

REPUBLIKA SLOVENIJA
MINISTRSTVO ZA OKOLJE IN PROSTOR

Interreg
Alpine Space
 Links4Soils
European Regional Development Fund

11. Dan Alpske konvencije in Svetovni dan tal
4. – 5. december 2020
Slovenski planinski muzej Mojstrana

Ohranimo živa tla, ohranimo biotsko pestrost tal

Platforma za tla Alp in uporaba spletnega orodja *Ocena za tla*



Jurka Lesjak
Kmetijski inštitut Slovenije

Na kratko o spletni Platformi projekta Links4Soils
Angleška različica

Spletno mesto:

- kjer lahko najdemo veliko splošnih informacij o tleh,
- informacije o rezultatih projekta,
- je možno povprašati za nasvet,
- se lahko včlanimo v Alpsko partnerstvo

The Alpine Soils Platform

The soil web platform serves as an information hub for users that seek information about the soils in the Alpine space. The platform shares knowledge about soils and the Links4Soils project results, such as applicable soil thematic maps, case studies reports, consultancy service with FAO, sectoral best-case practices for management and protection of Alpine soils etc., which will be gradually added to the Platform.

The Links4Soils project encourages stakeholders from different sectors like forestry, agriculture, nature conservation, natural disaster protection and spatial planning, to benefit from transborder knowledge on Alpine soils, in order to integrate it into local and regional management and planning.

Our aim is also to promote the Alpine Soil Partnership, as we strongly believe that only together we can manage soils better and set foundations for sustainable development in all sectors.

We would like to encourage you to send us information about soil management-best practice in your region, to share the knowledge and to set an example for soil conservation and soil protection in the Alps!

11. Dan Alpske konvencije in Svetovni dan tal 4. – 5. december 2020, Slovenski planinski muzej Mojstrana *Ohranimo živa tla, ohranimo biotsko pestrost tal*

The Alpine Soils Platform

Videi o tleh, dostopni na YouTube kanalu, FB in Vimeo kanalu.

LINKS4SOILS Why talking about soil

WHY TALKING ABOUT SOILS

Playback speed: Normal

Quality: Auto 480p

YouTube

strana: Ohranimo živa tla, ohranimo biotsko pestrost tal

Informacije o tleh:

- O funkcijah tal

The Alpine Soils Platform

Soil Protection Partnerships Alpine organisations Soil Awareness

ABOUT SOILS BEST PRACTICES SOILCHECK ASK & DISCUSS ALPSP EVENTS

The Alpine Soils

Soil Functions
Soil Threats
Soil Classification
Soil Glossary
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Soil Info

management practices in the Alps

APRIL, 2020

LINK4SOILS BEST SOIL MANAGEMENT PRACTICES IN THE ALPS

Earthworms

APRIL, 2020

LINK4SOILS EARTHWORMS BOOKLET AND IDENTIFICATION SHEETS

2020

LINK4SOILS ALPINE SOIL CALENDAR PHOTOS

The Alpine Soils Platform

The soil web platform serves as an information hub for users that seek information about the soils in the Alpine space. The platform shares knowledge about soils and the Links4Soils project results, such as applicable soil management practices in the Alps, soil ecosystem services logos, earthworms booklet and identification sheets etc. The platform also promotes the Alpine Soil Partnership, as we strongly believe that only together we can manage soils better and set foundations for sustainable development in all sectors.

* action that destroys its soils destroys itself.
— Franklin D. Roosevelt

* Forget how to dig the earth and to tend the soil is to forget ourselves.
— Mahatma K. Gandhi

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ABOUT SOILS ▾ **BEST PRACTICES ▾** **SOILCHECK** **ASK &**

The Alpine Soils	
Soil Functions	Soil Ecosystem Services (highlighted)
Soil Threats	Description of Link4Soils SES logos
Soil Classification	Soil Biodiversity
Soil Glossary	LINK4SOLES BEST SOIL MANAGEMENT PRACTICES IN THE ALPS
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The Alpine Soils Platform



Soil Ecosystem Services

Ecosystem services are the benefits people obtain from the ecosystem (MEA 2005). As an integral part of the terrestrial ecosystem, soils play a crucial role in the provision of a myriad of so-called soil ecosystem services:

Soil functions



Soil Function: Source: FAO 2016

A conceptual diagram was developed by Adhikari and Hartemink (2016), which relates individual soil properties to soil ecosystem services.



Source: Adhikari and Hartemink (2016)

Soil ecosystem services are vital components to all aspects of life and they support the production of ecosystem goods and services, such as:

- Food, fibre, and energy provision
- Water storage and purification
- Neutralization, filtering and buffering of pollutants
- Natural hazard regulation

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ABOUT SOILS ▾ **BEST PRACTICES ▾** **SOILCHECK**

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The Alpine Soils Platform



Description of SES Logos

Please read more about soil ecosystem services [here](#), and download the longer version [here](#).

Agricultural biomass production



The different textures and the soil profile indicate the properties of fertile soil suitable for growing a variety of crops for food: the diversity and quality of food are indicated by the grain and apple.

Forest biomass production



The logo links soil properties, aboveground forest biodiversity, and forest production – timber needed for construction, various everyday products (e.g. furniture), as well as firewood for green energy.

Water retention



The drop of water lying in the middle of the soil horizons indicates the ability of soils to capture, store, and gradually release water for plants and soil biota as well as for evaporation from the soil surface.

Nutrient cycle regulation



Macro- and micro-pore nutrients, N, S, K, Ca, Mg, and many others, are present in soil due to the microbial fixation of nitrogen, weathering and leaching/mineralization of primary minerals. Without cells capable to make exchange, and cycle nutrients in situ, soil fertility would decrease and be significantly reduced. Nutrient regulation and cycling ensures long-term soil fertility and, thereby, the vegetation cover, consisting of wild or cultivated plants.

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SOIL ECOLOGY & SOIL MANAGEMENT PRACTICES IN THE ALPS

Soil Biodiversity

Description of Link4Soils SES logos

Soil Ecosystem Services

ALPSP MEMBER

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Interreg Alpine Space

Earthworms
our partners for resilient, living soil in the mountains

Jean-Jacques Brun, Sébastien De Daniell

INRAE

Interreg Alpine Space

Join us to discover the unique, little-known role of earthworms in our forests despite the considerable constraints imposed by gravity and the weather confronting them in the mountains.

Soil biodiversity reflects the variability among living organisms including a myriad of organisms not visible with the naked eye, such as micro-organisms and mesofauna, as well as the more familiar macro-fauna.

Soil biota contributes to the provision of ecosystem services in several ways. Two examples are the ability of micro-organisms to decompose pollutants and the increase of infiltration capacity by the presence of earthworm channels.

In the Link4Soils project, we recognise the importance of earthworms an important part of a complex, fragile network of living organisms which work in close interdependence with one another (bacteria, fungi, arthropods, earthworms). Furthermore, earthworms are the real conductors of this underground symphony.

This Link4Soils booklet aims to offer a closer look at the unique position occupied by these animals in the ecosystems on which we depend for our survival. We focused on mountain soils, long neglected due to the climatic and geographical constraints limiting their fertility. Special attention is also given to forest ecosystems.

Join us to discover the unique, little-known role of earthworms in our forests despite the considerable constraints imposed by gravity and the weather confronting them in the mountains.

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Caring for Soils - Where Our Roots Grow.

The Alpine Soils Platform

Soil Protection Partnerships **Alpine organisations** **Soil Awareness**

The Alpine Soils Platform

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SOIL ECOSYSTEM SERVICES IN THE ALPS

Soil Classification

Soil classification deals with the systematic categorisation of soils based on distinguishing **soil characteristics** as well as criteria that dictate choices in land use.

Most commonly used is a supra-national classification, also called **World Soil Classification**, developed by the FAO. It offers useful generalisations about soils pedogenesis concerning the interactions with the main soil-forming factors. It was first published in the form of the **UNESCO Soil Map of the World** (1974). Many of the names offered in that classification are known in many countries and do have similar meanings.

European Soil Types, European Commission – Joint Research Centre – Institute for Environment and Sustainability

THE MAJOR SOIL TYPES OF EUROPE

0 10 20 30 40 50 60 70 80 90 100

0 cm 10 cm 20 cm 30 cm 40 cm 50 cm 60 cm 70 cm 80 cm 90 cm 100 cm

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BEST PRACTICES ▾

SOIL ECO SYSTEM SERVICES LOGOS

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LSPF

+ Soil biomass

+ Soil, dirt, fine earth

- Soil degradation

Soil degradation is defined as a change in the soil health status resulting in a diminished capacity of the ecosystem to provide goods and services for its beneficiaries, an irreversible process, often caused by human or his activity.

IT: Degradazione del suolo
Danneggiamento del suolo ad opera di processi di degrado (definiti anche minacce) quali: erosione, diminuzione di materia organica, contaminazione locale e diffusa, impermeabilizzazione, compattazione, diminuzione della biodiversità, salinizzazione, frane e desertificazione.

SI: Degradacija
Degradacija tal je degenerativen, nepovratni proces, ki ga pogosto povzroči človek ali njegove dejavnosti.

DE: Boden degradation
Veränderung des Bodenzustands, der zu einer Abnahme oder gar dem Verlust der Bodenfruchtbarkeit sowie anderer Ökosystemdienstleistungen führt, oft durch unsachgemäße Nutzung durch den Menschen verursacht.

FR: Dégradation du sol
La dégradation des sols est définie comme un changement dans l'état de santé du sol entraînant une diminution de la capacité de l'écosystème à fournir des biens et services à ses bénéficiaires, un processus irréversible, souvent causé par l'homme ou son activité.

+ Soil depth

+ Soil desertification

+ Soil ecosystem services

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BEST PRACTICES ▾

SOIL ECO SYSTEM SERVICES LOGOS

APRIL TRANS PUBLIC

LSPF

+ Soil Etiquette

Soil Etiquette

Soil is essential for life on Earth, essential for plant growth and serves as a home for myriad organisms. Soil performs key ecosystem services that enable human well-being, ecosystem functioning and contribute to the biodiversity. Soil is essential for food and wood production, water storage and filtration, nutrient storage and regulation, surface runoff regulation, and many more.

Protecting soil is a fundamental priority for all. Many initiatives worldwide are encouraging soil conservation practices that protect the loss of this vital legacy.

Our contribution to soil protection, in the Links4Soils project, is a leaflet with guidelines – dedicated to all "users" in order to raise awareness on soil protection in our every day.

SOIL ECO SYSTEM SERVICES IN THE ALPS

Links4Soils

Soils are relevant in many different sectors of decision-making and governing: Agriculture, Forestry, Natural hazard management, Nature protection and biodiversity, Tourism, Spatial planning and urban environment.

Links4Soils collected, developed and visualised guidelines for sustainable soil management.

Click on the icon:

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Caring for Soils - Where Our Roots Grow.

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11. Dan Alps

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LINK4SOILS BEST SOIL MANAGEMENT PRACTICES IN THE ALPS

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LINK4SOILS ALPINE SOIL CALENDAR PHOTOS

Geonetwork node (circled in green)

Alpine WebGIS viewer

National soil web GIS

The Alpine Soils Platform

The soil web platform serves as an information hub for users that seek information about the soils in the Alpine

Geonetwork node (circled in green)

Alpine WebGIS viewer

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Geonetwork node

Links4Soils geonetwork node is a common entry point of the spatial data infrastructure related to soil for Alpine region and was established in the project Links4Soils. It provides powerful metadata editing and search functions. It enables access to data sets and network services established for spatial data sets, as well as other services and information related with spatial data infrastructure.

The catalogue aims to improve the accessibility of the soil data. The public can access soil related information in one place via an online access point using modern and standard e-services. The main emphasis of the Links4Soils Geonetwork node is the inventory and collection of soil databases and access to them through various browsers and web servers.

For entering the Links4Soils Geonetwork node click [HERE](#).

If you need help, the video below contains some short instructions on how to use the Links4Soils Geonetwork Node.

Geonetwork node - The Alpine Soils Platform

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For entering the Links4Soils Geonetwork node click [HERE](#).

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Geonetwork node

Alpine WebGIS viewer

National soil web GIS

The Alpine WebGIS viewer

The Alpine Soil Web GIS system gives access to freely available regional, national and trans-border Alpine soil data collected/registered within the Links4Soils project, built on Open Layers libraries. The viewer therefore does not contain the data itself, but their spatial extents. It is meant to be used in combination with Link4Soils Geonetwork node. The Links4Soils spatial metadata viewer is built on Open Layers libraries.

To access the viewer click [HERE](#).

If you need help, the video below contains some short instructions on how to use the [Links4Soils GIS viewer](#).

Links4Soils GIS WebViewer

- Alpine region
- Alpine upper altitude
- Soil Management System - Digital Soil Map of Austria
- Geographical Model of The Alps (GEOALP)
- Soil Survey Upper Austria
- Soil Management System - Digital Soil Map of Austria
- Forest Site Mapping (FOSM)
- Soil Survey Lower Austria
- Forest Stand Type Characterisation Tyrol & Salzburg Map
- Soil Survey Lower Austria
- Soil Survey Upper Austria
- Soil Survey Lower Austria
- Soil Information System (SIS)
- Geographical Model of The Alps (GEOALP)
- Soil Survey Lower Austria
- Soil Cadastre and Soil Survey Upper Austria
- Soil Survey Lower Austria
- Soil protection aspects of Alpine soils
- Report on the status of Alpine soils, and Landcare 1990, first mission
- Ridge Viewberg Soil Survey (Soil Survey 1990)
- Soil Survey Lower Austria
- Environmental Forest Soil Survey Lower Austria
- Soil Survey in the area around Lake Constance
- Soil and plant survey in garden plots in Austria
- Soil Survey in the area around Lake Constance
- Soil Survey on playgrounds, assessment of the polluted soil of soils, and programme soil survey
- Soil Survey on playgrounds, assessment of the polluted soil of soils, and programme soil survey
- Research project on geomorphology ... in the area of the Voralberg-Ötztal area
- Transit study - detailed map of agricultural soils, theory model - physico-chemical analysis

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National soil web GIS viewers

Geonetwork node

Alpine WebGIS viewer

National soil web GIS

Austria Austrian Digital Soil Map – eBOD and Austrian Soil Information System – BORIS

France French Web GIS – GISSOIL

Germany (Bavaria) Environmental Atlas Bavaria

Italy Italian Soil Information System – SISI

Slovenia Slovenian Digital Soil Map – eTLA and eSOIL

eBOD
BORIS

GisSol

UmweltAtlas Bayern

ITALY

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Spatial Planning
Forestry
Agriculture
Natural Hazards
Tourism

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Earthworms APRIL, 2020 LINK4SOILS EARTHWORMS BOOKLET AND IDENTIFICATION SHEETS

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Best soil management practices

Best practices of soil management in the Alpine region.

Identified are role model soil management practices, demonstrating the potential for sustainable development, environmental protection and positive social influence. Best practice influence depends on regional circumstances, such as natural environment, political situation, funding schemes or public opinion.

Sustainable management and the protection of Alpine soil enhance the quality of the Alpine environment and considerably contribute to the provision of soil ecosystem services and the resilience of ecosystems; this, in turn, helps to preserve biodiversity and ensure the well-being of humans. The Soil Conservation Protocol of the Alpine Convention, an international treaty, aims "[to] safeguard the multifunctional role of soil based on the concept of sustainable development".

In a modest way, this booklet presents **seventeen soil management practices** in Alpine countries: i.e. Austria, Italy, France, Germany, Switzerland, and Slovenia. It reflects the diversity of soil and environmental management approaches used in the area, and the existing sustainable soil and nature protection management in different sectors and industries, mainly in agriculture, forestry, sports, and tourism.

We, the Links4Soils project partners, believe that a greater number of better, diverse, holistic and inspiring soil management and protection case studies are practised or developed in the diversity of Alpine countries.

Soil management practices in the Alps

Edited by: Andreja Vrhovcic - Alp Project / Bernit Mihalj
Interreg Alpine Space / [www.alps-project.eu](#)

Country, Region: Italy - Aosta Valley
Organisation: University of Turin
Sector: agribusiness, environment
Main soil threat: soil erosion
Key soil ecosystem services: soil formation, soil erosion, water retention, nutrient retention, soil health
Summary: Integrating on steep slopes in the Aosta Valley, Italy, the Alpine Soil Management Practice "Soil Management on Steep Slopes" provides a good example for the application of soil protection measures for the prevention of soil erosion and landslides.

Keywords: soil management, soil protection, soil erosion, prevent, hillside, Aosta Valley

CSS: Evaluation of Soil Functions in Austria – a way towards protection and sustainable management of Austrian soils

Country, Region: Austria, several regions
Organisation: Austrian Standards International, Federal Ministry for Agriculture, Environment and Water Management, Austrian Soil Science Society, etc.
Sector: food and nutrition, soil protection and environmental assessment, water management
Main soil threat: soil degradation
Key soil ecosystem services: soil formation, soil protection, soil health
Summary: Based on the Austrian Soil Function Evaluation Methodology, the Alpine Soil Management Practice "Evaluation of Soil Functions in Austria" provides a good example for the application of soil protection measures for the prevention of soil erosion and landslides.

Keywords: soil protection, soil degradation, soil health, soil formation, soil formation, soil protection, soil health

CSS: Revetement of degraded areas in the French Alps

Country, Region: France, Auvergne-Rhône-Alpes
Organisation: INRAE, French National Research Institute for Agriculture, Food and Environment
Sector: agriculture, tourism
Main soil threat: soil degradation
Key soil ecosystem services: erosion, desertification, regeneration, agriculture
Summary: Following the application for cases with infiltration degradation, ecological restoration measures were undertaken on degraded areas in the French Alps. The Alpine Soil Management Practice "Revetement of degraded areas in the French Alps" provides a good example for the application of soil protection measures for the prevention of soil erosion and landslides.

Keywords: erosion, dryland, infiltration, degradation, soil health

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- Spatial Planning
- Forestry
- Agriculture
- Natural Hazards
- Tourism

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TRANSLATED PUBLICATIONS

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TOWARDS BEST SOIL MANAGEMENT PRACTICES IN THE ALPS

Spatial planning

Sustainable spatial planning includes evaluation of soil ecosystem services.

Case studies on integrating the Soil Ecosystem Services (SES) approach into spatial planning

Spatial planning case studies in Upper Bavaria, Germany and Tyrol Austria are integrating the SES approach and soil functions assessment into the spatial planning sector of municipalities. Planning scenarios for a sustainable land use management (avoiding land take) and soil functions assessments are developed by adapting the SES approach. Results will be transferred into practical regional/local management plans.

Transferring soil case study results to management plans: transnational exchange on best practice solutions

The overarching activity builds on cross-sectorial case studies results and develops best practice solutions. The best practice soil management solutions and results are transferred into local and regional management/land use plans in order to enhance soil protection measures and the capacity of involved cross-sectorial stakeholders.

We are presenting five best practices, gathered during the Links4Soils project, from Austria, Switzerland and Italy:

- Evaluation of Soil Functions in Austria – a way towards better protection and sustainable management of Austrian soils
- Soil protection on construction sites in Switzerland
- Management of vacant spaces in South Tyrol, Italy
- Austria CO2-Recycling: Climate Change Mitigation by means of Soil, Humus and Habitat Management – a Demonstration Project Report
- Database on Land Use Management in Lower Austria

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Towards Best Soil Management Practices in the Alps

Forestry

Caring for Soils - Where Our Roots Grow.

The Alpine Soils Platform logo featuring stylized mountains in blue, green, and brown. The main menu includes "ABOUT SOILS" and "BEST PRACTICES". Under "BEST PRACTICES", "Forestry" is highlighted with a green circle. Other categories include Spatial Planning, Agriculture, Natural Hazards, and Tourism. A sidebar shows "TRANSLATED PUBLICATIONS" from April 2020. The footer includes social media links and a "SOIL ECOSYSTEM" section.

Soil management is an inherent part of various sectors, such as forestry, agriculture, spatial planning, construction etc. To prevent soil degradation while performing sectors activities we need diverse information.

During the project, we developed many documents in order to raise awareness on sustainable management practices in the forest. We have also worked closely with our stakeholders in order to present current challenges in this sector.

Hereafter are presented maps of different information, used in different sectors. Use of specific maps helps improve management to minimize soil threats (e.g. erosion, contamination, biodiversity loss).

Applicable soil thematic maps on soil degradation threats

Interreg Alpine Space

Link4Soils

A small map of the Alpine region with project partners' names: A. Nava, R. Reise, E. Gourza, Z. Sipos, B. Bánki, G. Pöhl, P. Pöhl, K. Krämer, D. Vassalli, S. Starchi, F. Berger, I. Bergmann, M. Vrbačić, A. Pogorela.

Caring for Soils - Where Our Roots Grow.

Integration of soil protection best practices into forest management plans

An important improvement was done in the frame of the project, with the recent addition of a Forest Type-based thematic map, showing the effects on forest soil nutrient availability of "whole-tree" harvesting measures. The traffic light system, refined and applied also in the project Case Study area of Pilgraten, defines guidelines both for biomass use and compaction risk effects for each Forest Type. By explaining in detail the methodology for assigning traffic light categories in the Case Study area and specifying the respective measures to adopt in the forest, this report describes a substantial part of the management plans.

Fb7: Guidelines for soil protection best practices in forest management plans. The map includes a legend for traffic light categories (red, yellow, green) and a scale bar.

Towards Best Soil Management Practices in the Alps

Agriculture

Sustainable Cross-sectoral Soil Management:

Caring studies join mountain agriculture, tourism and water quality management sectoral approach and develop best practice for ski runs soil management. Agricultural case studies focus on soil protection activities on mountain pastures/ski areas and assess soil properties, geomorphology and natural hazards.

Our guidelines towards sustainable soil management developed within the Link4Soils project aim to provide a synthetic, useful tool for practitioners that can help them mitigate potential threats affecting mountain soils, and to promote sustainable soil management. Our reports/booklet describes the main threats to Alpine soils resulting from forest and agriculture practices and suggests selected mitigation measures.

Guidelines for sustainable soil management

Guidelines for sustainable soil management
Digest: Agriculture

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Best practice examples from the agriculture sector:

- Soil research towards a sustainable mountain vineyard management – limiting soil erosion on steep slopes and preserving cultural heritage; Valle d'Aosta, Italy
- Healthy soil for healthy food, WWF Austria

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Natural hazards

Mitigating Natural Hazards by Soil Management:

Sustainable soil management activities related to erosion protection, preventing landslides and flood risk in FR, IT, SI case study sites lead to mitigate national hazards in the Alps. A joint case study methodology is developed within case study sites FR, IT and SI.

Based on soil data, soil degradation risks were identified, interpreted, visualised, communicated to stakeholders and used for mitigating natural hazards best practice case studies:

- Soil research towards a sustainable mountain vineyard management – limiting soil erosion on steep slopes and preserving cultural heritage; Valle d'Aosta, Italy
- Preventing hydrogeological risk in Aosta Valley Region, Italy
- Revegetation of degraded areas in the French Alps

Tourism

Sustainable Cross-Sectoral Soil Management:

IT case studies on joining mountain agriculture, tourism, water quality (will) focus on soil protection activities on mountain pastures/ski areas and assess soil properties, geomorphology and natural hazards. Soil data are interpreted and made applicable for improved management of dual mountain sites (e.g. ski slopes). Results are transferred into management plans and discussed with e.g. ski-area managers (observers).

Transferring Soil Case Study Results to Management Plans: Transnational Exchange on Best Practice Solutions

Guidelines for sustainable management practices on ski slopes are crucial, considering winter and summer tourism, which has strongly influenced and in some areas devastated the typical highland/mountainous landscape. Loss of vegetation cover, erosion and landslides are forms of ecological damage caused by winter and summer sports activities. Construction of new ski lifts, expanding ski areas and the side effects of snow grooming machines are just a few of the negative impacts that tamper with the ecology of wilderness areas in the long run.

These guidelines collect the current state of knowledge about the soil good management practices applied in ski areas. The aim is to provide a useful and practical tool that may allow sustainable soil management, favouring the mitigation of impacts caused by the construction and management of ski runs and related facilities.

Examples from our best practices, elaborated together with our stakeholders in order to raise awareness on challenges in the Alpine tourism sector:

- Soil education trials in Austria
- Revegetation of degraded areas in the French Alps
- Research for sustainable alpine soil management; Valle d'Aosta, Italy
- Environmental management of the Stilfser Lech
- Management practices on ski slopes Vogel and Kranjska Gora (Slovenia)
- Managing ski areas: an example from Austria (Schmitten)

 - Kako dobiti prave informacije o tleh
- Teme, ki nas zanimajo

The Alpine Soils Platform website screenshot:

- Header: Caring for Soils - Where Our Roots Grow.
- Navigation: Soil Protection Partnerships, Alpine organisations, Soil Awareness.
- Main Content Area:
 - The Alpine Soils Platform** logo with four European flags.
 - A large image of a field with young plants growing in soil.
 - Menu: ABOUT SOILS, BEST PRACTICES, SOILCHECK, ASK & DISCUSS, ALPSP, EVENTS.
 - Left sidebar: Become a AlpSP member, social media links (Facebook, YouTube, LinkedIn).
 - Right sidebar: What Data do I need?, Who to Ask?, Soil consultancy service, FAQ, LINK4SOILS EARTHWORMS BOOKLET AND 2020 LINK4SOILS ALPINE SOIL CALENDAR PHOTOS.
 - Bottom left: APRIL 2020 TRANSLATED PUBLICATIONS.
 - Bottom right: APRIL 2020 LINK4SOILS BEST SOIL MANAGEMENT PRACTICES IN THE ALPS.

* 11. Dan Alpske konvencije in Svetovni dan tal 4. – 5. decembra 2020, Slovenski planinski muzej Mojstrana Ohranimo živa tla, ohranimo biotska pestrost tal

- Prostorsko načrtovanje in trajnostno upravljanje tal zahteva dobre informacije o tleh in okolju. Odgovor na vprašanje za končnega uporabnika, na primer »Katere podatke potrebujem?« je odvisno od sektorskih potreb, pristopov, praks, ekosistemskih storitev in vrste podatkov, ki jih potrebujete za oceno mesta / lokacije.

- Povezavo do ustreznih in razpoložljivih virov podatkov o tleh, ki vas zanimajo, lahko preverite preko orodja Geonetwork, lahko pa uporabite tudi interaktivno orodje in vključite vse "parametre lokacije" in ekosistemskie storitve, da dobite pregled lokacije.

What type of data do I need?

Linking Soil Ecosystem Services to Soil Data

Spatial planning and sustainable soil management require good soil and environmental information. The answer to the question "What data do I need?" depends on the sectoral needs, approaches, practices, ecosystem services and the type of data you need in order to evaluate a site/location. You can check the links to suitable and available soil data sources of your interest here, but you can also use an interactive tool (check below) in order to include all "site parameters" and ecosystem services to get an overview of the location.

During the Link4Soils project, we have developed two interactive tools for the selection of relevant soil data and information on sustainable soil management according to the sector and ecosystem services. The first estimation tool can be used in the field, at a local level, to estimate the contribution of eleven selected ecosystem services. In particular, it illustrates how key soil properties, which may alter under changing land uses and management strategies, impact on the individual ecosystem services. It is a useful tool for knowledge transfer and capacity building, as it enables soil experts in bringing the topic of soil-based ecosystem services closer to stakeholders.

The second, implemented in a spread-sheet tool offers users to identify essential soil ecosystem services that should be used in an individual sector and specific soil ecosystem services, which are important and relevant to monitor, when it comes to soil data to consider monitor at a location. This tool largely utilizes soil expert knowledge, however, once the soil parameters are set and adapted to local conditions and natural setting, the tool can be used by decision-makers. The concept of the method is embedded in an automated spreadsheet tool, which allows users to select soil ecosystem service and instantly visualize relevant soil management practices, related soil properties and what soil data to collect.

Both methods or tools are useful for planning soil protection activities and decisions for safeguarding soil ecosystem services at the local/municipal level.

1) Soil ecosystem services estimation tool with the report



2) Soil ecosystem services estimation tool with the report



* 11. Dan Alpske konvencije in Svetovni dan tal 4. – 5. decembra 2020, Slovenski planinski muzej Mojstrana O

Caring for Soils - Where Our Roots Grow.

The Alpine Soils Platform



[Soil Protection Partnerships](#) [Alpine organisations](#) [Soil Awareness](#)



[ABOUT SOILS](#) [BEST PRACTICES](#) [SOILCHECK](#) [ASK & DISCUSS](#) [ALPSP](#) [EVENTS](#)

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SOIL ECOSYSTEM SERVICES LOGOS

What type of data do I need?

Linking Soil Ecosystem Services to Soil Data

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Who to Ask?	What Data do I need?	Where to find it?
Soil Institutions	Slovenia	
Soil consultancy service	Austria	
National Soil Science Societies	Italy	
Soil Experts	Germany	
	France	

During the Links4Soils project, we have developed two interactive tools for the selection of relevant soil data and information on sustainable soil management according to the sector and ecosystem services. The **first estimation tool** can be used in the field, at a soil profile, to estimate the contribution of soils to eleven selected ecosystem services. In particular, it illustrates how key soil properties, which may alter under changing land uses and management strategies, impact on the individual ecosystem services. It is a useful tool for knowledge transfer and capacity building, as it assists soil experts in bringing the topic of soil-based ecosystem services closer to stakeholders.

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[Soil Protection Partnerships](#) [Alpine organisations](#) [Soil Awareness](#)



[ABOUT SOILS](#) [BEST PRACTICES](#) [SOILCHECK](#) [ASK & DISCUSS](#) [ALPSP](#) [EVENTS](#)

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[Who to Ask?](#)

[Soil consultancy service](#)

SOIL ECOSYSTEM SERVICES IN THE ALPS

Soil Consultancy Service

Use the form below to ask specific/concrete questions to one of the Consultancy service team members. Some of the AlpSP and Links4Soils project members will answer soil related questions for our platform visitors. Important Questions and Answers will be published in [FAQ](#) section.

Your Name (required)

Your Email (required)

Question:

Details and Background:

Sector: Forestry Agriculture Spatial planning Natural Hazards Tourism

Who do you want to ask? Tomaž Kralj - SI Gertraud Sutor - DE Borut Vrščaj - SI
Clemens Geitner - AT Michele Frappaz - IT Frédéric Berger - FR Silvia Stanchi - IT

Yes, I have checked the FAQ and read the terms of service.

[Ask the question](#)

* 11. Dan Alpske konvencije in Svetovnega dneva 4. – 5. decembra 2020. *

- Pridružite se Alpskemu Partnerstvu

The Alpine Soils Platform

Caring for Soils - Where Our Roots Grow.

Soil Protection Partnerships Alpine organisations Soil Awareness

The Alpine Soils Platform

Become a AlpSP member

The Alpine Soil Partnership (AlpSP)

About Alpine Soil Partnership

Join the AlpSP

11. Dan Alpske konvencije in Svetovni dan tla 4. – 5. decembra 2020, Slovenski planinski muzej Mojstrana Ohranimo živa tla, ohranimo biotska pestrost tal

- Aktivnosti in pretekli dogodki

The Alpine Soils Platform

Caring for Soils - Where Our Roots Grow.

Soil Protection Partnerships Alpine organisations Soil Awareness

The Alpine Soil Partnership (AlpSP)

ABOUT SOILS ▾ BEST PRACTICES ▾ SOILCHECK ASK & DISCUSS ▾ ALPSP ▾ EVENTS ▾

Final Links4Soils Conference: Alpine Soil Forum

Summer School Pokljuka 2019

Soil day in Scheuring

Links4soils in the media

11. Dan Alpske konvencije in Svetovni dan tla 4. – 5. decembra 2020, Slovenski planinski muzej Mojstrana Ohranimo živa tla, ohranimo biotska pestrost tal

Skrbimo za tla - v njih so naše korenine.

Slovenska različica

Platforma za tla Alp

Partnerstva za varovanje tal | Alpske organizacije | Iniciative za tla

O TLEH | PODATKI TAL | DOBRE PRAKSE | OCENA ZA TLA | VPRAŠAJ | ALPSP

Pridružite se Alpskemu partnerstvu za tla

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PUBLIKACIJE PROJEKTA V SLOVENSKEM JEZIKU

APRIL 2020 **JANUAR 2020** **GLAS OBČIN** **11.10.2019** **OCENA ZA TLA** **24.-28. AVGUST 2020** **RAZUMEVANJE IN UPRAVLJANJE GOSPODARSTVANJA TAL IN S TEM POVZETI ECOSYSTEMSKE STORITVE**

Platforma za tla Alp

Platforma za tla Alp "The Alpine Soils Platform" je bila vzpostavljena kot prva spletna stran o tleh in za tla, ki pokriva celoten alpski prostor. Je prva alpska platforma za podporo informacijam in odločjanju o tleh, saj vsebuje informacije o tleh, svetovanje strokovnjakov, najboljše prakse ter vse pomembne rezultate projekta Links4Soils, z namenom vključitve temeljnih ekosistemskih storitev v lokalno in regionalno upravljanje in načrtovanje.

Vsi deležniki, tako iz gozdarskega, kmetijskega in prostorskega sektorja, ter drugi si lahko pomagajo s to platformo. Osnovna platforma je v angleščini, za vsako alpsko državo pa obstajajo strani v lokalnih jezikih, kjer najdete tudi več informacij lokalnega značaja. Prav s temi informacijami smo zagotovili uporabnost in dostopnost vsem deležnikom ter interesentom.

Naš cilj je tudi spodbujati Alpsko partnerstvo za tla, saj trdno verjamemo, da lahko le skupaj bolje upravljamo tlemi in postavimo temelje za trajnostni razvoj v vseh sektorjih.

Radi bi vas vzbuditi, da nam **pošljete informacije o dobrih praksah** v vaši regijah, saj le z izmenjovanjem znanja in

* Poleg zraka in vode so ta trejti temeljna sestavnina kopeličkih ekosistemov, ki v nemči omogoča življenje na korenin - v slovenskem okvirju, in prav zaradi tega dobitna je in pomembna vysvetljati, kako in v kolikšni meri ta prispeva k zagotavljanju ekosistemskih storitev, ali, s preostali besedami, k zagotavljanju ekosistemskih storitev tat.*

Ir. bojaz Ekosistemski storitevi tat v Alpah

Borut Bojaz
Kmetijski inštitut Slovenije
Vodja projekta Links4Soils

Ostale publikacije, prevedene v italijanski, nemški in angleški jezik so na voljo [tu](#).

* 11. Dan Alpske konvencije in Svetovnega dana tal 4. – 5. decembra 2020, Slovenski planinski muzej Moisstrana

Skrbimo za tla - v njih so naše korenine.

Platforma za tla Alp

Alpska tla

Ekosistemski storitevi tal

Grožnje tlom

Klasifikacija tal

Terminološki koticke

Bonton ravnanja s tlemi

O TLEH | PODATKI TAL | DOBRE PRAKSE | OCENA ZA TLA

Ekosistemski storitevi tal

Dokumentarne storitve so karinali, ki jih lahko prizadajo ekosistemi ([MFA 2009](#)).
Kar ekosistemski storitevi temeljijo na funkcijah in biodiverzitetih tal, katerih v tem poglavju najdi dodatne informacije, prav tako po storitvi redkih krepkih ekosistemskih storitev v Alpah, ter dejanski redčicah, oba na voljo za prenos.

Ekosistemski storitevi tal v Alpah

Uvod v ekosistemski storitevi tal za odločevalce

Na kratko o ekosistemskih storitevih tal

FAO: Ekosistemski storitevi tal

Raznolikost tal omogoča tudi raznolikost storitev na tleh, ekosistemski storitevi tal, ki temeljijo na zemlji, temelj na tlu, tlu in delu.

V gospod. delu so relevantne ekosistemski storitve, v primerjavi z ekosistemski storitvami v nizših, da posledi posledice. Tri sta predvsem začetki pred enočasnim ter zadetki pred popravki.

Zagotavljanje ekosistemskih storitev tleih ekosistemov se opira na lastnosti, procese in funkcije tal. Prav tako

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* 11. Dan Alpske konvencije in Svetovnji dan tal 4. – 5. decembra 2020, Slovenski planinski muzej Moisstrana [Ohranimo živo tla, ohran](#)

Skrbimo za tla - v njih so naše korenine.

Platforma za tla Alp

Partnerstva za varovanje tal Alpske organizacije Inicijative za tla

O TLEH PODATKI TAL DOBRE PRAKSE OCENA ZA TLA Vprašaj ALPSP

Vprašajte nas

Koga vprašati? Institucije

Pogosta vprašanja z odgovori Strokovnjaki

Svetovna ekipa Svetovna ekipa

Pedološka združenja Pedološka združenja

Mednarodne organizacije Mednarodne organizacije

Pridružite se Alpskemu partnerstvu za tla

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f in dr. Borut Vrščaj dr. Tomaž Kralj

EKOISLEMSKE STORITVE TAL V ALPAH

Trajnostno upravljanje z zemljišči kot tudi varstvo tal pogosto zahteva strokovno podprtje. V zvezi z vprašanji iz različnih strokovnih področij, vam je spodaj na voljo seznam str s svojim strokovnim znanjem pomagajo pri pridobivanju specifičnih informacij. Seznam strokovnjakov bomo sproti posodabljali.

Strokovna področja: Pedologija, kmetijstvo, naravne nesreče, turizem, varstvo narave, ozaveščanje o tleh.
Dejavnosti: Funkcije tal, upravljanje s tlemi, hrnanje tal, raba zemljišč in soodvisnost s podzemnimi vodami, prostorsko planiranje in kakovost tal, informatika tal in okolja, talni informacijski sistemi, geoinformatika, digitalna kartografija tal.

Strokovna področja: Gozdarstvo, kmetijstvo, prostorsko planiranje, naravne nesreče, varovanje okolja.
Dejavnosti: Tla, funkcije tal, rodovitnost tal, kakovost tal, upravljanje s tlemi, hrnanje tal, trajnostno upravljanje s tlemi, podatkovna baza tal, GIS pregledovalnik podatkov.

* 11. Dan Alpske konvencije in Svetovni dan tal 4. – 5. decembra 2020, Slovenski planinski muzej Mojstrana Ohranimo živa tla, ohranimo biotska pestrost tal

Ocena za tla

Zabaven vprašalnik, ki vam ponuja rešitve za trajnostno upravljanje s tlemi v skupnosti. Zajeta so vsa pomembna področja – prostorsko načrtovanje, naravne nesreče, ozaveščanje o tleh, itd.

Kdo lahko sodeluje?

Vprašalnik Ocena za tla je namenjen **lokalnim svetnikom, delavcem v skupnosti** in vsem, ki se zavzemajo za **zaščito tal** v svoji skupnosti ali pa bi radi **izvedeli več** o tej temi.

OCENA ZA TLA
Kako se vaši občini lotete teme varovanje tal?

Izpolnil ste 0% Ocene za tla! (da/nejte pomeje)

* 11. Dan Alpske konvencije in Svetovni dan tal 4. – 5. decembra 2020, Slovenski planinski muzej Mojstrana Ohranimo živa tla, ohranimo biotska pestrost tal

Fragebogen - Alpinesoil SI

si-soilcheck.alpinesoils.eu/si/survey/s/alpinesoil-si

KAJ JE APLIKACIJA OCENA ZA TLA?

ZBIRANJE IDEJ IN UKREPOV ZA TRAJNOSTNO UPRAVLJANJE TAL V OBČINAH

Vprašalnik "Ocena za tla" ponuja ideje za trajnostno upravljanje s tlemi v posamezni občini. Vprašanja se nanašajo na pomembne teme, od prostorskega načrtovanja do naravnih nesreč in ozaveščanja.

Aplikacijo Ocena za tla je razvila Klimabündnis Tirol, organizacija ki se ukvarja s podnebnimi spremembami na Tirolskem, v okviru evropskega projekta Links4Soils.

Kdo lahko sodeluje?

Vprašalnik oziroma aplikacija Ocena za tla je namenjena občinskim delavcem in vsem zaposlenim, ki želijo spoznati pomen tal ali pa želijo bolj aktivno pristopiti k varovanju tal v svoji občini.

Kako deluje?

Za izpolnjen vprašalnik boste potrebovali približno 20 minut. Če kliknete »» nadaljujte pozneje », boste prejeli povezavo, s katero boste lahko kadarkoli nadaljevali z vprašalnikom. Na koncu lahko vnesete svoje kontaktne podatke in svoje rezultate prejmete v PDF dokumentu na vaš e-poštni naslov.

Začnite Ocena za tla

Zakaj varujemo tla?

• 11. Dan Alpske konvencije in Svetovni dan tal. 4. – 5. december 2020, Slovenski planinski muzej Mojstrana. *Ohranimo žive tla, ohranimo blotsko pestrost tal*

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OCENA ZA TLA
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**ALPENKONVENTION
CONVENTION ALPINE
ALPSKA KONVENCIJA
CONVENZIONE DELLE ALPI**

REPUBLIKA SLOVENIJA
MINISTRSTVO ZA OKOLJE IN PROSTOR

**Interreg
Alpine Space**
EUROPEAN UNION
Links4Soils

11. Dan Alpske konvencije in Svetovni dan tal
4. – 5. december 2020
Slovenski planinski muzej Mojstrana

Ohranimo živa tla, ohranimo biotsko pestrost tal

Bonton

Jurka Lesjak
Kmetijski inštitut Slovenije

Bonton

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EKOSISTEMSKIE STORITVE TAL V ALPAH

Interreg Alpine Space

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* 11. Dan Alpske konvencije in Svetovni dan tal 4. – 5. decembra

BONTON RAVNANJA S TLEMI



Kmetijstvo



- Zmanjšujmo erozijo z obdelavo in primerno pokritostjo tal.
- Uvajajmo/uporabljajmo pokrovne in vmesne posevke; uvajajmo ohranitveno obdelavo tal in druge načine pridelave, ki povečujejo vsebnost talne organske snovi. S tem prispevamo h kakovosti tal in blažitvi podnebnih sprememb.
- Uporabljajmo medvrstne posevke in ustrezen kolobar ter povečujmo raznolikost kmetijskih rastlin.
- Spodbujajmo racionalno uporabo organskih in mineralnih gnojil in ekološko pridelavo; ohranjammo rodovitnost tal in varujmo sama tla kot vitalni življenjski prostor organizmov.
- Zmanjšujmo uporabo fitofarmacevtskih sredstev in preprečujmo onesnaževanje tal.
- Omejujmo vožnje po kmetijskih tleh, zlasti po mokrih ter tleh občutljivih na zbijanje.

* 11. Dan Alpske konvencije in Svetovni dan tla 4. – 5. december 2020, Slovenski planinski muzej Mojstrana *Ohranimo živa tla, ohranimo biotska pestrost tal*

Gozdarstvo



- Zagotavljajmo stalno pokritost tal z gozdnim rastjem, tudi v luči blažitev podnebnih sprememb.
- Uporabljajmo primerno gozdro mehanizacijo, da bodo negativni vplivi na tla in gozdne sestoje čim manjši.
- Ustvarujmo pestro zgradbo in drevesno sestavo gozdov, ki izboljšujejo kakovost tal.
- Izboljšujmo zgradbe gozdov in izbirajmo drevesne vrste prilagojene rastiščnim razmeram.
- Spodbujajmo naravno obnovo gozda s skrbno izbranimi drevesnimi vrstami.
- Izogibajmo se velikopovršinskim sečnjam, zlasti na strmih pobočjih.
- Uvajajmo obnovo gozdom pod zastorom odraslega drevja ali v manjših vrzelih.
- Puščajmo manjše veje, listje in lubje v gozdu, da omogočamo shranjevanje ogljika v tleh in krepimo produktivnost gozdnih tal.

Obvladovanje naravnih nesreč



- Zavedajmo se tveganj naravnih nesreč na našem območju in vloge tal pri njihovem preprečevanju.
- Pazljivo načrtujmo rabo zemljišč, da zmanjšamo pojav naravnih nesreč, npr. usadov in plazov.
- Izogibajmo se pretirani pozidavi oz. prekrivanju tal ter omogočajmo vpiranje in odtok vode skozi tla.
- Spodbujajmo celostno obravnavanje tveganj naravnih nesreč z uravnoteženimi rešitvami uveljavljenih naravnih metod in tehnik preprečevanja naravnih nesreč.
- Ohranajmo pokritost tal z vegetacijo od dna doline do vrha.
- Prilagodimo strukturo in sestavo vegetacije glede na tveganja naravnih nesreč.
- Ustrezno vrednotimo, vzdržujmo in skrbno upravlajmo zaščitene gozdove.

* 11. Dan Alpske konvencije in Svetovni dan tla 4. – 5. december 2020, Slovenski planinski muzej Mojstrana



Varstvo narave in biotske raznovrstnosti

- Spošujmo tla kot bistveni del ekosistemov;
- Zavedajmo se izjemne biotske pestrosti v tleh;
- Prepoznamo in zaščitimo redke in posebne vrste;
- Zaščitimo tla bogata z ogljikom, zlasti barja in močvirja;
- Ohranajmo naravna tla; izogibajmo se gnoju na naravorstveno zaščitenih območjih.

Prostorsko načrtovanje in urbano okolje

- Upoštevajmo funkcije tal in ekosistemsko storitev tal v procesih načrtovanja in izgradnje nove infrastrukture;
- Zmanjšajmo pozidavo tal (prekritje tal z betonom, asfaltom, zgradbami itd.) in promovirajmo tlakovanje s prepustnimi materiali;
- Izogibajmo se pretirani in razpršeni poselitvi, zlasti na rodovitnih in okoljsko pomembnih tleh;
- Spodbujajmo adaptacije opuščenih zgradb in pospešujmo čiščenje, dekontaminacijo, sanacijo in ponovno uporabo industrijskih in urbanih zemljišč;
- Premišljeno uporabljajmo mehanizacijo med gradnjo stavb in infrastrukture; poskrbimo za skrbno odstranjevanje in ponovno uporabo vrhnje plasti tal;
- Izogibajmo se onesnaževanju ter pretirani uporabi gnojil in fitofarmacevtskih sredstev na vrtovih, travnikih, parkih in ob cestah.

* 11. Dan Alpske konvencije in Svetovni dan tal 4.



Turizem

- Omejujmo izgubo, zbijanje in onesnaževanje tal pri izgradnji turistične infrastrukture;
- Previdno načrtujmo pohodniške in gorske kolesarske poti ter zagotovimo ustrezone ukrepe za zaščito tal in zmanjšanje erozije;
- Obnavljajmo travinje na smučiščih in območjih zaščitene narave z lokalno in biotsko pestro sestavo avtohtonih vrst trav ter s tem preprečujmo nastanek erozijskih žarišč;
- Spodbujajmo turistično infrastrukturo, ki je racionalna s pozidavo in degradacijo tal in zato zagotovimo javni prevoz;
- Povečajmo zavedanja o pomenu tal med obiskovalci in domačini s povečanjem dostopnosti informacij o tleh.



* 11. Dan Alpske konvencije in Svetovni dan tal 4. – 5. december 2020, Slovenski planinski muzej Mojstrana Ohranimo živa tla, ohranimo biotsko pestrost tal

