Biology, 2010 WWF Mongolia

Potential negative impacts of railroads to migratory ungulates



Planned railway (2025) and distribution of four migratory ungulate species in Mongolia



Map by: WWF Mongolia. 2011

- | | | | |
|-----------------|-------------------------|---|--|
| Protected area | Planned railway: | Equus hemionus location
Source: 2003-2005 N.Batsaikhan, M.Shtubbe, Petra Kaszensky, B.Lkhagvasuren, B.Chimeddorj, 2007-2008 N.Batsaikhan, M.Shtubbe, 2009 Institute of Biology, 2010 WWF Mongolia | Goitered gazelle location
Source: 2003-2007 N.Batsaikhan, M.Shtubbe, 2009 Institute of Biology, 2010 WWF Mongolia |
| Current railway | First phase | Saiga tatarica location
Source: 2010 WWF Mongolia | Procacpe gutturosa location
Source: 2002-2005 B.Lkhagvasuren, B.Chimeddorj, B.Buuveibaatar, Ito Takehiko, Kirk Olson, 2009 Institute of Biology, 2010 WWF Mongolia |
| Road | Second phase | | |
| | Third phase | | |

There are many barriers and challenges to migratory wildlife species in Mongolia!

- What shall we do?
- Is there any future for them?



Thanks a lot for your attention!

