Light & Fire LIFE

Support and sun for our valuable sunlit environments

Layman´s Report

Project activities and results 2014–2020

METSÄHALLITUS

Paahde-LIFE
Light & Fire LIFE

NATURA 2000

Light & Fire LIFE (LIFE13NAT/FI/000099) was a LIFE Nature project funded by the European Union in 2014–2020.

The project was coordinated by Metsähallitus, Parks & Wildlife Finland. The partners were the Centre for Economic Development, Transport and the Environment in North Savo, UPM, Häme University of Applied Sciences, Finnish Forest Centre, WWF Finland and Metsähallitus Forestry Ltd.

The project budget was 4.06 million euros, with EU funding accounting for 2.03 million euros of this sum. The Ministry of the Environment provided partial funding. LIFE is the European Union's financial instrument supporting environmental and nature conservation projects and thus supports implementation of the EU's environmental policy.

www.metsa.fi/en/project/light-fire-life

Cover image: Forest restoration by controlled burnings. Photo: Tuomas Haapalehto.

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> *Overgrown vegetation was burned off on the heaths of the Archipelago National Park at a volunteer camp. Photo: Liisa Huima.*

Support and sun for our valuable sunlit environments

The Light & Fire LIFE project focused on managing nature sites that require sunlight or fire. For many rare and endangered species, these are their only habitat. To preserve biodiversity, sunlit environments must not be allowed to overgrow, and fire must return to our forests.

We managed sunlit environments on eskers, seashore meadows, dunes and heaths. Our methods included controlled burning, clearing of trees and shrubs, removal of alien species and transplantation of endangered species.

The targets were 69 Natura 2000 sites in different parts of Finland and owned by the state or by private companies and other landowners.

The contribution of volunteers is important in the management activities that must be carried out by hand. Environmental education was also a part of the project's objectives. We organised volunteer camps in the archipelago and on the coast, and we equipped a nature trail in Häme with new kinds of information boards that allow you to find more information on mobile devices.

> *Controlled burning of a forest restores the environment closer to its natural state and helps species that need a sunlit environment. Photo: Ville Väkeväinen.*

Forests need fire, sunlit environments need open areas

The flora and fauna in sunlit environments have adapted to dryness, high levels of radiation from the sun, sharp fluctuations in temperature, and few nutrients.

Previously, these environments were primarily created as a result of forest fires. Forest fires create dead and charred wood that many insect species need. Nowadays forest fires are prevented efficiently, and sunlit environments are not created naturally.

During the project, forest was burned but in a controlled and intentional manner. We aimed to mimic natural forest fires. Restoration burning of over 500 hectares was carried out on 37 Natura 2000 areas around Finland. The objective was to restore forests that had been used in forestry before conservation, create decayed wood and diversify the structure of the forest. Burning creates habitats for insects and fungi species that depend on fires and decaying wood. Some species have become endangered with the prevention and decrease of forest fires, and as a result of efficient forestry.

Restoration burning aims to create mosaic structure in the forest: the majority of trees continue to grow and only a few of them die. After burning, the forest is left to grow on its own, and seedlings spring up to replace dead trees.

Forests can only be burned when the terrain is dry enough. The burning is thoroughly planned, and the fire departments are informed about it.

Volunteer camps and mowing on the sandy beaches of the Baltic Sea

Fire is also needed to remove excessive coastal vegetation. The unique and diverse nature and species of sandy beaches on the Baltic Sea are threatened by overgrowth caused by the eutrophication of the sea and nitrogen deposition in many areas. Bushes such as junipers can cover the entire beach and they need to be removed.

During the project, nine volunteer camps arranged by Parks & Wildlife Finland and WWF Finland helped clear the beaches. The volunteers cleared and burned trees and bushes on the shoreline and dunes, and removed rugosa rose (*Rosa rugosa*), which is an invasive alien species.

In many places, bare sand is also covered by common reed or other tall vegetation. Algae masses accumulated on beaches were removed and reeds were cut down with machines on several consecutive years.

> ***The restoration of the shoreline of Storsand was carried out in cooperation between Parks & Wildlife Finland and the village landowners. The open sandy area had gradually overgrown and species requiring sunlit environments needed help. Image pair before-after: Lena Wargén.***

> *Eastern pasque flowers were grown in a nursery garden and planted in suitable areas. Photo: Teijo Heinänen.*

Rare pasque flower thrives again

Eastern pasque flower (*Pulsatilla patens*) is a highly endangered species protected under the Nature Conservation Act. It is one of the species listed in Annexes II and IV of the EU Habitats Directive.

In Finland, Eastern pasque flower only grows in small areas in esker forests that get a lot of sunlight. Pasque flowers only blossom for the first time at the age of several years. To blossom, this species needs plenty of light. The endangered status is strengthened by overgrown habitats and the illegal collection of the spectacular flowers.

The Light & Fire LIFE project managed the growth sites of the Eastern pasque flowers in seven nature conservation areas. The aim was to increase the light in the area and grow their habitat in size, and we achieved excellent results. Management methods included the removal of trees, bushes and dry peat as well as breaking the ground surface. We also carried out transplantations in each area which seem to be thriving.

The beautiful Tulliniemi beach cleared

The natural assets of the project's seashore sites are related to natural beaches, dunes with few trees, sunlit features and bare sandy soil or meadows.

Tulliniemenranta beach in Hanko, the southernmost cape of Finland, is a valuable natural and recreational attraction but it has been threatened by overgrowth. The beach has a rich variety of flora and fauna, and a total of 26 endangered and 19 near threatened species have been found there.

The dune areas should be open and almost treeless. Old maps from the mid-19th century and photographs taken at the beginning of the 20th century show that, at least since then, the Tullinimenranta beach has been treeless or almost treeless.

During the Light & Fire LIFE project, we removed trees and shrubs and built a plank trail that facilitates access to the popular beach and protects its delicate nature. We also planted wild thyme collected from the neighbouring area and grown at the nursery.

> ***The sunlit environment on the beach now enjoys more sunlight after some trees were removed. Picture pair: Esko Tainio***

Light & Fire LIFE project results

Species surveys on 20 Natura 2000 sites.

Management of sunlit environments on 34 Natura 2000 sites, a total of ca. 380 hectares.

Management of sandy beaches on five Natura 2000 sites, 19 ha.

Forest restoration burning on 37 Natura 2000 sites, 500 ha.

Transplantation of the Eastern pasque flower and management of its habitats on seven sites.

Transplantation of wild thyme on three Natura 2000 sites.

31 restoration plans for an area of about 400 hectares in total, and 11 fire continuum plans. A broader management and use plan was prepared for two Natura 2000 sites.

A total of 20.5 hectares was purchased in North Savo for a new esker protection area.

180 volunteers participated in WWF volunteers' camps and dozens of others took part in other volunteer activities.

Training sessions for forest and nature professionals.

Nature trail dedicated to the restoration to the Komio Nature Reserve, a plank trail to the Tulliniemenranta beach and a visitor survey of nature management work on the Örö Island.

Videos on esker management and the Light & Fire LIFE project.

Presentation of project activities and materials:
www.metsa.fi/en/project/light-fire-life

> ***Wild thyme (Thymus serpyllum) is important for many insect species as food or a growing environment. Photo: Teemu Rintala.***