LIFE STRADE Project

Demonstration of a system for the management and reduction of collisions between vehicles and wildlife

Habitat Directive | improving biodiversity | management tools

PROJECT DESCRIPTION

Road infrastructure represents a serious **threat to the conservation of biodiversity** as a cause of degradation and fragmentation of habitats, source of disturbance and pollution, and obstacle to the movement and spread of fauna. It is also a relevant direct mortality factor for many species of birds and mammals. **Accidents**, which involve **species of very high conservation value**, such as the wolf, bear or wild cat, represent a further **threat to wildlife populations in some cases even close to extinction**. Finally, road accidents with ungulates are a cause for concern both for the safety of motorists and for the economic repercussions linked to the compensation that the local authorities, in charge of the infrastructure's management, are required to pay whenever these events result to be of their responsibility. Unfortunately, awareness of these aspects is scarcely widespread among administrators and all those involved in various capacities in the design, construction and management of road infrastructures: therefore, urgent responses and interventions are needed both in terms of careful planning of land use and implementing appropriate measures to reduce the impact of existing infrastructures on biodiversity.

OBJECTIVES

The **LIFE STRADE** project was designed in this context, whith the aim of **contributing to the reduction of the biodiversity loss** caused by the impact of wildlife road kills through the experimentation and implementation of a package of **measures to prevent road accidents with wildlife**. In particular, the project pursued the following objectives:

- **development and testing of an innovative prevention system for traffic-wildlife collisions**, as a replicable example for other national and European territories;
- **development of a protocol for the monitoring and management of the traffic-wildlife collisions phenomenon,** to be shared by the bodies responsible for managing the problem;
- **dissemination of the experiences and best practices** among all the people and bodies potentially interested in the issue.

PROJECT PHASES

The LIFE STRADE project envisaged the implementation of **numerous actions with the involvement of 5 provinces** of central Italy (**Perugia - Terni, Grosseto - Siena and Pesaro - Urbino**) and of the **3 regions** in which these provinces lie (**Umbria, Marche and Tuscany**). The composition of the partnership was structured to respond to the objectives of the project, taking into consideration the competences of the involved bodies (legislative competence of the regions; competence for road management of the provinces). In detail, the following **activities** were carried out within the project:

- **monitoring** of the vehicular traffic's impact on wildlife, to estimate the extent and distribution of the phenomenon in the 5 provinces involved and gather useful information for the selection of sites where to install the prevention system: collection and analysis of accident data available in the period prior to the start of the project (over 7.000 data analyzed relating only to medium-large species; wild ungulates made up over 90% of the species involved), direct monitoring of wildlife mortality along 4 sample roads per province (300 km of roads monitored; information collected on all species and taxonomic groups threatened by vehicular traffic), stocktaking of fauna in the areas surrounding the selected road sections, to trace all the species potentially threatened by vehicular traffic (crossing sites most commonly used by animals was also identified with photographic traps), measuring of the vehicular traffic along the monitored roads (1.000 – 10.000 vehicles circulating per day; above 100 km/h average speed detected). The monitoring activity along the sample roads continued for the whole duration of the project to allow a reliable assessment of the undertaken.interventions.
- **development and testing of an innovative wildlife accident prevention system**. The system detects the presence of animals near the road and in this case activates signals that invite motocyclists to slow down. If this does not happen, and only in this case, a deterrent system is activated that scares away the animals. A total of **17 wildlife accident prevention devices were installed in the 5 provinces** involved in the project.
- **development of a protocol for monitoring and managing accidents with wildlife**, to identify tasks and responsibilities within local authorities in order to provide the procedural basis for reducing the impact of the vehicular traffic on biodiversity. For the development of this protocol, a participatory process was carried out which involved a large number of stakeholders and which allowed the 3 regional administrations involved in the project to converge on a common document.
- **staging of information and awareness campaigns addressing** both the general public and the different bodies and organizations involved in the management of the traffic-wildlife collision problem;
- **dissemination of the results**, including production and distribution of information materials, mass media activities, as well as participation in conferences and events.

PROJECT RESULTS

LIFE STRADE has created an **innovative system** that can be used in the future for the **prevention of traffic-wildlife collisions**. The system works as follows: a series of infrared sensors and/ or a thermal camera record the presence of an animal near the road and transmit the information to an electronic control unit. This causes the activation of an alarm signal with intermittent light for the drivers, inviting them to reduce the speed. A doppler radar sensor records if the car slows down. If the car slows down to a certain speed, the system will stop. Otherwise, the doppler radar transmits the information to the control unit, which causes the activation of an acoustic deterrent system for the animal, putting it on the run. The **strength of this system** is to **take action only in situations of risk**, that is, when an animal is close to the road and there is a vehicle passing on the roadway. In this way the risk of addiction to the acoustic system is reduced both for wildlife and motocyclists, and the connectivity of the environment is promoted. In general, the **prevention system developed by LIFE STRADE can be used in various environmental conditions** , obviously taking into account the operating criteria and adopting the appropriate technical adjustments.

The experimentation carried out in the 5 provinces involved **with 17 devices** for the collision prevention **has proven its worth**: in fact, in the sites where the devices have been installed, the **accidents have almost disappeared, with a reduction of up to 100%**. During the project there was a constant updating of the adopted techniques, and the installed devices were modified to optimize their operation. The result of this process is extremely promising and gives space for further experimentation activities, such as introduction of different types of signals to induce motocyclists to slow down, use of new solutions for deterring animals and installation of different types of sensors that the development of technology could offer.

The lack of clear procedures to manage **traffic-wildlife collision situations** was the main reason that led to the development of a **protocol for monitoring and managing** the phenomenon through the joint adoption of guidelines by the 3 regions involved in the project. **The ratification of the protocol by the 3 regions ensures the continuation of the work in future years** and it can also serve as example for other Italian regions.

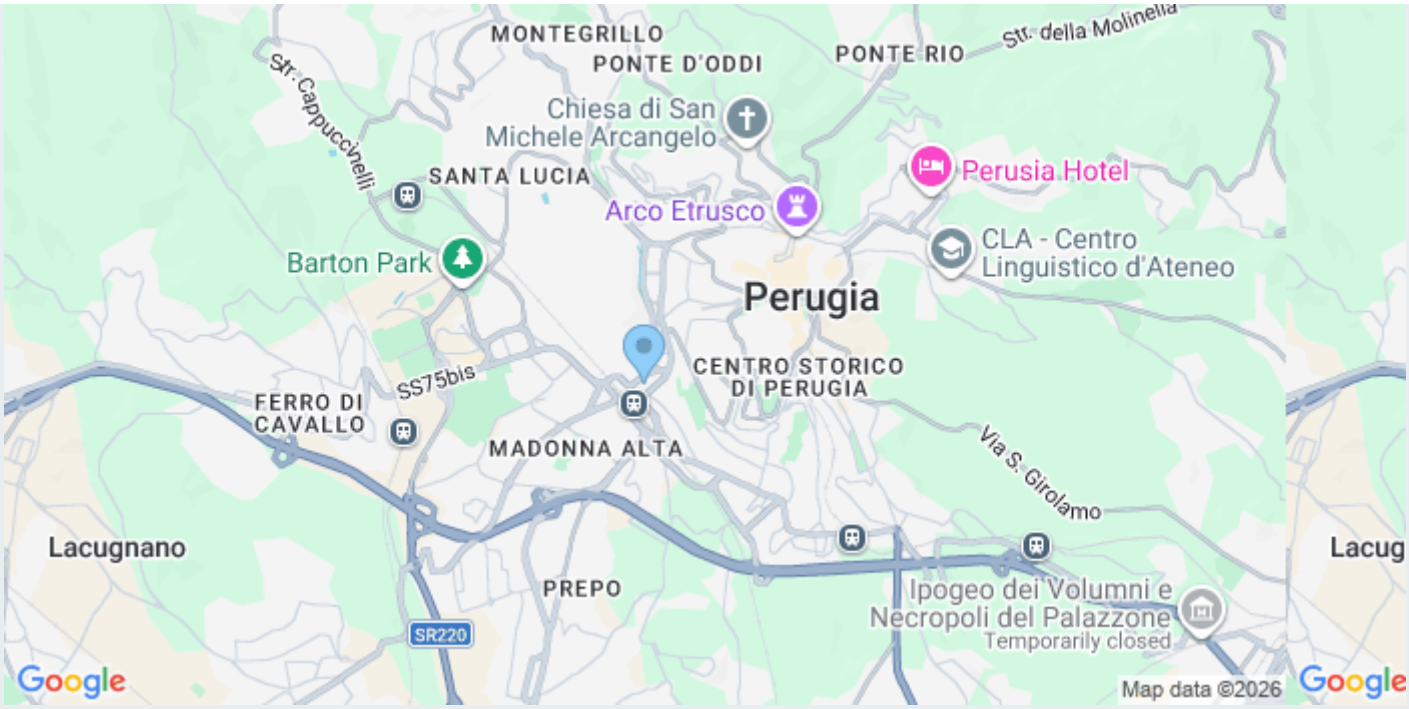
Other outputs realized within the project are:

- a **Manual of best practices for the mitigation of the road infrastructure's impact on biodiversity** (to which the above protocol refers);
- a **geografic database** that collects data relating to all the accidents with wildlife reported in the 5 provinces of the project, and a **cartography of the road sections at greatest risk**. The geodatabase represents an important tool for decision making in the territorial planning and for understanding what are the priorities in mitigating and preventing road accidents with wildlife;
- an **App for Smartphone and IOs** to involve the general public in the collection of information on road accidents with wildlife.

The awareness raising activities of LIFE STRADE have involved a large number of citizens and the products created by the project can be used for future information campaigns on the problem of traffic-wildlife accidents, which is constantly growing across the country. At the same time, the dissemination of the results obtained in the other Italian regions (in particular Valle d'Aosta, Lombardy, Liguria, Tuscany, Umbria, Marche, Abruzzo, Sardinia, Sicily) involved around 105 bodies and associations and was an important activity to make known the best practices and experiences acquired during the project, as well as to start the development of interventions similar to those implemented. Furthermore, during the entire duration of the project, an intense networking activity with other national and international initiatives and projects was carried out which suggests that the **LIFE STRADE project has created solid foundations for future interventions not only in Italy, but also in the rest of Europe**.

In fact, **replications of the use of the wildlife accident prevention system developed within the project have already taken place** both in Italy and in other European countries:

- in the **province of Varese 6 devices were installed** as part of the ROADKILL project, developed by the Valli del Verbano Mountain Community with the partnership of OIKOS NGO and the financial contribution of Cariplo Foundation.
- **4 devices are already in operation in the Dolomiti Bellunesi National Park**.
- **1 commercialisation agreement** has been signed with the Spanish company Fauna Tek and, moreover, **requests for specific information have been received for the installation of the devices** from Holland, Sweden and Switzerland.



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Acronym
LIFE STRADE

Number of reference
LIFE11 BIO/IT/000072

Reference Programme
LIFE

Beneficiary Coordinator
Regione Umbria

EU contribution
970.856

Call Year
2011

Start Year
2013

End Year
2017

Beneficiary headquarters

Via Mario Angeloni, 61
06124 Perugia PG
Italy

Region
Umbria

Description

Umbria (Province di Perugia e Terni),
Toscana (Province di Siena e Grosseto),
Marche (Provincia di Pesaro Urbino)