European Commission

Protecting Europe's threatened invertebrates

Photo: Pixabay

Invertebrates provide vital ecosystem services such as pest control, pollination, soil creation and water filtration. Yet despite their importance, these species are rapidly declining across Europe due to loss of natural habitats, agricultural intensification, pollution, pesticide use, invasive alien species and climate change. Since 1992, the LIFE programme has been addressing their conservation needs through a multitude of projects.

Fast facts

- Invertebrates are animals without a backbone or bony skeleton. They range in size from microscopic mites to giant squid.
- 97% of all animals are invertebrates – they are the most abundant and species-rich group of animals on our planet.
- The European Union's (EU) Birds and Habitats Directives give protection status to 1 140 animal species, of which 986 are vertebrates and 154 invertebrates. These figures represent 64.8% of the vertebrates but only 0.1% of the invertebrates present in Europe.
- The LIFE programme is a cornerstone of EU invertebrate conservation work, supporting more than 237 projects to date.
- Some 84% of crop species and 78% of wild flowering species depend, at least in part, on animal pollination.
- €15 billion of the EU's annual agricultural output is directly attributed to insect pollination.
- But studies show that the populations of many wild pollinating insects like the wild bees, hoverflies, butterflies and moths are in dramatic decline.
- Their plight has been recognised by the EU Pollinators Initiative, set up to address that decline.
- LIFE projects on invertebrates have mainly focused on open habitats, forests and wooded meadows, ponds and streams.
- Other LIFE projects address pollination services, invertebrates as indicators of sustainable agriculture and forest management, earthworms as soil health indicators and how urban areas can support wild bees.
- In recent years, LIFE has extended its reach by also focusing on species listed as Endangered in the *International Union for Conservation of Nature* (IUCN) European Red List of invertebrate groups.
- Moving forward, LIFE will aim to improve:
  - The number of Habitats Directive and IUCN European Red List species targeted.
  - Knowledge on species conservation requirements.
  - Monitoring of conservation status especially in habitat-based projects.
  - Communication and awareness raising.
  - Delivery of relevant Species Action Plans and Habitat Action Plans.
  - Support for the EU Pollinators Initiative.

Freshwater pearl mussels get a new lease of life

Although able to survive for up to 140 years, European freshwater pearl mussel (*Margaritifera margaritifera*) populations have declined by 90% over the past century. This is due to a lack of clean, well oxygenated riverbed, with little silt, sediment, or algal growth. But these mussels are vital as they filtrate water, clean it and indirectly provide food for fish. In Finland, populations in the Mustionjoki and Ähtävänjoki rivers were in a poor condition and no longer able to reproduce.

Launched in 2014, a LIFE Integrated Project called **FRESHABIT** is improving the ecological status, management and sustainable use of freshwater Natura 2000 sites in Finland, by tackling the problems they face at catchment level. One of its projects aims at reviving populations of the freshwater pearl mussel. Actions already undertaken include:

- Relocating several hundred adult mussels to the Konnevesi research station of the University of Jyväskylä.
- Providing these mussels with high-quality nutrition.
- The mussels consequently produced new larvae the following year.
- The larvae grew into small mussels which were returned to their native waters, supplementing their populations in the two rivers.

Photo: LIFE14 IPE FI 000023

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The butterfly effect

Photo: LIFE09 NAT CZ 000364

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The **Butterflies CZ-SK LIFE** project has stepped in to protect ten threatened butterfly species in the Czech Republic and Slovakia. All ten are deemed of Community and national importance and include the Danube clouded yellow (*Colias myrmidone*) and the large blue (*Phengaris arion*) butterfly. With their survival depending on optimal grassland and landscape management, the project took several important measures:

- Restoring 282 hectares of grassland habitats and managing 8 398 hectares.
- Introducing special grassland management measures and incorporating them into national agri-environmental programmes.
- Raising public awareness and forging partnerships with landowners and farmers within the project area.
- Purchasing machinery and training staff, which should result in continued grassland maintenance.
- The species and habitats have now been restored to a favourable conservation status at the project level.

Targeting species under threat in Spain

Water pollution, intensive agriculture and forest management have had a devastating impact on habitats in Spain's Extremadura region. Sadly, its invertebrate populations are being negatively impacted as a result. To alleviate the situation, the **LIFE Artrópodos Extremadura** project looked at reviving several important species in the affected region. These include two beetles (*Cerambyx cerdo* and *Lucanus cervus*), four dragonflies *(Coenagrion mercuriale, Macromia splendens, Oxygastra curtisii* and *Gomphus graslini*) and a butterfly (*Graellsia isabelae*).

The four-year project, which began in 2004, focused on seven Natura 2000 sites in the region, covering some 35 500 hectares and had the following results:

- The largest distribution survey ever conducted in the region, which has ensured that effective management tools are now in place to protect and monitor the target species.
- Project findings were added to the Geographical Information System (GIS) - a reference tool to assess projects that could affect the targeted species.
- The project also carried out surveillance activities to control damage to the river quality and the species.
- Awareness-raising tasks have helped change the perceptions of farmers, landowners and the wider public.
- The local economy has benefited from eco-tourism with dragonfly tours being offered by several companies.

Photo: LIFE03 NAT E 000057

Pollination education

In the EU, 78% of wild flower species and 84% of crop species depend, at least partly, on insects to produce seeds. But nearly 10% of the EU's wild bees are threatened with extinction. In Mediterranean countries like Spain, Italy, France and Greece, most citizens fail to grasp the importance of these wild pollinators to biodiversity and their economies. This knowledge gap is hampering these countries' ability to address this alarming species' decline.

The recently launched **LIFE 4 POLLINATORS** project wants to improve pollinator conservation and to change perceptions in these countries by:

- Raising public awareness of the decline of wild pollinators and the importance of pollination services.
- Enhancing citizens' participation in data collection and greening actions.
- Improving general knowledge on native Mediterranean wild pollinators.
- Providing data to the relevant authorities so that they can develop effective pollinator strategies.
- The project will contribute to a range of EU policy and legislation, including the biodiversity strategy, the Pollinators Initiative and biodiversity protection under the common agricultural policy. It will also support the Habitats Directive.

Photo: LIFE18 GIE/IT/000755 ©Laura Bortolotti

Creating a buzz in Lyon

There are some 20 000 species of bees globally, of which 2 500 can be found in Europe. But studies show that many of these pollinating insects are in rapid decline, which is of serious concern not only for biodiversity but also for the economy. The **LIFE URBANBEES** project aimed to enhance the biodiversity of wild bees in urban habitats in Europe.

- The team installed so-called 'bee-hotels' at 16 sites across the city of Lyon, France. The goal was to first get urban citizens accustomed to seeing those wild bees and then to determine which species were present in the city.
- The scientists discovered that the bees adapt very well to the city as the temperature is quite warm.
- This allows pollen to be harvested almost all year round.
- The researchers found that there are some 250 species of bee in the Lyon urban area alone – a quarter of the bee species in France.
- The team also created a guide to making public green spaces, residents' gardens and farmland more 'bee-friendly' by planting certain species.
- Cities such as Brussels have adapted the guide for their own use.

Photo: LIFE08 NAT F 000478

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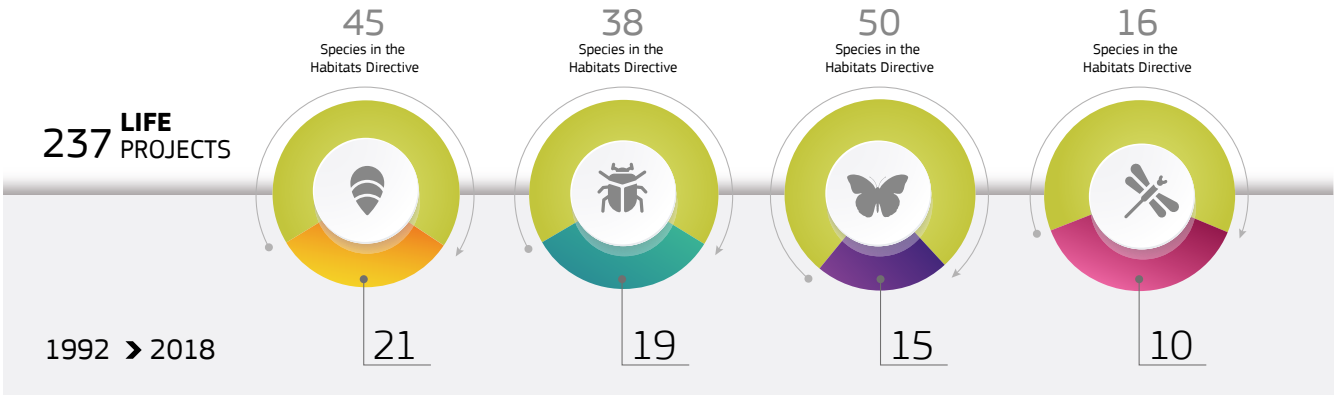
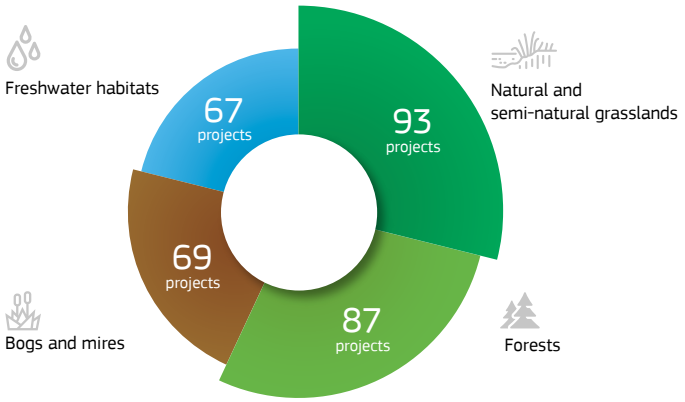
Facts & figures

Between 1992 to 2018, 237 LIFE projects have targeted 21 species of mollusc (of 45 species in the Habitats Directive), 19 out of 38 species of beetle (Coleoptera), 15 out of 50 species of butterfly and moth (Lepidoptera) and 10 out of 16 species of dragonfly and damselfly (Odonata).



Habitats for invertebrates



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