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BIODIVERSITY IN LUXEMBOURG UNDER THE SPOTLIGHT

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On Wednesday 22 November 2017, the LIST, in collaboration with the Ministry for Sustainable Development and Infrastructure presented the biodiversity monitoring programmes in Luxembourg as well as the efforts to be made in this sector.

Monitoring of biodiversity in Luxembourg is a major challenge allowing for more knowledge to be gained on the state of health and conservation of various species and habitats in the country. Certain data to be observed is imposed by the European Commission, notably with Habitat and Bird Directives and the Water Framework Directive, transposed into Luxembourg legislation, and the European Regulation on Invasive Alien Species (IAS). This data may be used to validate building permit applications, infrastructure modifications and, of course, to target sensitive sites in which conservation efforts should be undertaken. For other data, it is more precisely about a national initiative intended to update knowledge on biodiversity and estimating the impact of certain management measures.

The initial report intended for the European Commission, dated 2007, covered 2001 to 2006, and included a large percentage of species and habitats whose situation was unknown in Luxembourg. This issue was remedied by improved monitoring of sites for the second period of the report (from 2007 to 2012) led by the Luxembourg Institute of Science and Technology (LIST). It is under the coordination of the latter that an overall monitoring system was implemented within Luxembourg. This was distributed across several target programmes: non-vascular plants (lichen and moss), invertebrates, amphibians and reptiles, and finally mammals. The observations made in each of these programmes have enabled descriptions to be drawn up concerning changes in our environment and can be used as an indicator for sustainable development.

Decline, appearance and spread of species

The observation concerning the state of conservation of different species is

contrasting. Whilst the situation for certain species has improved, notably following the habitat protection measures taken, that for other species has declined, notably due to increased urbanisation and agricultural practices leading to the destruction of favourable habitats.

In terms of non-vascular plants, Cladinas (lichen groups) researched by observers focused notably in the Oesling region, and Pincushion moss, which is found in spruce plantations, was mainly found in the Gutland region. Dicranum viride, a moss generally found at the base of trunks of deciduous trees spanned the north of the country. Finally, a new species of Sphagnum, Sphagnum angustifolium, was discovered in Luxembourg.

In terms of invertebrates, the medicinal leech was only found in Gutland, despite the existence of many favourable sites across the whole country. Of the two species of indigenous crayfish, only the Broad-fingered Crayfish remained, in a single sswampland In parallel, the Signal Crayfish, which is a high consumer of aquatic invertebrate, is colonising the Wollefsbach in Useldange, and should be controlled. Whilst the presence of two odonates, the Southern Damselfly and the Lilypad Whiteface remains stable, these species remain isolated and vulnerable. Finally, for butterflies, analyses are currently ongoing in the framework of mapping butterflies in Luxembourg, and large-scale monitoring is underway in protected areas.

For species of amphibians and reptiles, knowledge concerning the distribution of the Common Midwife Toad and the Northern Crested Newt, as well as the Sand Lizard and the Common Wall Lizard have expanded. Similarly, new sites for species such as vipers, slow worms and the viviparous lizard were observed. As for populations already present, the European Tree Frog, Natterjack Toad and Yellow-bellied Toad are stable and localised. All of these observations allowed for the mapping of amphibians and reptiles to be updated in Luxembourg, with the publication being updated in 2016.

Finally, in terms of mammals, the Wildcat is relatively well spread across Luxembourg with the increased presence of other hybrid individuals in certain regions such as Upper Alzette. Just like the Wildcat, the Marten is present in most of the country's regions and has been stable for several years. The European Polecat, which is difficult to observe, was spotted in March-April close to water points. The Hazel Dormouse, a species whose distribution was relatively unknown prior to the monitoring programme being launched, was consistently present across the whole country, whilst the European Otter is no longer currently seen in Luxembourg.

Invasive Alien Species

A recent concern in Europe is the presence and spread of invading exotic species such as the racoon, coypu and aquatic plant life. Consequently, a new programme has recently been launched. As part of this programme, the focus is placed on prevention, early detection and eradication of these species and finally management in exposed sites. A monitoring system covering the country, using already-existing data is currently being implemented, notably through the development of apps for smartphones. Once more, the involvement of citizens is essential for observation of these species.

All-ahead 2019

After publishing a report for the first time in 2013 on these observations made to the European Commission following implementation of the monitoring programme, all stakeholders are now preparing for the next deadline. In 2019, Luxembourg should be able to send the European authorities its latest observations for the period 2013 to 2018.

In order to further improve the quality of data for the upcoming observation period, from 2019 to 2024, several strategies have been explored. These include:

- standardisation of methods used by all stakeholders, notably by raising awareness and training members of the public,
- the increased use of automated recording (cameras and sound recorders) which increases the quantity and quality of data,
- the pooling and approval of data drawn from programmes led by various stakeholders, such as Administration de la nature et des forêts, Ministère du Développement durable et des Infrastructures, Administration de la gestion de l'eau, Natur&Emwelt, Musée National d'Histoire Naturelle, Syndicat Intercommunal de l'Ouest pour la Conservation de la Nature and LIST,
- the inclusion of other indicative species,
- the use of molecular approaches for identification of closely-related species such as Green frogs and the use of environmental DNA, namely taken from the environment and not from individuals.

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