The International Union of Railways (UIC) is the worldwide professional association representing the railway sector and promoting rail transport. UIC leads an innovative and dynamic sector, helping our members find opportunities and build success. The purpose of UIC's Ecological Effects of Railways on Wildlife (rEvERsE) project is to understand railway's role in the loss and gain of biodiversity and its habitats in Europe. It will seek to set out how railways can manage land in an ecologically sensitive way, providing solutions and best practice examples.

SNCF

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ECOLOGICAL EFFECTS OF RAILWAYS ON WILDLIFE
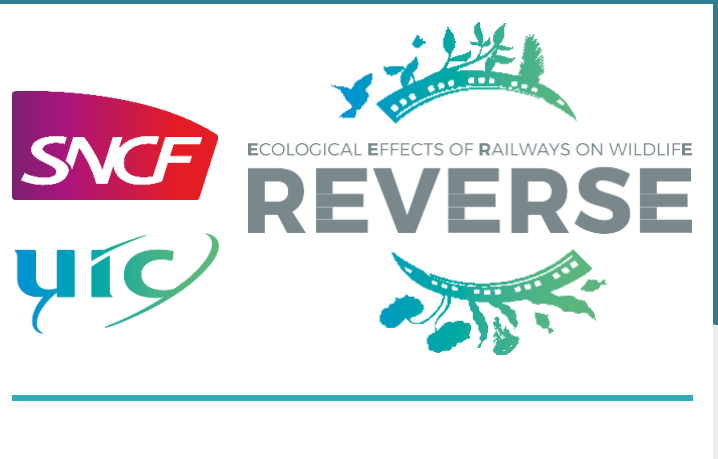
REVERSE

UIC is seeking solutions and best practice to manage rail lineside in a way that can help **halt and reverse the loss of biodiversity**.

This poster provides information about Theme 3:
Mitigation for impacts of operation on species (collision, electrocution, etc.)

FRANCE

The SNCF Réseau is the French company managing the national railway network. Since about 5 years, the group has declared that the reduction of wildlife collisions with trains will be one of its first priority for actions.
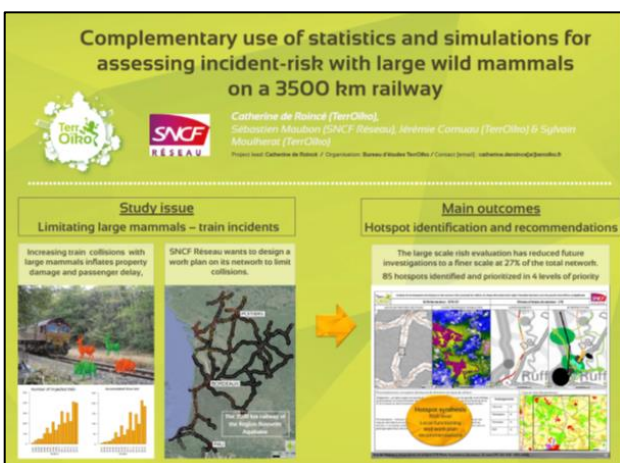
THE SOLUTION

To achieve both these objectives the territorial production units have worked on global strategies to identify and prioritize actions to reduce their collision hot-spots. In the New Aquitaine region (southwestern part of France), Incidents (collisions and wanderings) with large mammals (roe deer, wild boars, and deer) account for 30% of train incidents with animals. For security reasons, each collision necessitates the immobilization of the train for inspection, and therefore delays for the passengers and repairs and compensation costs for SNCF Réseau. Over the 2005-2016 period, the number of incidents increased by 235% (30 to 101 incidents), resulting in a 700% time-lapse increase (from 30 hours to 200 hours). This trend is likely to continue due to the increased populations of large mammals reported in France (e.g., +300% deer in 20 years).

Manager of 3500 km of railway in this region, SNCF Réseau seeks to design a development programme of these lines to limit the number of incidents.

For this, SNCF Réseau commissioned TerrOïko a large-scale mapping of the risk of collision on its network. The study aims to target hotspots with high potential for incidents to reduce the scope of investigations at a smaller scale and to define the nature of the work to be done. To this aim, TerrOïko has developed an analysis method consisting of crossing data on the location of the incidents reported by the drivers and demographic and displacement data of large mammals in order to map the hotspots and to prioritize them. The collision data were analysed by the statistical method of Generalized Additive Model (GAM) and the displacement data were obtained by the SimOïko simulator.

Outcomes

At the end of this work, 85 hotspots were identified and prioritized in 4 levels of priority. This pre-diagnosis reduces future investigations to a finer scale at 941 km or 27% of the total network. In each sector, the finer analysis of the simulated movements makes it possible to define the nature of the actions to be considered in order to reduce the passage of animals: fences, landscaping, passage to wildlife, etc.

Keywords: Collision, Mitigation

Complementary use of statistics and simulations for assessing incident-risk with large wild mammals on a 3500 km railway

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