

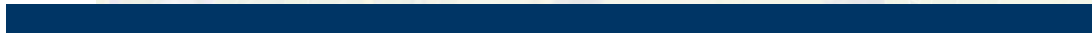


REGIERUNG
DES FÜRSTENTUMS LIECHTENSTEIN



Biodiversity Action Plan 2030+

Principality of Liechtenstein



Biodiversity Action Plan 2030+ Principality of Liechtenstein

**"Working together for near-natural
spaces and a diverse natural
environment – from the Rhine to the
Grauspitz"**

Imprint

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Vaduz, 21 October 2024

Cover picture: The whinchat and the Siberian iris are typical inhabitants and character species of the Ruggeller Riet nature reserve.

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Preface

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Liechtenstein has an astonishingly high biodiversity and is home to very rare species – such as the false ringlet, of which Liechtenstein has one of the largest populations in Europe.

Conservation of biodiversity is the primary objective of the 1992 Convention on Biological Diversity (CBD, Biodiversity Convention), yet so far, it has not been possible to prevent the global loss of this biodiversity. Despite numerous efforts, there is a need for action in Liechtenstein as well. For example, over 40% of all native breeding bird species, over 60% of reptiles and amphibians, and even over 70% of fish and crustaceans are on the Red List of Threatened Species.

Comparatively little is reported about biodiversity loss because it is hardly noticed when, for instance, a frog species in the Ruggeller Riet becomes extinct. Only when many species have disappeared and, as a result, the entire ecosystem no longer functions, do the effects become visible and noticeable for everyone. Rich biodiversity is also a basic prerequisite for success in climate protection and in adapting to the consequences of climate change. At the same time, an improved carbon balance slows the rise in temperature, which also alleviates the biodiversity crisis, e.g. by reducing the spread of invasive neophytes or the drying out of wetlands.

In December 2022, the international community adopted 23 targets in Montreal to put nature on a path to recovery by 2030. Protecting 30% of the planet is considered an essential measure to halt the loss of species and ecosystems.

This Action Plan sets out a series of fields of action and measures to preserve and improve biodiversity in Liechtenstein. The Action Plan was drawn up with the support of various public and private stakeholders. We would like to take this opportunity to thank them for their cooperation! With the Biodiversity Action Plan 2030+, an important basis has been created to ensure the quality of life in Liechtenstein for future generations as well.

A handwritten signature in black ink that reads "Sabine Monauni".

Sabine Monauni
Deputy Prime Minister and Minister of Environment

Summary

Biodiversity is an indispensable basis for human life. It provides important ecosystem services, guaranteeing, for example, clean water and air, fertile soils, and protection against natural hazards. Accordingly, the progressive loss of biodiversity represents one of the greatest challenges worldwide.

In December 2022, the 15th Conference of the Parties to the Convention on Biological Diversity adopted a new global agreement on biodiversity. This framework pursues the overarching vision of halting biodiversity loss by 2030 and reversing the trend. The vision also states that human beings should live in harmony with nature by 2050. A key target of the new agreement is to place at least 30% of the world's land and sea area under effective protection by 2030.

This global agreement is to be implemented in Liechtenstein with the help of the Biodiversity Action Plan 2030+. The Action Plan takes a holistic approach that reconciles the protection of nature with the needs of the population and the economy, while at the same time creating the basis for a sustainable future.

Liechtenstein has a high level of biodiversity. However, this biodiversity is under threat, particularly due to settlement sprawl and fragmentation of habitats, climate change, and the spread of invasive species. Chemical and physical impacts, such as inputs of nutrients, pesticides, and microplastics, as well as disturbance from noise and light, also harm biodiversity.

To meet the current challenges, this Biodiversity Action Plan 2030+ was developed through a participatory process. Targets were set and corresponding measures defined based on seven fields of action. The measures include preserving existing protected areas and securing new ecologically valuable areas. In addition, habitats are to be qualitatively upgraded and restored. Other priorities include the targeted promotion of endangered species and the reduction of chemical and physical impacts.

All measures in the Biodiversity Action Plan 2030+ are designed for the long term and will be accompanied by comprehensive monitoring and regular reviews of success. Ultimately, the joint commitment of the Government, municipalities, nature conservation organisations, business, agriculture, and civil society will be crucial to the success of the Action Plan.

The marsh gladiolus is a character species of litter meadows and occurs preferentially in fen habitats such as the Ruggeller Riet. One target of the Action Plan is to preserve the existing nutrient-poor habitats (dry meadows and pastures, fens and spring meadows) in terms of area and quality, to have them represented in the protected areas, and to secure them in practice for the long term.



1 Biodiversity

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1.1 What is biodiversity?

Biodiversity encompasses life in all its diversity with all its interactions on three closely interlinked levels: different life forms (species of animals, plants, fungi, bacteria), different habitats in which the species live (ecosystems such as forests or bodies of water), and genetic diversity within species (e.g. subspecies, varieties, and breeds). Suitable habitats and sufficient genetic diversity are essential for the survival of species.

1.2 Importance of biodiversity

Biodiversity is of inestimable value as the basis of life for our society. The development of cultures and societies was and is strongly linked to biodiversity. Intact and functioning ecosystems ensure, for example, food, drinking water, clean air, and fertile soils. They also provide protection against natural hazards, such as a mountain forest against avalanches; they store carbon; they protect against floods; and they prevent erosion. Last but not least, they serve our recreation and create identity and a sense of home: green spaces improve physical, mental, and social health.

Biodiversity is also of great economic value. Numerous economic sectors, from food production to the pharmaceutical industry, the timber industry, and tourism, are dependent on intact biodiversity. Our well-being and quality of life thus depend directly on the state of biodiversity.

1.3 Problem of biodiversity loss

In its reports, the World Biodiversity Council (IPBES)¹ uses a broad scientific basis to show how serious the current loss of biodiversity is: more animal and plant species are threatened with extinction today than ever before. Around 1 million of a total of 8 million species could disappear in the next few decades. The global biomass of wild mammals has declined by 82% since the beginning of the 20th century. 75% of terrestrial habitats are now heavily modified by human intervention, 66% of marine habitats are suffering from negative impacts, and over 85% of wetlands have disappeared in the last 300 years.

In most cases, biodiversity loss is not due to a single factor, but to the simultaneous occurrence of various causes whose effects can reinforce each other. The causes of biodiversity loss are:

- **habitat loss** due to the growing demand for land for settlements and infrastructure,
- **declining habitat quality** due to intensification or abandonment of land use, drainage, nitrogen input, the use of pesticides, and maintenance that is not biodiversity-friendly,
- **fragmentation of habitats** due to infrastructure facilities,
- **micropollutants**, such as microplastics and synthetic trace substances that end up in bodies of water and drinking water,
- **climate change**, which changes the habitats of species and influences species composition, and
- **invasive alien species** that displace native species.²

1 IPBES (2019): Global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. E. S. Brondizio, J. Settele, S. Díaz, and H. T. Ngo (editors). IPBES Secretariat, Bonn, Germany. 1148 pages.

2 Federal Office for the Environment 2023, Biodiversity in Switzerland: <https://www.bafu.admin.ch/bafu/en/home/topics/biodiversity/publications-studies/publications/biodiversity-in-switzerland-status-and-trends.html>

If too many species die out, this can lead to chain reactions in ecosystems. This is because in an ecosystem, all living organisms have their function and are dependent on each other: if one species dies out, this can have serious consequences for other species, and the ecosystem becomes increasingly destabilised. Biodiversity loss therefore impairs the functionality and robustness of ecosystems and accordingly also the services they provide for the economy and society.

But biodiversity is also worth protecting in its own right, regardless of whether human beings benefit from it or not – it has intrinsic value.

1.4 Biodiversity in Liechtenstein

Liechtenstein lies on the geological border between the Eastern and Western Alps. The country can be divided into three different natural areas, characterised by their unique features in terms of geology, climate, vegetation, and use. Specifically, these are the Rhine Valley plain, the slopes on the side of the Rhine Valley, and the mountain region, which each make up around a third of the country's total area. Liechtenstein has a disproportionately high number of habitats compared to the country's surface area and is home to species communities at all altitudes between 450 and 2,600 metres above sea level (including over 1,500 vascular plants, 440 mosses, and 1,700 species of fungi). These include various species of international importance. Liechtenstein bears responsibility for the conservation of these and many other species. The negative trend in species numbers observed in Liechtenstein in recent decades and the increasing number of Red List species are a cause for concern (see Figure 1 below).

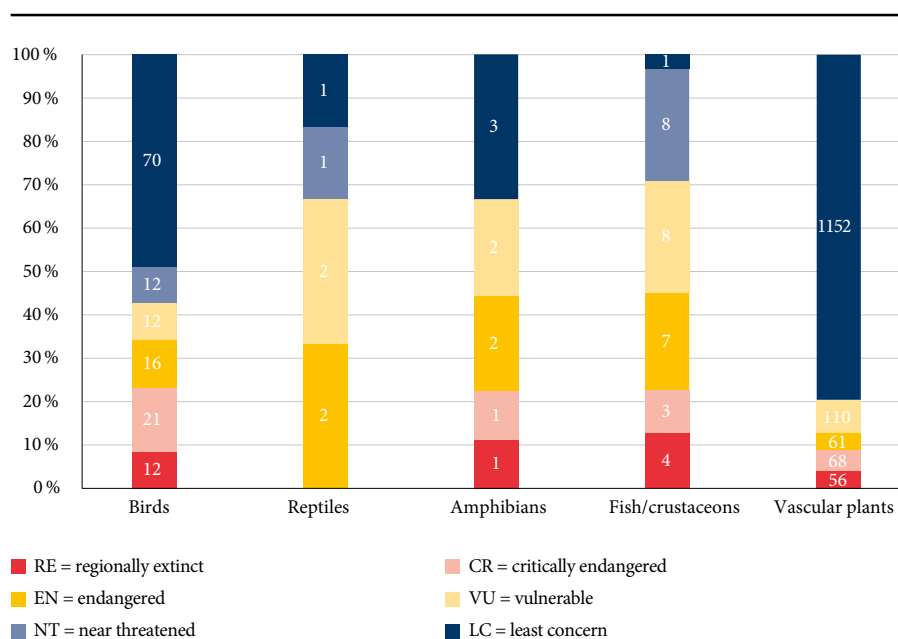


Figure 1 – Endangerment of various species in Liechtenstein³

³ Office of Statistics, Biodiversity by species group as of 1986 to 2018 (Table 6.01): https://www.statistikportal.li/statistikportal/publications/522-landschaft-wald-boden-biodiversitaet/2021/01/1/522.2021.01.1_02_landschaft-wald-boden-biodiversitaet-2021-tabellen.xlsx (data sources according to the Natural History Research Series of the Principality of Liechtenstein).

In Liechtenstein, there are several categories of protected areas that preserve biodiversity, including nature reserves, forest reserves, and special forest areas. These protected areas are part of the nature priority area inventory⁴ and cover around 12% of the country's area. Other ecologically valuable nature priority areas not yet protected by ordinance cover a further 8% of the country. The protection of these areas is binding on local and national authorities. The landscape types and protected biodiversity areas in Liechtenstein face several challenges:

- **Forests** cover 42% of Liechtenstein's territory. This makes forests the largest contiguous ecosystem and of great importance for flora and fauna. Of the total forest area, 26% is set aside as forest reserves and special forest areas. No forest management takes place in forest reserves. Undisturbed, dynamic development is possible there. The purpose of special forest areas is to preserve ecologically especially valuable types of forest. The proportion of deadwood, which is important for biodiversity, is at a very high level in Liechtenstein compared to other countries. Another positive development is the increase in biotope value⁵ between 1998 and 2022.⁶ Nevertheless, various challenges exist: securing an adequate distribution of old-growth stands adapted to the forest function, ensuring targeted management of special forest areas, upgrading predominantly non-natural forest edges facing populated and agricultural areas, securing deadwood deposits in low-lying areas, and combating invasive species that jeopardise the ecological balance in the forest and displace native species.

Butterflies, such as the Apollo butterfly, are often seen in dry meadows since they find an exceptionally large supply of plants with nectar there. In the case of important nutrient-poor sites with conflicts of use outside of nature conservation areas, targeted behaviour-guiding measures ("nudging") are to be used to draw attention to their ecological value, for example with information signs.

4 The inventory of nature priority areas includes the habitats, landscapes, forest sites, and natural monuments worthy of protection in Liechtenstein. The inventory is thus also the scientific basis for the designation of nature reserves, landscape conservation areas, forest reserves, and special forest areas as well as natural monuments.

5 The biotope value of a forest is often derived from the criteria of closeness to nature, diversity of woody species, and structural diversity and is a measure for assessing the forest as a habitat.

6 Government of the Principality of Liechtenstein (2024), Forest Strategy 2030+: <https://www.regierung.li/files/attachments/waldstrategie-2030-.pdf>



- **Dry meadows and pastures** are exposed to various stresses: settlement pressure, invasive neophytes, abandonment of marginal land, intensification of cultivation, diffuse nutrient inputs via the air or from adjacent areas due to a lack of buffer zones.
- The few remaining **fens** in the valley have only a small remnant of their original extent. As nutrient-poor, moist habitats, they react sensitively to drainage measures and the increasing dry periods caused by climate change. They are also under pressure from diffuse nutrient inputs via the air or from adjacent areas due to a lack of buffer zones. Invasive neophytes and reeds are displacing the light-demanding, low-growing species of the fens.

The noble crayfish is highly endangered and protected under the Bern Convention. It is dependent on clean and structurally rich waters. One target of the Action Plan is to improve the ecological quality of the Alpine Rhine, inland waters, and their banks so that they can fulfil their natural functions.



- **Bodies of water and their surroundings** are heavily influenced by human beings. The majority of watercourses in the valley are straightened and lacking in structure, making them little or no suitable habitat for water-specific species. Residual water stretches, inputs of substances from agriculture and settlements, as well as warming due to climate change are putting additional pressure on bodies of water. Water pollution control measures help to improve the condition of watercourses. Thanks to significant investments in wastewater management, major improvements in water quality have been achieved. Examples of revitalisation measures that have already been carried out also show the immense potential in this area (for example the mouth of the Ruggell inland canal). However, the general ecomorphological condition of the valley waters is still inadequate, and there is an urgent need for action.
- **Cultivated land** has steadily lost area in recent decades, particularly due to the expansion of populated areas. To keep cultivated areas as stable as possible, settlement development must primarily take place within existing populated areas. This can be achieved through economical land use and a good balance between settlements and transportation. However, efforts to increase density in turn increase the pressure due to increased soil sealing. On the other hand, there are many initiatives by public parks and municipalities as well as civil society to enhance green spaces. Compensatory measures for interventions also help to maintain or improve the ecological quality of the areas and their extent.

The common nase was long considered extinct in Liechtenstein and has only recently been found again. Examples of revitalisation measures that have already been carried out show the immense potential in this area (for example the mouth of the Ruggell inland canal). However, the general ecomorphological condition of the valley waters is still inadequate and there is an urgent need for action.



– **Agriculture** is a driver of biodiversity loss due to its land expansion and use, but is also affected by its impacts. For example, many crops rely on pollinators such as bees and butterflies, and a healthy ecosystem with a variety of species can provide natural enemies of pests and diseases. In Liechtenstein, around 17% of the area cultivated by recognised farms is used as biodiversity promotion areas⁷, i.e. almost two and a half times more than would be legally required. In terms of area, extensively or less intensively used meadows are the most significant. Biodiversity promotion areas on arable land such as wildflower strips and rotational fallow land should also be highlighted. This creates valuable habitats and refuges for a variety of species in the otherwise intensively farmed valley area. Liechtenstein also has the highest proportion of recognised organic farms in the world at just under 40%.

Invasive species, such as the marsh frog, pose a threat to biodiversity because they can displace native species. The Action Plan aims to reduce the negative impact of invasive alien species.



7 Office of Statistics, Agriculture Statistics 2020 (Table 3.02): https://www.statistikportal.li/statistikportal/publications/745-landwirtschaftsstatistik/2020/01/1/745.2020.01_01_landwirtschaftsstatistik-2020.pdf

2 International and national framework

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2.1 International framework

Nature knows no national borders. The promotion of biodiversity must therefore be understood and treated as a global issue.

At the **United Nations** Conference on Environment and Development, which took place in Brazil in 1992, Liechtenstein signed the Convention on Biological Diversity (Biodiversity Convention) together with over 150 other countries.⁸ In 2010, a Strategic Plan for Biodiversity was adopted at the 10th Conference of the Parties to the Biodiversity Convention in Japan, and corresponding targets were defined (Aichi Targets), which were to be achieved by 2020. In 2022, the Kunming-Montreal Global Diversity Framework was adopted in Canada at the 15th Conference of the Parties to the Convention on Biological Diversity as a follow-up agreement to the Aichi Targets. It pursues the overarching vision of halting biodiversity loss by 2030, reversing the trend and ensuring that human beings live in harmony with nature by 2050. To this end, the Kunming-Montreal framework sets out four long-term goals for 2050 and 23 action-oriented targets for 2030 (see Annex 2). One of these targets is to effectively protect at least 30% of the world's land and sea area by 2030.

Already in 1982, Liechtenstein ratified the Convention on the Conservation of European Wildlife and Natural Habitats (**Bern Convention**).⁹ In December 2023, the States Parties to the Bern Convention adopted a new strategic plan to be fulfilled by 2030.

As a member of the **EEA**, Liechtenstein is also obliged to implement the relevant EU environmental rules. These include the Water Framework Directive, which aims to protect water bodies and water as a resource and has been implemented in the national Water Protection Act¹⁰. As part of the European Green Deal, the EU has also adopted the regulation on the restoration of degraded ecosystems (Nature Restoration Law), which aims to restore degraded ecosystems to a good ecological status.

In 1994, Liechtenstein also ratified the **Alpine Convention**¹¹ and the protocols¹² on its implementation. These include the Protocol relating to Nature Protection and Landscape Conservation¹³, which includes the (cross-border) designation of protected areas and the preservation of species and habitats. In parallel, the **2030 Agenda for Sustainable Development** of the United Nations defines 17 Sustainable Development Goals (SDGs), the promotion of biodiversity being linked in particular to SDG 15: Life on land. The aims of this SDG include to protect, restore, and promote sustainable use of terrestrial and freshwater ecosystems, sustainably manage forests, halt land degradation, and halt biodiversity loss.

8 Convention on Biological Diversity, entry into force for the Principality of Liechtenstein: 17 February 1998, LGBl. 1998 No. 039.

9 Convention on the Conservation of European Wildlife and Natural Habitats, entry into force for the Principality of Liechtenstein: 1 June 1982, LGBl. 1982 No. 042.

10 Water Protection Act (GSchG) of 15 May 2003, LGBl. 2003 No. 159.

11 Alpine Convention, entry into force for the Principality of Liechtenstein: 6 March 1995, LGBl. 1995 No. 186. <https://www.alpconv.org/en/home/convention/framework-convention/>

12 Available at: <https://www.alpconv.org/en/home/convention/protocols-declarations/>

13 Protocol on the Implementation of the Alpine Convention of 1991 relating to Nature Protection and Landscape Conservation, entry into force for the Principality of Liechtenstein: 18 December 2002, LGBl. 2002 No. 173.



2.2 National framework

To fulfil the aforementioned Aichi Targets, Liechtenstein has developed a National Biodiversity Strategy with a time horizon of 2020.¹⁴ Beyond this, Liechtenstein has taken further measures in recent years that have a direct or indirect impact on biodiversity and which were taken into account in the development of this Biodiversity Action Plan 2030+:

- The **Ordinance on the Advancement of Biodiversity Promotion Areas**¹⁵ was adopted in 2022. Its purpose is:
 - to advance and preserve ecologically high-quality biodiversity promotion areas and the long-term connectivity of high-quality habitats, and
 - to increase the ecological, in particular botanical, quality of biodiversity promotion areas and habitats.
- The inventory of nature priority areas is also an important instrument for protecting biodiversity. It lists habitats, landscapes, forest sites, and natural monuments that are worthy of protection and is binding on the authorities, e.g. in the case of interventions in nature and the landscape, but also in the case of amendments to structure plans or zoning plans.
- The National Structure Plan, which identifies and coordinates all significant spatially effective activities, is also binding on the authorities. It is the main instrument for managing sustainable spatial development.¹⁶
- The **Land Conservation Act**¹⁷ protects land suitable for agricultural use from misappropriation and ensures adequate self-sufficiency.
- The **Climate Strategy 2050**¹⁸ from 2022 also plays a key role, setting a binding greenhouse gas reduction of 55% by 2030 compared to 1990 and a net zero target by 2050.
- For Liechtenstein, the energy sector is central to achieving the goals of the Climate Strategy 2050. This sector is responsible for 80% of domestic greenhouse gas emissions. The **Energy Strategy 2030 and Energy Vision 2050**¹⁹, which promote measures to increase energy efficiency and the expansion of renewable energies, are an important basis.

14 Office of Environment (2014), 5th National Report on the Implementation of the Convention on Biological Diversity in the Principality of Liechtenstein: https://www.llv.li/serviceportal2/amtsstellen/amt-fuer-umwelt/publikationen/natur-und-landschaft/cbd_bericht_2014_final.pdf

15 Ordinance of 13 December 2022 on the Advancement of Biodiversity Promotion Areas (Biodiversity Promotion Ordinance; BfV), LGBl. 2022 No. 379.

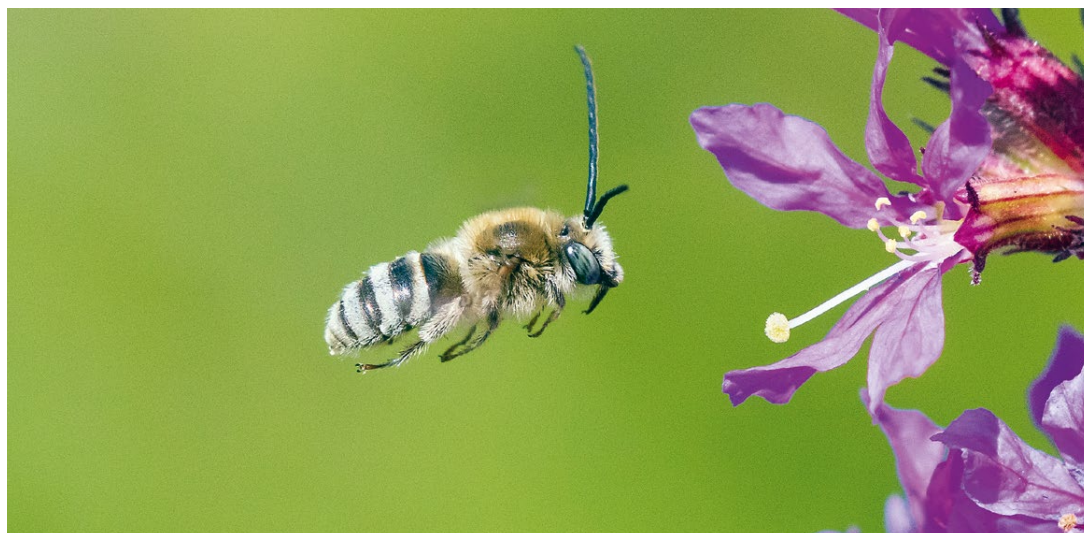
16 Available at: <https://www.llv.li/de/landesverwaltung/amt-fuer-hochbau-und-raumplanung/raumplanung/landesplanung/gesamtuberarbeitung-landesrichtplan>

17 Law of 25 March 1992 on the Preservation and Safeguarding of Arable Land, LGBl. 1992 No. 041.

18 Report and Motion No. 120/2022 on the Climate Strategy 2050: <https://bua.regierung.li/BuA/default.aspx?nr=120&year=2022&filter1=Klimastrategie&backurl=modus%3dsearch%26filter1%3dvt%26filter2%3dKlimastrategie&sh=-326418183>

19 Report and Motion No. 118/2020 on the Energy Strategy 2030 and Energy Vision 2050 and the measures contained therein: <https://bua.regierung.li/BuA/default.aspx?nr=118&year=2020&filter1=Energiestrategie+2030&backurl=modus%3dsearch%26filter1%3dvt%26filter2%3dEnergiestrategie+2030&sh=1918119120>

Like all wild bees, long-horned bees are of great importance for the pollination of cultivated and wild plants. A healthy ecosystem with a variety of species can also provide natural enemies of pests and diseases.



The Biodiversity Action Plan 2030+ also has interfaces with the following strategy and concept papers and ordinances:

- Liechtenstein Species Monitoring Concept²⁰
- Agricultural Policy Report 2022²¹
- Mobility Concept 2030²²
- Spatial Concept 2020²³
- Concept for combating invasive neophytes²⁴
- Management plan and programme of measures in accordance with the Water Framework Directive²⁵
- Forest Strategy 2030+²⁶
- Game Management Ordinance²⁷
- Forest Ordinance²⁸

It cannot be ruled out that conflicts of interest may arise among the aforementioned concerns. For example, the expansion of renewable energies can result in changes or displacement in existing land use if, for example, a ground-mounted photovoltaic system is installed. Accordingly, the energy transition is associated with a certain potential for conflict with nature conservation. This potential conflict must be minimised by carefully weighing up the interests of the land used. After all, the transition to renewable energies and the advancement of climate protection must not take place at the expense of biodiversity. Both must be tackled together. An isolated approach is not useful. Rich biodiversity is a basic prerequisite for success in climate protection and adaptation to the consequences of climate change (see also the **Climate Change Adaptation Strategy**²⁹). Healthy ecosystems can store large quantities of greenhouse gases and at the same time mitigate the consequences of extreme weather events.

There may be further areas of conflict with agriculture, increasing land consumption and the associated sealing of soils, as well as the use and design of private and public (green) spaces. In principle, measures to promote biodiversity should take place where they can avoid the negative environmental impact of economic activities. For example, good arable land should continue to be used as such in future, but without negatively impacting the soil and the environment and thus damaging fertility and production performance in the long term.

- 20 Government of the Principality of Liechtenstein (2020), Liechtenstein Species Monitoring Concept: <https://www.llv.li/de/landesverwaltung/amt-fuer-umwelt/publikationen/natur-und-landschaft>
- 21 Report and Motion No. 111/2022 on the Agricultural Policy Report 2022: <https://bua.regierung.li/BuA/default.aspx?nr=111&year=2022&filter1=agrarpolitisch+bericht&backurl=modus%3dsearch%26filter1%3dvt%26filter2%3dagrarpolitischer+bericht&sh=1918113611>
- 22 Government of the Principality of Liechtenstein (2020), Mobility Concept 2030: https://www.mobilitaet2030.li/application/files/8915/8826/4959/Mobilitatskonzept_2030.pdf
- 23 Government of the Principality of Liechtenstein (2020), Spatial Concept Liechtenstein: <https://www.llv.li/de/landesverwaltung/amt-fuer-hochbau-und-raumplanung/raumplanung/landesplanung/raumkonzept>
- 24 Government of the Principality of Liechtenstein (2018), Concept for combating invasive neophytes: https://www.llv.li/files/au/20181211_neophytenkonzept_genehmigt.pdf
- 25 Government of the Principality of Liechtenstein (2019), Management plan and programme of measures in accordance with the Water Framework Directive: <https://www.llv.li/de/landesverwaltung/amt-fuer-umwelt/wissenswertes/gewaesser-internationale-zusammenarbeit>
- 26 Government of the Principality of Liechtenstein (2024), Forest Strategy 2030+: <https://www.regierung.li/files/attachments/waldstrategie-2030-.pdf>
- 27 Ordinance of 30 September 2003 on game management, hunting authorisation, hunting, and closed seasons as well as shooting planning, implementation, and control (Game Management Ordinance; HegeV), LGBl. 2003 Nr. 198.
- 28 Forest Ordinance (WaldV) of 21 February 1995, LGBl. 1995 No. 062.
- 29 Government of the Principality of Liechtenstein (2018), Climate Change Adaptation Strategy in Liechtenstein: <https://www.llv.li/files/au/anpassungsstrategieklimatewandel-li.pdf>

3 Biodiversity Action Plan 2030+:

Fields of action, targets, and measures

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3.1 Overarching goal

The Biodiversity Action Plan 2030+ pursues the overarching goal of conserving and promoting biodiversity in Liechtenstein. At the same time, it serves to implement the international requirements of the Kunming-Montreal Global Biodiversity Framework (see Chapter 2.1). As a State Party to the Convention on Biological Diversity, Liechtenstein is obliged to implement these requirements at the national level. Accordingly, this Biodiversity Action Plan 2030+ sets out the measures required for this purpose.

3.2 Preparation of Action Plan

In May 2023, the Ministry of Home Affairs, Economy and the Environment (MI) launched a participatory process to develop the Biodiversity Action Plan 2030+. The strategic leadership and project management were carried out by the MI, supported by external assistance. The Commission for Nature Protection and Landscape Conservation assisted the MI in an advisory capacity. The entire project was supported by experts from Liechtenstein and Switzerland. The project team, which consisted of the responsible experts from the Office of Environment (AU) and the Office of Building Construction and Spatial Planning (AHR), developed the content and coordinated the process.

As important partners and interest groups, the municipalities, nature conservation organisations and business associations, landowners, forest managers, hunting representatives, tourism managers, and other officials were invited to a total of three workshops, which took place between May and September 2023. During these workshops, the stakeholder groups discussed which objectives of the Kunming-Montreal framework are important for Liechtenstein and how the relevant objectives for Liechtenstein could be achieved in concrete terms. This Biodiversity Action Plan 2030+ was prepared based on the results of these events and other input. The 2030+ horizon implies that the work will not be completed by that year, nor will every target have been achieved and all measures implemented. The year 2030 represents the next milestone, at which a stocktaking and review will be carried out, along with an adjustment or reorientation of the approach taken, as necessary.

3.3 Structure: Fields of action, targets, measures

The following chapters on the fields of action each include a description of the status quo, the specific challenges, the targets set, and the associated measures. They are consistently aligned with the following vision:

"Working together for near-natural spaces and a diverse natural environment – from the Rhine to the Grauspitz"

To fulfil this vision, the following seven fields of action and certain cross-cutting issues have been defined:

Field of Action 1: Green infrastructure

Field of Action 2: Degraded habitats

Field of Action 3: Priority species and habitats

Field of Action 4: Chemical and physical impacts

Field of Action 5: Processes and framework conditions

Field of Action 6: Economic activities

Field of Action 7: Ecology in populated areas

Figure 2 – Overview of fields of action for the Biodiversity Action Plan 2030+

The false ringlet is threatened with extinction throughout Europe. Liechtenstein still has one of the largest populations. According to the Action Plan, the conservation and protection of individual endangered species is to be ensured through targeted species support measures.



Field of Action 1: Green infrastructure

Over the past 150 years, many ecologically valuable habitats have suffered severe land loss. Habitat quality has also deteriorated and previously contiguous habitats have been fragmented. The current area and quality (see Field of Action 2) of many habitats are not sufficient to maintain biodiversity and ecosystem services in the long term.

Field of Action 1 is therefore concerned with the planning and development of green infrastructure³⁰ in Liechtenstein. For the conservation and promotion of biodiversity, existing areas are to be secured, new areas created, and those areas networked. Both the biotope network and the national and cross-border ecological network are strategic elements of the Nature Protection and Landscape Conservation protocol of the Alpine Convention. Several bases already exist for the protection of additional areas, including:

- comprehensive mapping of fens and dry meadows and pastures
- presentation and updating of the particularly valuable sites in the 1992 inventory of priority nature areas
- in-depth nature studies of selected areas, including specific proposals for protected areas (e.g. wetlands in the valley plain such as the Bannriet in Schaan/Eschen or the Entamoos in Balzers)
- overview of underrepresented ecologically valuable areas, categorised by site type

A high level of habitat and structural diversity, as in the Ruggeller Riet, can also lead to a very aesthetically pleasing landscape. One goal of the Convention on Biological Diversity is to restore at least 30% of degraded habitats by 2030 in order to improve ecological integrity, connectivity and ecosystem services.

³⁰ Green infrastructure describes a strategically planned network of natural and semi-natural areas with other environmental features designed and managed to deliver a wide range of ecosystem services. It can be present in rural and urban settings. The concept of green infrastructure is applied by the EU.



Target A: 30% of the country's area is secured for the preservation and promotion of biodiversity.
Measures

- i. In addition to the existing protected areas, which account for around 12% of the country's area, high-quality **habitats are legally or contractually protected** and their quality and **extent preserved**. Several aspects need to be taken into account:
- The endangered habitats in Liechtenstein in accordance with the Bern Convention are to be represented, where possible. Currently, dry meadows and pastures, fens and spring meadows at high altitudes, deciduous forests at the foot of slopes, bodies of water, banks, and floodplain habitats as well as dynamic habitats and areas without human influence are still underrepresented.
 - The current version of the inventory of nature priority areas focuses on the objects of the Rhine Valley plain and the slopes on the Rhine Valley side. An expansion of the inventory – especially in the inner Alpine region – is to be examined. The basis for this examination is available.
 - Instead of concentrating on many small areas, larger biodiversity areas are also to be created by the State and municipalities as part of nationwide overall planning.
 - The fragmentation of habitats, e.g. through the construction of new roads or the expansion of populated areas, is to be avoided.
 - Dynamic habitats such as riverbanks and river habitats as well as debris flows are to be preserved and promoted, taking civil protection into account.
 - In particular, the aim is to expand/realign existing protected areas, taking into account target and flagship species (including endangered species, Bern Convention species). For example, the forest reserves and special forest areas are to be expanded from the current 24% of the forest area to 30% in accordance with the Forest Strategy 2030+ (see also Field of Action 2: Qualitative enhancement of habitats; e.g. Ruggeller Riet, Schwabbrünnen-Äscher).
 - The watercourses and the windbreak, field, and riparian woodland are to form essential connectivity axes in the valley area.
 - Cross-border protected areas are to be examined (e.g. Samina Valley project, Ruggeller Riet).

Lead for implementation

- Office of Environment (overall planning)
- Municipalities (implementation)

Other involved stakeholders

- Office of Building Construction and Spatial Planning
- Office of Civil Protection
- Landowners
- Recognised farms
- Association of Farming Organisations (VBO)

New tasks



Intensification of existing tasks



Continuation of ongoing tasks



- ii. To open up further areas, the **allowability of biodiversity promotion areas** in agriculture is considered. The Office of Environment, together with the VBO and interested landowners, examines measures to secure biodiversity promotion areas for the long term in particularly valuable locations, e.g. by means of management contracts.

Lead for implementation

- Office of Environment

Other involved stakeholders

- VBO
- Landowners

New tasks



Intensification of existing tasks



Continuation of ongoing tasks



Target B: Liechtenstein has a green infrastructure. This includes protected areas, other ecologically valuable areas, and connectivity axes.

Measures

- i. The **development** of green infrastructure is **strategically** planned. It is clarified what already exists and where there are still gaps. The existing **data situation** is evaluated and expanded where necessary.

Lead for implementation – Office of Environment		Other involved stakeholders – Office of Building Construction and Spatial Planning – Municipalities
New tasks	Intensification of existing tasks	Continuation of ongoing tasks
☒	☐	☐

- ii. The State and municipalities **acquire potential sites (swap or purchase)**, including outside of existing nature conservation areas to safeguard the diverse protection and welfare functions of the landscape and soil for the long term. Care is taken to ensure that land prices remain stable and that there is no competition with recognised farms.

Lead for implementation – Office of Environment – Municipalities		Other involved stakeholders – Landowners
New tasks	Intensification of existing tasks	Continuation of ongoing tasks
☒	☐	☐

- iii. To **preserve additional areas and quality** for habitats, biodiversity, and ecosystem services, **spatial planning solutions** such as a landscape account, inter-municipal cooperation, circular land management³¹, financial incentives, and support programmes for internal development and compensation measures are examined.

Lead for implementation – Office of Environment – Municipalities		Other involved stakeholders – Office of Building Construction and Spatial Planning – Office of Civil Protection – Civil Engineering and Geoinformation Office – Landowners
New tasks	Intensification of existing tasks	Continuation of ongoing tasks
☒	☐	☐

31 The aim of circular land management is to reduce land consumption overall. Land uses that are no longer required should preferably be reused instead of using previously unplanned areas for these purposes (e.g. populated and traffic areas, vacancies, site closures). Where possible, these areas can be deconstructed, unsealed, or renaturalised and restored. These redeveloped areas are then included in the land balance as negative values and can be offset against newly used areas elsewhere.

Field of Action 2: Degraded habitats

According to the new target framework of the Convention on Biological Diversity, at least 30% of degraded habitats are to be in a process of restoration by 2030 in order to enhance ecological integrity, connectivity, and ecosystem services. Due to climate change, intensive land use, invasive species, biodiversity-damaging inputs, and other factors, many habitats in Liechtenstein, especially wetland habitats, are degraded and can no longer perform their original function or only to a reduced extent. The restoration of degraded habitats is therefore a very high priority. This also includes the designation of buffer zones around nature conservation areas in accordance with Article 19(4) of the Nature Conservation Act³². Buffer zones are also necessary for other sensitive habitats, such as wetland habitats, nutrient-poor habitats, and bodies of water, in order to protect them from inputs of harmful substances, for example. This is usually done by means of management restrictions (e.g. reduction or ban on fertilisers and pesticides or drainage systems). In addition, invasive species inside and outside sensitive habitats must be combated and their impact mitigated. This also requires the consistent and coordinated implementation of existing strategies, concepts, and management plans for sustainable agriculture and forestry. This is the only way to ensure the provision of ecosystem services for the long term.

Target A: The objects listed in the inventory of nature priority areas are in a high-quality ecological condition and are protected and maintained on a mandatory basis.			
Measures			
i. Management plans geared towards the conservation and promotion of biodiversity (maintenance operations, visitor management, combating invasive species, etc.) are drawn up and implemented for the habitats and forest sites worthy of protection in accordance with the inventory of priority nature areas (according to prioritisation). Reference is made to information sheets and best practices. Where necessary, the relevant legal bases are adapted to implement the management plans (e.g. more flexible cutting dates, financial support for object managers, etc).			
Lead for implementation – Office of Environment		Other involved stakeholders – Object managers – Landowners – Other stakeholders affected by management plans (e.g. VBO, Winegrowers' Association, Liechtenstein Ornithological Association (LOV), Fishing Association)	
New tasks ☐	Intensification of existing tasks ☒	Continuation of ongoing tasks ☐	
ii. Monitoring or success monitoring of the quality of areas in accordance with the inventory of nature priority areas is introduced or expanded in coordination with existing monitoring (e.g. in accordance with the Agricultural Policy Report 2022).			
Lead for implementation – Office of Environment		Other involved stakeholders – Species experts	
New tasks ☒	Intensification of existing tasks ☐	Continuation of ongoing tasks ☐	

³² Law of 23 May 1996 on the Conservation of Nature and Landscape (Nature Conservation Act; NSchG), LGBl. 1996 No. 117.

Target B: Liechtenstein has buffer zones of sufficient size to protect ecologically valuable areas from harmful impacts. These are managed as a priority in accordance with the Biodiversity Promotion Ordinance.

Measures

- i. The necessary legal bases are created so that **buffer zones for habitats worthy of protection** can be designated in accordance with the inventory of nature priority areas according to scientific criteria and secured by spatial planning.

Lead for implementation	Other involved stakeholders	
– Office of Environment (designation of buffer zones) – Office of Building Construction and Spatial Planning (National Structure Plan) – Municipalities (implementation in land use planning)	– Landowners – Recognised farms – VBO	

New tasks	Intensification of existing tasks	Continuation of ongoing tasks
☒	☐	☐

- ii. Requirements for the **use/management of the buffer zones** are drawn up and adopted. Their implementation is promoted by means of incentives for managers, and compliance is regularly monitored.

Lead for implementation	Other involved stakeholders	
– Office of Environment	– Recognised farms – VBO	

New tasks	Intensification of existing tasks	Continuation of ongoing tasks
☐	☒	☐

In Liechtenstein, the occurrence of the little ringed plover is largely limited to the vegetation-free gravel islands in the Rhine. Advancing the widening of the Rhine on the basis of the Alpine Rhine Development Concept is one measure of this Action Plan.



Target C: The Alpine Rhine, the inland waters, and their banks are of high ecological quality so that they can fulfil their natural functions.

Measures

- i. The **space required for watercourses** (watercourse corridors) to guarantee ecological functions and flood protection is determined and recorded in the spatial planning instruments (Article 25 GSchG).

Lead for implementation – Office of Environment (bases, definition, and coordination) – Municipalities (implementation in land use planning)		Other involved stakeholders – Office of Civil Protection – Office of Building Construction and Spatial Planning – Landowners – Canton of St. Gallen – Recognised farms – VBO	
New tasks	Intensification of existing tasks	Continuation of ongoing tasks	
☐	☐	☒	

- ii. Creation of a **plan of measures for revitalisation** and step-by-step implementation (Article 34 GSchG).

Lead for implementation – Office of Environment (bases and coordination) – Municipalities (municipal waters) – Office of Civil Protection (national waters)		Other involved stakeholders – Fishing Association (tenants of the watercourses) – Landowners – Interested persons and bodies – VBO	
New tasks	Intensification of existing tasks	Continuation of ongoing tasks	
☐	☒	☐	

- iii. Advance the process and implementation of **widening of the Rhine** on the basis of the Alpine Rhine Development Concept.³³

Lead for implementation – Office of Civil Protection (coordination, flood protection) – Office of Environment (ecology) – Municipalities		Other involved stakeholders – Office of Building Construction and Spatial Planning – Landowners – Rheinunternehmen (flood protection and maintenance) and affected municipalities and cantons on the Swiss side – Recognised farms – VBO	
New tasks	Intensification of existing tasks	Continuation of ongoing tasks	
☐	☐	☒	

³³ The Alpine Rhine Development Concept from 2005 provides for four widenings on the Liechtenstein/St. Gallen section of the Rhine: Ruggell-Bangs, Eschner Au, Sevelen-Vaduz, Balzers-Trübbach. On this basis, a feasibility study for the Schaan-Buchs-Eschen section (section of the Eschner Au) was carried out in 2020. The Schaan-Buchs-Eschen section is currently being examined in greater depth as part of a preliminary project. A feasibility study is currently being carried out for the Sevelen-Vaduz section.

Target D: In agriculture, the use of natural resources is sustainable so as to ensure the preservation of ecosystems and their services as well as species and genetic diversity.

Measures

- i. Various measures to promote biodiversity in the agricultural sector are included in the **Agricultural Policy Report 2022**, which was adopted by Parliament in November 2022. The Agricultural Policy Report 2022 formulated a new agricultural vision that places particular emphasis on sustainability, climate change, and ecology. The measures formulated in the Agricultural Policy Report 2022 are not set out again in the Biodiversity Action Plan 2030+. These measures include:
- Reduction of nutrient and pesticide inputs (also applies to publicly used areas, e.g. sports facilities)
 - Introduction of sustainability assessments for individual operations
 - Reduction of greenhouse gas emissions (climate protection measures to be implemented in individual operations)
 - Efficient monitoring of success (verification of the impact of measures on biodiversity)
 - Mandatory participation in continuing training programmes
 - Adaptation of agricultural zones to make cutting dates more flexible

Further measures specific to chemical and physical impacts can be found in Field of Action 4, Target A of this Action Plan. In addition, the Biodiversity Promotion Ordinance has been in force since January 2023, which facilitates more flexible cutting dates and further promotes the botanical quality of habitats and their spatial connectivity.

Lead for implementation

- Office of Environment

Other involved stakeholders

- VBO
- Recognised farms and other managers

New tasks



Intensification of existing tasks



Continuation of ongoing tasks



- ii. Create an **advisory and training programme** for the agricultural sector.

Lead for implementation

- Office of Environment

Other involved stakeholders

- VBO
- Recognised farms

New tasks



Intensification of existing tasks



Continuation of ongoing tasks



Target E: In forest management, the use of natural resources is sustainable so as to ensure the preservation of ecosystems and their services as well as species and genetic diversity.		
Measures i. One of the main objectives of the Forest Strategy 2030+ is already to conserve and promote forest biodiversity. For this reason, no further forest-related measures are set out in the Biodiversity Action Plan 2030+. The Forest Strategy 2030+ is also intended to introduce measures in areas including the following: – Climate resilience and site-adapted tree species diversity – Habitat connectivity – Percentage of deadwood and proportion of old trees – Natural forest regeneration, stepped forest edges – Targeted expansion of forest reserves and special forest areas – Monitoring of forest biodiversity – Wildlife management		
Lead for implementation – Office of Environment		Other involved stakeholders – Forest owners and managers – Hunting representatives – Nature conservation officers – Tourism managers – Office of Building Construction and Spatial Planning – Office of Civil Protection
New tasks ☐	Intensification of existing tasks ☐	Continuation of ongoing tasks ☒

The red-backed shrike is mainly found in the Ruggeller Riet. Its population has declined alarmingly in recent decades, so that today only a small population remains in Liechtenstein. To preserve additional areas and quality for habitats, biodiversity, and ecosystem services, spatial planning solutions such as a landscape account, inter-municipal cooperation, circular land management, financial incentives, and support programmes for internal development and compensation measures are examined.



Target F: The negative impact of invasive alien species is reduced. Protected areas and areas of particular ecological value are kept free of invasive species.

Measures

- i. **Existing concepts and legal bases** relating to invasive species must be periodically **reviewed** and, as needed, adapted to the rapidly changing circumstances. In particular, the species to be combated must be prioritised and special attention must be paid to new species with a high potential for damage. **Accompanying outreach work** informs the public about invasive species and creates acceptance for their control.

Lead for implementation

– Office of Environment

Other involved stakeholders

– Affected authorities and other stakeholders according to the concept for combating invasive neophytes, e.g. Office of Civil Protection, municipalities, construction and transportation industry, garden and landscaping industry, Fishing Association, VBO.

New tasks

☐

Intensification of existing tasks

☒

Continuation of ongoing tasks

☐

- ii. **Implementation** of the concept for **combating invasive neophytes** (2018). Particular attention must be paid to preventing the spread of invasive neophytes in nature conservation areas, pioneer areas, dry and wet sites, and succession areas.

Lead for implementation

– Office of Environment

Other involved stakeholders

– Affected authorities and other stakeholders according to the concept for combating invasive neophytes, e.g. Office of Civil Protection, municipalities, construction and transportation industry, garden and landscaping industry, Fishing Association, VBO.

New tasks

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Intensification of existing tasks

☒

Continuation of ongoing tasks

☐

- iii. Specific **continuing training on invasive neophytes** is offered for landowners, winegrowers, farmers, schools, municipalities, etc.

Lead for implementation

– Office of Environment

New tasks

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Intensification of existing tasks

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Continuation of ongoing tasks

☐

- iv. The municipalities and the Government support the public through **nationwide campaigns** to remove neophytes and create near-natural green spaces and gardens.

Lead for implementation

– Office of Environment

Other involved stakeholders

– Municipalities
– Landowners

New tasks

☐

Intensification of existing tasks

☐

Continuation of ongoing tasks

☒

Target G: The existing nutrient-poor sites (dry meadows and pastures, fens and spring meadows) are preserved in terms of area and quality, represented in the protected areas, and secured in practice for the long term.

Measures

- i. In the case of important **nutrient-poor sites** (dry meadows and pastures, fens and spring meadows) with conflicts of use outside of nature conservation areas, targeted behaviour-guiding measures ("nudging") are used to draw attention to their ecological value, e.g. with information signs.

Lead for implementation – Municipalities – Landowners		Other involved stakeholders – Office of Environment – Recognised farmers – VBO
New tasks ☒	Intensification of existing tasks ☐	Continuation of ongoing tasks ☐

- ii. A functioning hydrology is guaranteed for the existing **fens** and **spring meadows** under the inventory of priority nature areas.

Lead for implementation – Office of Environment		Other involved stakeholders – Land owners – Managers – VBO
New tasks ☒	Intensification of existing tasks ☐	Continuation of ongoing tasks ☐

Target H: Transport-adjacent areas are managed according to ecological criteria and, where possible, enhanced.

Measures

- i. The creation or optimisation of **maintenance plans** or **recommendations** for transport-adjacent areas are reviewed. Transport-adjacent areas include railroad embankments, verges of footpaths and cycle paths and roads, central reservations, traffic circles, and traffic dividers of motorways, etc. With appropriate management and maintenance, these infrastructure facilities can represent important ecological connectivity axes within and outside populated areas. The financial means to implement the maintenance plans must be made available.

Lead for implementation – Civil Engineering and Geoinformation Office – Municipalities		Other involved stakeholders – Austrian Federal Railways (ÖBB) – Landowners
New tasks ☐	Intensification of existing tasks ☒	Continuation of ongoing tasks ☐

Field of Action 3: Priority species and habitats

Species loss is progressing exponentially worldwide. In Liechtenstein, for example, over 40% of all native breeding bird species, over 60% of reptiles and amphibians, and over 70% of fish and crustaceans are on the Red List of Threatened Species.

General habitat promotion measures or the establishment of protected areas are often not sufficient for the conservation of endangered species. Targeted species promotion in Field of Action 3 ensures the conservation and protection of individual endangered species. The term species promotion is understood broadly and, in addition to targeted habitat enhancement, can also include measures such as restricting access and guiding visitors or seeding/settling species, creating stepping-stone habitats for population dispersal, installing nesting aids, and monitoring populations.

The stoat is best known for its snow-white fur in winter. Typical habitats are structurally rich landscapes with meadows, hedges, and copses, where mice also occur as a food source. Such landscape elements are important connectivity axes that need to be protected and promoted in accordance with the Action Plan.



Target A: Specific measures are implemented to promote priority species and habitats.
Measures

- i. The **priority species and habitats** are defined and specific measures are developed and implemented. Potential obstacles and animal traps for the priority species are also identified.

Lead for implementation – Office of Environment		Other involved stakeholders – Municipal forestry operations – Botanical-Zoological Society (BZG) – Landowners – Managers – VBO
New tasks ☐	Intensification of existing tasks ☐	Intensification of existing tasks ☒

- ii. Amendment of the **Biodiversity Promotion Ordinance** in the next revision so as to allow financial support for the creation of small structures.

Lead for implementation – Office of Environment		
New tasks ☐	Intensification of existing tasks ☐	Continuation of ongoing tasks ☒

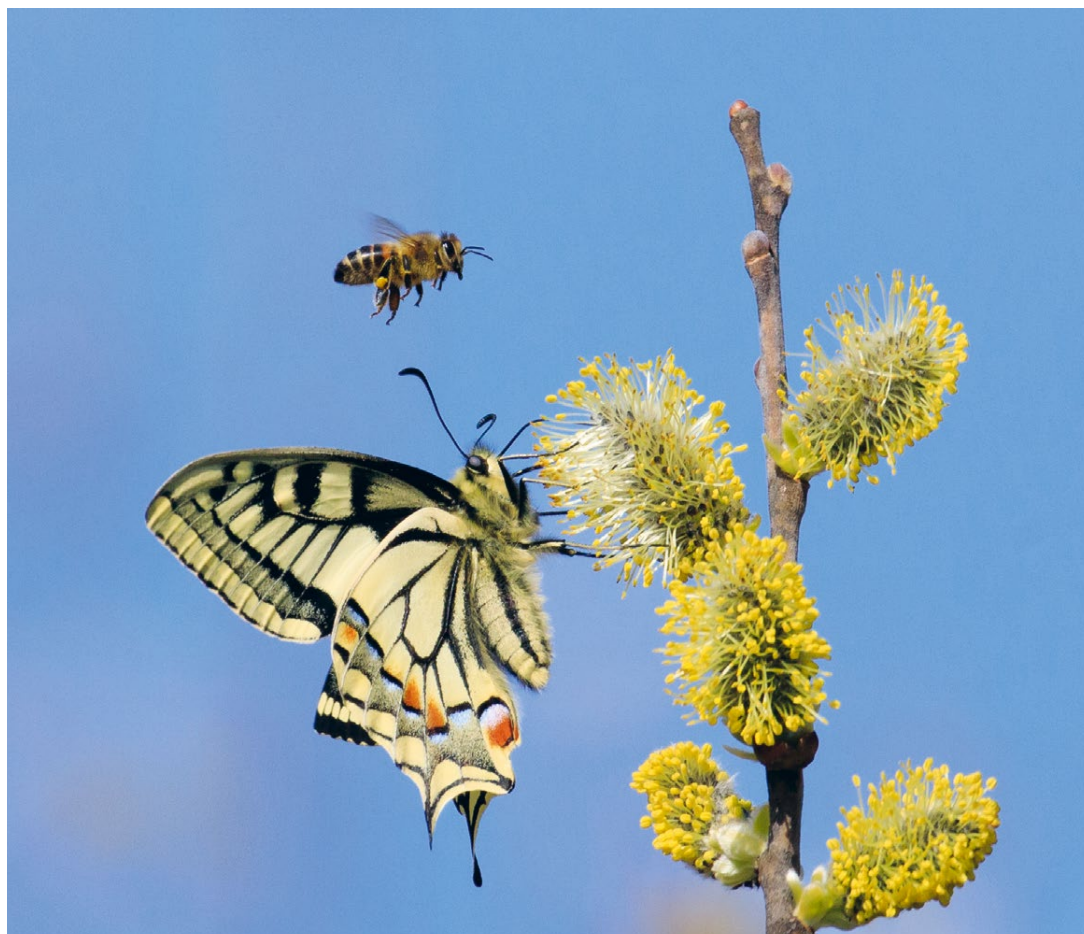
- iii. Development or optimisation of maintenance plans for the **species-promoting management of water embankments** (e.g. for the Rhine Dam).

Lead for implementation – Office of Civil Protection (national waters) – Municipalities (municipal waters)		Other involved stakeholders – Office of Environment
New tasks ☐	Intensification of existing tasks ☒	Continuation of ongoing tasks ☐



iv. To calm habitats , introduction of visitor management in ecologically important habitats, with a focus on preserving biodiversity.		
Lead for implementation – Office of Environment		Other involved stakeholders – Nature Rangers (monitoring) – Landowners – Possibly hunting protection bodies
New tasks ☐	Intensification of existing tasks ☒	Continuation of ongoing tasks ☐
v. Elaboration of management concepts for native species that have a demonstrably negative impact on biodiversity, if such concepts are expected to have a positive effect.		
Lead for implementation – Office of Environment		Other involved stakeholders – BZG – Fishing Association – LOV
New tasks ☒	Intensification of existing tasks ☐	Continuation of ongoing tasks ☐

Willows provide food for insects, such as bees and swallowtails, comparatively early in the year. In the valley area, the windbreaks, field, and riparian woodland are to form essential connectivity axes.



Field of Action 4: Chemical and physical impacts

Chemical and physical impacts impair the quality of habitats. These impacts include, for example, inputs of nutrients, pesticides, micropollutants such as residues of pharmaceuticals and other chemicals, microplastics, noise and light pollution, and temperature increases and changes in the water balance due to climate change. It is therefore essential to rigorously pursue measures to reduce such impacts. Targeted monitoring is necessary to actively follow developments in this area. The existing measurement concepts must be regularly reviewed against the background of new substances and new measurement options and adapted if necessary. Given that every individual can make a contribution to reducing chemical and physical impacts, it is very important to raise public awareness and provide information.

Target A: Continuous reduction of chemical and physical impacts.		
Measures		
i. The input of excess nutrients into ecologically important habitats must be kept to a minimum. This requires consistent implementation of the measures set out in the Agricultural Policy Report 2022, the Water Framework Directive (2019), the Clean Air Ordinance³⁴ and the Farm Manure Ordinance³⁵ (non-exhaustive list). These measures include: – Reduction of the tolerance range for nitrogen and phosphorus in the nutrient balance – Reduction of the maximum amount of farm manure that can be spread, and regulation of farm manure removal – Wetlands/drainage – Optimisation and reduction of the use of pesticides (also by the State, municipalities, and private individuals) – Monitoring campaign regarding drainage on farms – Environmental monitoring: recording the substances and quantities discharged – Low-emission spreading of liquid manure and covering of liquid manure storage facilities (reduction of nitrogen inputs into sensitive ecosystems, critical loads/levels) – Ongoing review of the provisions in the drinking water protection zone ordinances		
Lead for implementation		
– Office of Environment		
New tasks	Intensification of existing tasks	Continuation of ongoing tasks
☐	☐	☒



34 Clean Air Ordinance (LRV) of 30 September 2008, LGBl. 2008 No. 245.
35 Ordinance of 13 March 2007 on the Storage of Farm Manure in Agriculture (Farm Manure Ordinance; HDV), LGBl. 2007 No. 060.

- ii. Implementation of **wastewater disposal** measures in accordance with the programme of measures under the Water Framework Directive (2019). This includes:
- Optimisation of stormwater overflows and stormwater tanks in the sewer system
 - Optimisation of drainage pumping stations
 - Installation of a fourth purification stage for the elimination of micropollutants at the Bendern wastewater treatment plant
 - Reduction of stormwater runoff from populated areas (sponge city³⁶)

Lead for implementation

- Office of Environment (bases and coordination)
- Waste Disposal Association (EZV)

Other involved stakeholders

- Municipalities
- Recognised farms
- VBO
- Civil Engineering and Geoinformation Office

New tasks

☐

Intensification of existing tasks

☒

Continuation of ongoing tasks

☐

- iii. Remediation of **contaminated sites** and prevention of the creation of new contaminated sites. Any outstanding investigations are to be carried out on the basis of the register of contaminated sites. Confirmed contaminated sites are to be remediated. Per- and polyfluoroalkyl substances (PFAS) are a current topics in this area. Developments are monitored and the necessary measures taken.

Lead for implementation

- Office of Environment

Other involved stakeholders

- Municipalities
- Landowners

New tasks

☐

Intensification of existing tasks

☐

Continuation of ongoing tasks

☒

- iv. Develop and implement measures relating to **plastics**. These measures include:

- Keeping foreign matter out of the composting process (green waste collection and municipal composting sites) through awareness-raising, inspections, and rejections
- Abrasion of tires (awareness-raising)
- Synthetic granules from artificial turf (provision of shoe-cleaning stations)
- Littering (awareness-raising and fines)

Lead for implementation

- Office of Environment (bases and coordination)
- Municipalities (artificial turf, littering, municipal composting sites)
- Liechtenstein Waste Disposal Association (EZV; green waste collection)

New tasks

☐

Intensification of existing tasks

☒

Continuation of ongoing tasks

☐

³⁶ The principle of a sponge city refers to modern rainwater management in which as much rainwater or surface water as possible is absorbed and stored locally instead of being discharged via the sewer system. This means, for example, that populated areas are better protected against heavy rainfall events, which are becoming more frequent as a result of climate change.



v. Develop and implement measures relating to habitat disturbance caused by light by exhausting the technological possibilities. ³⁷		
Lead for implementation – Municipalities – Office of Environment		Other involved stakeholders – Liechtenstein Power Authority (LKW)
New tasks ☐	Intensification of existing tasks ☐	Continuation of ongoing tasks ☒
vi. Evaluation of the Climate Change Adaptation Strategy (2018) and updating of the defined measures.		
Lead for implementation – Office of Education		Other involved stakeholders – Other stakeholders according to Climate Strategy 2050
New tasks ☐	Intensification of existing tasks ☐	Continuation of ongoing tasks ☒

Sand lizards like to sunbathe on flat stones, dry tufts of grass, or pieces of wood and are therefore easy to observe. The Biodiversity Promotion Ordinance is to be amended in the next revision so as to allow financial support for the creation of such small structures.



³⁷ See also Field of Action 3, Target A, Measure iv. Habitat calming and visitor management. See also Swiss Federal Office for the Environment (2021), "Empfehlungen zur Vermeidung von Lichtemissionen", an implementation aid on avoidance of light emissions.

Target B: Targeted monitoring of chemical and physical impacts is implemented.
Measures

- i. **Surface waters:** Continuation of existing measurement concept and specific research. Based on experience and developments, it will be continuously reviewed whether and which adjustments or extensions are necessary.

Lead for implementation

– Office of Environment

New tasks

☐

Intensification of
existing tasks

☐

Continuation of
ongoing tasks

☒

- ii. **Groundwater:** Continuation of existing measurement concept and specific research. Based on experience and developments, it will be continuously reviewed whether and which adjustments or extensions are necessary.

Lead for implementation

– Office of Environment

Other involved stakeholders

- Liechtenstein Unterland Water Supply (WLU) and
Liechtenstein Oberland Group Water Supply (GWO)
– Food and Veterinary Office (ALKVW)

New tasks

☐

Intensification of
existing tasks

☐

Continuation of
ongoing tasks

☒

- iii. **Air:** Continuation of existing measurement concept and specific research (e.g. nitrogen inputs in Ruggeller Riet and Steg). In addition to nitrogen inputs from agriculture, emissions from combustion processes (e.g. NO_x, particulate matter) must also be taken into account. Based on experience and developments, it will be continuously reviewed whether and which adjustments or extensions are necessary.

Lead for implementation

– Office of Environment

New tasks

☐

Intensification of
existing tasks

☐

Continuation of
ongoing tasks

☒

- iv. **Consideration of monitoring options** relating to microplastics, light disturbances, and noise in sensitive habitats.

Lead for implementation

– Office of Environment

Other involved stakeholders

– Office of Civil Protection

New tasks

☒

Intensification of
existing tasks

☐

Continuation of
ongoing tasks

☐

As an endurance runner, the brown hare can reach top speeds of 60-70 km/h to shake off its enemies. The most important prerequisites for the development of a brown hare population are open fields with unfragmented areas of sufficient size, where the soil is not worked intensively by machinery. The Action Plan aims to plan and develop a green infrastructure in Liechtenstein, where existing areas are secured, new areas created, and those areas networked.



Field of Action 5: Processes and framework conditions

So that biodiversity can be promoted in a targeted and successful manner, the legal framework and processes in politics and administration must be organised in such a way that they result in a sustainable economy and responsible consumption. Key to this are spatial planning and the structuring of subsidies and financial incentives.

Target A: Biodiversity is taken into account and safeguarded in spatial and transport planning.		
Measures i. Biodiversity is taken into account in the various planning instruments (National Structure Plan, municipal structure plans, building regulations and zoning plans, development and design plans). Ecologically important areas and their connectivity are safeguarded for the long term for the preservation and promotion of biodiversity.		
Lead for implementation – Office of Building Construction and Spatial Planning (national planning) – Municipalities (municipal planning)		Other involved stakeholders – Office of Environment
New tasks ☐	Intensification of existing tasks ☒	Continuation of ongoing tasks ☐

Target B: Subsidies with biodiversity-damaging impacts and (financial) disincentives are identified. The harmful impacts are gradually reduced or abolished or replaced by incentives that promote biodiversity.

Measures

- i. **Subsidies and disincentives with biodiversity-damaging effects**, such as subsidies that encourage or facilitate the loss, fragmentation, or pollution of habitats as a side effect, are identified.

Lead for implementation – Office of Environment		Other involved stakeholders – Other affected offices of the National Administration – Municipalities
New tasks	Intensification of existing tasks	Continuation of ongoing tasks
☒	☐	☐

- ii. **The harmful impacts of the identified subsidies and disincentives** are gradually reduced, minimised, or abolished and, where possible, replaced by incentives that promote biodiversity. Recipients of identified subsidies are advised and supported accordingly.

Lead for implementation – Office of Environment		Other involved stakeholders – Office of Finance – Fiscal Authority – Other affected offices of the National Administration – Subsidy recipients (e.g. recognised farms) – Municipalities
New tasks	Intensification of existing tasks	Continuation of ongoing tasks
☒	☐	☐

Dragonflies, such as the autumn mosaic dragonfly, have a fascinating biology. In their larval stage, the animals are dependent on near-natural habitats such as springs, moors, stagnant waters, and watercourses. As adults, they leave the water and fly elegantly through the air to catch prey or mate. The Action Plan provides for the creation of a plan of measures for revitalisation and step-by-step implementation in accordance with Article 34 of the Water Protection Act.



Target C: The false incentives in laws and ordinances that are detrimental to biodiversity, particularly in the Building Act³⁸ and the Building Ordinance, are identified and remedied as far as possible. Ongoing sealing is kept to a minimum.

Measures

- i. **Property law, the Building Act and the Building Ordinance** are **examined for disincentives**, and reform proposals are formulated for restructuring the disincentives. Possible results are:
- Determination of a minimum proportion of the green area ratio for the building zone, where only planted areas are taken into account or are allowable.
 - Adjustment of the boundary distances for planting in view of ongoing densification (see Canton of Basel-Stadt).
 - Creation of positive incentives for more biodiversity in construction, e.g. by earmarking the value-added tax in densification projects for biodiversity-promoting green space design, levies to increase private infiltration areas.

Lead for implementation

- Office of Building Construction and Spatial Planning (Building Act)
- Office of Justice (property law)

Other involved stakeholders

- Office of Environment
- External biodiversity experts

New tasks



Intensification of existing tasks



Continuation of ongoing tasks



Target D: Integration of biodiversity into all planning principles of spatially relevant sectors.

Measures

- i. The Office of Environment raises awareness among the relevant authorities at State and municipal level and draws up **checklists** for the specific **consideration and promotion of biodiversity**, e.g. in road maintenance, forest management, maintenance of ecologically valuable areas, organisation of major outdoor (sports) events, creation of tourist infrastructure, and rainwater management in populated areas.

Lead for implementation

- Office of Environment

Other involved stakeholders

- Affected offices of the National Administration
- Municipalities

New tasks



Intensification of existing tasks



Continuation of ongoing tasks



³⁸ Building Act (BauG) of 11 December 2008, LGBl. 2009 No. 044.

Field of Action 6: Economic activities

The economic activities of Liechtenstein companies in Liechtenstein and abroad influence biodiversity in Liechtenstein but also abroad, with the associated consumption of resources and the corresponding generation of waste. Against this background, the focus of this field of action is on economic activities.

Target A: Liechtenstein companies are given incentives to minimise the negative impact of their activities on biodiversity within Liechtenstein.

Measures

- i. Basic and continuing training courses are organised for engineering and architectural offices, landscape architects, and gardeners to ensure the necessary understanding and knowledge of outdoor design that promotes biodiversity.

Lead for implementation – Office of Environment		Other involved stakeholders – Liechtenstein Association of Engineers and Architects (LIA)
New tasks	Intensification of existing tasks	Continuation of ongoing tasks
☒	☐	☐

- ii. To reduce the environmental impact and dependence on raw materials, suitable advisory services for greater resource efficiency are created for Liechtenstein companies.

Lead for implementation – Office of Economic Affairs		Other involved stakeholders – Life Climate Foundation – Office of Environment
New tasks	Intensification of existing tasks	Continuation of ongoing tasks
☒	☐	☐

Target B: Negative impacts on biodiversity are minimised within the global value chains of Liechtenstein companies.

Measures

- i. In accordance with EEA requirements, minimum standards are implemented for the entire supply chain for companies above a certain size, and the obligation to report on sustainability is introduced.

Lead for implementation – Office of Justice – Business associations		Other involved stakeholders – Financial Market Authority (FMA)
New tasks	Intensification of existing tasks	Continuation of ongoing tasks
☐	☐	☒

Field of Action 7: Ecology in populated areas

The ecology in populated areas must be upgraded sustainably and for the long term. Specific lighthouse projects must be promoted and implemented for this purpose. Suitable framework conditions must also be developed at the national and municipal level.

Target A: Populated areas have a good quality and connectivity of green and water areas.			
Measures			
i. Biodiversity-friendly maintenance and upgrading of public spaces and buildings (role model function of municipalities and the State), in particular promotion of stepping stone biotopes in populated areas (upgrading streams, creating ponds etc. in suitable locations) and of continuity in populated areas (fences, underpasses and overpasses etc.) as well as in relation to roof and façade surfaces.			
Lead for implementation – Municipalities – Civil Engineering and Geoinformation Office (national roads) – Government Real Estate Unit (national real estate)		Other involved stakeholders – Office of Environment	
New tasks ☐	Intensification of existing tasks ☒	Continuation of ongoing tasks ☐	
ii. Make greater use of the potential of private green areas and fallow land as connectivity areas within populated areas and upgrade them ecologically. Particular attention is paid to areas used for agriculture, vineyards, derelict industrial areas, and meadow orchards.			
Lead for implementation – Associations (Winegrowers' Association, VBO) – Landowners		Other involved stakeholders – Municipalities	
New tasks ☒	Intensification of existing tasks ☐	Continuation of ongoing tasks ☐	
iii. Environmental clean-up days to raise public awareness and remove waste from the environment.			
Lead for implementation – Municipalities			
New tasks ☐	Intensification of existing tasks ☐	Continuation of ongoing tasks ☒	

Target B: Sealed surfaces are unsealed and future sealing is kept to a minimum.³⁹
Measures

- i. Actively promote native, diverse, and resilient **tree planting** (avenues) along national roads and municipal roads as well as planting on traffic circles and islands.

Lead for implementation		Other involved stakeholders
– Municipalities – Civil Engineering and Geoinformation Office		– Office of Environment
New tasks	Intensification of existing tasks	Continuation of ongoing tasks
☐	☒	☐

Target C: The municipalities take biodiversity in populated areas and ecological connectivity into account in their planning instruments.
Measures

- i. Based on the recommendations of the Swiss Federal Office for the Environment (FOEN) with regard to rainwater management in populated areas⁴⁰ and the model provisions for cantons and municipalities on biodiversity and landscape quality in populated areas⁴¹, a corresponding guideline for the State and municipalities is drawn up.

Lead for implementation		Other involved stakeholders
– Office of Environment (preparation of guideline) – Office of Building Construction and Spatial Planning (model provisions for planning instruments)		– Municipalities
New tasks	Intensification of existing tasks	Continuation of ongoing tasks
☒	☐	☐

- ii. Examine and implement the **need for legal adaptation in the municipalities** in accordance with the model provisions of the State in order to create biodiversity-promoting framework conditions in populated areas. The following instruments are examined:

- Municipal structure plans
- Land use planning
- Special use planning

Lead for implementation		Other involved stakeholders
– Municipalities		– Office of Building Construction and Spatial Planning
New tasks	Intensification of existing tasks	Continuation of ongoing tasks
☒	☐	☐

³⁹ As part of the Green Deal, the EU has decided to reduce the net loss of land to zero by 2050. This is to be achieved through measures such as the restoration of ecosystems, the promotion of sustainable land use, and the reduction of land consumption. In Switzerland, the Federal Council's Soil Strategy aims to achieve net zero land consumption by 2050 (<https://www.bafu.admin.ch/bafu/en/home/topics/soil/publications-studies/publications/swiss-national-soil-strategy.html>). The developments associated with these goals in the EU and Switzerland are being followed in Liechtenstein. See also the EU Regulation on nature restoration, which also covers the protection of green spaces.

⁴⁰ Available at: <https://www.bafu.admin.ch/bafu/de/home/themen/klima/publikationen-studien/publikationen/regenwasser-im-siedlungsraum.html>

⁴¹ Available at: <https://www.bafu.admin.ch/bafu/de/home/themen/biodiversitaet/publikationen-studien/publikationen/biodiversitaet-und-landschaftsqualitaet-im-siedlungsgebiet.html>

Squirrels inhabit all forest stands in Liechtenstein – from the valley to the higher altitudes. The Action Plan envisages expanding the forest reserves and special forest areas from the current 24% of the forest area to 30% in accordance with the Forest Strategy 2030+.



Cross-cutting issues

Various aspects are taken into account as cross-cutting issues⁴² in the implementation of all fields of action. This concerns the following topics in particular:

- **Advice and awareness-raising:** To promote the targets of the Biodiversity Action Plan 2030+, it is of great importance that decision-makers, experts, and the general public have access to appropriate information and advice. When implementing the Action Plan, it will therefore be necessary to examine which accompanying and supplementary advisory and awareness-raising activities should be carried out in all fields of action in order to achieve the various targets. Awareness of biodiversity issues can be increased, for example, through courses, information events, field inspections, shrub swaps, or by awarding prizes for exemplary action in the area of biodiversity. There are also plans to create an advisory service in the municipalities for biodiversity issues and projects for residents and businesses. In this context, the Office of Environment's series of events entitled "Environment in Focus" is held twice a year on specific environmental topics, especially for municipalities and interest groups.
- **Inclusion and access to information:** When implementing the measures of this Action Plan, it must be ensured that all interested persons can participate in the decision-making processes and that low-threshold access to information on biodiversity is guaranteed for all. This includes the greatest possible accessibility, not only with regard to information, but also to access to protected areas, for example.
- **Technology and innovation transfer:** Access to technology and innovation in Liechtenstein is guaranteed by the educational and research institutions, which in turn benefit significantly from the technology and innovation transfer in cooperation with the business sector, and vice versa. Technology and innovation transfer is also actively promoted by the State through the National Contact Point for Research and Technological Development. Liechtenstein has a very strong international economic focus and is involved in various agreements that ensure market access.

⁴² This addresses targets under the CBD that include the following: 20 Technology and information transfer; 21 Access to information; 22 Inclusion.

4 From Action Plan to implementation

4.1 Roles and responsibilities

The conservation and promotion of biodiversity affects all people and the most diverse areas of society. A large part of the responsibility for implementing the measures contained in the Action Plan lies with the Government and its offices. At the same time, these measures can only be implemented in cooperation with the municipalities and other interest groups. The key roles and responsibilities for implementation of the Biodiversity Action Plan 2030+ are described briefly below.

Government: The Government adopts the Biodiversity Action Plan 2030+ and thereby defines the targets and fields of action. The ministry responsible for the environment determines the priorities within the fields of action and monitors progress in the implementation of the measures. The ministry is also responsible for regular public reporting.

Offices of the National Administration: The offices listed under the measures either have the main responsibility (lead) for implementation of the measures or contribute to the implementation in light of their special responsibilities (other involved stakeholders).

Municipalities: Municipal planning is the responsibility of the municipalities (municipal autonomy). In addition to the offices of the National Administration, the municipalities therefore often take the lead in implementation of measures from the Biodiversity Action Plan 2030+. The municipalities are also central partners in the planning and implementation of some measures, e.g. as knowledge carriers of local situations, as landowners of public areas, and as an interface with the population. The type and extent of the municipalities' involvement varies depending on the measure.

Other stakeholders: The participation of private individuals, companies, organisations, associations, and other interest groups is also necessary to preserve and promote biodiversity in Liechtenstein and to implement the measures in this Action Plan.

4.2 Monitoring and reporting

Responsibility for monitoring, reporting, and reviewing the effectiveness of the entire Action Plan lies with the ministry that includes the division responsible for biodiversity (currently the Environment Division). As part of overall management, the progress of the individual measures is continuously reviewed and monitored by the Commission for Nature Protection and Landscape Conservation.

This monitoring across all measures serves to ensure the successful implementation of the Action Plan and is intended to provide ongoing information on the degree to which the targets have been achieved. Based on this and taking into account any developments (in Liechtenstein and at the international level), the focus of implementation will also be adjusted if necessary.

The overall monitoring of all measures is ensured by various inspections of the individual measures. For example, the development of biodiversity in Liechtenstein is monitored using a wide range of methods. These include nature studies research, the tracking of Red List species and, since 2020, the species monitoring concept.⁴³ Beyond this, the Action Plan contains additional monitoring measures, such as monitoring for the inventory of nature priority areas (Field of Action 2, Target A, Measure ii).

Reporting on the implementation of the Action Plan and on progress in the area of protecting and promoting biodiversity also takes place as part of the national reports to the Biodiversity Convention in 2026 and 2030. Internationally applicable indicators for measuring the achievement of the 23 targets of the Biodiversity Convention are available for these monitoring reports.⁴⁴ The international reporting serves as the basis for the national reporting.

4.3 Resources and financing

The comprehensive implementation of the measures of the Biodiversity Action Plan 2030+, which is also demanding in terms of coordination, has financial and personnel implications at both the State and municipal level. At the level of the National Administration, the additional resources required must be allocated as part of the annual national budget. The resources must be used in a targeted and needs-based manner, and the various measures must be implemented in accordance with the Government's priorities. Prioritisation has already been carried out for 2025 based on an assessment of the best cost-benefit ratio. Accordingly, it is planned that the buffer zone areas for existing protected areas will be calculated and designated and the creation of new protected areas will begin in 2025. Upgrading measures are also to be implemented in Bannriet/Tenscha and management plans for protected areas are to be drawn up.

4.4 Outlook

This Action Plan was drawn up with a 2030+ horizon, which means that the work will not be completed by that year, nor will every target have been achieved or all measures implemented. The year 2030 represents the next milestone set by the Convention on Biological Diversity, at which point a stocktaking and review will be carried out, along with an adjustment or reorientation of the approach taken, as necessary. Specific implementation of the various measures will take place until then, partly in parallel and partly downstream or staggered.

As was the case during development, implementation of the Action Plan will also take place in close cooperation with the involved and affected stakeholders.

⁴³ Liechtenstein species monitoring is based on the long-term monitoring of indicator species. These react to negative impacts such as substance inputs or habitat loss. As a result, they also indirectly show the trend in habitat status and biodiversity. In principle, implementation of the Biodiversity Action Plan 2030+ should lead to an improvement in habitats and thus an increase in indicator species, which can be verified using species monitoring.

⁴⁴ Available at: <https://www.cbd.int/gbf/targets>

Annex 1: Overview of fields of action and targets

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Fields of action	Targets
FA 1: Green infrastructure	1A: 30% ecologically valuable areas 1B: Green infrastructure
FA 2: Degraded habitats	2A: High-quality areas 2B: Buffer zones of sufficient size 2C: High water quality 2D: Sustainable use in agriculture 2E: Sustainable use in forestry 2F: Combating invasive species 2G: Conservation of nutrient-poor sites (dry meadows and pastures, fens and spring meadows) 2H: Management of transport-adjacent areas
FA 3: Priority species and habitats	3A: Species-specific measures
FA 4: Chemical and physical impacts	4A: Reduction of impacts 4B: Monitoring of impacts
FA 5: Processes and framework conditions	5A: Consideration in spatial planning 5B: Minimisation of subsidies with biodiversity-damaging impacts 5C: Minimisation of disincentives that are detrimental to biodiversity in laws and ordinances 5D: Consideration in objectives and planning principles
FA 6: Economic activities	6A: Minimisation of impact of companies in Liechtenstein 6B: Minimisation of impact of companies within global value chains
FA 7: Ecology in populated areas	7A: Connectivity of areas 7B: Reduction of sealed surfaces 7C: Consideration of ecological connectivity

Table 1 – Overview of the fields of action and targets of the Biodiversity Action Plan 2030+

Annex 2: Targets of the Biodiversity Convention

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The development of the Biodiversity Action Plan 2030+ was based on the targets of the Biodiversity Convention in order to ensure that the elements contained therein were adequately incorporated. Not all aspects of these targets were equally relevant in the development of the specific measures (e.g., Liechtenstein has no coastal regions). The following overview gives an impression of the field of action in which the content of each CBD target is most likely to be found, although overlaps exist and various aspects of certain targets can be found in several fields of action. The titles of the targets in the following diagram are not official designations of the Biodiversity Convention. They serve exclusively to situate the content. Targets 13, 17, 21, 22 and 23 are not listed, since they are cross-cutting issues that affect all fields of action (see also sub-chapter on cross-cutting issues in Chapter 3 on fields of action).

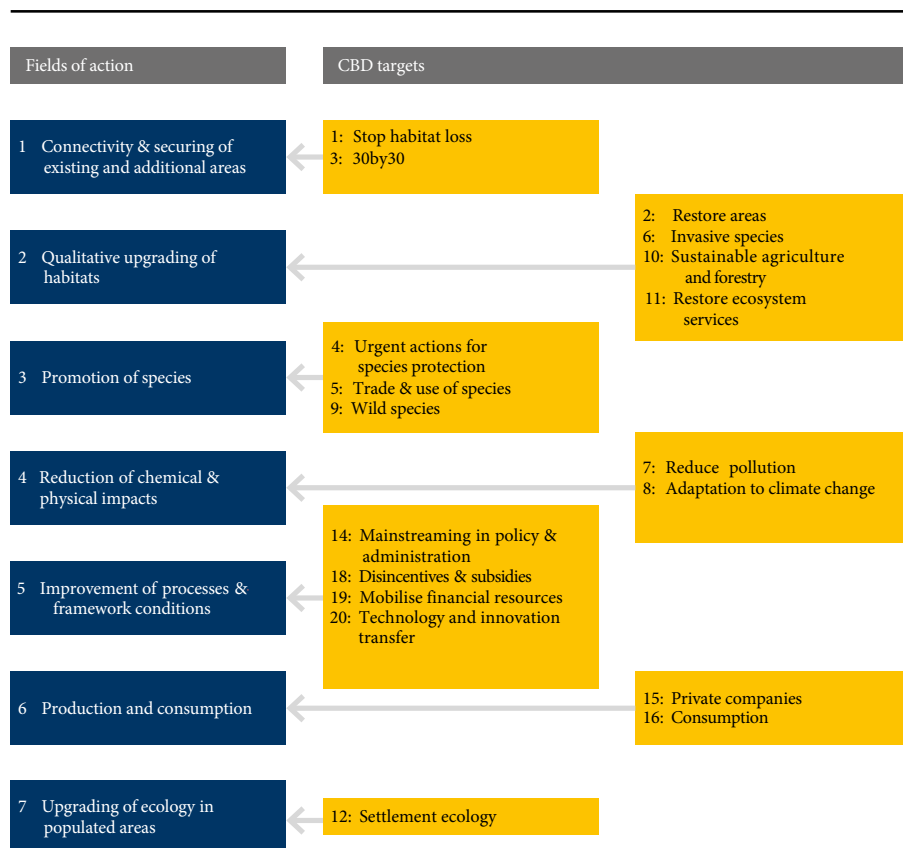


Figure 3 – Overview of the fields of action of the Biodiversity Action Plan 2030+ and the targets of the Biodiversity Convention contained in the Action Plan

The following brief summaries of the individual targets of the Biodiversity Convention do not claim to be exhaustive. The full descriptions of the targets can be found on the website of the Biodiversity Convention (www.cbd.int).

No.	Short title	Content (simplified summary)
1	Stop habitat loss	Stop the loss of habitats with high ecological quality by 2030 (reduction to almost zero). It must be ensured that this objective is taken into account in spatial planning and land management.
2	Restore degraded areas	At least 30% of the degraded habitats (meadow-pasture, structurally rich farmland, water bodies, wetlands, forest, rock, dynamic areas, mountain grasslands) are in a process of restoration by 2030 to improve ecological quality, connectivity, and ecosystem services.
3	30by30	At least 30% of terrestrial and inland water areas are conserved/secured and managed in the long term by 2030 through ecologically representative, well-connected, and equitably governed systems of protected areas and other effective area-based conservation measures. The focus should be on areas of particular importance for biodiversity and ecosystem services. Sustainable use of the area should be possible, provided it is compatible with the requirements of the priority species therein.
4	Urgent actions for species protection	Take urgent actions to halt the extinction of threatened species, for the recovery and protection of (threatened) species. The aim is to reduce extinction risk and maintain or restore genetic diversity, thereby maintaining their adaptive potential. This is to be achieved including by means of conservation and management measures to minimise human-wildlife conflict.
5	Trade and use of species	Ensure that the use, harvesting and trade of wild species is sustainable, safe, and legal. Prevent overexploitation, minimising impacts on non-target species and ecosystems. Traditional sustainable use by indigenous peoples and local communities is respected and protected.
6	Invasive species	Eliminate or minimise the impacts of invasive alien species on biodiversity and ecosystem services. A monitoring system is to be set up and the introduction and establishment of invasive alien species prevented.



7	Environmental pollution	Reduce pollution and risks to a level that is not harmful to biodiversity and ecosystem services. This can be achieved by: a) reducing excess nutrients lost to the environment by at least half b) reducing the overall risk from pesticides and highly hazardous chemicals by at least half c) preventing, reducing, and eliminating plastic pollution
8	Climate change	Minimise the impact of climate change on biodiversity and increase the resilience of ecosystems through measures in favour of climate protection, climate adaptation, and disaster prevention (e.g. nature-based solutions and/or ecosystem-based approaches).
9	General sustainable use	Sustainable use of wild species to ensure social, economic, and environmental benefits for people.
10	Sustainable agriculture and forestry	Ensure that areas used for agriculture, fisheries, and forestry are managed sustainably, including through the application of biodiversity-friendly practices that contribute to the resilience and long-term efficiency and productivity of these production systems and to food security.
11	Ecosystem services	Restore, maintain, and enhance ecosystem services. Ecosystem services include regulation of air, water, and climate, soil health, pollination, and reduction of disease risk, as well as protection from natural hazards and disasters.
12	Settlement ecology	Significantly increase the extent, quality, and connectivity of green and blue spaces in populated areas in the long term. This must be taken into account in local planning in order to enhance biodiversity in populated areas and ecological connectivity, as well as to improve human health and well-being and connection to nature.
13	Access and benefit sharing	Take effective legal, policy, administrative, and capacity-building measures to ensure the fair and equitable sharing of benefits that arise from the utilisation of genetic resources and from digital sequence information on genetic resources, as well as traditional knowledge.
14	Mainstreaming in policy and administration	Ensure the full integration of biodiversity into policies, regulations, planning processes, environmental impact assessments and, as appropriate, national accounting at all levels of government and across all sectors (in particular policies with significant impacts on biodiversity). In addition, all relevant public and private activities as well as fiscal and financial flows are to be progressively aligned with the targets.



15	Private companies	Take legal, administrative, or policy measures to encourage and oblige companies (especially large and transnational companies and financial institutions): a) to regularly monitor, assess, and disclose their risks, dependencies, and impacts on biodiversity; b) to provide information needed to consumers to promote sustainable consumption patterns; c) to report on compliance with access and benefit-sharing regulations and measures, as applicable.
16	Consumption	People are encouraged to make sustainable consumption choices, including by establishing appropriate framework conditions, raising awareness, providing information, and highlighting alternatives. By 2030, the consumption footprint is to be reduced through halving global food waste, significantly reducing overconsumption and substantially reducing waste generation.
17	Biotechnology and biosafety	Establish, strengthen capacity for, and implement in all countries biosafety measures as set out in Article 8(g) of the Convention on Biological Diversity and measures for the handling of biotechnology and distribution of its benefits as set out in Article 19 of the Convention.
18	Harmful subsidies and financial disincentives	Identify by 2025, and eliminate, phase out, or reform incentives, including subsidies, harmful for biodiversity, in a proportionate, just, fair, effective, and equitable way. By 2030, subsidies and disincentives are to be progressively reduced globally by at least USD 500 billion per year, starting with the most harmful incentives. On the other hand, positive incentives for the conservation and sustainable use of biodiversity are to be scaled up.



19	Mobilise financial resources	Increase financial resources, including domestic, international, public and private resources, to implement national biodiversity strategies and action plans, mobilising at least USD 200 billion per year worldwide by 2030, including by: a) increasing total biodiversity-related international funding, including official development assistance; b) significant increasing domestic funding through national biodiversity finance plans; c) mobilising private financial resources, encouraging the private sector to invest in biodiversity (including funds); d) stimulating innovative schemes (e.g. payment for ecosystem services, green bonds, biodiversity offsets and credits, benefit-sharing mechanisms) e) optimising co-benefits and synergies of finance targeting the biodiversity and climate crisis f) enhancing the role of collective actions, including by indigenous peoples and local communities; g) enhancing the effectiveness, efficiency, and transparency of resource provision and use.
20	Technology and innovation transfer	Ensure access to and transfer of technology and innovation. Promote technological and scientific cooperation for the conservation and sustainable use of biodiversity. The aim is to create the necessary conditions for effective implementation, particularly in developing countries.
21	Access to information	Provide a suitable technical basis and data for decision-makers, experts, and the public. The aim is to strengthen communication, awareness-raising, education, monitoring, research, and knowledge management.
22	Inclusion	Ensure that everyone can participate in decision-making processes and that access to justice and information related to biodiversity is guaranteed for all.
23	Equality/diversity	When implementing measures, ensure that gender equality is guaranteed – at all levels of action, engagement, policy, and decision-making related to biodiversity.

Table 2 – Brief summaries of Biodiversity Convention targets

After the hoopoe had already become extinct in Liechtenstein in the 1960s, a pair bred in the rock face of the Ellhorn in 1968. A small population subsequently established itself, initially concentrated in Balzers and Schaan. Breeding has now also been observed in Ruggell for a few years. The decline in large insect populations and old standard trees are the main reasons why the population is still small. The Action Plan suggests examining measures with farmers' representatives and interested landowners to secure biodiversity promotion areas in particularly valuable locations for the long term.



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