Project title:

Reduction of eutrophication in grey dune habitats

Main objective:

Conservation and/or restoration of biodiversity and ecosystem services, environmental education and local capacity building.

Project Description:

Coastal areas around the world have significant environmental, economic, social, cultural and recreational importance. The future of coastal areas is endangered due to increasing pressure on ecosystems and the climate change impacts posing threats to coastal development (Coastal Principal Guidelines, 2011). The Baltic Sea coast of Latvia is an area of outstanding biological diversity, including habitats of Community importance – embryonic, white, grey and wooded dunes, western taiga and coastal meadows.

The number of visitors in the sea coast is steadily growing, and natural habitats suffer mainly from the activities of visitors and inappropriate management. To preserve endangered coastal habitats of Community importance, while promoting the development of local economy, efforts must be made to maintain and restore endangered habitats, manage human activities, and to educate the public and especially local coastal schools.

The aim of the project:

The aim of the project is promoting the environmental conditions, structure and characteristic species composition of the specially protected habitat "Fixed coastal dunes with herbaceous vegetation ('grey dunes') " in places where the habitat still exists, but is in a poor state of protection (overgrown with weeds and bushes). Grey dunes including potential habitats of plant species – Sand pink *Dianthus arenarius* and Spreading pasqueflower *Pulsatilla patens* listed in the Habitats Directive.

The restoration of grey dunes is one of the main priorities for the protection of coastal species and habitats. As a part of many coastal dune systems these habitats are especially complex and low resilience and need special attention from the conservation and management perspectives (Anderson A. 2018).

The main project activity:

The main project activity will be organized with **small pine cutting in grey dunes** which will raising of public awareness regarding the need for protection of especially protected habitats. The project area includes two Natura-2000 site network territories in Baltic Sea coast of Latvia (in Kurzeme) – nature parks “Ragakāpa” (SiteCode: LV0303300) and “Engures ezers” (SiteCode: LV0302800) (Figure 1).

Figure 1: The main project area Natura 2000 site network territories in Baltic Sea coast of Latvia (in Kurzeme)

Project activities are focused on biotechnological measure a set aimed at restoring environmental conditions, vegetation structure (species composition, etc.) and the location of the species where the habitat once existed or still exists but at the moment has in poor conservation status. Nutrients will be directly removed after pine cutting, with the aim of reducing eutrophication in grey dune habitats. The coastal landscape, which has become an open and sunny habitat from an overgrown forest, will be directly changed, because litter increases soil fertility, which promotes introduction of expansive herbaceous species and trees. After pine cutting the introduction of coastal plant species is expected within a few years.


Figure 2: If the grey dune, which is considered one of the most valuable habitats, is not cultivated, it gradually overgrows and plants typical of this area, such as grey lichen, cannot grow there anymore. Photo I. Bodnieks.

The grey dune habitats here have not been cared for, in recent decades the frequency of natural disturbances – strong storms (which limited the accumulation of nutrients in the dunes) has decreased, so the grey dune is overgrown with trees and bushes.

In many places along the sea coast, a forest with poor ground cover and lower biodiversity is beginning to form in the areas of grey dune habitats.

The maintenance works of the grey dunes will be carried out according to the opinion and work plan prepared by the specialist.

Expected results:

As a result of the maintenance works, the amount of light will increase, the quality of the habitat will improve, biological diversity will increase, scenic natural areas will be created for residents to relax, as well as the open areas of the dunes will increase

As a result of this project, open – grey dune habitat restoration measures will be carried out in an area of 30 ha.

Figure 3. Local municipalities, the Nature Protection Agency (land owner), Joint Stock Company "Latvia's State Forests" (land owner) and local schools will be involved in small pine cutting activities in grey dunes. Photo: I.Bodnieks.

Research over more than 20 years shows that the grey dunes are becoming increasingly overgrown with trees and the areas of open grey dunes are decreasing. Data collected before and after management in grey dunes were compared to assess vegetation changes over a seven-year period. The results show that the cover of herbaceous species characteristic of grey dunes and bare sand patches has increased, but cover of wooded dune species and litter has decreased, which indicates an improvement in the quality of grey dunes (Barone I. 2021).

In open areas with a sufficient amount of light, various dune plants grow that are characteristic only of sand dunes, some of them are protected not only in Latvia, but throughout Europe (Figure 4). The excellent grey dunes biotope is characterized by open areas with few or no trees and shrubs, the ground is covered with lichens, mosses and low herbaceous plants. As a result, it is the main home for many light-demanding species, including mountain alison *Alyssum gmelinii*, long-lipped wasp *Bembix rostrata*, tawny pipit *Anthus campestris*. Most grey dunes have been

created and have existed for a long time under the influence of human activity. In the past, fishing nets were dried, boats were moored and cattle were grazed in these dunes. Today they serve mainly as recreational areas.

Figure 4. Distribution of the habitat type 2130 in Europe. Habitat marked in blue colour. Based on Natura 2000 Network Viewer. http://natura2000.eea.europa.eu/

OVERALL DATA

Region:

Baltic Green Belt – The Coastal Belt

Tukums and Talsi counties, Jūrmala city, Latvia

Project ID nr.

BC_06

Duration

24 months (01/10/2022 - 30/09/2024)

Grant Amount

39 590 EUR

Geographic scope

The sites this project is covering correspond to the European Green Belt areas, since those 2 project sites are located in Latvia, in the Riga Gulf of the Baltic Sea and in the geographic scope of the Baltic Green Belt.

PROJECT IMPLEMENTERS

Organisation legal name: Latvian Green Movement

Adress: Kr. Valdemāra iela 17a, Talsi, LV-3201

E-mail: zalie@zalie.lv

website: www.zalie.lv

Project leader contact details

Name/Surname: Ilmārs Bodnieks

Job title: Project manager

Email: ilmars.bodnieks@gmail.com

Phone: +371 26786191