

Conservation Objectives

Krustkalni Strict Nature Reserve

LV0100400



2024



Lead habitat group experts: Brigita Laime (coastal areas, heaths, and sandy areas), Lauma Vizule-Kahovska (freshwater habitats), Baiba Galniece, Kristīne Daudziņa (grasslands and scrublands), Anita Namatēva (mires and springs), Dainis Ozols (rock outcrops and caves), Sandra Ikaunieca (forests).

Lead species experts: Otars Opermanis (invertebrates), Linda Uzule (plants), Maksims Balalaikins (invertebrates-beetles, dragonflies, butterflies), Digna Pilāte, Mudīte Rudzīte (invertebrates-molluscs), Valdis Pilāts (mammals), Kaspars Abersons, Ēriks Aleksejevs, Andris Avotiņš, Jānis Bajinskis (fish), Andris Čeirāns (amphibians and reptiles).

Working group: Solvita Rūsiņa, Marta Ancāne, Vita Dernova, Didzis Elferts, Jānis Ozols, Vineta Vērpēja (development of quality algorithms for grassland habitats); Guntis Brūmelis, Didzis Tjarve (development of quality algorithms for forest habitats); Viktors Lipskis (data export, processing, and analysis); Liene Zilvere, Emīls Mortuļevs, Jānis Kotāns (cartography, data processing, and analysis); Jānis Ozols (data processing and analysis, habitat quality calculations); Agnese Priede (team lead).

Document compiled by: Anita Namatēva, Linda Uzule.

Cover photo by: Anita Namatēva. View from the observation tower to Lake Lielais Plencis, Krustkalni Nature Reserve.

The work was carried out within the project “Optimising the Governance and Management of the Natura 2000 Protected Areas Network in Latvia” (LIFE19IPE/LV/000010 LIFE-IP LatViaNature), co-financed by the European Union's LIFE programme and the Latvian State, from October 2021 to April 2024.

Introduction

The necessity of determining site-specific conservation objectives (SSCOs) at Natura 2000 site level derives from Article 4(4) of the Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (Habitats Directive).

Setting SSCO is mandatory for all European Union member states and must be set for all habitats listed in Annex I of the Habitats Directive and species of Annex II in each Natura 2000 site designated for conservation of habitats and non-bird species.

SSCOs are determined based on the guidelines by the European Commission (2012), which are detailed for the national use in Latvia in the national methodology (2019, 2022) and are available [here](#).

Standardized and unified approach is used to set SSCO. Objectives are displayed as **quantitative, measurable result that describes the desirable cover and condition of the habitat**. The objectives indicate specific needs to be achieved and specify to what extent they should be achieved in each Natura 2000 site to reach favourable conservation status – the core objective of both Habitats and Birds Directives.

Each objective includes two components:

(a) **the target cover that must be preserved or achieved**—the target cover almost always includes the current (to be preserved) cover and the potential cover of the habitat identified by evaluating the landscape potential (if any) using certain criteria (to be restored or re-created);

(b) **target condition**—habitat “needs” expressed in a standardized way for the particular site; the target condition derives from the current habitat condition (to be preserved or improved, or re-created), which, in turn, is affected by various impacts in the past and present, the effectiveness of conservation actions, etc. that mirror into the habitat condition assessment.

The **management activities to reach the specified targets** are described in detail in the Natura 2000 site management plans or in some cases stated in other legislative acts. Development and updating of the site management plans is a continuous process and should also include review and update of the SSCO, if applicable (e.g. by linking them to what has already been done to achieve the previously set objectives). However, updating the SSCO, if they are still rooted in the best available data, is not necessary—in many cases, the objectives will likely be relevant for a longer period.

Data The best available data on the cover of habitats and the standardized data forms for each habitat patch were acquired from the national biodiversity database “Ozols” (data from 2023) and used in determining SSCO. In setting SSCO, the most comprehensive habitat inventory in Latvia so far—the country-scale inventory carried out during the project “Preconditions for Better Biodiversity Preservation and Ecosystem Protection in Latvia” (Nature Census, 2017–2023) were used. In order to assess the current condition of the habitats and, on the basis of that, determine the target condition, within the scope of this work, special algorithms were developed. They are mostly based on selected statistically significant parameters, using statistical data analysis. If the development of an algorithm for a certain habitat type was not possible for some reason, an expert judgment based on the best available data and knowledge was applied. Full methodology and data sources available [here](#).

Conservation Objectives for:

Natura 2000 site code	LV0100400
Natura 2000 site name	Krustkalnu dabas rezervāts
Additional information about the site	https://www.daba.gov.lv/lv/krustkalnu-dabas-rezervats
<p>Qualifying Interests EU habitat types, including potential EU habitat types</p> <p>* indicates a priority habitat under the Habitats Directive</p>	<p>3140 <i>Hard oligo-mesotrophic waters with benthic vegetation of Chara spp.</i></p> <p>3150 <i>Natural Eutrophic Lakes with Magnopotamion or Hydrocharition - Type Vegetation</i></p> <p>3160 <i>Natural Dystrophic Lakes and Pools</i></p> <p>6210 <i>Semi-natural dry grasslands and scrubland facies on calcareous substrates</i></p> <p>6230* <i>Species-rich Nardus grasslands, on silicious substrates in mountain areas</i></p> <p>6270* <i>Fennoscandian lowland species-rich dry to mesic grasslands</i></p> <p>6410 <i>Molinia meadows on calcareous, peaty or clayey-silt-laden soils</i></p> <p>6450 <i>Northern boreal alluvial meadows</i></p> <p>6510 <i>Lowland hay meadows</i></p> <p>7110* <i>Active raised bogs</i></p> <p>7140 <i>Transition mires and quaking bogs</i></p> <p>7160 <i>Fennoscandian mineral-rich springs and springfens</i></p> <p>7220* <i>Petrifying springs with tufa formations (Cratoneurion)</i></p> <p>7230 <i>Alkaline fens</i></p> <p>9010* <i>Western Taiga</i></p> <p>9020* <i>Fennoscandian hemiboreal natural old broad-leaved deciduous forests (Quercus, Tilia, Acer, Fraxinus or Ulmus) rich in epiphytes</i></p> <p>9050 <i>Fennoscandian herb-rich forests with Picea abies</i></p> <p>9080* <i>Fennoscandian deciduous swamp woods</i></p> <p>9180* <i>Tilio-Acerion forests of slopes, screes and ravines</i></p> <p>91D0* <i>Bog woodland</i></p>
<p>Qualifying Interests EU species types</p>	<p>Plants:</p> <p><i>Agrimonia pilosa</i> (1939)</p> <p><i>Hamatocaulis vernicosus</i> (6216)</p> <p><i>Ligularia sibirica</i> (1758)</p> <p><i>Liparis loeselii</i> (1903)</p> <p><i>Pulsatilla patens</i> (1477)</p> <p><i>Saxifraga hirculus</i> (1528)</p> <p><i>Thesium ebracteatum</i> (1437)</p> <p>Invertebrates:</p> <p><i>Dytiscus latissimus</i> (1081)</p> <p><i>Graphoderus bilineatus</i> (1082)</p> <p><i>Leucorrhinia pectoralis</i> (1042)</p> <p><i>Lycaena dispar</i> (1060)</p> <p><i>Ophiogomphus cecilia</i> (1037)</p>

	<p>Mammals: <i>Lutra lutra</i> (1355)</p> <p>Fish: <i>Cobitis taenia</i> (1149)</p>
Experts involved in setting of the SSCOs:	<p>Lauma Vizule-Kahovska (freshwater habitats) Kristīne Daudziņa, Baiba Galniece (grasslands and scrublands) Anita Namatēva (mires and springs) Sandra Ikauniece (forests) Linda Uzule (plants) Maksims Balalaikins (invertebrates-beetles, dragonflies, butterflies), Digna Pilāte (invertebrates-snails) Valdis Pilāts (mammals) Kaspars Abersons (fish)</p>
Work completion date	25.01.2024.

EU habitat types, including potential EU habitat types	Site specific conservation objective	Comments on the target values
Freshwater habitats 3140 <i>Hard oligo-mesotrophic waters with benthic vegetation of Chara spp.</i>	3140: the target habitat area is 2,5 ha	The target area is equal to the current area.
3150 <i>Natural Eutrophic Lakes with Magnopotamion or Hydrocharition - Type Vegetation</i>	3150: the target habitat area is 53,3 ha	The target area is equal to the current area.
3160 <i>Natural Dystrophic Lakes and Pools</i>	3160: the target habitat area is 0,1 ha	The target area is equal to the current area.
Grasslands and shrublands 6210 <i>Semi-natural dry grasslands and scrubland facies on calcareous substrates</i>	6210: the target habitat area is 3,7 ha	The target area is equal to the current area.
6230* <i>Species-rich Nardus grasslands, on silicious substrates in mountain areas</i>	6230*: the target habitat area is 1,0 ha	The target area is equal to the current area.
6270* <i>Fennoscandian lowland species-rich dry to mesic grasslands</i>	6270*: the target habitat area is 71,5 ha	The target area is larger than the current area. The target area also includes the grassland areas restored in the project "Performance of management measures in specially protected natural areas and micro-reserves to improve the state of protection of habitats and species" (2021-2023).
6410 <i>Molinia meadows on calcareous, peaty or clayey-silt-laden soils</i>	6410: the target habitat area is 2,4 ha	The target area is equal to the current area.
6450 <i>Northern boreal alluvial meadows</i>	6450: the target habitat area is 5,8 ha	The target area is larger than the current area. The target area also includes the grassland areas restored in the project "Performance of management measures in specially protected natural

		areas and micro-reserves to improve the state of protection of habitats and species" (2021-2023).
6510 <i>Lowland hay meadows</i>	6510: the target habitat area is 5,7 ha	The target area is equal to the current area.
Mires and Springs 7110* <i>Active raised bogs</i>	7110*: the target habitat area is 2,9 ha	The target area is equal to the current area.
7140 <i>Transition mires and quaking bogs</i>	7140: the target habitat area is 5,72 ha	The target area is equal to the current area.
7160 <i>Fennoscandian mineral-rich springs and springfens</i>	7260: the target habitat area is 19,0 ha	The target area is equal to the current area.
7220* <i>Petrifying springs with tufa formations (Cratoneurion)</i>	7220*: the target habitat area is 3,2 ha	The target area is equal to the current area.
7230 <i>Alkaline fens</i>	7230: the target habitat area is 0,8 ha	The target area is equal to the current area.
Forests 9010* <i>Western Taiga</i>	9010*: the target habitat area is 1014,7 ha	The target area is larger than the current area.
9020* <i>Fennoscandian hemiboreal natural old broad-leaved deciduous forests (Quercus, Tilia, Acer, Fraxinus or Ulmus) rich in epiphytes</i>	9020: the target habitat area is 1,8 ha	The target area is equal to the current area.
9050 <i>Fennoscandian herb-rich forests with Picea abies</i>	9050: the target habitat area is 292,6 ha	The target area is equal to the current area.
9080* <i>Fennoscandian deciduous swamp woods</i>	9080*: the target habitat area is 6,6 ha	The target area is equal to the current area.
9180* <i>Tilio-Acerion forests of slopes, screes and ravines</i>	9180*: the target habitat area is 4,2 ha	The target area is equal to the current area.
91D0* <i>Bog woodland</i>	91D0*: the target habitat area is 53,4 ha	The target area is equal to the current area.

EU species types	Site specific conservation objective	Comments on the target values
<i>Plants:</i> <i>Agrimonia pilosa (1939)</i>	<i>Agrimonia pilosa</i> : the target species population is 92 individuals.	The target population is larger than the current population. It is necessary to carry out a detailed monitoring of the

		species in order to specify the population of the <i>Agrimonia pilosa</i> found in the territory of the Krustkalni nature reserve, because until now no monitoring of the <i>Agrimonia pilosa</i> has been carried out for this Natura 2000 area. There is a high probability that the species occurs more often in the territory, because the <i>Agrimonia pilosa</i> is a common species in the Eastern part of Latvia
<i>Hamatocaulis vernicosus</i> (6216)	Hamatocaulis vernicosus: the target species area is 30 m ² .	The target population is equal to the current population. The habitat of the species is in good condition. Management measures are not necessary for the time being.
<i>Ligularia sibirica</i> (1758)	Ligularia sibirica: the target species population is 417 individuals.	The target population is equal to the current population. Regular habitat management should be carried out - <i>Phragmites australis</i> should be restricted expansion, the invasive <i>Impatiens glandulifera</i> must be destroyed and some trees and bushes must be cut down (all are repeatable, regularly performed management works).
<i>Liparis loeselii</i> (1903)	Liparis loeselii: the target species population is 84 individuals.	The target population is equal to the current population. It is necessary to control the activity of beavers in Svēte lake and river Svētupe by demolishing beaver dams in the area of the Svētupe outlet.
<i>Pulsatilla patens</i> (1477)	Pulsatilla patens: the target species population is 149 individuals.	The target population is equal to the current population.

		Management is required - to prevent the creation of dense, shading undergrowth, as well as to limit the thick moss layer and the dominance of <i>Convallaria majalis</i> , as well as to eradicate the invasive species - <i>Amelanchier spicata</i>
<i>Saxifraga hirculus</i> (1528)	<i>Saxifraga hirculus</i> : the target species area is 18 individuals.	The target population is larger than the current population. The quality of the habitat of the species can be reduced not only by the activity of beavers in the nearby river Nirīte, but also overgrowth with <i>Salix sp.</i> and <i>Picea abies</i> , so it is necessary to evaluate the tree and the shrub the necessity of felling in the habitat, as well as limiting the activity of beavers
<i>Thesium ebracteatum</i> (1437)	<i>Thesium ebracteatum</i> : the target species population is 12613 individuals.	The target population is equal to the current population. It is necessary to continue grassland management by mowing it once a year and removing the mowed grass
<i>Invertebrates:</i> <i>Dytiscus latissimus</i> (1081)	<i>Dytiscus latissimus</i> : the target species population is 1199 individuals.	The target population is larger than the current population
<i>Graphoderus bilineatus</i> (1082)	<i>Graphoderus bilineatus</i> : the target species population is 85 individuals.	The target population is equal to the current population. There is a need to develop a specific methodology for the inventory of the species.
<i>Leucorrhinia pectoralis</i> (1042)	<i>Leucorrhinia pectoralis</i> : the target species population is 5034 individuals.	The target population is equal to the current population
<i>Lycaena dispar</i> (1060)	<i>Lycaena dispar</i> : the target species population is 169 individuals.	The target population is equal to the current population. No additional measures need to be taken, except for the

		maintenance of the existing habitats of the species at least in the condition they are currently in.
<i>Ophiogomphus cecilia</i> (1037)	Ophiogomphus Cecilia: the target species population is 28 individuals.	The target population is larger than the current population
<i>Mammals:</i> <i>Lutra lutra</i> (1355)	Lutra lutra: the target species population is 15 individuals.	The target population is larger than the current population
<i>Fish:</i> <i>Cobitis taenia</i> (1149)	Cobitis taenia: the target species area is 47 ha	A new locality for the species