

PRESS RELEASE

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CLOSE MONITORING OF POLLINATORS IN LUXEMBOURG

In a dedicated conference, the Luxembourg Institute of Science and Technology recently presented its studies and expertise on pollinators whose decline in Europe is a major ecological and economical issue.

On 11 December 2018, the Luxembourg Institute of Science and Technology (LIST) organized a conference entitled "Meeting the pollinators - importance, decline and perspectives" in Belvaux, Luxembourg. With this conference, LIST researchers addressed a major ecological and economical issue in Europe, and thus in Luxembourg: the decline of pollinators - such as bees, hoverflies and butterflies - that are a vital part of both natural and agro ecosystems.

A worldwide decline and international monitoring initiatives

The insect decline is an international phenomenon, with significant losses of flying insects, notably regarding grassland butterfly abundances, recorded in the last four decades in North West Europe. The importance of the phenomenon is such that many international pollinator initiatives have been launched since the early 2000's, from Oceania to Colombia, including North America, Africa, Europe, etc. All over the globe, authorities try to understand this decline and put in place measures to halt this dramatic trend.

All around Luxembourg borders, the figures are alarming. In Germany, the insect biomass has decreased by 75% since 1989, in England the biomass of six invertebrate groups has declined by 35% since 1970, and in Sweden and Denmark dramatic decreases in abundance of, respectively, four and five bumblebee species have been pointed out. Closer to Luxembourg, Belgian researchers have observed drastic changes in abundance and distribution of bumblebees. Population trend analyses, based on abundance and range size, showed that between 68 and 88% of bumblebee species have been declining over the last century, respectively, and that four species completely disappeared. Only few species tend to increase their relative abundance and dominate the others, leading to a homogenization of bumblebee communities.

A Luxembourg focus to improve

Given this trend, it is obvious that the Grand-Duchy of Luxembourg does not remain untouched. As highlighted by the European indicator for grassland species, Luxembourg is one of the EU countries with the largest number of common grassland butterfly species in decline. This observation has been realized through the national butterfly monitoring network coordinated by LIST since 2010.

With the National Natural History Museum (MNHN), natur&ëmwelt, the consultant ECOTOP, the biological stations and some highly-motivated volunteers, and with the financial support of the Ministry of Environment, Climate and Sustainable Development, LIST is producing a butterfly atlas and a new red list indicating the conservation status of each butterfly species in Luxembourg. The atlas compares species distribution changes between the periods 1990-2009 and 2010-2016. These analyses show that close to two third of butterfly species declined in their area of occupancy between these two periods.

LUXEMBOURG INSTITUTE OF SCIENCE AND TECHNOLOGY (LIST)

The Luxembourg Institute of Science and Technology (LIST) is a mission-driven Research and Technology Organization (RTO) that develops advanced technologies and delivers innovative products and services to industry and society. As a major engine of the diversification and growth of Luxembourg's economy through innovation, LIST supports the deployment of a number of solutions to a wide range of sectors, including energy, IT, telecommunications, environment, agriculture, and advanced manufacturing at national and European level. Thanks to its location in an exceptional collaborative environment, namely the Belval Innovation Campus, LIST accelerates time to market by maximizing synergies with different actors, including the university, the national funding agency and industrial clusters.

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Thanks to various research projects in the field, LIST researchers study risk factors and develop improved management practices in order to reduce losses of bee colonies in the country. Thus on the one hand data needed for minimizing winter losses in managed honeybee colonies have been acquired across Luxembourg. On the other hand, pathogen and pest models have been developed in order to reduce the number of pesticide applications. These two aspects are respectively studied in the projects BeeFirst "Effects of agricultural structures and apicultural techniques on honey bee health in Luxembourg" and Sentinelle "Warning and advisory platform for the main pests and diseases in the major crops in Luxembourg", both supported by the Administration des Services Techniques de l'Agriculture of the Ministry of Agriculture.

Impact of human activities

The usefulness of LIST research activities on bees and pollinators have taken an even higher importance since March 2018 when the European Pollinators initiative has defined 3 priorities on the topic. The first one is to improve knowledge of decline, its causes and consequences. The second one refers to tackling the causes of decline. Finally, the third priority focuses on raising awareness, engaging society-at-large and promoting collaboration. In Luxembourg, those priorities are taken into account in the various existing national monitoring programs.

A large cocktail of stressors can explain the decline of pollinators, and most of them are the result of human activities. Land-use change (e.g. urbanization and intensive agricultural practices, with the use of agro-chemicals), environmental pollution, climate change, pathogens as well as invasive alien species are challenges of particular importance that need to be tackled in the coming years to preserve biodiversity and halt the decline of pollinators.

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