

# Monitoring the effect of a screen installed to mitigate the impact of a high speed railway on bats

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A new 160-km stretch of high speed railway (HSR) between Córdoba and Málaga (Andalucía, southern Spain) began operation at the end of 2007. As established during the Environmental Impact Assessment (EIA), the public company ADIF that is responsible for the construction and maintenance of the infrastructure undertake a monitoring project to analyse the effectiveness of the measures taken to mitigate the impact of the railway on birds and mammals. The project is being carried out by a team of experts in bats and wildlife management and will be extended until the end of 2011.

Close to the infrastructure is a horizontal well that houses a colony of cave-dwelling bats. One measure that is being monitored is the screen that has been installed to prevent bat mortality. This screen is a 5-meter high wire fence that runs for 110 m along the tracks on an embankment built between two tunnels and with an underpass (8x6,4 m).

In May 2009, data from the colony were recorded using infrared video cameras and bat detectors. The effects of the fence on bat flight were investigated by measuring bat flight activity in seven sampling stations. Two infrared video cameras were used to study bat behaviour close to the fence.

During the study, 1,861 bats from 6 species of the genera *Rhinolophus*, *Miniopterus* and *Myotis* were recorded leaving the roost. 544 individuals were registered crossing the HSR by passing either above a tunnel located close to the roost (60.7%) or through the underpass below the embankment (39.3%). With respect to the effect of the fence, from 70 images analysed most bats crossed over the fences or flew parallel to them. Less than 5% of the bats flew into the area between the fences on each side of the tracks, and were thus at risk of collisions with trains.

According to our data, the bat colony has increased to 1,127 individuals in comparison with data recorded in 2004 during the construction of the infrastructure. Hence, the population that existed before the railway was built has probably been recovered. In addition, it seems that the fence has helped to prevent collisions with bats. The research that will be carried out in the next two years will provide more conclusive results, and will focus on juveniles' behaviour in particular.