



Mongolian gazelles crossing a highway © ganbayar/hureelen

# SOLUTIONS FOR WILDLIFE-FRIENDLY INFRASTRUCTURE IN CENTRAL ASIA

### HOTSPOT FOR MIGRATION

Central Asia is home to some of the most spectacular and ecologically important mammal migrations in the world. However, the future of these migrations is in jeopardy as railways, fences and other infrastructure threaten to bisect many essential migratory routes, often creating impenetrable barriers to the movement of wildlife and people.

### What is linear infrastructure?

- > Roads
- > Railway lines
- > Power and communication lines
- > Oil, gas and water pipelines (including trenches during construction)
- > Fencing
- > Artificial ridges
- > Canals (especially during construction)

### Why can it be a problem?

The impacts of linear infrastructure on migratory wildlife include habitat fragmentation, increased ease of access for poachers, disturbance; alteration of natural ecological processes such as fire and hydrological regimes, and the introduction of invasive species and diseases, as well as the threat of direct mortality through collisions with moving vehicles and entanglement in fencing.

### International Infrastructure Guidelines

In November 2014, the 120 CMS Parties adopted guidelines on mitigating the impact of linear infrastructure and related disturbances on mammals in Central Asia.

The guidelines address:

- > Types and impacts of linear infrastructure;
- > Assessment of status across Central Asian countries;
- > Legal frameworks;
- > Guidelines for reducing impacts of linear infrastructure, concerning:
  - > Mitigation;
  - > Planning and design;
  - > Assessment;
  - > Construction standards and solutions;
  - > Monitoring and evaluation.

Together, these principles establish a framework for designing and implementing linear infrastructure and verifying the success of all avoidance, mitigation and compensation measures.



Mongolian gazelle



Argali horns © Rosen

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### CMS Actions

- > Intergovernmental legal framework;
- > Facilitation of multi-stakeholder dialogue;
- > Provision of expertise & practical solutions;
- > Review of progress & compliance.

### CMS Tools for Central Asia

- > **Guidelines:**
  - > Saiga Crossing Options;
  - > CMS Infrastructure Guidelines.
- > **Regional frameworks for conservation:**
  - > Central Asian Mammals Initiative (CAMI);
  - > Memoranda of Understanding (MOU) for the Saiga Antelope and Bukhara Deer;
  - > International Single Species Action Plan for the Conservation of Argali sheep.

Find out more at [www.cms.int/cami](http://www.cms.int/cami)



Pronghorn passing under wildlife-friendly fence © J. Carlson



Chiru passing under railway bridge © X. Lin

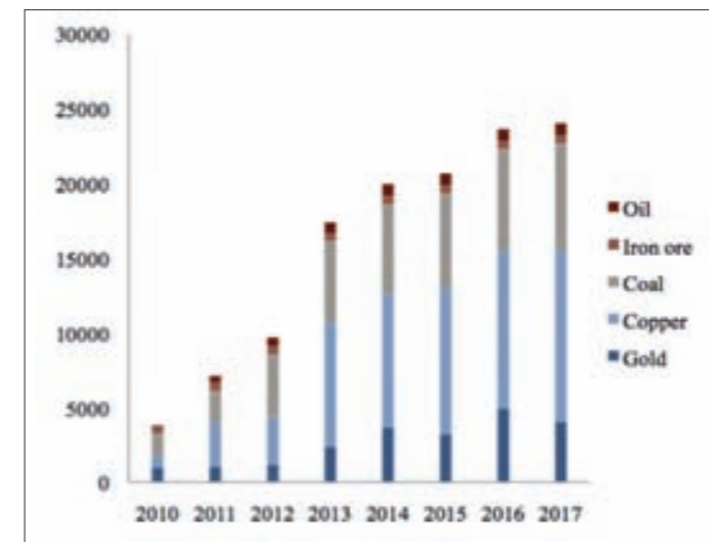
### Wildlife-friendly infrastructure design

Nowadays, there are many practical solutions which can be applied to all types of linear infrastructure to allow wildlife to pass freely. For fencing, it is often feasible to find temporary solutions by removing the fence during periods of migration.

### Mining production forecast by mineral type, min USD

Extraction of natural resources has grown rapidly in the past decade in Central Asia, and with this, the construction of roads, railways and other infrastructure is booming.

Graph source: ACI Mongolia



### CMS at a glance

The Convention on the Conservation of Migratory Species of Wild Animals (CMS), also known as the Bonn Convention, is a treaty dedicated to the conservation of wildlife beyond national borders worldwide. It has more than 120 Member States.

### CMS instruments

Animals receive protection under CMS through listing on its two Appendices, through global/regional agreements, action plans and a suite of guidelines.

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# Examples of wildlife-infrastructure conflicts in Central Asia



The map illustrates the 14 Range States of the CMS Central Asian Mammals Initiative (CAMI).



**Saiga antelope (*Saiga spp.*)**  
 This critically endangered antelope has to cross a number of bottlenecks during its migration, as well as, increasingly, **fences, roads and railways**. The 1,000km long migration of the Ustiurt population is blocked by a **border fence** – latest data suggest this population is close to extinction. **Poachers** take advantage of fences, which serve as a barrier for trapping this fast-running species.

**Argali sheep (*Ovis ammon*) and Snow leopard (*Uncia uncia*)**  
 Movements of Argali, which are an important prey species for the snow leopard, are increasingly being hindered by **fences**, the Karakoram **highway** and other **roads**. Easy access to new regions has also fuelled **poaching** for both species.

**Bactrian camel (*Camelus bactrianus*)**  
 The only wild camel in the world today occurs in two isolated populations in China and Mongolia. It is estimated that almost 10% of the Mongolian population is lost per year when crossing the international **border fence** between the two countries.

**Khulan (*Equus hemionus*)**  
 Numbers of this wild donkey have declined globally by up to 50 per cent over the past two decades. Data from Mongolia clearly illustrate the increasing negative impact of **fenced railways and roads** which serve the country's fast-growing **mining operations**.

**Mongolian gazelle (*Procapra gutturosa*)**  
 Fences along international borders and the Trans-Mongolian **Railway** are a major obstacle to gazelle movement. A recent population estimate has suggested that around 1 million Mongolian gazelles remain in Central Asia, down from 4.5 million in the 1900s.