



ADDRESSING THE IMPACT OF LINEAR INFRASTRUCTURE ON MIGRATORY SPECIES

Railway © Albrecht Fabian

WHAT IS LINEAR INFRASTRUCTURE?

- Linear infrastructure is characterized by its straight form, such as roads, railways, powerlines, and canals.
- Non-linear infrastructure is not straight in its form, examples being airports and hospitals.

RAPID INCREASE OF LINEAR INFRASTRUCTURE

- By 2050, at least 25 million kilometres of new roads are projected to be developed across the world. This will be a 60 per cent increase from 2010 and the majority of new roads will be in developing countries.
- An additional 335,000 kilometres of rail track are projected to be needed to accommodate the predicted transportation needs by 2050.

Examples of effective conservation action on the ground to allow movement of ungulates

Removal of fences in Mongolia to allow movement of ungulates

Fences along the Trans-Mongolian Railway in Mongolia constitute a complete barrier for Asiatic Wild Asses, Saiga Antelopes, Goitered and Mongolian Gazelles as well as Wild Camels. Thousands of Mongolian Gazelles died in 2017 along the fence because they could not cross and escape the harsh winter weather.

To address this challenge, [guidelines to mitigate the negative impacts of linear infrastructure in Central Asia](#) were developed under the Central Asian Mammals Initiative (CAMI). Based on the guidelines, the Government of Mongolia developed national standards, which put in place wildlife-friendly measures for all development projects. In addition, the Government in cooperation with the Mongolian railway company and partners, modified and partly removed the fence along the Trans-Mongolian Railway in a pilot project. Asiatic Wild Ass, as well as Mongolian Gazelles, were already found to use the newly created gaps in the fences and successfully cross the railroad, rediscovering former range areas.

Towards Bird-friendly Powerlines in Egypt

As a member of the Energy Task Force, Egypt is championing the assessment and mitigation of the risk of collision and electrocution from powerlines for migratory soaring birds in the Rift Valley/Red Sea Flyway. Under the national component of the Migratory Soaring Birds project in Egypt, the impact of electric power grids within the wind farms was assessed in 2018 and 2019 at the Gabel Al Zayt bottleneck site, where the terrain presents significant challenges for the installation of high-voltage powerlines. A preliminary assessment indicated

an overall minimal casualty rate of 0.19 birds/km/season assessed for the studied segments of power lines. The distance from the coast has been identified as a primary factor affecting the casualty rate, with the orientation of power lines in relation to the dominant migration direction of birds as another potentially important factor. In response to the assessment, the following actions have been taken: cooperation between the MSB Project and Egyptian Electrical Transmission Company regarding modifying powerlines in the flyway; further investigation on the application of mitigation measures on existing powerlines; and the provision of practical guidance for mainstreaming biodiversity considerations in new powerline planning.

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Spanish Imperial Eagle © Michelle Mendi

Power line impact mitigation: Saving the Spanish Imperial Eagle

A long-term conservation initiative in the Andalusia region in Spain has shown how simple remediation techniques and redesign of power lines can positively impact one of the world's rarest raptors, the Spanish Imperial Eagle. In 1990, the Andalusian Government approved the regulation of a new power line design that aimed to minimize or eliminate the impact of electrocution on bird populations in the region. Since 1992, a total of 20,000 dangerous pylons have been made safer along [5,000 km of power lines in Andalusia](#). Mitigation measures included construction of new pylons with suspended insulators, avoiding the use of pylons with an exposed loop of wire above the insulator and ensuring that new power lines were constructed away from breeding areas. Retroactive mitigation measures included replacing exposed insulators with the suspended type and installing protective systems on dangerous pylons to prevent birds coming into contact with wires. In the Doñana National Park, a 96 per cent reduction in electrocution mortality rates was observed in [the decade after the policy change](#). In the wider Andalucía region, a 62 per cent reduction was seen, despite there being a continuous increase in the amount of overhead power line construction in the region. The population of Spanish Imperial Eagles in Andalusia as increased from 22 pairs recorded in early 1970s to 122 pairs in 2020. This is a practical example of how mitigation measures implemented on a

regional level have contributed to improved demographic trends of one of the most endangered raptors in the world.

Wind turbines and migratory birds

Soaring birds, especially birds of prey, are highly susceptible to collision with wind turbines. Thus, the [BirdLife International UNDP/GEF Migratory Soaring Birds \(MSB\) Project](#) aims to integrate the conservation of soaring birds into key sectors of society through partnerships and strategic alliances with businesses, NGOs, governments, and international organizations. Under the project, the [Soaring Bird Sensitivity Mapping Tool](#) was developed, collating data on 96 species of soaring bird. Through this free online web tool, users can delineate the boundaries of a prospective wind farm and quickly access the relevant data on soaring birds. In this way, the tool helps inform decisions on the safe siting of new developments, such as wind farms, thereby minimizing negative impacts on soaring birds.

The sensitivity mapping techniques developed under the MSB project have recently been successfully applied in the [Strategic Environmental Assessment for Wind Power and Biodiversity in Kenya](#). The tool has revealed that there are large areas of economically viable wind potential in Kenya of low or manageable biodiversity risk, with only 17 per cent of economic wind areas classed as very high sensitivity for species and sites such as Important Bird and Biodiversity Areas (IBAs).

About CMS

The Convention on the Conservation of Migratory Species of Wild Animals (CMS), also known as the Bonn Convention, works for the conservation of a wide array of endangered migratory animals worldwide through negotiation and implementation of agreements and species action plans. It has 131 Parties (as of 1 September 2020).

CMS engages all relevant stakeholders in addressing threats to migratory species in concert with all other aspects of wildlife conservation and management.

CMS Instruments

Animals receive protection under CMS through listing on its two Appendices, through global or regional agreements and through action plans.

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