
Roads and bats: use of existing gantries for the restoration of ecological connectivity.

Fabien Claireau^{*1}, Sébastien J. Puechmaille², Benjamin Allegrini³, Cédric Heurtebise⁴,
Nathalie Machon⁵, and Christian Kerbiriou¹

¹Centre d'Écologie des Sciences de la Conservation (CESCO) – Muséum National d'Histoire Naturelle (MNHN) – 55 rue Buffon 75 005 Paris, France

²Zoology Institute and Museum - Greifswald University – Soldmann-Str. 14, D – 17 487 Greifswald, Germany

³Naturalia environnement – Aucune – 20 rue Lawrence Durrell BP 31 285 84 911 Avignon, France

⁴Autoroutes du Sud de la France (ASF) – Aucune – 74 allée de Beauport CS 90 304 84 278 Vedène cedex, France

⁵Centre d'Écologie des Sciences de la Conservation (CESCO) – Muséum National d'Histoire Naturelle (MNHN) – 55 rue Buffon 75 005 Paris, France

Abstract

Highways are known to have negative impacts on wildlife. For bats, the construction of a highway can lead to destruction of bat roosts and loss of foraging areas. Current studies also underline that such infrastructures additionally induce fragmentation and loss of connectivity between roosts and between roosts and foraging areas. However, many highways have been planned without taking into consideration this loss of connectivity for bats. Although legally protected in European countries, many bats species are endangered throughout much of their range, therefore, it is necessary for stakeholders to be able to design mitigation measures such as the restoration of ecological connectivity. Several studies suggest that underground passages are quite effective for the passage of bats, and their most convenient conformation is known. Nevertheless, in some situations, technical constraints only allow the installation of crossings over the highway. In France, the number of wildlife crossings is around 2,000 for 12,000 km of highway, with only four of these overpasses specifically designed for bats. In this presentation, we review experiments already carried out in Europe, based on experiment feedbacks, and present an alternative innovative device: the installation of a standard gantry on a motorway in service. This allows us to define what are the factors that determine the success of overpasses for bats through the use of acoustic recorders and thermal camera. The goal is to evaluate its effectiveness compared to other more complex and more expensive structures.

Keywords: Landscape ecology, Habitat fragmentation, Ecological connectivity, Highways, Overpasses for bats, Gantries

*Speaker