

Restoration of biodiversity on degraded cross country skiing tracks on Pokljuka, *Slovenia*

*Webinar Series - Session 2-
Natural protected areas and environmental governance*

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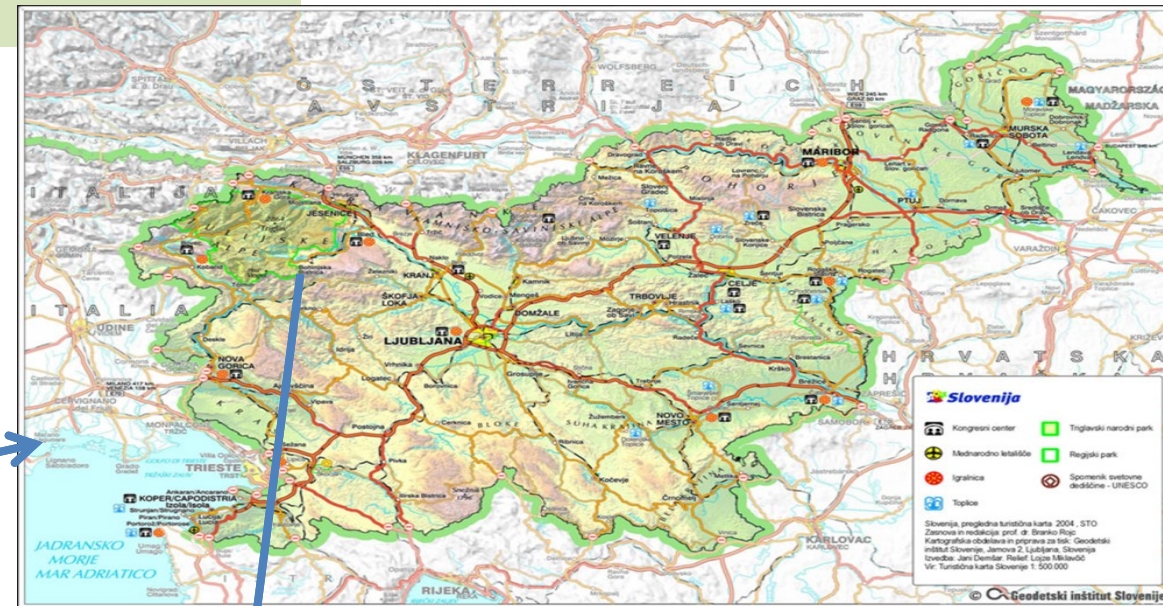


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A few words about Slovenia



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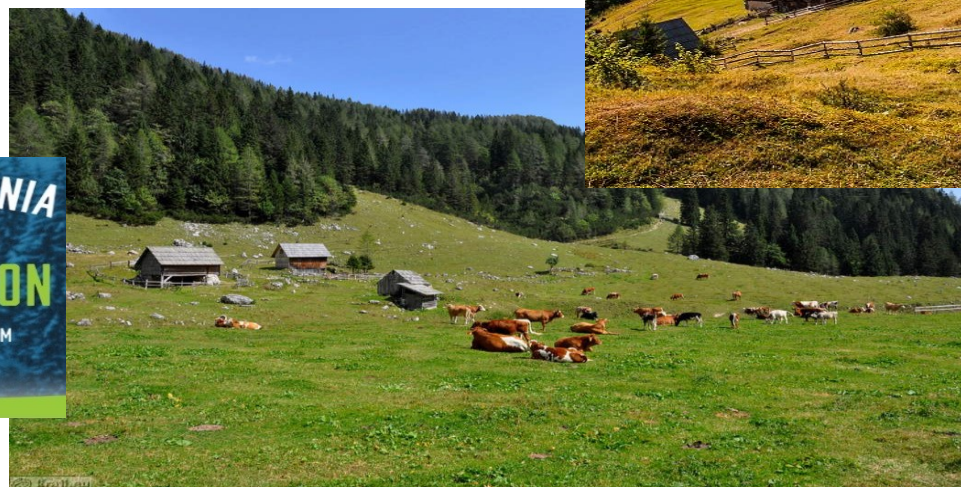
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POKLJUKA



- longitude (from Greenwich): E 13°55'21"
- latitude: 46°20'40CN
- altitude 1344 m a.s.l.
- yearly rainfall: 1300 mm
- soil depth: max. 10 cm.
- geology: limestone



(source: www.kraji.eu)

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Problems in Pokljuka area

- the skiing tracks in Pokljuka → area under protection (Triglav national park)
- large forestry work in past few years → running tracks were damaged
- adaptation of running ski tracks according to FIS and IBU rules is necessary



(source: Gorenjski glas).



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Problems in Pokljuka area

- tourism is more profitable than agriculture → abandonment of use
- if mountain pastures are abandoned → spontaneous reforestation/overgrowth → landscape becomes less attractive for tourists during summer season



Example of overgrowth of mountain pastures in 38 years in other part of National park (source: Thesis by B.Rozman, 2014).



Restoration of degraded cross country skiing tracks is necessary and encouraging agricultural use to preserve the cultural landscape is essential.

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Aim of the project

- Restoration of biodiversity using native seeds, on degraded cross country skiing tracks on Pokljuka (1,14 ha).
- Introduction of local farmers in production of seed preservation mixtures for use on local mountain meadows, abandoned areas or local degraded areas after earthworks.
- Agricultural institute of Slovenia in collaboration with:
 - 4 local farms,
 - Sport centre Pokljuka and
 - Triglav National Park



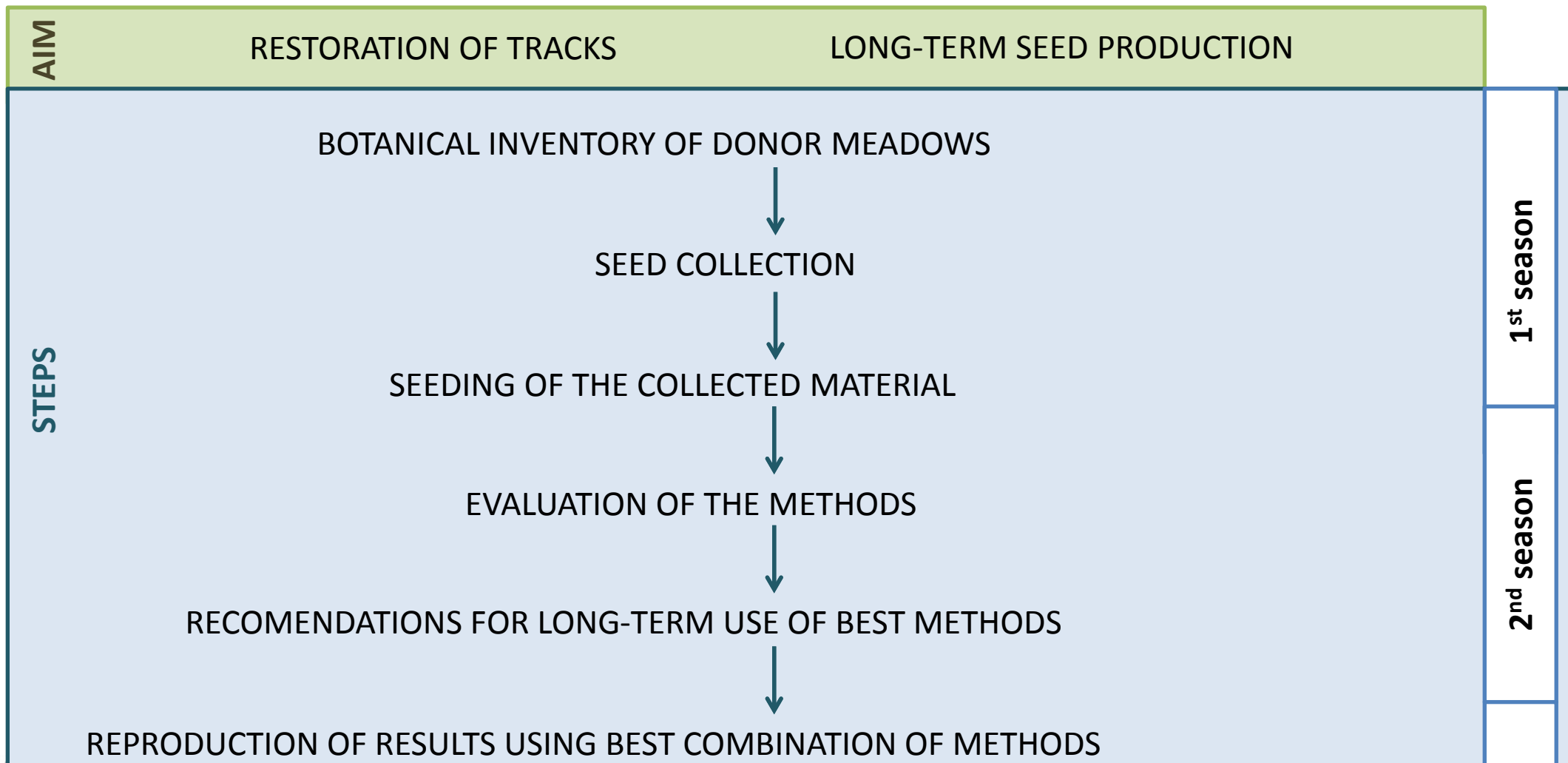
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Concept of the project



Methods used for harvesting seeds on farm mountain meadows

- hand collection for direct use and for propagation on small nursery fields
- combine harvesting
- brush harvesting



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Tested restoration methods

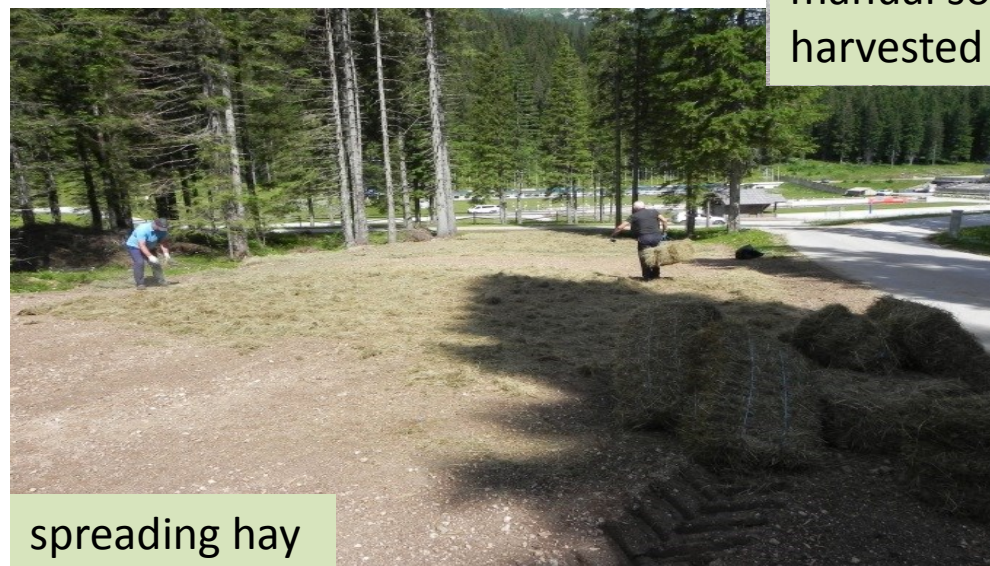
- manual sowing of directly harvested seeds with combine
- spreading green material
- spreading hay
- spreading raked material
- combination of wooden clippings and manual sowing of harvested seeds with combine
- combination of spreading hay and harvested seeds
- natural succession (control)



manual sowing of directly harvested seed with combine



spreading green material



spreading hay

Management after restoration



Cattle grazing at the shooting range in august 2020



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First visible results of restoration



spread green material



manual sowing on soil with wooden clippings



manual sowing on bare soil



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Problems always occur during the project....



soil and green material erosion
after heavy rain



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Problems always occur during the project....



additional forest work after experiment setup were necessary...



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Problems always occur during the project....



thick snow cover
(over 2 m)



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Weaknesses identified in regard to local seed production

- fragmentation of the ownership of the land
- lack or limited knowledge about seed production
- inaccessibility of meadows for combine (due to narrow roads, rockiness or too steep meadows)
- limited infrastructure on farms for work with seed material
- high average age of owners (> 50 years)
- limited financial resources of farms for investing in harvest, processing and storage capacity for seeds
- small demand/limited market for native seeds in Slovenia



Expected long-term results

- obtain a sufficient vegetation cover (more than 70%) which will guarantee a long-term stabilisation of the soil and reduce erosion and surface runoff to an acceptable degree on tracks under experiment
- to establish (and in future expand) the network of native seed producers/farms for the restoration of degraded grass areas of the Pokljuka Sports Center and other degraded areas in our national park.
- dissemination of obtained knowledge and increase social awareness on restoration actions in scientific, professional and local communities
- encourage restoration in other similar areas in Slovenia through uptake of public-private partnerships and (voluntary) market-based incentives.



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Thank you for your attention.
Hvala za pozornost.

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