

LIFE to alvars: Large-scale alvar grassland restoration in practice

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Alvar grasslands (6280* Nordic alvar and precambrian calcareous flatrocks)

- characterized by openness (maintained by grazing)
- limestone bedrock
- very thin soil layer (0-30 cm)
- plant and invertebrate
 communities are rich in species
- very limited distribution
- almost 90% of the areasin Europe
- within the European Union, the habitat is only found in Sweden, Estonia and minor areas in Finland





^{*}The European Commission (DG ENV B2) commissioned the Management of Natura 2000 habitats. 6280 *Nordic alvar and precambrian calcareous flatrocks

Loss of the alvar habitat

Estonia has experienced a major **loss** of alvar grassland (85%) in the past 40 years due to:

- abandonment
- forestation
- inadequate grazing regime
- Building houses, roads etc

Main threat to the alvar grasslands is overgrowing with junipers and pine trees after grazing has ceased.





LIFE to alvars project

- Preparation for LIFE to alvars project started in 2011 with study visits to Sweden large scale alvar restoration project carried out there 1996-1999 with machinery use
- Transfer this knowledge to Estonia and adjust it to local conditions.
- LIFE to alvars (LIFE13NAT/EE/0000082) was initiated
- Duration 2014-2019
- Budget 3,7 million euros (75% financing rate)

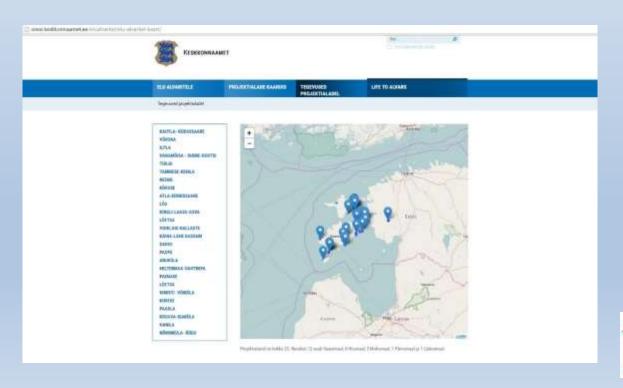






LIFE to alvars project

- LIFE to alvars project targeted the key areas of alvar habitat in Western Estonia
- restored 2500 hectares of alvars with more than 300 landowners
- re-established **grazing** in the restored areas, **62** farmers
- increased awareness









LIFE to alvars project

- Restoration process of the overgrown alvar starts with the tree and shrub removal
- Abandoned alvar grasslands are up to 80...100% covered with junipers and pine trees
- 10...30% of the trees and shrubs remain after the restoration process.







Large scale restoration challenges

- Timeframe
- Traditionally restored manually
- Little previous experience in using machinery at restoration work
- Little previous experience in large scale restoration
 outcomes



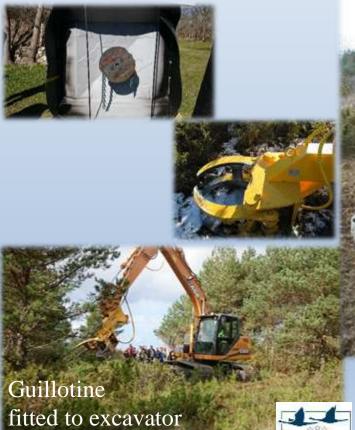


Large scale restoration in action

 4 different types of forestry and communal machinery proved to be successful restoration tools













Large scale restoration results

 Restoration work finished in spring 2019 – 2500 hectares of alvar grassland is restored

Restoration is well visible from the orthographic photos.



Lighter areas on the map is restored alvarabout 90 hectares







Large scale restoration results

- Restoration carried out using machinery is faster
- 1 hectare manual restoration time consumption 300 hours
- 1 hectare restoration using **machinery** time consumption **60** hours
- Cost effective- manual restoration has 40% higher cost
- Better quality no sharp juniper stumps with machinery





Replicability and transferability

- EB decided not to purchase the restoration machinery but to **outsource the work from the local companies** who own the suitable communal and forestry machinery to carry out the work.
- This has led to the development of completely new grassland restoration mentality in local conditions.
- Same machinery and methodology is now used on different habitats and financed by national funding and other EU projects.









Large scale restoration – keeping the result

- GRAZING must follow the restoration immediately!
- Otherwise the restored area is overgrown with leafy shrubs in few years.
- Part of the LIFE to alvars project is to build grazing infrastructure in all the restored areas.



Dissemination

- More than 100 articles in newspapers and magazines
- 4 annual meetings (20)
- 6 educational trips
- 6 farmer training events
- 60 farmers
- 2 exhibitions
- 1 app for the kids
- 51 information boards
- 14 000 booklets in 4 languages
- best practice guidelines
- webpage and FB page



















Thank you!

More information on website: http://life.envir.ee/elualvaritel or in Facebook LIFEtoalvars