

## Report

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## Executive summary

The main goal of this report is to provide guidelines on the species and habitat management in protected areas and propose steps to be taken in order to secure functional system of conservation management of sites (Natura 2000 sites and/or Emerald sites where such species/habitats are listed in their standard data forms) in accordance with the EU Nature Directives and to give a few examples of such guidelines for selected flagship habitats and species.

This report was elaborated within the EU LIFE project Conservation of Natural Heritage for Life in Ukraine, Work Package 2 Common legislative space for Ukraine and the EU for nature protection.

We briefly summarize the requirements of the Habitats and Birds directives in respect to habitat and species management in the context of Ukraine.

We have clearly identified the following steps:

1. Elaborate general guidelines for species and habitat management that shall create a common baseline for the subsequent development of management plans for individual Natura 2000/Emerald sites. Such guidelines should for each species (or group of species) and habitats provide structured and short information about their ecology and distribution, threats and propose protection and conservation measures. As annexes to this report, such guidelines have already been prepared for five selected habitats and two species, identified with respect to the level of threat, representativeness and distribution.
2. Based on these guidelines, management plans for individual sites shall be gradually developed, based on site-specific objectives and proposal of suitable conservation measures in line with the general recommendations in the guidelines. Until such management plans are elaborated for all sites, the guidelines should serve as a basis for planning any specific conservation measures in the protected areas (including Natura 2000/Emerald sites).

## Introduction

Until now, Ukraine has been developing the Emerald network established on the basis of resolutions and recommendations of the Bern Convention of the Council of Europe. If it becomes an EU member in the future, **the Emerald network will need to be transferred into the Natura 2000 network** built according to the requirements of the EU Birds and Habitats Directives. Both these networks are similar in their purpose and many of their aspects, but at the same time they differ significantly as to their focus (target habitat types and species which are partly different in both networks, although especially in the list of species a relatively large overlap exists) and methodology of their establishment. Therefore, when thinking about the future EU requirements, it would be useful to focus on Natura 2000 habitat types and species, not just on those currently covered by the Emerald network.

It is also to remind that there is another significant difference between the Emerald and Natura 2000 networks in regard to **bird conservation**. While the former requires to identify particular bird species listed in one of the Bern Convention recommendations in every site they occur, the methodology for establishing sites for bird conservation called “Special Protection Areas” (SPA) of the Natura 2000

network according to the Birds Directive is different – such sites are to be identified and established separately from sites for habitat types and species, following specific ornithological criteria.

Both Emerald and Natura 2000 sites have the **same purpose**: to enable target habitat types and species to thrive in a long-term or, in case of them being in poor conditions, to improve them to the level deemed satisfactory from the ecological and conservation perspective.

Therefore, sites comprising both networks require **conservation management** – either for the maintenance of the current state, or for its improvement. For both networks, this management – which might be resource-demanding – requires a clear guidance based on ecological requirements of particular target habitat types and species within each designated site. The common approach of both networks is to manage the sites according to **site-specific management plans**<sup>1</sup>.

Such management plans should have a unified structure and follow the well-proven logic confirmed by the obligatory provisions of the Habitats Directive: for each site, **site-specific conservation objectives** should be set for each target habitat type and species<sup>2</sup>, followed by the proposed **conservation measures** enabling to achieve these objectives within a reasonable timeframe.

**Conservation objectives** may be, in principle, of two kinds: **maintenance** of the current state, and/or its **improvement** (or even restoration). To achieve these kinds of conservation objectives, there is a need for conservation management, that has to be site-specific on the one hand (as mentioned above), but at the same time corresponding to ecological requirements of particular habitat types or species (or their groups if ecology is similar) on the other. Experience has shown that for each group of habitat types and higher groups of species, management guidelines can be set at the most basic level of management documents - with the aim of maintaining the current state, which is also the minimum conservation objective under the Article 6(2) of the Habitats Directive.

In the Czech Republic as well as in some other EU member states it has worked well to develop such **general management principles/guidelines** especially for habitat types, as these can be grouped into larger units according to habitat type groups (e.g. aquatic habitats, grasslands, scrubs, forests); for species more specification is needed, although for some groups general management principles can be established, too (e.g. aquatic amphibians, large mammals, etc.). In case a more ambitious approach (improvement or restoration) is needed in particular sites, these guidelines can also be useful as they describe, for each habitat type and species, their **basic ecological requirements which have to always be respected in any restoration activity**.

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<sup>1</sup> For Natura 2000, such management plans are not obligatory, but the Habitats Directive recommends them as the main possible tool; in addition, the EU-wide experience has confirmed that such site-specific management plans are the most efficient tools for site management regardless of their names which can differ among the EU member states.

<sup>2</sup> In some cases, especially in large protected areas, it might be useful to also set conservation objective or objectives related to the site or its part as a whole. However, for sites of both Emerald and Natura 2000 networks which are always established for particular habitat types and species, such a general conservation objective cannot be sufficient, as the effective site management requires implementation of specific measures based on conservation objectives, and such measures can hardly be identical for all habitat types and species within the protected site.

## Principles of species and habitat management

**Both EU Nature Directives** had originated in different periods, under different political situation, and were drafted by different authors. In addition, at the time when the Birds Directive was drafted and adopted (1979), the focus of the then European Economic Community was on issues very different from nature protection; it provided the authors of the draft directive with a relative freedom of expression, which resulted in a bit vague text, with inconsistent use of various terms (such as protection, preservation, conservation), which was difficult to use for concrete actions in the field. The preparatory process of the Habitats Directive 13 years later was already under the close supervision of the 12 Member States that took a lesson from the 1979 exercise. This is the reason why the site-related management provisions of the Habitats Directive are much clearer, focusing on Natura 2000 sites only, compared to much wider approach of the Birds Directive addressing bird habitats and their management across the whole countries, not much differentiating between protected areas and the open landscape (see Box 1). However, the practical experience has shown that applicability of such management measures in the open landscape is rather declarative, as the Birds Directive does not provide any legislative tools enabling implementation conservation management of areas outside protected sites, and even the financial burden of bird habitats management in open landscape across particular countries would hardly be bearable.

<b>Box 1: Comparison of the conservation management provisions of the Birds and Habitats Directives</b>	
<b>Article 3 of the Birds Directive</b>	<b>Article 6(1) of the Habitats Directive</b>
<p>1. In the light of the requirements referred to in Article 2, Member States shall take the requisite measures to preserve, maintain or re-establish a sufficient diversity and area of habitats for all the species of birds referred to in Article 1.</p> <p>2. The preservation, maintenance and re-establishment of biotopes and habitats shall include primarily the following measures:</p> <p>(a) creation of protected areas;</p> <p>(b) upkeep and management in accordance with the ecological needs of habitats inside and outside the protected zones;</p> <p>(c) re-establishment of destroyed biotopes;</p> <p>(d) creation of biotopes.</p>	<p>1. For special areas of conservation, Member States shall establish the necessary conservation measures involving, if need be, appropriate management plans specifically designed for the sites or integrated into other development plans, and appropriate statutory, administrative or contractual measures which correspond to the ecological requirements of the natural habitat types in Annex I and the species in Annex II present on the sites.</p> <p>2. Member States shall take appropriate steps to avoid, in the special areas of conservation, the deterioration of natural habitats and the habitats of species as well as disturbance of the species for which the areas have been designated, in so far as such disturbance could be significant in relation to the objectives of this Directive.</p>
	<b>Article 7 of the Habitats Directive</b>
	Obligations arising under Article 6 (2), (3) and (4) of this Directive shall replace any obligations

	arising under the first sentence of Article 4 (4) of Directive 79/409/EEC in respect of areas classified pursuant to Article 4 (1) or similarly recognized under Article 4 (2) thereof,
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From the comparison of both directives it follows that the main focus in Natura 2000 sites should be effective conservation management aimed at – as a minimum obligatory requirement – long-term maintenance of the state of particular habitat types and species for which the sites had been designated as at the moment of the site designation (pursuant to Article 6(2) of the Habitats Directive this applies to protected sites for birds, too). Colloquially this has been called **“ban of worsening the state of sites”**. This should be ensured by implementation of the provisions of Habitats Directive Art. 6(1) preceded by setting site-specific conservation objectives described in the preceding chapter. It is true that this provision does not apply to sites for birds; however, the obligation of Art. 3 paragraph 2 letter b) of the Birds Directive can hardly be interpreted differently from the provision of Art. 6(1) of the Habitats Directive. Thus, fully in line with the theory of conservation biology as well as practical experience obtained throughout the EU during past decades, each Natura 2000 site should have specific conservation objectives enabling, as a minimum, maintenance of its habitat types and species in a long-term. The way of how to achieve these objectives is to propose, and then regularly implement, appropriate conservation measures corresponding to ecological requirements of those habitat types and species.

There is no doubt that the key role to play in meeting these obligations have **management plans** for Natura 2000 sites. They are site-specific<sup>3</sup>, reflecting unique conditions of each particular site. Drafting such tailor-made management plans for all sites is a lengthy exercise, strictly limited in each country by the number and availability of particular experts as well as the financial possibilities. Therefore, maximum effectiveness of using both human and financial resources is a key requirement. Another key requirement is that the management approaches chosen for particular habitat types and species be the same for the same habitat types and species – based on their known ecological requirements and already proved feasibility. Management plans for Natura 2000 sites are often drafted by different site managers without coordination, especially in countries with lack of central nature conservation institutions, and availability of management guidelines describing unified, recommended management approaches (=conservation measures) for particular habitat types and species or, in justified cases, their groups having identical or very similar ecology may be a great help in their management planning. On the one hand, it is true that each site-specific management plan must mirror the site-specific conditions; therefore, it is almost never possible to just copy-and-paste recommended management approaches from such guidelines into management plans. On the other hand, if such guidelines exist and their quality is high (and their practical implementability has already been confirmed), they can be used for drafting management plans also by persons who are not narrowly specialized in particular species or a habitat type who may sometimes lack detailed scientific knowledge but may have deep and long-term practical conservation experience.

<sup>3</sup> Some EU MS decided, for various reasons, to have management plans for groups of sites with similar characteristics or in particular geographical areas. This approach does not contradict the need for such plans to be divided into site-specific chapters like in the case of management plans drafted separately for each site.



Such **management guidelines** usually cannot be directly transferred from one country into another, due to frequent differences even between neighboring countries sharing identical natural conditions. The aim of this document is to show a direction in which such management guidelines – which could be used for the management of both Emerald and Natura 2000 sites – could be drafted in Ukraine in near future. We believe that sharing this practically confirmed Czech experience, in combination with experience of some other countries, could be inspiring for drafting Ukrainian management guidelines (see Box 2).

**Box 2** Examples and links to Czech and Slovak published guidelines and standards on species and habitat management

Country, year, name and focus of the guidelines	URL
Czechia (continuous): <b>standards for management practices</b> (some available also in English, for example “Fish Passes”, “River management including bank vegetation”, “Grazing”, “Moving of grasslands”, “Restoration of grasslands using regional seed mixtures”, “Installing and operating mobile seasonal barriers along roads to protect amphibians”, “Management of selected alien plant species” and many others)	<a href="https://aopk.gov.cz/platne-standardy">https://aopk.gov.cz/platne-standardy</a>
Slovakia (2022): species and habitat management guidelines “Zásady starostlivosti o biotopy európskeho významu a biotopy druhov európskeho významu v územiach európskeho významu”	<a href="https://www.minzp.sk/files/sekcia-ochranyprirodyakrajiny/natura2000/zasady-starostlivosti-2022.pdf">https://www.minzp.sk/files/sekcia-ochranyprirodyakrajiny/natura2000/zasady-starostlivosti-2022.pdf</a>
Czechia (2024): bird species management guidelines “Zásady péče o předměty ochrany ptačích oblastí”	<a href="https://knihovna.nature.cz/#!/record/s/8739266c-2f41-485a-a721-d9a745dedc1e">https://knihovna.nature.cz/#!/record/s/8739266c-2f41-485a-a721-d9a745dedc1e</a>
Czechia (2008): species management guidelines “Zásady managementu stanovišť druhů v evropsky významných lokalitách soustavy Natura 2000”	<a href="https://mzp.gov.cz/cz/agenda/priroda-a-krajina/natura-2000/odborne-podklady-a-metodiky/zasady-managementu-stanovist-druhu">https://mzp.gov.cz/cz/agenda/priroda-a-krajina/natura-2000/odborne-podklady-a-metodiky/zasady-managementu-stanovist-druhu</a>
Czechia (2004): non-forest habitat management guidelines “Zásady péče o nelesní biotopy v rámci soustavy Natura 2000”	<a href="https://mzp.gov.cz/cz/agenda/priroda-a-krajina/natura-2000/odborne-podklady-a-metodiky/zasady-pece-o-nelesni-biotopy-v">https://mzp.gov.cz/cz/agenda/priroda-a-krajina/natura-2000/odborne-podklady-a-metodiky/zasady-pece-o-nelesni-biotopy-v</a>
Czechia (2006): forest habitat management guidelines “Pravidla hospodaření pro typy lesních přírodních stanovišť v EVL”	<a href="https://mzp.gov.cz/cz/agenda/priroda-a-krajina/natura-2000/odborne-podklady-a-metodiky/pravidla-hospodareni-pro-typy">https://mzp.gov.cz/cz/agenda/priroda-a-krajina/natura-2000/odborne-podklady-a-metodiky/pravidla-hospodareni-pro-typy</a>

Many important further resources regarding the management of Natura 2000 sites can be found on the official webpage of EU dedicated to this topic<sup>4</sup>.

## Recommended steps to be taken in Ukraine

As currently there are almost no management plans for Emerald sites (so far only Pyriatynskyi Emerald Site has one) it is advisable to follow the example of the CZ and SK in the field of conservation management and as a first step to **elaborate Guidelines for species and habitat management** – such guidelines are described in the next chapter. In the Annexes to this report, already 7 model guidelines for selected species and habitats have been developed as an example. It is recommended to follow up and further elaborate such guidelines, with a similar structure, for all features (or at least for groups of species and habitats that are part of SDF in the Emerald and/or future Natura 2000 sites.).

As the next step, **consulting the Guidelines with main stakeholders** is recommended. It is important to communicate with major groups of landowners and land-users at the state level (such as state forestry, river management bodies etc.). Although each of the sectors follows their own principles and goals, in the management of protected areas (including Emerald and Natura 2000 sites) reaching consensus at least on the basic principles of management is necessary. In the CZ example – the general guidelines for forestry management were even co-authored by the state forestry company and association of private forest owners (together with the forestry research institute), thus setting basic and generally acceptable principles of forestry in Natura 2000 sites. It was to a certain level a compromise, however, as stated in the guidelines itself: more specific management (and more strict regime) may be required in the individual sites – and that would be the task of site management plans, again with relevant on-site stakeholders involvement. Best practice on communication with stakeholders in Natura 2000 sites, based on CZ experience in English language can be found here<sup>5</sup>.

Public access to relevant information is very important; therefore, it is recommended to **publish** these guidelines on the Ministry website (with unlimited access in time, not dependent on political rearrangements of governmental sectors).

Continue with elaboration of **individual management plans** for various protected areas, when these guidelines should be an obligatory minimum basis when developing such plans.

Before management plans for every site are elaborated, use the guidelines also to **guide conservation action planning and project development on sites**.

A separate issue, far beyond the scope of this document, is then the financial part of finding resources to fund the planned conservation management. It is crucial to **integrate** main principles of species and habitat conservation as specified in the guidelines into nationwide schemes, policies and subsidies (especially in forestry, agriculture, fisheries, water courses and coastline management), whenever possible.

<sup>4</sup> [https://environment.ec.europa.eu/topics/nature-and-biodiversity/natura-2000/managing-and-protecting-natura-2000-sites\\_en](https://environment.ec.europa.eu/topics/nature-and-biodiversity/natura-2000/managing-and-protecting-natura-2000-sites_en)

<sup>5</sup> <https://www.jednapriroda.cz/wp-content/uploads/2023/08/Best-communication-practices-in-nature-conservationv2.pdf>



## Structure and content of the guidelines

### Structure:

For each feature (habitat type or group of habitat types; species or group of species) predefined structure is followed:

1. Name/code
2. Nomenclature (for habitat types respective classifications for res. 4 Bern Convention, for Annex I of the Habitats directive and for the National Habitat Catalogue of Ukraine)
3. Ecology and distribution
4. Threats
5. Management and Protection Principles

### Selected habitats and species in the Annexes:

In the annexes to this report, individual guidelines for the five habitat types (forest, grasslands and mires) and two species (one animal and one plant) are presented.

Selected habitat types represent a wide spectrum of different approaches needed to be implemented in order to maintain degree of conservation on the sites. In general, a degree of conservation means that natural conditions for all typical species in a particular habitat are preserved (or restored) to maintain its ecological integrity in time and space. Thus, the state of a particular habitat, as documented at the time of the site delineation and listing as Natura 2000 site, should be maintained or improved, not worsened. This principle was taken into account when formulating management (and protection) principles for each natural habitat.

Whilst, for example, grasslands which have originated and/or evolved due to a long-term human activity (haymaking, grazing) require regular management for preserving their species composition, the best solution for species dwelling in beech forests (and other mountainous forest habitat types) predominantly seems to be the non-intervention management. In case of alluvial forests, a combination of non-intervention approach and practices imitating a traditional management pattern are recommended.

Mires, mostly drained for agricultural use or exploited for peat extraction, represent another good example where reaching or restoring ecologically required conditions requires a significant improvement of water regime, i.e. well designed site-specific restoration measures.

From species, Saker falcon (*Falco cherrug*) was chosen representing a globally threatened species for which the steppe region and its ecosystems are crucial, and Lady's Slipper Orchid (*Cypripedium calceolus*), a species highly sensitive to the land use changes.

Overall, in the selection we focused on habitat types and species that are present both in Emerald and in (future) Natura 2000 sites in Ukraine, are currently threatened, and have a “flagship” potential. As for the selected species we preferred those, whose management requirements are not covered by the management of habitats.

### Important note:

These guidelines are a general baseline. Where Natura 2000 sites/Emerald sites overlap with other nationally designated protected areas, the protection regime and management plan of the respective protected area applies, if stricter or more specific, especially in case of forest habitats. These management plans for national protected areas, when being updated, have to take into account the needs of the species and habitats, but can be more specific and strict in the management rules for any specific site according to particular category of protected area. In case of non-forest habitats, proposed measures represent the ecological optimum for their maintenance and they should be applied on the whole territory of the site regardless the level of protection with respect to local conditions.

## References and further resources

CZ and SK guidelines on species and habitat management – see Box 2 above

CZ standards for nature conservation management activities in various areas (including moving, grazing, watercourses management, alien species management), most are available also in English: <https://aopk.gov.cz/platne-standardy>

CZ recommendations for dead wood in protected areas: <https://mzp.gov.cz/cz/agenda/priroda-a-krajina/zvlaste-chronena-uzemi/metodicke-materialy-a-ostatni-dokumenty/metodicky-3>

Old growth forests in EU: [https://environment.ec.europa.eu/publications/guidelines-defining-mapping-monitoring-and-strictly-protecting-eu-primary-and-old-growth-forests\\_en](https://environment.ec.europa.eu/publications/guidelines-defining-mapping-monitoring-and-strictly-protecting-eu-primary-and-old-growth-forests_en)

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## Annexes

Annex 1 – Guidelines for 6210 (grasslands)

Annex 2 – Guidelines for 7110 and 7120 (raised bogs)

Annex 3 – Guidelines for 7230 (alkaline fens)

Annex 4 – Guidelines for 92A0 (poplar-willow forests)

Annex 5 – Guidelines for 9110 and/or 9130 (beech forests)

Annex 6 – Guidelines for *Cypripedium calceolus* (Lady's Slipper Orchid)

Annex 7 – Guidelines for *Falco Cherrug* (Saker Falcon)

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## ANNEX 1 - Guidelines for habitat type 6210

Natura 2000 (Annex I habitat type): **Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (\* important orchid sites)** /Напівприродні ксерофітні трав'яні угруповання й чагарникові фації на вапнякових субстратах (Festuco-Brometalia) (\* оселища, важливі для орхідних)

Res. 4 of Bern Convention: E1.2 Perennial calcareous grassland and basic steppes / Багаторічні трав'яні кальцифітні угруповання та степи)

Nomenclature used in Ukraine (НКБУ): - T1.3.1 Meadow steppes on calcareous soils (rendzina)/ Лучні степи на рендзинах; T1.3.2 Meadow steppes on chernozems/ Лучні степи на чорноземах;

### Ecology and distribution (according to НКБУ)

T1.3.1 - Biotopes are formed mainly on rather steep (10–50°) slopes of ravine-beam systems or river valleys. In the north of the range, they can occupy slopes of southern and eastern exposures, but mainly northern and western ones. In the north, the forest-steppe zone is confined to the upper parts of the slopes, in the rest of the territory - in various parts of the slopes to the foot. The parent rock is mainly limestone and other carbonate-containing rocks - marls, gypsum, chalk. The soils are mainly shallow, rich in carbonates, with a high humus content and a fairly high pH level. In Ukraine – Central European Province (Hologoro-Kremenetsky Range, Opillya, Pokuttya, Roztochchya, Volyn Upland); Pannonian Province (Transcarpathian Lowland); East European Forest-Steppe Province (within Western, Northern and Central Podillia).

T1.3.2 - In the forest-steppe zone, biotopes are formed in the upper and middle parts of moderately steep slopes, mainly of southern exposure. In the steppe zone, in the lower part of slopes, mainly of northern exposure, and in depressions. Soils are typical low- and medium-humus chernozems, eroded in places, with a high content of carbonates, formed on loess and limestone. In Ukraine, this habitat is distributed Central European Province; East European Forest-Steppe Province; Black Sea-Azov Steppe Province.

### Threats

Direct destruction of habitat due to plowing, afforestation or development.

Intensification of management of meadows, overgrazing, uncontrolled regular spring burning, change in the structure of phytocenoses due to untimely haymaking. A significant contribution to eutrophication can also be atmospheric nitrogen deposition and surrounding agricultural activities.

On the other hand the threat often lies also in the long-term absence of management, and thus the progress of natural succession, resulting in an accumulation of organic matter, overgrowth of bushes and trees, expansion of tall grasses.

Change in plant communities due to invasions of alien species (for example *Solidago canadensis*, *Phalacrolooma annuum*).

## Management and Protection Principles

- Grazing and haymaking or combination of both – this habitat includes a diverse range of possible management options, determined by historical management practices, and natural conditions.
- Mowing once a year from June to mid-August with subsequent drying and removal of biomass. Each time, a certain part of the habitat area (e.g. ¼) should be left without intervention. These temporarily set aside plots must rotate, i.e. they shouldn't be left unmanaged more than one or two years.
- Grazing of sites after the first mowing is also possible, with an even distribution of animals within the site.
- Extensive grazing of sheep, goats, and cattle, at a load of 0.3 - 0.6 LCU<sup>6</sup>/ha from April to June. It is appropriate to shift grazing to a later period (or in autumn) in the case of sites with the occurrence of orchids or other rare species of plants and animals (e.g. invertebrates). Grazing should be evenly distributed on the site. After the grazing is over, at least part of the undershoots (not grazed tussocks or small shrubs) must be mown.
- Removal of expansive or invasive shrubs and trees on sites in the autumn to winter months with subsequent removal of biomass. It is necessary to control the shoots after the shrub removal i.e. by mowing, cutting or grazing by goats.
- Removal of expansive and non-native invasive plant species, in a manner appropriate for the species.
- No additional planting of trees on sites, no plowing, no habitat destruction due to construction.
- It is advisable to time the mowing in order to allow the seeds of desired later flowering species to mature (either not mowing the whole area at the same time, leaving unmowed strips or shifting the mowing in each year). Mosaic mowing is also suitable to preserve areas for reproduction and completion of species development, i.e. during the first mowing, approximately 70% of the area is mowed, the rest is grazed. This method of shifting mowing is also suitable for insects.
- Mulching - suitable only as a supplementary method for restoring stands maximum once every 5 years, it cannot be carried out repeatedly as a regular method of management.
- In the case of long-term abandoned sites where some plant species are expansively spread it is necessary to implement restoration measures, which include, in addition to the removal of bushes and trees, also mowing the site at the time of the beginning of flowering of the unwanted species in order to ensure its more effective elimination. It is also advisable to mow repeatedly throughout the year to regularly remove biomass and weaken individuals of unwanted species.
- Preventing artificial afforestation.
- Controlled burning if necessary and possible - in autumn-winter-early spring season. As a part of both restoration and regular management, in case of lack of resources for mowing or

<sup>6</sup> Large cattle unit (approximately 500 kg of live weight, equivalent of 1 cow)

grazing, well-designed prescribed burning of carefully selected sites can be applied. The main aim of this sensitive measure is to remove dead biomass accumulating in site and affecting habitat structure and shifting species composition in favor of strong competitors. However, this measure can be applied only when legal issues are solved (as currently controlled burning is prohibited, there is a need to develop an enabling legal basis as first step).



## ANNEX 2 – Guidelines for habitat types 7110 and 7120

Natura 2000 (Annex I habitat type): Active raised bogs; Degraded raised bogs still capable of natural regeneration/ Активні верхові (оліготрофні) болота; Деградовані верхові (оліготрофні) болота, ще здатні до природного відновлення.

Res. 4 of Bern Convention: X04 Raised bog complexes / Комплекси верхових боліт.

Nomenclature used in Ukraine (НКБУ): Б4.1 Олігомезотрофні сфагнові болота.

### Ecology and distribution (according to НКБУ)

Oligotrophic high bogs and high-mountain peatlands, which are formed on watersheds and in relief depressions on acidic soils with stagnant moisture and low trophy. Polissya subprovince of the East European (Sarmatian) province, as well as the East Carpathian subprovince and the Alpine-Carpathian mountain province

### Threats

Draining wetlands for forestry or agriculture purposes, peat mining. Eutrophication caused by global nitrogen deposition, spontaneous drying out because of increasing temperatures and longer period of droughts causing higher evapotranspiration, thus decrease of groundwater level. Afforestation and development.

### Management and Protection Principles

- Active raised bogs as such is a primary treeless habitat evolving and persisting without any human intervention in a long-term perspective (post-glacial period). Therefore, well preserved raised bogs do not require any regular management action, just strict protection - no intervention that would change the habitat structure and its water regime.
- No change in water regime in wide enough buffer zone.
- If a period of drought leads to the expansion of woody plants or any other expansive or even invasive plant species, these should be removed and the area of open bog should be maintained or restored in a short-term period to its original size. For that purpose, it's good to have current aerial (georeferenced) images for later comparison.
- Since the groundwater level is crucial for favorable conservation status of the habitat, regular attention should be paid to this feature.
- In case of degraded (drained or mined) bogs, restoration of the groundwater level and possibly direction of water flow is a key for successful renaturation of the habitat. Considering the high variability of past human impact and local conditions, individual and site-specific restoration projects should be developed to restore the water level within the habitat and its buffer zone and to stop erosion processes at a particular site. The target mean water table needs to be near or above the surface of bog vegetation for most of the year. Seasonal fluctuations should not exceed 20 cm, and should only be 10-15 cm below the surface for very short periods of time (Anonymous 2018).
- At the same time, the causes of bog degradation should be identified, addressed and eliminated wherever possible and meaningful.

- There are many good examples of recent successful bog restoration projects (e.g. <https://life.npsumava.cz/en>).

### ANNEX 3 – Guidelines for habitat type 7230

#### Natura 2000 (Annex I habitat type): Alkaline fens/ Лужні низинні болота

Res. 4 of Bern Convention: D4.1 Rich fens, including eutrophic tall-herb fens and calcareous flushes and soaks / Багаті болота, включаючи евтрофні високотравні та карбонатні болота.

Nomenclature used in Ukraine (НКБУ): Б2.1.1 Осокові карбонатні болота без сфагнових мохів, Б2.1.2 Карбонатні болота зі сфагновими мохами

#### **Ecology and distribution (according to НКБУ):**

Mesoeutrophic and mesotrophic swamps in the floodplains of small rivers and relict valleys with peaty-gley soils with shallow groundwater, often with surface flooding, soil solution reaction from slightly alkaline to neutral (pH=5.5–7.5) and high calcium content. Polissya subprovince of the East European forest province, and the Alpine-Carpathian mountain province.

#### **Threats**

Draining wetlands. Eutrophication and overall change of the chemical composition caused by global nitrogen deposition, acid rains and using fertilizers in agriculture. Spread of alien species in communities, including those with high invasive potential, afforestation.

#### **Protection and Management Principles**

Alkaline fens are extremely sensitive to changes of water regime in wider surroundings as well as of the chemical composition of groundwater. Therefore, attention and external management of the hydrology is essential to maintain the habitat in a good condition. In case acid rain waters prove to be a threat, light superficial draining of the rain water might help to prevent the habitat degradation.

- Regular management is to be carried out by hand-mowing or with light machinery adapted to this sensitive habitat. The suitable period is late summer when the water table is usually lower than earlier in the year. Depending on a particular site conditions, management should be done yearly or once in two or three years. In case of regular management, the habitat should never be completely mowed, ¼ to ½ should be left and cut next year whilst the area mowed in a previous year can be set aside. Biomass should always be removed from the site within a few weeks. In some cases or parts with moss-dominated vegetation, just irregular manual removal of dead biomass in late autumn/winter/early spring could be sufficient enough to maintain the habitat in favourable status.
- Very extensive grazing can be also used as an alternative to mowing. Grazing intensity, its timing and frequency, as well as cattle breeds must be determined very carefully as the habitat is fragile and sensitive to trampling. On the other hand, certain light disturbance can create opportunities for some vulnerable species to spread.
- Recovery management usually consists of well-designed clearing of shrubs or trees with respect to the habitat. Such works should be done in winter on frozen soil surface not to destroy the fragile habitat structure. Restoration of water table by blocking the ditches and other site-specific recovery measures (frequent - twice a year - mowing or one-off mulching of dominant species such as *Phragmites communis* or *Molinia* spp., removal of

the top soil layer) must be proposed on the basis of detailed understanding of particular site conditions.

## ANNEX 4 – Guidelines for habitat type 92A0

Natura 2000 (Annex I habitat type): 92A0 *Salix alba* and *Populus alba* galleries / not listed in HKBY  
Res. 4 of Bern Convention: G1.11 Riverine *Salix* woodland / Прирічкові вербові ліси

Nomenclature used in Ukraine (HKBY): Д1.6.1 Заплавні вербові і тополеві ліси

### Ecology and distribution (according to HKBY):

The habitat is formed by tree species that are able to tolerate frequent and prolonged flooding. One of the main factors in their development is the significant annual sediment deposition that occurs as a result of spring floods. Biotopes are formed on heavy, nutrient-rich, deep loamy-marsh or sandy loamy sod-gley soils, mainly along the banks of large lowland rivers, in floodplains.

The habitat is distributed in southern Ukraine (Black Sea basin) e.g. along the Dnieper River.

### Threats

Change of the water regime (absence of more-or-less regular flooding, building new or reconstructing old dams without a thorough impact assessment), transformation to forest plantations of non-native species or (poplar) hybrids, intensive forestry practices, gravel or sand mining, spontaneous invasion of alien species.

### Protection and Management Principles

- Old-growth forests, esp. forests with diverse vertical structure, natural species composition and presence of deadwood and old trees – more than 80 years old or presence of trees with a diameter at breast height over 80 cm should remain untouched. In case of occurrence of invasive plant species in such forest stands, only these species may be the subject of management actions.
- Spontaneously emerged growths of natural species composition should be left in large enough areas without any interventions.
- Building of new forest roads should be avoided within the Natura 2000 site.
- Sand or gravel mining should be avoided on the territory of the Natura 2000 site.
- No non-native (incl. hybrids) tree species shall be planted in the Natura 2000 site, natural regeneration should be preferred.
- Sanitary cutting of native tree species should be avoided.
- In case of continuous complexes of managed forests larger than 50 ha, the oldest sections (if older than 80 years) making up 20 % at least should be excluded from any forestry activity (set-aside regime). These stands may “rotate” within the site over time not decreasing their total proportion below 20 %. Or: Proportion of forests older than 80 years should remain the same as at the time of Natura 2000 site delineation.

- Forests should be managed without clearcuts. At least 15 mature trees (the biggest ones, usually in small groups, representing all tree species occurring in particular stand – regeneration) per hectare shall be left to age, die and subsequently decompose.
- In case of large-scale disturbances (windthrow) occurring in a part determined for the active forest management, at least 40 m<sup>3</sup> of timber (trunks/trees) should be left per hectare to decay.
- Invasive alien species of trees and shrubs (where possible and effective also non-woody plants) should be a subject of active management measures aiming at their removal.
- Water regime (regular flooding, groundwater level) as a key factor to maintain the willow-poplar alluvial forests in a favourable conservation status should be taken into account when developing management plans or designing necessary conservation measures.
- If signs of traditional extensive management patterns persist (openings, pollarded trees), they can be restored (e.g. pollarding, forest grazing, coppicing).



## ANNEX 5 – Guidelines for habitat types 9110 and 9130

Natura 2000 (Annex I habitat type): 9110 *Luzulo-Fagetum* beech forests / Букові ліси *Luzulo-Fagetum*, 9130 *Asperulo-Fagetum* beech forests / Букові ліси *Asperulo-Fagetum*

Res. 4 of Bern Convention: G1.6 *Fagus* woodland / Букові ліси

Nomenclature used in Ukraine (НКБУ): Д1.1.3 Acidophilous beech forests / Ацидофільні букові ліси, Д1.1.2 Central European neutrophilous beech forests / Центральноевропейські нейтрофільні букові ліси /

### Ecology and distribution (according to НКБУ)

D.1.1.3 – Beech forests on poor acidic soils of various compositions. In the Carpathians, they occupy large areas, occurring at different altitudes, more often in the upper part of the forest belt. They are occasionally found on the plain.

D.1.1.2 – Beech forests on rich, slightly acidic and neutral soils (pH 5.8–6.8). The most extensive biotope of the Carpathians. Smaller areas are also found on the plain to the north, including Roztochchye and the Kremenets Mountains, to the east - to the Tovtrovy Range.

### Threats

Cutting in old-growth forests.

Clear-felling, creation of new forest stands with different composition other than beech forests after felling.

Fragmentation of forest habitats, lack of dead wood (both standing and laying).

### Protection and Management Principles

- Primary and old-growth forests<sup>7</sup> should be mapped and strictly protected, with a non-intervention regime.
- New forest road (any line or activity requiring change/removal of the soil surface) shall be avoided.
- In case of continuous complexes of managed beech forests larger than 1,000 ha, the oldest sections (if older than 150 years) making up at least 10 % should be excluded from any forest management activity (set-aside regime). These stands may “rotate” within the site over time not decreasing their total share below 10 % at any time. Or: Proportion of forests older than 150 years should remain the same or higher as at the time of site delineation and designation as Natura 2000 site.
- 30 % of the habitat within the respective site should be managed as selection cutting forests. Shelterwood method shall be applied on the rest of the habitat with at least two phases of harvest (usually three). After the final stage of logging, at least 15 mature trees

<sup>7</sup> [https://environment.ec.europa.eu/publications/guidelines-defining-mapping-monitoring-and-strictly-protecting-eu-primary-and-old-growth-forests\\_en](https://environment.ec.europa.eu/publications/guidelines-defining-mapping-monitoring-and-strictly-protecting-eu-primary-and-old-growth-forests_en)

(the biggest ones, usually in small groups, representing all tree species occurring in particular stand) per hectare will be left to age and subsequently decompose. Clearcut may be applied in exceptional cases (outside the habitat of red list species) and its size should not exceed 0,2 ha.

- In case of artificial reforestation, only tree species corresponding to the habitat and original stand species composition may be used.
- In case of large-scale disturbances (windthrow) occurring in a part determined for the active forest management, at least 40 m<sup>3</sup> of timber (trunks/trees) should be left per hectare to decay.
- Other forestry activities not described above shall be carried out in line with the national legislation (Forest Code).

## ANNEX 6 Lady's Slipper Orchid (*Cypripedium calceolus*)

### Ecology and distribution

The species is widely distributed through northern, central, eastern and south-east Europe, westwards to Norway and the south-west Alps and eastwards across Asia to Sakhalin Island on the Pacific coast. It has become rare and threatened over much of its range.

It grows scattered on calcareous soils mostly in various types of (bright) forests (broadleaved as well as Pine forests), also in forest edges and open shrubberies, in some cases can also be found in steppe grasslands and meadows.

### Threats

Change of traditional management patterns; afforestation, clearcuts and reforestation in forests representing the habitat of species, removing plants from their natural sites.

### Protection and Management Principles

- As *Cypripedium calceolus* habitat range can be quite wide (mesophilous and dry grasslands, shrubberies, forests) individual site-specific management approach should be always applied based on assessment of vitality of particular population and threats documented and/or expected in a specific site.
- Adequate amount of dispersed light seems to be of critical importance both for the plants vitality and habitat structure. In case of too much light, other plants, shrubs and trees usually start growing and overshadow *Cypripedium calceolus* plants, in case of closed canopy with too low lighting, plants become weaker, they stop flowering and gradually can die out. However, in some cases plants may survive under non-favourable conditions for quite a long time.
- It means, for forest populations, no clearcuts or other interventions rapidly changing the habitat conditions are acceptable.
- Any forestry actions within the *Cypripedium calceolus* habitat should be motivated by the current status of its population – sensitive and gradual removal of trees and shrubs during the winter time to maintain or improve the habitat conditions.
- For non-forest populations, it's recommended to carry out late summer cutting or grazing (after seed ripening) or just autumn or early-spring dead biomass removal and prevention of spontaneous formation of dense shrubberies or forests.

## ANNEX 7 Saker Falcon (*Falco cherrug*)

**Status:** Red Book of Ukraine: vulnerable; Red List IUCN: endangered (BirdLife, 2021); Appendix II of the Bern Convention; Appendix I of the Birds Directive;

### Ecology and distribution

The Saker Falcon is one of the most threatened birds of prey species of the Eurasian steppe zone. It occurs in the forest-steppe and steppe belt of Eurasia (from the Pannonian region through Ukraine, southern Russia and Turkey to Mongolia and Tibet). In the last forty years, there has been a drastic population decline in the core areas of occurrence in Asia and in the steppe areas of Eastern Europe, mainly due to the poaching of Saker Falcons for falconry purposes and changes in landscape management. It is estimated that there has been a decline in numbers by at least 50% throughout its entire range.

In Ukraine, it occurs in the steppe and forest-steppe zones. In winter, it can be observed in the Crimea. During the second half of the 20th century, the numbers in Ukraine decreased, in some years it was no more than 50 pairs. As of 2009, the number in the territory of Ukraine reached at least 250-300 pairs. The Saker Falcon appears near the nests in late February-early March. Nesting sites are permanent. Nests mainly on the supports of main power lines, in Crimea also on hard-to-reach rocks and clay and limestone cliffs. Nesting in trees is rarely observed. Occupies the nests of other birds, most often ravens, or makes a clutch on rock ledges. Eggs are laid in late March - early April. There are 2-5 eggs in a clutch. Incubation lasts about 30 days. There are 1-5 chicks in broods, which fledge in June. Autumn migration in October-November.

The most characteristic prey has been the ground squirrel (the distribution of the Saker Falcon almost exactly overlaps with the distribution of Asian and European ground squirrel species). Due to the depression of the rodent population, it has recently been feeding mainly on rooks, martins, pigeons and other birds, with other small rodents still being important complementary diet.

### Threats

- intensive and large-scale agricultural management, resulting in habitat loss and sharp reduction in the food base
- poisoning, shooting, and trapping for falconry (illegal capture of females and removal of chicks from nests)
- unsecured high-voltage poles, collisions with vertical obstacles
- lack of nesting opportunities
- disturbance during the nesting season (from February to the end of June)
- widespread use of biocides (mostly rodenticides)

### Protection and Management Principles

- Protection of regular nesting sites (for individuals nesting in trees – do not cut down nesting trees or vegetation in their immediate vicinity), creation of new nesting sites (including artificial bases or boxes on electric poles) and ensuring their maintenance

- Detailed monitoring focused on finding nests in order to possibly eliminate disturbing factors and poaching
- Prevention of disturbance (forestry work, mining, tourism, etc.) within a distance of two hundred meters from an occupied nest (from February to the end of June)
- Elimination of the risk of electrocution and collision with vertical obstacles – technical modifications of structural elements on power lines, reflective protective elements on power lines, underground lines
- Support of extensive farming in open areas (creation of fallows and other suitable areas for smaller mammal species, which are one of the components of the food for Saker Falcon, extensive pastures, etc.)
- Raising awareness and combating poaching, poisoning and illegal trade
- Prevention of the use of biocides, especially of rodenticides