

**Tagung der Alpenkonferenz**

**Réunion de la Conférence alpine**

**Sessione della Conferenza delle Alpi**

**Zasedanje Alpske konference**

**TOP / POJ / ODG / TDR**

**XVII**

**A3**

**EN**

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06-10-2022

## **ANNEX**

### **5 Activity Report of the Soil Protection Working Group for the period 2021-2022 (EN)**

**ACTIVITY REPORT OF THE  
Soil Protection Working Group  
FOR THE PERIOD 2021-2022  
(BETWEEN THE XVI AND XVII MEETINGS OF THE ALPINE CONFERENCE)**

**1. Overview of the mandate given by the XVI Alpine Conference**

Summary of the objectives according to the 2021-2022 mandate or work programme

- Data harmonization and monitoring: Support the process to establish a network between the Joint Research Centre of the European Commission (JRC), the Alpine Convention, Alpine Countries and Regions, as well as other relevant bodies which coordinate and harmonize data collection, management, and evaluation in the course of the LUCAS Soil surveys.
- Intensify exchange and awareness raising on soil protection.
- Develop a long-term action plan for the implementation of provisions and declarations on soil protection in the specific context of the Alpine region (LTAP). In this context attention will be paid to the interaction of qualitative and quantitative aspects of soil protection and the effects of climate change.

The Soil Protection Working Group was chaired by Austria.

**2. Meetings**

Summary of the meetings held (date, place, main topics and milestones)

The Soil Protection Working Group met eight times, including two technical meetings, during the mandate period. In these meetings, all topics foreseen by the mandate were tackled.

- 14 December 2020, online: 1<sup>st</sup> soil protection technical meeting on LUCAS Soil 2022: statements from the Alps on improving the LUCAS soil sampling with focus on representativity of the Alpine area (location of sampling sites, sampling methods, topics, cooperation with other soil monitoring schemes), one main result being 440 additional soil sampling sites within the AC perimeter during the LUCAS soil survey 2022 and a significantly improved distribution also on high elevation (118 sites above 1.500 m).
- 17 March 2021, online: agreement on the mandate implementation and work plan, data harmonization and monitoring (review of last mandate and 1<sup>st</sup> technical WG meeting and its results, presentation by the EU about LUCAS Soil), exchange (Alpine Soil Partnership, European Land and Soil Alliance and EU Soil Observatory), implementation pathways of the Alpine Climate Target System, LTAP first steps (discussion on the process, structure and core topics), awareness-raising (ideas for events, if the sanitary

situation would allow it, agreement on translation of the FAO's "Voluntary Guidelines for Sustainable Soil Management").

- 16 June 2021, online: soil function maps (example soil function maps and evaluation in Austria, exchange on situation in Alpine States and Regions, first ideas for exchange and joint workshop with WG Spatial Planning and Sustainable Development), data harmonization and monitoring (needs for LUCAS soil 2022 and news from the EU regarding soil protection, JRC IACS data sharing initiative for soil), LTAP (agreement on the structure, topics, and involvement of other bodies), exchange (AlpSP, WG Spatial Planning and Sustainable Development, AlpPlan network, PLANET), awareness-raising and updates (Alpine Soil Newsletter, MAP, Alpine Soil Film Tour, further events, FAO Guidelines, Eurosoil).
- 6 September 2021, online: 2<sup>nd</sup> soil protection technical meeting on LUCAS Soil 2022: discussions and preparation for further qualitative improvements for soil sampling in mountainous areas during the LUCAS soil survey 2022 as hints from the Alps for taking soil samples in Alpine/mountainous terrain during the seminar for LUCAS coordinators in February 2022.
- 2/3 November 2021, online (after having been planned in Bolzano/Bozen including a joint session with the WG SPSD): exchange and awareness-raising (updates regarding all activities mentioned for the previous meeting and the German soil of the year), data harmonization and monitoring (update LUCAS soil and presentation of the project LUCASSA), LTAP (distribution of the chapters between the WG members), joint session with the Working Group Spatial Planning and Sustainable Development to discuss the topic soil functions and spatial planning regarding which the two groups then jointly organised the public workshop in Munich in March 2022.
- 12 January 2022, online: focus topic LTAP of with the foreseen content for the thematical chapters were presented and discussed by the members.
- 10 March 2022, online: the draft LTAP was discussed, development of the new mandate for the Working Group, updates (WS soil functions and spatial planning, MAP, AlpSP, LUCAS Soil 2022, WG timeline).
- 4 May 2022, online: LTAP (discussion of the proposed actions and agreement on the final version of the LTAP including a written process), content presentations and discussions (sampling soils in mountain terrains, Alpine peatlands), updates (WS soil functions and spatial planning, new mandate).

### 3. Activities carried out

Synthetic description of further activities carried out (including outreach and communication activities)

- Two expert meetings for improving the Alpine representativity in the European survey LUCAS soil (see above).
- The long-term action plan for the implementation of provisions and declarations on soil protection in the specific context of the Alpine region (LTAP) has been developed through a collaborative process of the whole Working Group. Additionally, two consultation processes were undertaken during which the other TWB of the Alpine Convention, Observer organisations of the Convention, EUSALP AG6, the Alpine Soil Partnership, the European Land and Soil Alliance and the networks Oppla and PLANET were given the opportunity to hand in feedback, firstly about the topics and secondly regarding the completed draft of the LTAP.
- The workshop “Soil functions and spatial planning in the Alps” was organized in Munich/DE on 29-30 March 2022 together with the Working Group Spatial Planning and Sustainable Development. A joint meeting of both WGs took place to exchange about the topic of soil function maps in spatial planning and envisaged content for the workshop in Munich prior to the event.
- Two editions in 2021 and one edition so far in 2022 of the “Alpine Soil Newsletter” were developed and published in cooperation with the Alpine Soil Partnership.
- The FAO “Voluntary Guidelines for Sustainable Soil Management” in German and Slovenian languages, including a preface from the Alps were translated and are in the process of being published.

### 4. Outputs and results

Description of the main outputs and results achieved

- Data harmonization and monitoring: Alpine representativity within the European soil survey LUCAS soil 2022 was improved: 440 additional soil sampling sites within the AC perimeter during the LUCAS soil survey 2022 and a significantly improved distribution also on high elevation (118 sites above 1.500 m), furthermore inputs for qualitative improvements for soil sampling in mountainous areas were given in a written way and presented to coordinators of the survey.
- The LTAP was developed (see above and attached).
- The workshop “Soil functions and spatial planning in the Alps” with the Working Group Spatial Planning and Sustainable Development and joint a meeting of both WGs took place (see above and documentation attached).
- Three editions of the “Alpine Soil Newsletter” were published (see above).
- FAO “Voluntary Guidelines for Sustainable Soil Management” were translated into German and Slovenian languages (see above).



## 5. Cooperation

Description of cooperation developed with other Alpine Convention bodies and further relevant partners and processes, and of the resulting benefits

- Exchanges with and presentations by the Working Group:  
2021: Austrian Soil Forum in Mai, EUSALP AG6 meeting in July, Geneva EUROSIL 2021 in August, Austrian national Committee on the Alpine Convention in September, first European Soil Observatory Stakeholder Forum in October, Annual Meeting of the Alpine Soil Partnership Austrian National Committee on the Alpine Convention and the Austrian national EUSALP Coordination Committee in December.  
2022: Awareness raising event about the Alpine Convention in Lower Austria and seminar for LUCAS soil coordinators in February, workshop of CIPRA Austria about the Protocol Soil Conservation in May.
- The collaboration with the Alpine Soil Partnership (AlpSP) was continued actively by mutually participating in meetings as well as through joint activities such as the newly established “Alpine Soil Newsletter” and further activities.
- In cooperation with the FAO and the AlpSP the FAO “Voluntary Guidelines for Sustainable Soil Management” have been translated and will be published in the two previously missing Alpine languages German and Slovenian.
- The workshop “Soil functions and spatial planning in the Alps” with the Working Group Spatial Planning and Sustainable Development and a joint meeting of both WGs took place (see above and attached).
- Two consultation phases with other bodies and external networks were undertaken during the establishment of the LTAP (see details above).
- In addition to the above-mentioned cooperation partners updates or presentations were also given during WG meetings from the following partners: ELSA, ACB (including the regular presence of the soil implementation pathway caretaker), the AlpPlan network and PLANET and from the project “Alpine peatlands and climate protection”.

## 6. Attachments

List of the documents attached to this report, such as papers proposed for approval by the XVII Alpine Conference (thematic reports, guidelines, statements etc.) and supporting documents (workshop proceedings, survey reports, communication materials etc.). *Please kindly provide a PDF file of each attachment. Do not include the minutes of regular meetings!*

- Summary of statements from the Alps and summary from the Soil Protection Technical Working Group meetings regarding the LUCAS Soil survey 2022.
- Long-term action plan for the implementation of provisions and declarations on soil protection in the specific context of the Alpine region (LTAP)
- Workshop documentation: Soil functions and spatial planning in the Alps, Munich/DE, 29-30 March 2022 (which was jointly organized with the WG Spatial Planning and Sustainable Development).
- Three editions of the “Alpine Soil Newsletter”.

## Soil Protection Technical Working Group on LUCAS Soil 2022

14 December 2020

### Summary of statements from the Alps

The Soil Protection Working Group of the Alpine Convention aims at contributing to the harmonization of soil data according to the Soil Conservation Protocol of the Alpine Convention (especially Articles 20 and 21) and the mandate of the Working Group on Soil Protection 2021-2022. The cooperation with the Joint Research Center (JRC) has been initiated for this purpose. It comprises the possibility of working towards an improved representativity of the soil conditions in the perimeter of the Alpine Convention in the next European survey of soil data (LUCAS Soil), which is scheduled for 2022.

The Soil Protection Working Group members in coordination with the respective national soil experts reported shortcomings regarding the representativity of soil conditions for the Alpine area in previous LUCAS Soil surveys and made suggestions for improvements for the upcoming survey in 2022. Their feedback concerns the following conceptual and methodological requirements.

#### Location of sampling sites:

- The area in the perimeter of the Alpine Convention was under-represented in previous surveys: more sites in Alpine area would be needed.
- Areas above 1,000 m sea level are underrepresented. As areas above 1,500 m sea level are generally not sampled, those territories, which make up an important part of the Alpine Convention perimeter are not represented by the LUCAS Soil data. Switzerland is not part of the general LUCAS survey but can be given as an example regarding this issue: 40% of the territory lay above 1,500

m, more than 50% above 1,000 m in Switzerland. The importance of integrating soil monitoring sites on higher elevations must be considered especially, since those parts belong to the most vulnerable areas in Europe in light of climate change and are widespread subject of fast changes. Considering those aspects also a higher density of soil sampling sites compared to lower areas would be appropriate.

- Urban soils would also be important to cover issues such as reporting on the goal of reaching zero pollution.

#### Sampling methods/sampling protocol:

- Sufficient time for sampling protocol and photo documentation,
- Adaptation of the sampling protocol regarding the completeness of the samples,
- Describe manual selection of root residues more clearly,
- Add the thickness of organic layers also in forest soils (as in peat soils),
- Clear indication of the 20 cm lower limit on the spade,
- Minimum criteria concerning soil depth: 2 subsamples 0-10 cm are not identical with 1 sample 0-20 cm,
- Sampling of the subsoil would help to detect vertical substance migrations
- Information layer "elevation" should be included,
- Spade method is less exact compared to sampling by gouge auger, the difference between the methods is especially relevant for forest and grassland soils.

#### Topics:

- Soil biodiversity: biological investigations on different groups of organisms (fungi, bacteria, nematodes, earthworms, ...) are necessary,
- Bulk density using soil sample rings for undisturbed samples,
- Relevant heavy metals and selected organic pollutants at specific sites for early detection (e. g. elevated contents due to orographic lift on the northern side of the Alps),
- information on soil type would be also of interest, if that would be possible.

#### Cooperation with/considering other soil monitoring networks to improve data quality:

- Consider mountain research sites from networks, such as LTER or ICP Forest.

Additional specific feedback by Alpine states, is provided here and/or in attachment of this document.

- Austria: Based on the experiences of the LUCASSA project (= LUCAS Soil Austria), an Austrian working group has developed the attached concept under the leadership of H.P. Haslmayr/AGES.
- Germany/Bavaria: highlights in the attached graphic under sampled areas, which are of especially high importance due the orographic lift effect on the northern side of the Alps.
- Slovenia: Highlighting that the time for the reflection was very short and therefore the look into the matter could not be done in such detail as they would have like to, the proposal is to harmonize two sites with the Slovenian national sites (other sites are more than 500 m away from the national sites). If possible, those 2 sites should also be foreseen for the topic soil biodiversity.

LUCAS				PROPOSAL	
FID_LUCAS_ID	ID	LON	LAT	LON	LAT
42	46322602	4632000	2602000	4631978,418	2601565,47
35	46302600	4630000	2600000	4630109,382	2599437,904

- Switzerland: As Switzerland had cooperated with the LUCAS Soil program in the survey 2015 the sampling sites of LUCAS-Soil Switzerland are attached displaying the focus on areas higher than 1'500 m above sea level, which are currently not represented by LUCAS Soil.

### Timeline

During the meeting on 14 December 2020, it was agreed with Arwyn Jones, representing the JRC, that the best possible support would be offered from the Technical Working Group regarding the following points:

- Submission of this joint position of the Working Group to the JRC and EUROSTAT until 18 December 2020,
- Submission of Additional sites for LUCAS Soil 2022 in the Alpine area until 18 December 2020,

- Short window of reflection on the new version of LUCAS Soil sampling points for 2022 in January 2021,
- Submission of information concerning already existing inventories in the Alpine region (such as LTER sites) until end of January 2021 (please find already attached the *Stock-taking summary of permanent soil monitoring areas in the perimeter of the Alpine Convention*, which includes summarized information on LTER sites in the perimeter),
- Discussion on soil indicators and the option of a special training for surveyors in the Alpine region (approx. end of March 2022) at the next meeting of the Technical Working Group possibly in spring 2021.

Due to a tight timetable for preparing the whole LUCAS survey for 2022 first steps of improving the representativity for the Alpine area of LUCAS Soil in 2022 can be made as outlined above. Further steps are envisaged to be taken on a longer term to ensure that further improvements regarding the representativity of soil conditions in the Alps can be considered in the preparation for LUCAS Soil 2026 in an early planning state of the survey.

## Conception for the selection of LUCAS top soil sampling sites for the campaign 2022

Austrian working group, 09.12.2020

### 1) How should the distribution pattern of additional LUCAS sites of the Austrian territory look like?

Table 1: Distribution by land use categories

Land use category	Number of LUCAS sites		
	2009	2015	2018
Woodland	121	249	205
Cropland	148	130	89
Grassland	134	155	132
Shrubland	6	6	4
Others	11	3	9
Total	420	543	439*

\*...out of 452 sites to be investigated samples of only 439 sites have been analysed

The following figures show the LUCAS soil sampling sites of Austria in 2009, 2015, and 2018.

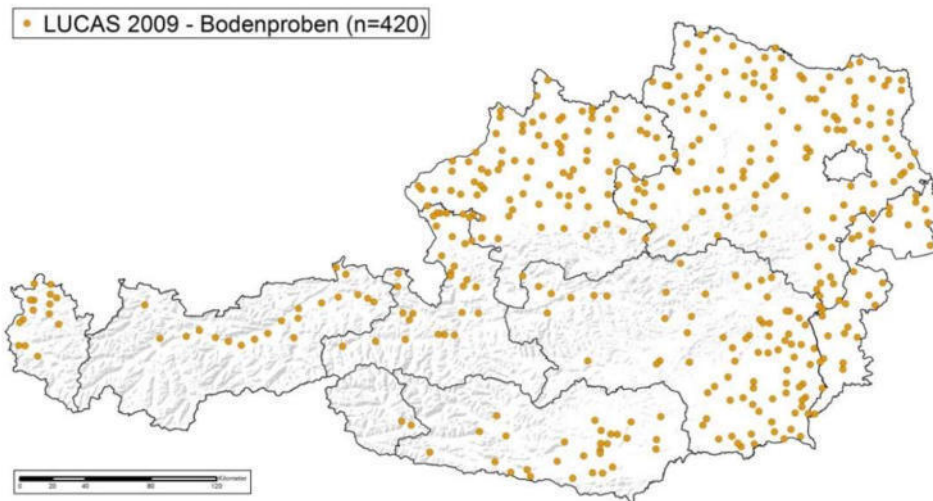


Figure 1: LUCAS soil sampling sites of Austria in 2009

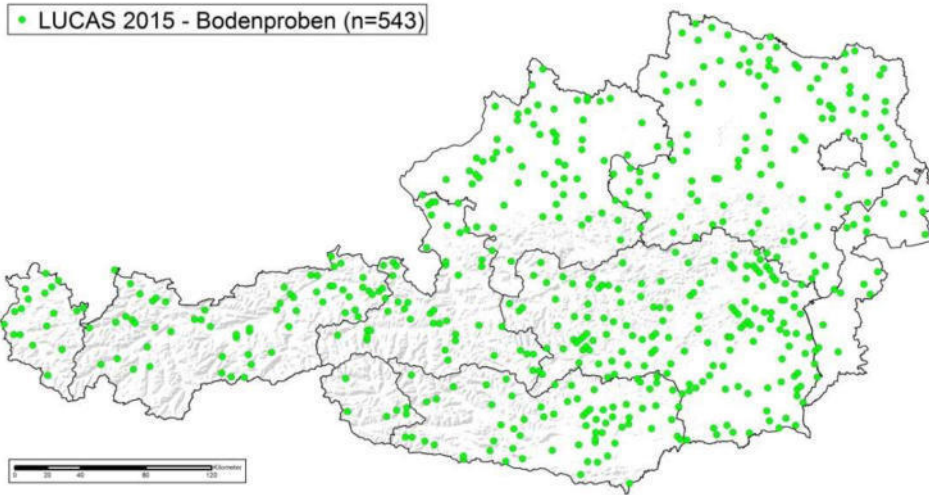


Figure 2: LUCAS soil sampling sites of Austria in 2015

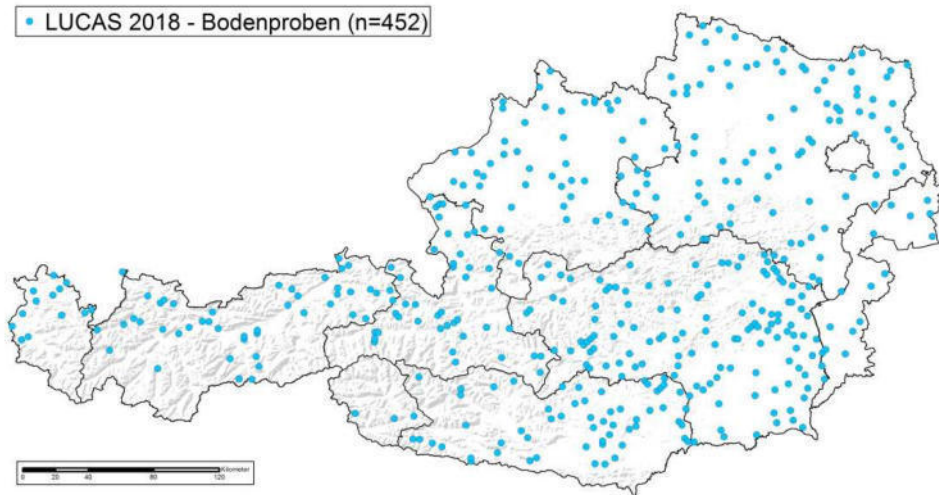


Figure 3: LUCAS soil sampling sites of Austria in 2018



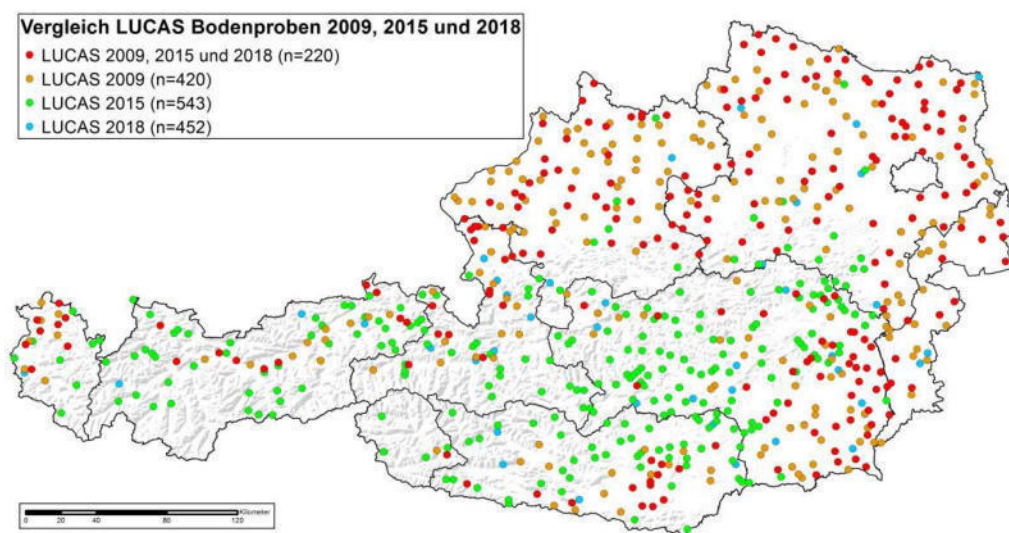


Figure 4: Depiction of all LUCAS sites investigated in 2009, 2015, and 2018

#### Represented area per LUCAS-point

Table 2: Represented area per LUCAS-point regarding sampling site distribution in 2018 and after adding 650 new LUCAS points (<sup>1</sup>...out of 452 sites to be investigated only 439 samples have been analysed)

Federal state 2018	Area [km <sup>2</sup> ]	LUCAS 2018	Area <sub>rep</sub> 2018 [km <sup>2</sup> ]	LUCAS 2022	Area <sub>rep</sub> 2022 [km <sup>2</sup> ]	LUCAS additional
Vienna	414,82	0	0,0	5	77	<b>5</b>
Styria	16.399,34	126	130,2	213	77	<b>87</b>
Carinthia	9.536,50	57	167,3	124	77	<b>67</b>
Salzburg	7.154,56	42	170,3	93	77	<b>51</b>
Lower Austria	19.179,56	98	195,7	249	77	<b>151</b>
Upper Austria	11.982,52	51	235,0	156	77	<b>105</b>
Vorarlberg	2.601,67	10	260,2	34	77	<b>24</b>
Tyrol	12.648,37	42	301,2	164	77	<b>122</b>
Burgenland	3.965,20	13	305,0	51	77	<b>38</b>
<b>Total</b>	<b>83.882,54</b>	<b>439<sup>1</sup></b>	<b>191,1</b>	<b>1089</b>		<b>650</b>

#### Distribution of sampling sites concerning their vertical extension

Table 3: Distribution of LUCAS 2018 points classified by altitude and their representative area after adding 650 additional sites

Altitude class	Area [km <sup>2</sup> ]	Proportion [%]	LUCAS 2018	Area <sub>rep</sub> 2022 [km <sup>2</sup> ]	LUCAS 2022	LUCAS additional
≤ 500 m	26.632	31,75	143	76,14	350	<b>207</b>
> 500 bis 1.000 m	25.412	30,30	168	76,14	334	<b>166</b>
> 1.000 bis 1.500 m	14.681	17,50	132	76,14	193	<b>61</b>
> 1.500 bis 2.000 m	9.620	11,47	9	76,14	126	<b>117</b>
> 2.000 m	7.533	8,98	0	76,14	99	<b>99</b>
<b>Total</b>	<b>83.879</b>	<b>100,00</b>	<b>452</b>		<b>1102</b>	<b>650</b>

## Vertical Distribution of LUCAS points in 2009, 2015, and 2018

**Table 4: Number of existing LUCAS-points disaggregated into classes of 100 m vertical extent (missing information concerning elevation for <sup>1</sup>three sites and <sup>2</sup>one site, respectively)**

Elevation [m]	Number of LUCAS points		
	2009	2015 <sup>1</sup>	2018 <sup>2</sup>
100 – 199	34	25	22
200 – 299	62	49	40
300 – 399	53	43	38
400 – 499	67	52	43
500 – 599	66	48	42
600 – 699	56	55	42
700 – 799	43	38	33
800 – 899	32	42	32
900 - 999	6	26	19
1.000 – 1.099	1	48	39
1.100 – 1.199	0	31	33
1.200 – 1.299	0	31	25
1.300 – 1.399	0	31	20
1.400 – 1.499	0	13	15
1.500 – 1.599	0	3	5
1.600 – 1.699	0	0	1
1.700 – 1.799	0	3	2
1.800 – 1.899	0	1	1

### 2) Which criteria should be considered for selecting additional LUCAS points?

I Representativity of LUCAS sites: one approach was used in a national research project for the evaluation of LUCAS results (LUCASSA – LUCAS Soil Austria):

- Representativity of characteristic soil types for a certain area/landscape
- Representativity regarding the wide spectrum of soil types in Austria

Iterative approach:

Step 1: Identifying the most common soil types based on the Austrian soil map

Step 2: GIS-geoprocessing to combine the layer “common soil types” with the LUCAS-grid

Step 3: Determining an order of priority of potential LUCAS points located on common soil types for each federal state (highest priority for points located on representative soil types)

Step 4: individual selection of points in order to get a wide range of different soil types

II Considering sites which are the backbone of Austrian soil data sets:

- Reference profiles of the Austrian soil map
- Reference profiles of the Austrian soil taxation survey
- Sites of the Austrian soil state inventory

## **Special case alpine soils**

### **I Scientific criteria**

Since there is no soil data available for alpine regions the LUCASSA approach will not be feasible and, thus, an alternative method is necessary. The selection process should take into account all the soil forming factors in order to capture as much of the heterogeneous processes in soils of high altitude as possible. The most significant soil forming factors are:

- Geology/lithology (carbonate/silicate rocks etc.)
- Land use (anthropogenic influenced/near natural)
- Vegetation
- Topography/relief

The application of several procedures for the selection would be possible but due to the narrow time budget a simple approach through combining soil forming factor information by using geographical information system will be preferred.

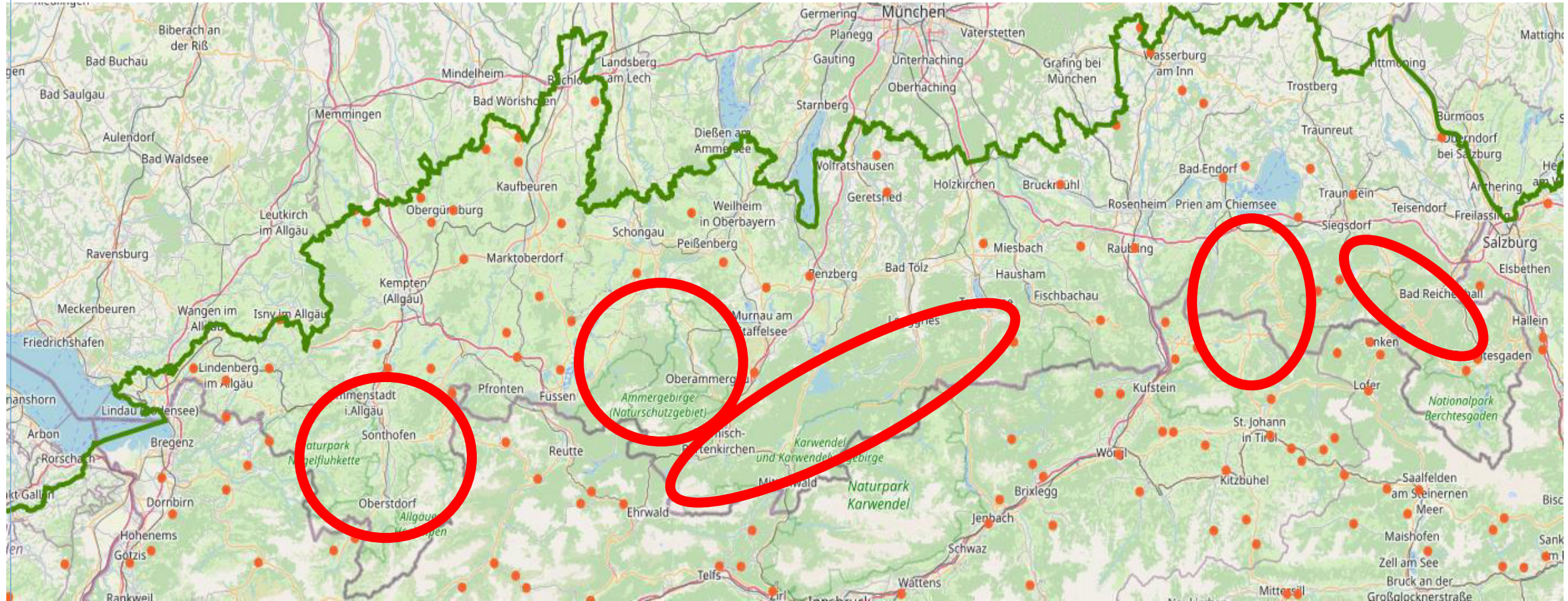
### **II Other criteria**

- Accessibility of the sites



# Topsoil sampling points in Alpine Convention Perimeter focus: Bavaria (Germany)

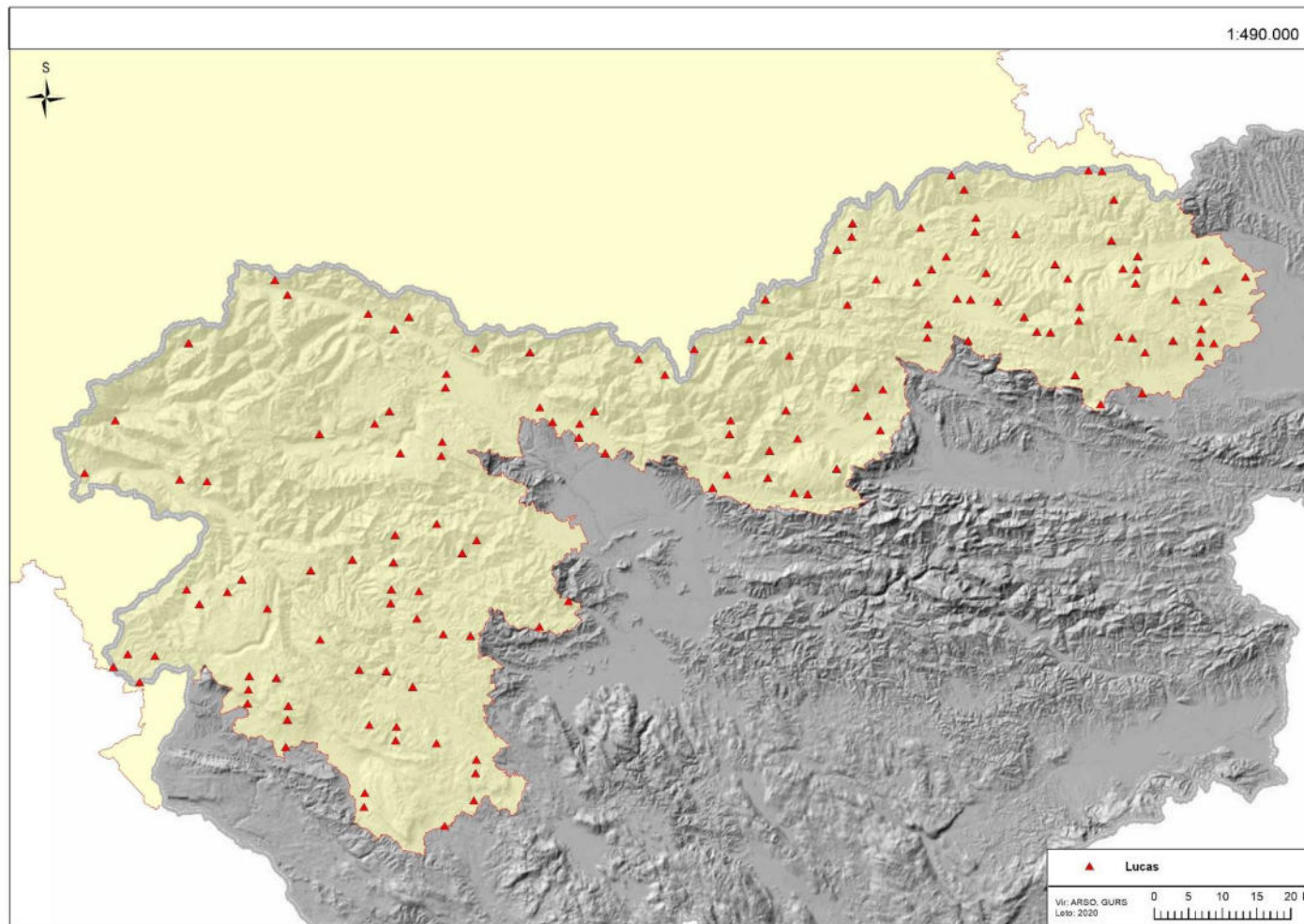
Soil Protection working group – LUCAS-data sampling points



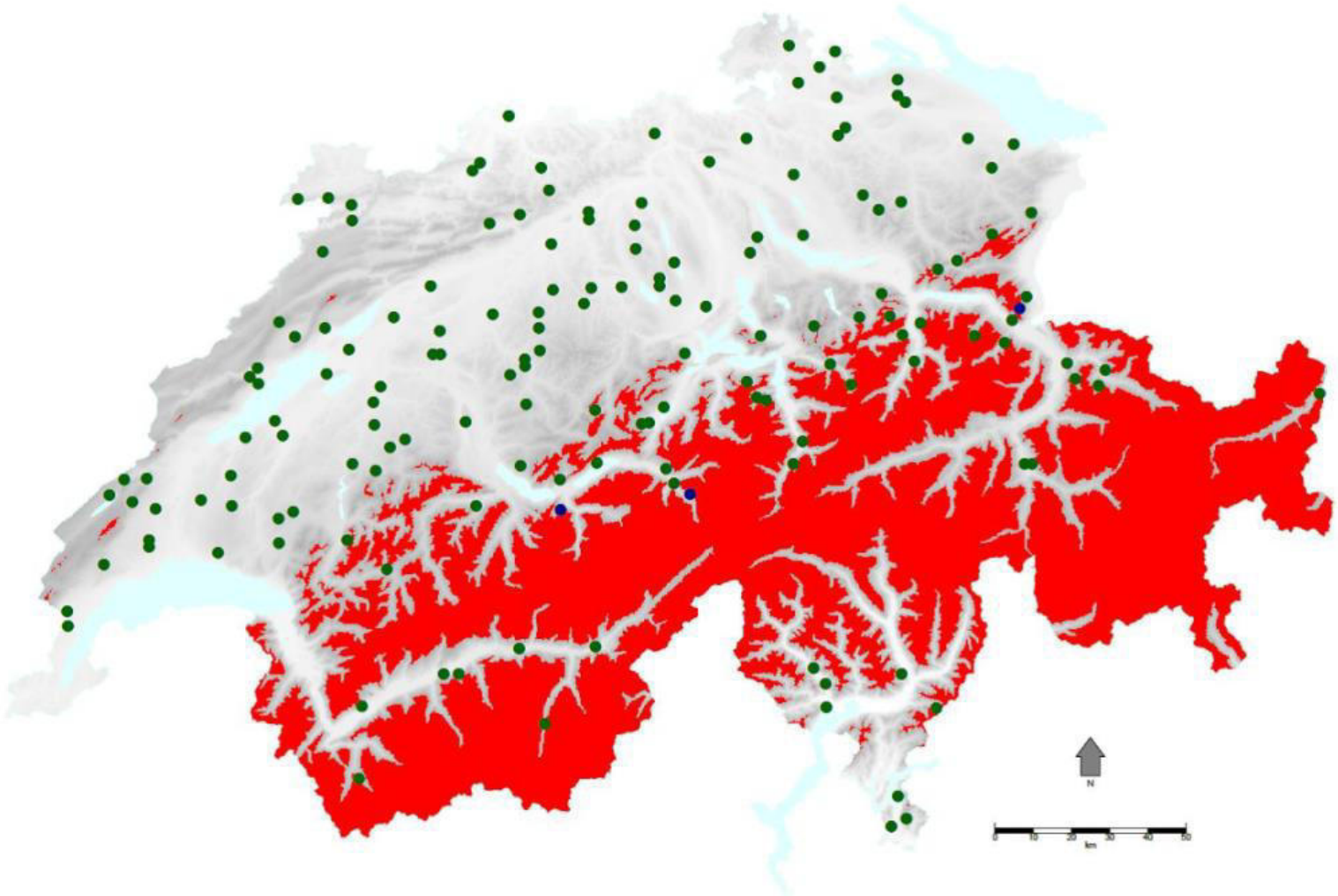
In side the circles/elipses we ask you to densify the sampling points (especially at the Alpine rise) in the LUCAS-project



LUCAS-Soil sampling sites Slovenia, displaying areas in the Alpine Convention perimeter which are not covered.



Sampling sites LUCAS-Soil Switzerland. Red areas are higher than 1'500 m above sea level and thus currently not represented.



## **Soil Protection Technical Working Group on LUCAS Soil 2022**

6 September 2021

### **Summary**

The Soil Protection Working Group of the Alpine Convention aims at contributing to the harmonization of soil data and permanent soil monitoring according to the Soil Conservation Protocol of the Alpine Convention (especially Articles 20 and 21) and the mandate of the Working Group on Soil Protection 2021-2022. The fruitful cooperation with the Joint Research Center (JRC) has been initiated for improving the representativity of soil conditions in the Alps within the European survey of soil data (LUCAS Soil).

At the first technical working group meeting on 14 December 2020 the Soil Protection Working Group members in coordination with the respective national soil experts reported shortcomings regarding the representativity of soil conditions for the Alpine area in previous LUCAS Soil surveys and made suggestions for improvements for the upcoming survey in 2022. After the meeting the representativity of the soil sampling sites in the perimeter of the Alpine Convention in the next LUCAS Soil could be improved significantly. Over 300 additional sampling points in the perimeter were identified to be added to the survey 2022 in cooperation between the JRC and experts from the Alpine States. Those are even 440 sampling points more compared to the last survey in 2015. It was highlighted that soils on high elevations are important to represent soil in the Alps better. Thus, 118 points above 1.500 m will be sampled in 2022. The highest sampling site will be on 3.000 meter above sea level.

While the follow up of the previous meeting focused on general aspects and made it possible to use a small window of opportunity for the quantitative improvement of soil

sampling sites in the Alps, the second meeting aimed at improving the quality of taking soil samples in Alpine terrain in the upcoming survey.

Different possibilities had been proposed beforehand to give guidance for surveyors on Alpine/mountain specifics. During the meeting it was agreed to follow the two options:

- LUCAS Soil sampling protocol addition: hints from the Alps for taking soil samples in Alpine/mountain terrain (1 or 2 A4 pages, that can be taken along during sampling in the field),
- Presentation during webinar/seminar on specifics of sampling in Alpine/mountain terrain for LUCAS 2022 coordinators from the Alpine Countries and open for coordinators from other countries who are interested during LUCAS 2022 coordinators seminar in Portugal in February 2022

The hints from the Alps could contain elements such as, what to take care of on high elevations, advice how to sample steep, shallow and/or organic rich soils or how to take bulk density samples in stony soils. Following this meeting, written input from soil experts is needed to elaborate a leaflet of helpful hints for soil sampling of Alpine/mountain sites, which samplers can use during field work. This leaflet should only contain the specifics which are not yet include in the technical manual for LUCAS soil sampling and which do only apply to mountain sites. Furthermore, one of the Alpine soil experts should prepare and hold a presentation about this topic during the LUCAS 2022 coordinators seminar in February 2022 either in Portugal or online.

Some general questions about sampling such as the sampling depths, differences between the samples from different land use types and countries, the planned timeframe for taking samples (normally 20-30 minutes, 40 minutes if bulk density sample is taken), novelties in the upcoming LUCAS survey as well as the usual backgrounds of the respective field workers were discussed. Furthermore, it was highlighted that the EC should inform specific stakeholders such as the chamber of agriculture before the sampling starts to improve the acceptance of landowners and land users.



The EU Soil Observatory, which is currently in creation, and the ESP are working on the topic of European wide soil data and monitoring which should be taken into consideration for future steps regarding this topic.

#### Timeline

- 08 September 2021, two days after this meeting the tender for the LUCAS 2022 survey contractors, done by EUROSTAT has been closed.
- Alpine soil experts are asked to send the input for the sampling hints from the Alps as outlined above to Christian Steiner and Vera Bornemann by 17 December 2021.
- Alpine soil experts, with field experiences, should let Christian Steiner and Vera Bornemann know by 17 December if they are available to hold the presentation in February (Lisbon or online).
- February 2021, LUCAS 2022 coordinators seminar in Portugal
- April 2022, start of the LUCAS survey 2022

#### Attachments:

- LUCAS 2022 instructions for surveyors: 1.2 Specific module: soil
- Excel table with all locations for LUCAS soil 2022 in the Alpine Countries

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# LONG-TERM ACTION PLAN

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***For the implementation of provisions and declarations on soil protection in the specific context of the Alpine region***

**Soil Protection Working Group of the Alpine Convention**

*Mandate 2021-2022*



ALPENKONVENTION  
CONVENTION ALPINE  
ALPSKA KONVENCIJA  
CONVENZIONE DELLE ALPI

## IMPRINT

This report is the result of the work of the Soil Protection Working Group during the mandate phase 2021-2022 under Austrian Presidency. The members of the Working Group are:

**President:** Christian Steiner (Lower Austria, Authority of Land Reform, Department for Rural Development)

**Contracting party delegates:**

- **Austria:** Thomas Peham (Government of Tyrol), Andrea Spanischberger (Austrian Federal Ministry for Agriculture and Forestry, Regions and Water Management)
- **France:** Frédéric Berger (French National research institute of science and technology for environment and agriculture, Grenoble regional center), Marian Le Loarer-Guezbar (Ministry for the Ecological Transition)
- **Germany:** Frank Glante (German Environmental Agency), Bernd Schilling (Bavarian State Agency for the Environment), Jochen Daschner (Bavarian State Ministry for the Environment and Consumer Protection)
- **Italy:** Marco Di Leginio and Fiorenzo Fumanti (Italian Institute for Environmental Protection and Research), Evelyne Navillod (Region Aosta Valley)
- **Liechtenstein:** Maria Seeberger (State Administration of the Principality of Liechtenstein)
- **Slovenia:** Petra Božič (Slovenian Ministry of Agriculture, Forestry and Food), Petra Karo Bešter (Slovenian Environmental Agency), Jože Ileršič (Slovenian Ministry of Agriculture, Forestry and Food)
- **Switzerland:** Elena Havlicek (Swiss Federal Office for the Environment)
- **European Union:** Arwyn Jones (European Union, Joint Research Centre JRC)

**Observers:** Paul Kuncio (CIPRA International), Liliana Dagostin (Club Arc Alpin)

**Permanent Secretariat of the Alpine Convention:** Vera Bornemann

**Further authors:** *Michele Freppaz (University of Torino, President Alpine Soil Partnership), Silvia Stanchi (University of Torino), Benjamin Einhorn (Director of the Alpine Natural Hazards Cluster, France)*

Permanent Secretariat of the Alpine Convention, June 2022

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## ABBREVIATIONS

**AG** – Action Group

**AlpSP** – Alpine Soil Partnership

**BORIS** – Bodeninformationssystem  
(Austrian digital soil information system)

**DOMODIS** – Documentation of Mountain  
Disasters

**EAP** – European Action Program

**EFFI** – European Forest Fire Information  
System

**ESP** – European Soil Partnership

**EU** – European Union

**EUROSTAT** – European Statistical Office

**EUSALP** – EU Strategy for the Alpine  
Region

**EUSDAC** – European Union Soil Data  
Centre

**EUSO** – European Union Soil Observatory

**FAO** – Food and Agriculture Organization  
of the United Nations

**GHG** – Greenhouse Gases

**GIS** – Geographical Information System

**GSP** – Global Soil Partnership

**IP** – Implementation Pathways of the  
Climate Action Plan 2.0 (reference to the  
pathways are given in this shape:  
IP\_topic+pathway number\_implementation  
step; topics are e.g. S = Soil, SP = Spatial  
Planning)

**IPCC** – Intergovernmental Panel on  
Climate Change

**ITPS** – Intergovernmental Technical Panel  
on Soils

**IUCN** – International Union for  
Conservation of Nature

**JRC** – Joint Research Centre of the  
European Commission

**LUCAS** - Land Use and Coverage Area  
frame Survey

**NBS** – Nature-Based Solutions

**NGOs** – Non-Governmental Organisations

**PLANALP** – Natural Hazards Working  
Group of the Alpine Convention

**SDG** – Sustainable Development Goal

**S-DSS** – Smart Decision Support System

**UN** – United Nations

**UNCCD** – United Nations Convention to  
Combat Desertification

**VGSSM** – Voluntary Guidelines on  
Sustainable Soil Management

**WG** – Working Group

**WRB** – World Reference Base for Soil  
Resources

**WSD** – World Soil Day

Index

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- 1. INTRODUCTION.....1
- 2. ECONOMICAL AND PRUDENT USE OF SOIL ..... 3
- 3. HIGHLIGHTING THE IMPORTANCE OF SOILS AND SOIL FERTILITY FOR CLIMATE MITIGATION AND ADAPTATION ..... 6
- 4. CONSERVATION OF SOILS OF HIGH NATURE VALUE, SUCH AS SOILS WITH HIGH ORGANIC CONTENT, WETLANDS AND MOORS .....10
- 5. AVOIDING DEGRADATION AND FOSTERING RESTORATION OF SOILS .....13
- 6. AVOIDING AND MITIGATING SOIL EROSION AND RELATED HAZARDS.....16
- 7. ALPINE-WIDE CONCEPT OF DATA COMPARABILITY AND MONITORING .....20
- 8. IMPROVING SOIL LITERACY AND AWARENESS IN THE ALPINE REGION .....22
- 9. BIBLIOGRAPHY .....26

## 1. INTRODUCTION

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### Soil as a valuable resource

As the living interface between vegetation cover and geological subsurface, soil forms the skin of our planet. The solid rock envelope, the biosphere, the atmosphere, and the hydrosphere overlap in soils. Compared to the skin of the human body, this soil layer is many times thinner and extremely vulnerable.

Soil is a limited resource and not renewable within the timespan of a few human generations. Soil provides numerous ecosystem services which are essential for human life and it forms the basis for a wide range of human activities. Despite its enormous importance for plant, animal, and human life, soil is a medium which has received far too little attention; for example, the immense abundance of soil life is still largely unexplored. A handful of vital soil contains more living organisms than there are humans living on earth.

### Soil in mountain regions

The conservation of soils is therefore of utmost importance! This is especially true for mountainous regions such as the Alpine area, where soils are much more vulnerable and endangered due to the region's steep reliefs, shallow soils, and longer formation times. Another challenge for soil in Alpine areas is climate change, which is progressing more rapidly in mountainous areas and is much more noticeable than in other regions.

### Soil is gaining more attention

Soil as an important resource is not noticed as much as air or water since it is mostly not visible. However, this limited perception of soil has changed in recent years. The International Year of Soil 2015, proclaimed by the FAO, was an occasion for many decision-makers, land users, interest groups, and indeed the entire population to take a closer look at soil issues. This increasing awareness is also reflected in various activities on soil protection at national, European, and international level. Multiple activities on soil protection have been taking place within the Alpine Convention since 2015, including the launch of the Soil Protection Working Group in 2019. The European Commission is also currently launching numerous initiatives on soil, which will result in voluntary and legally binding instruments.

### The long-term action plan as a suitable instrument

Since results in the field of soil protection need perseverance and continuous efforts, long-term strategies for relevant cooperation partners are necessary. Successful first steps are important and long-term approaches are required for core aspects of soil protection. A structured approach is needed for the comprehensive and, above all, sustainable integration of soil protection into all affected thematic areas.

Thus, this long-term action plan for the implementation of provisions and declarations on soil protection in the specific context of the Alpine region was developed within the 2021-2022 mandate of the Soil Protection Working Group. It also considers the interaction of qualitative and quantitative aspects of soil protection and the effects of climate change.

## A living document

This long-term action plan is designed as a living document to ensure that recent developments can be considered. Therefore, updating the action plan is envisaged after approximately every Alpine Convention mandate period.

The long-term action plan is based on:

- The Soil Conservation Protocol of the Alpine Convention
- The “Declaration Sustainable Land Use and Soil Protection – Joining Forces for Nature, People and the Economy” of EUSALP Action Group 6
- The implementation pathways on soil and related to soil of the Climate Action Plan 2.0 of the Alpine Convention
- The UN Sustainable Development Goals

and considers (non-exhaustive list):

- The European Green Deal including especially the EU Soil Strategy
- The EU Mission “A Soil Deal for Europe”

### Added values at a glance:

- Continuity for the topic of soil protection (soil protection goals can seldomly be reached within two-year mandate periods)
- Longer term orientation for working groups as well as for projects and funding
- Triggering actions and synergies for future developments in the horizontal issue of soil protection in the Alpine Convention context
- Providing an overview of the respective focus topics (which measures, networks, legal regulations, guidelines, specifications, and associated objectives already exist)

## Focus on actions and stakeholders

The plan focuses on actions which should be taken in the Alpine area. Each content chapter provides some background information, highlighting the significance of the issue in the Alpine region (and in Europe) and displaying the initial situation including legal frameworks, other provisions, targets, and starting points for action and relevant actors. The core of every content chapter is the envisaged actions, which are structured as short-term (until 2024), mid-term (until 2030), and long-term (until 2050) measures.

The long-term action plan was developed for all actors whose activities have an impact on soil in the Alps with the focus on stakeholders such as from the Alpine Convention bodies and partners, chambers (e.g. chamber of agriculture, chamber of economy, spatial planners etc.), municipality networks, regional networks etc.

**Thus, everyone is invited and needed to adequately implement this action plan!**





## 2. ECONOMICAL AND PRUDENT USE OF SOIL

*Chapter authors: Thomas Peham (Government of Tyrol), Andrea Spanischberger (Austrian Federal Ministry for Agriculture and Forestry, Regions and Water Management), Christian Steiner (Lower Austria, Authority of Land Reform, Department for Rural Development).*

### 2.1 Background

Soils are a major and non-renewable resource, and their protection requires a common framework for preserving soil quality and soil quantity. This even applies for reaching already set targets like “No net land take by 2050” (European Commission, 2011) and meeting ecological, economic, and social needs.

#### Significance of the issue in the Alpine region

The Alpine region reveals a heterogeneous dispersal of usages with urban agglomeration in the main valleys and depopulation in distant areas. The limited area for potential permanent settlement increases the competition for the different usages like settlement, transport and tourist infrastructure, agricultural production, environmental protection or measures for climate change adaptation.

#### Initial situation, including targets

- Soil Conservation Protocol Article 7(2), Spatial Planning and Sustainable Development Protocol Article 9(3), Climate Action Plan 2.0 (IPs, e.g., S2, S3, SP1), Compliance Committee report on Economical and prudent use of soil in the Alps (Permanent Secretariat of the Alpine Convention 2020), EUSALP AG6 “Declaration Sustainable Land Use and Soil Protection – Joining Forces for Nature, People and the Economy”.
- EU target “No net land take by 2050” and differing national targets.
- European Green Deal with special focus on EU Soil Strategy.
- Sustainable Development Goals, SDG 15.3. target “Land Degradation Neutrality”.



## Starting points

- Working Group on Spatial Planning and Sustainable Development of the Alpine Convention.
- AlpPlanNetwork.
- Projects: OpenSpaceAlps (concluding June 2022) and Act4Soils (in application).
- EUSALP AG6: Study on preservation and valorisation of the diversity of Alpine natural and cultural landscapes in times of climate crisis.

## 2.2 Actions

Short-term actions (until 2024)	Outputs/Indicators
Link and improve soil management strategies and agricultural practices (IP_S3_3, e.g., management recommendations specific for the Alps with a special focus on wetland and peatland; recommendations should include agricultural practices to build up and maintain humus).	Develop and spread management recommendations for farmers (and other land users) specifically for the Alps
Provide statistical data on land consumption and No net land take (IP_SP1_1a).	Report on comparable data
Establish effective quantitative targets for soil/land use at local as well as at regional or supra-municipal level and to limit soil sealing and soil/land consumption also by prioritising uses according to qualitative aspects ("soil functions") (CC_2_c2_2, BMLFUW (2015): AT_3.5).	Quantitative targets are publicly available (e.g., report, GIS-system)
Define guidelines for land-use plans at the municipal level (IP_S2_3).	Guidelines are publicly available
Medium-term actions (until 2030)	Outputs/Indicators
Support the development and implementation of strategies to meet Net-0 by 2050.	Engagement in respective working groups
Develop Alpine-wide recommendations for an economic incentive system (IP_S2_2c), which should focus on No net land take and on land regeneration e.g., by subsidies for unsealing of land.	Recommendations are publicly available
Mapping soil functions in relation to potential uses (e.g., spatial planning) and ecosystem services (IP_S3_2).	Alpine-wide initiative to coordinate the implementation of maps concerning soil functions and ecosystem services in the respective national frameworks

Long-term actions (until 2050)	Outputs/Indicators
Support monitoring of the effects of climate change on Alpine soils.	Comparable monitoring network is established
Support of further Climate Action Plan implementation Steps.	Participation in respective working groups
Foster the implementation of a mandatory assessment of the impact on land take/soil sealing by existing laws and during creation of new laws (AT_3.1).	Impact report(s) Legislative adaptations



### 3. HIGHLIGHTING THE IMPORTANCE OF SOILS AND SOIL FERTILITY FOR CLIMATE MITIGATION AND ADAPTATION

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#### 3.1 Background

The world's soils are under threat in various aspects. The most frequently mentioned are soil organic matter reduction (loss), soil erosion, soil pollution, soil sealing, soil compaction, soil biodiversity loss, and soil salinisation. The importance of soil and soil fertility is becoming an increasingly relevant topic regarding different aspects, especially its role for climate mitigation and adaptation. Different organisations, NGOs, governments etc. are addressing the importance of soils and soil fertility particularly, more recently, in light of climate mitigation and adaptation.

#### Significance of the issue in the Alpine region

Alpine soils are highly vulnerable to climate change. The Climate Action Plan 2.0 of the Alpine Convention states in its soil chapter: "The preservation of Alpine soils is crucial for climate change mitigation, because only healthy soils can store humidity and carbon. The Alpine area includes many specifically carbon-rich soil types like peatland, moorland or wetland areas. Both quality and quantity of these soils need to be protected by reducing pressures originating from increasing demand for space for traffic, housing, economy and leisure and at the same time from agricultural and forestry practices which are a threat to soil preservation. Preservation of healthy soils is furthermore a precondition of many adaptation measures, e.g., in settlement areas to avoid heat island effects or to support flood management through retention areas."

## Initial situation, including targets

The Soil Conservation Protocol of the Alpine Convention addresses this topic directly or indirectly in Article 3 in which the consideration of the objectives of the Protocol in other policies is addressed. Connecting various policies is important for soil protection as well as for climate change adaptation and mitigation because climate change affects all sectors – agriculture and forestry, energy, water management, and many others and thus demands an integrated approach. Furthermore, the Protocol addresses the conservation of soils in wetlands and moors in Article 9 and considers agriculture, pasture farming, and forestry in Article 12.

The Climate Action Plan 2.0 of the Alpine Convention also has a specific chapter for soil and calls for an Alpine-wide coordinated approach for solving soil related issues, highlighting in particular the value of carbon rich soils.

The EU Soil Strategy for 2030 that was released in November 2021 states that “targeted and continued sustainable soil management practices can significantly help in achieving climate neutrality by eliminating the anthropogenic emissions from organic soils and by increasing the carbon stocked in mineral soils.” As for adaptation, it highlights the crucial role of soil in the water cycle: “A high water retention capacity in soils reduces the effects of floods and decreases the negative impact of droughts.” The Strategy defines its vision: “By 2050, all EU soil ecosystems are in healthy condition and are thus more resilient, which will require very decisive changes in this decade.” (European Commission, 2021a).

## Starting points

Different institutions, networks, projects and working groups are dealing with soil related issues. Within the Alpine Convention, different Thematic Working Bodies are directly or indirectly addressing this issue, e.g., the WG Spatial Planning and Sustainable Development, PLANALP, the Alpine Climate Board, the WG Mountain Agriculture and Mountain Forestry. EUSALP Action Groups 6 and 7 are also working on soil related issues. At the level of the European Commission, different actions are underway such as preparation of a Soil Health Law that is being in elaboration with the help of the Soil Expert Group. The Joint Research Centre (JRC) is carrying out different projects, such as the Soil Data Centre or the newly established EU Soil Observatory.

Other relevant publications that emphasise the importance of soils and soil fertility for climate mitigation and adaptation are:

- Climate Action Plan 2.0 of Alpine Convention,
- EU Soil Strategy for 2030 and
- the upcoming EU Soil Health Law.

### 3.2 Actions

Short-term actions (until 2024)	Outputs/Indicators
Promoting education and training as well as information for the public regarding the importance of soil and soil fertility for climate mitigation and adaptation (Soil Conservation Protocol, Article 22).	Workshops, trainings
Start an Alpine-wide awareness raising and communication campaign and focus on the message “Soil protection is climate protection and vice versa” (IP_SP1_2a).	Preparation or campaign started
Coaching of spatial planners and decision-makers through fostering communication about the importance of spatial planning as a tool for the protection of soil and soil fertility, and the necessity to consider data on soil and soil fertility and functions in spatial planning (IP_SP2_2b).	Workshops or trainings
Collecting information/examples about national, regional, and local activities which also support EU policies.	Reports or promotions which can also support relevant EU policies, strategies, and plans
Medium-term actions (until 2030)	Outputs/Indicators
Collecting the statistical data on soil and soil fertility in relation to climate mitigation and adaptation in the Alpine region and their review and comparison.	Soil dataset
Establishing a methodology and relevant targets and indicators of soil and soil fertility assessment in relation to climate mitigation and adaptation (EU Soil Strategy for 2030).	Report
Planning of further long-term measures for the protection, restoration, and enhancement of soil and soil fertility in the sense of climate-resilience, mitigation, and adaptation.	Report

Long-term actions (until 2050)	Outputs/Indicators
A hot-spot analysis of fertile soils and soils that have a high impact on climate mitigation and adaptation. This data collection on the quality of Alpine soils shall be updated regularly to become a monitoring system on Alpine soils (IP_S3_1).	Hot-spot analysis and dataset
Safeguarding, enhancing and preserving the functions and ecosystem services of soil, both qualitatively and quantitatively. The restoration of impaired soils shall be promoted (Soil Conservation Protocol, Art. 1 (2)).	Report
Establishing Alpine-wide initiatives to protect or rehabilitate soil and soil fertility in the sense of climate-resilience, mitigation, and adaptation (IP_S3).	Alpine-wide initiatives
Supporting relevant strategies, policies, and plans of the Contracting Parties of the Alpine Convention with examples at the respective national, regional, and local levels.	Technical support of relevant strategies, policies, and plans





## 4. CONSERVATION OF SOILS OF HIGH NATURAL VALUE, SUCH AS SOILS WITH HIGH ORGANIC CONTENT, WETLANDS, AND MOORS

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### 4.1 Background

Moors, wetlands, and soils with a high organic content store more carbon than any other ecosystem on earth. This means that the protection of these soils is especially relevant for climate protection because they are true all-rounders. They are excellent water reservoirs and can delay runoff during flooding events; they are home to a great diversity of species and are habitats for endangered animals and plants.

#### Significance of the issue in the Alpine region

In the past, cultivation with resulting drainage of wetlands and moors in the Alpine region to produce food and feed was socially desired. However, drained wetlands and moors currently contribute significantly to greenhouse gas emissions in the Alpine region. When draining moors and wetlands, carbon dioxide (CO<sub>2</sub>) is released. A particularly high release of greenhouse gases (GHG) is to be expected, especially from peatland used for agricultural purposes. This is accompanied by the release of nutrients, the reduction in water retention in the area, and the susceptibility of the soil to (wind) erosion. With the increasing importance of combating climate change, climate protection by protecting and restoring moors and wetlands, with the accompanying reduction of greenhouse gas emissions, is becoming ever more urgent.

## Initial situation, including targets

The guiding principle for the conservation of wetlands and moors in the perimeter of the Alpine Convention is laid down in Article 9 of the Soil Conservation Protocol of the Alpine Convention:

*(1) The Contracting Parties undertake to preserve high moors and lowland moors. To achieve this objective, the use of peat shall be discontinued completely in the medium term.*

*(2) Drainage schemes in wetlands and moors shall be limited to the upkeep of existing networks unless there are sound reasons for exceptions. Remedial measures shall be promoted to minimise the environmental impact of existing drainage systems.*

*(3) On principle, moor soils shall not be utilised or, when used for agricultural purposes, shall be managed so that their characteristic features remain intact.*

## Starting points

In most of the member states of the Alpine Convention, the currently intact wetlands and moors and their condition have been recorded and renaturation projects have started in some areas. However, an Alpine-wide overview of soils with high organic carbon content does currently not exist.

In several Alpine countries, strategies or legal requirements regarding moors are being developed or are already in force. In the German federal state of Bavaria for example, the “peatland master plan” aims to intensify peatland protection. As part of the plan, raised bogs will be restored in the state forest, and the renaturation activities of the nature conservation administration for rewetting bogs will be tripled by 2050. Moors should be protected from a further reduction of the groundwater level.

## 4.2 Actions

Short-term actions (until 2024)	Outputs/Indicators
Common definition of “wetlands” and “moors”.	Common definitions
Review and comparison of the available data on wetlands and moors for the Alpine Convention perimeter (IP_S1_1a).	Research of existing data
Support (already existing) initiatives for substitution of peat products.	Exchange and cooperation
Medium-term actions (until 2030)	Outputs/Indicators
Harmonisation of the databases and representation in peatland and wetland types including recording and evaluation of soil functions (IP_S1_1a).	Projects for collecting maps on moorland distribution
Protection of designated near-natural wetlands and moors on the basis of environmental laws (IP_S1_3).	Protection measures improved



In each member state, implementation of pilot projects for the renaturation of moors and wetlands degraded through agricultural and forestry use to soils with intact soil function and carbon storage through renaturation as close to nature as possible or extensive use of bog soils with high (close to nature) water levels (IP_S1_3b).	Pilot projects implemented
Exchange about best practice examples of planning long-term measures for the renaturation of wetlands and moors.	Exchange on the planned long-term measures that were put in place or implementation in progress
Further raise public awareness of the need to protect soils in wetlands and moors.	Conferences for presentation of the results of long-term actions
<b>Long-term actions (until 2050)</b>	<b>Outputs/Indicators</b>
Increased renaturation of moors and wetlands with the aim of reducing climate-relevant emissions.	Restored peatlands and wetlands
Halting peat extraction and significant reduction in the use of peat products in landscaping.	No peat extraction happening in the Alpine area, use of peat products in landscaping is significantly reduced compared to 2022



## 5. AVOIDING DEGRADATION AND FOSTERING RESTORATION OF SOILS

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### 5.1 Background

Soil degradation is a widespread and diverse threat to soil health and functioning. However, it is not monitored exhaustively, and often remains hidden. It has been estimated that about 60% to 70% of soils in the EU are not healthy, and thus suffer from some form of degradation. Land and soil continue to be subject to severe erosion, compaction, organic matter decline, pollution, loss of biodiversity, salinisation and sealing. This damage is often the result of unsustainable land use and management, over-exploitation, and emissions of pollutants (European Commission, 2021a). Soils can be kept healthy in managed ecosystems through the application of sustainable management, i.e., a set of practices that is able to maintain the soil in, or restore it to, a healthy condition yielding multiple benefits, including for water and air (European Commission, 2021a). On the principles to be followed, there are international reference documents such as the Voluntary Guidelines for Sustainable Soil Management (FAO, 2017) and the EU Biodiversity Strategy for 2030 (European Commission, 2020), whose main objective is to restore degraded ecosystems, in particular those with the highest potential to capture and store carbon.

#### Significance of the issue in the Alpine region

In mountain landscapes the surface of fertile soil is limited and increasingly under pressure because of competing land uses and climate change. As a result, mountain soils increasingly face problems such as erosion, organic matter decline, nutrient mining, loss of biodiversity, as well as soil and water contamination which, in turn, affect and reduce productivity and the provision of goods and services. The soil implementation pathway 3 of the Climate Action Plan

2.0 supports measures to preserve and enhance Alpine soil quality. In fact, among other functions, soils can contribute to climate regulation through carbon sequestration. The FAO has recently recognised mountain soils as hotspots of organic carbon content (FAO and ITPS, 2021). In this context, the protection of Alpine soils, carbon content and soil biodiversity, with particular attention to wetlands and peatlands, is linked to the identification of specific recommendations, including mountain agricultural practices.

### Initial situation, including targets

Land degradation neutrality is promoted by Target 15.3 of the UN Sustainable Development Goals, which, by 2030, strives to combat desertification and restore degraded land and soil. SDG 2 (zero hunger) connects soils, food production, and healthy living. Land and soils are also bound to goals that address poverty reduction (SDG 1), health and well-being through reduced pollution (SDG 3), access to clean water and sanitation (SDG 6), the environmental impact of urban sprawl (SDG 11), and climate change (SDG 13) (European Environment Agency, 2019). Soil is a key element in the future agricultural policy (Farm to Fork Strategy), environmental protection (Biodiversity Strategy), and in climate change adaptation and mitigation (European Climate Law). According to this vision, the recent EU Soil Strategy underlines the importance for maintaining soil ecosystems in healthy condition, following a list of objectives to be reached by the medium and long-term, including the prevention of soil pollution. The Soil Conservation Protocol of the Alpine Convention is an important tool for soil protection: in particular Articles 15, 16, and 17 highlight the importance of limiting the inputs of harmful substances, minimising the use of gritting salt, promoting fewer contaminating materials, and surveying suspicious landfills by checking their environmental conditions. The Protocol is already largely implemented in national legislation, even if many Member States are not completely aligned on the concepts of soil contamination or pollution (from point or diffuse sources): the procedures for defining thresholds or critical limits, risk assessments, and management are defined in different ways among EU countries.

### Starting points

- **Mission “A Soil Deal for Europe”:** establish a series of measurable goals to be achieved:
  - Reduce land degradation.
  - Conserve and increase soil organic carbon stocks.
  - Promote No net land take and increase the reuse of urban soils.
  - Reduce soil pollution and enhance restoration.
  - Prevent and mitigate soil erosion.
  - Reduce the EU global footprint on soils.
  - Improve soil literacy in society.
- **Links4Soils:** describes and demonstrates good soil management practices and soil ecosystem services in the Alps. It established the Alpine Soil Partnership.
- **Soil4Life:** established some Regional Observatories on Soil Consumption putting together the different competences usually present within Italian regional offices dealing with agriculture, environment, landscape, spatial planning, etc.

- **Landsupport:** developed a decision support system (S-DSS smart decision support system) that is open and freely accessible via a web platform and is capable of integrating territorial and environmental data and models of analysis and evaluation.
- **Relevant networks:** European Soil Observatory (EUSO)/European Soil Data Center (ESDAC - Lucas Soil Survey), Global Soil Partnership, European Soil Partnership (ESP), Alpine Soil Partnership (AlpSP), UNCCD (United Nations Convention to Combat Desertification).

## 5.2 Actions

Short-term actions (until 2024)	Outputs/Indicators
Promotion of the importance of soil and soil ecosystem services with annual training activities and public information.	Events (to be held in national languages) and/or posts on social media/websites
Promotion of safe and sustainable use of fertilising and plant protection products.	Events (to be held in national languages) and/or posts on social media/websites
Exchange experiences about existing soil testing systems in the Alpine countries especially by considering specificities occurring in the Alpine region in view of the EU 'Test Your Soil For Free' initiative (EU Soil Strategy 2030).	Experiences exchanged
Medium-term actions (until 2030)	Outputs/Indicators
Restoration of degraded and carbon-rich areas, including soils (EU Soil Strategy 2030) (IP_S1_3b)).	Surface restored (ha)
Assessment of the regular reporting on land degradation from all parties of the Convention (UNCCD, 2018).	Reports submitted by Alpine countries
Long-term actions (until 2050)	Outputs/Indicators
Soil pollution in the Alpine area must be reduced.	Soil pollution in the Alpine area is reduced
Significantly degraded lands should be restored.	Degraded lands in the Alpine area are restored
Achievement of the No net land take in the EU target of the Seventh Environment Action Programme (7 <sup>th</sup> EAP).	Contribute to the application and implementation of this target on the national and regional level



## 6. AVOIDING AND MITIGATING SOIL EROSION AND RELATED HAZARDS

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### 6.1 Background

Climate change is responsible for the increase in climate-related disasters. The European Environment Agency states that the EU regions experienced substantial economic losses (1980-2020: € 460 billion) and fatalities (1980-2020: 89,525) from climate-related hazards. These extreme events are often the results of compound events (not necessarily extreme ones). Compound events are a combination of multiple climate-related hazards, land uses, ecosystems management and social components that contribute to social and environmental risks. This innovative concept integrates small to large-scale events in all their dimensions (natural, human, and social) to fully assess climate change induced risks to support adaptation actions and policies.

In this context, soils play a key role by being both, a) a source of risks (erosion, gully, landslides, etc.) when degraded and/or without an efficient protective vegetation cover, and b) a support for natural risk prevention and mitigation actions based on Nature-Based Solutions (NBS). NBS are defined by the IUCN as “*actions to protect, sustainably manage, and restore natural and modified ecosystems that address societal challenges effectively and adaptively, simultaneously providing human well-being and biodiversity benefits*” (IUCN, 2022).

Land artificialisation, the frequency of climatic disturbances (droughts, storms, etc.), climate change (changes in rainfall patterns, global warming, etc.) and phytosanitary problems (diseases, insects, invasive species, etc.) are all constraints that weaken soils and their ecosystem services. Our quality of life and well-being are thus intimately linked to healthy soils and sources of biodiversity, which support a vast array of ecosystem services. It is therefore a



fundamental and global issue to preserve soils, the foundation of our well-being and of a resilient and sustainable society.

### Significance of the issue in the Alpine region

Mountain regions are the areas where climate change and its impacts are most rapid and significant, such as melting of permafrost, reduced snow conditions, increased risk of forest fires, changes in the spatial distribution of forest species.

The geomorphology and the relief of the Alpine region condition its urbanisation and its economic development. They are also the main factors of gravity hazards (erosion, landslides, rockfalls, etc.) which constrain the development and functioning of mountain territories. The main drivers of these natural hazards are the steepness of slopes, the materials that can be mobilised and the “engine” of propagation (water and/or gravity).

As natural hazards and climate-related disasters do not stop at national borders, an Alpine-wide harmonised framework is needed to face this challenge. To be effective for both risk reduction and climate change adaptation services, Alpine soils need to be protected and resilient to climate change. This requires action plans and not only reaction plans.

### Initial situation, including targets

The Alpine Convention Soil Conservation Protocol is an important tool for soil protection and natural hazard prevention. In particular, its Articles 11, 12, and 13 highlight the importance of limiting soil erosion and compaction using engineering and adequate land uses (farming, forestry). The Protocol identifies solutions based on ecosystems services that are now integrated in the concept of Nature-Based Solutions.

The Climate Action Plan 2.0 and the Alpine Climate Target System 2050 focus on the added value of Alpine-wide cooperation on climate change mitigation and adaptation. As natural hazards are a result of compound events, their prevention requires a real, integrated, and adaptive management, and as such it is transversal to at least 6 of the 10 pathways identified in the Climate Action Plan 2.0, namely:

- IP\_S2: Defining Alpine-wide guidelines for minimised land take and sealing,
- IP\_S3: Supporting measures to preserve and enhance Alpine soil quality,
- IP\_NH1: Implementation of an Alpine-wide risk management plan, focusing on cross-border risks,
- IP\_NH2: Implementation of an Alpine-wide monitoring of permafrost and geomorphological processes related to permafrost warming,
- IP\_W2: Tools and methods for drought management in the Alps,
- IP\_W3: Implementing of an Alpine-wide flood risk management, based on nature-based solutions,
- IP\_SP1: Alpine-wide concept “Spatial planning for climate action”,
- IP\_Fo1: Promoting the full use of the potential of Alpine protective mountain forests,
- IP\_Fo4: Promote an Alpine-wide integrated sustainable forest management approach,
- IP\_Agr2: Moving to organic and climate-friendly methods in Alpine farming.

In addition, NBS are an efficient way to develop sustainable risk mitigation and prevention strategies (European Environmental Agency, 2021). The EU's 2030 biodiversity strategy, a key pillar of the European Green Deal, also includes a nature restoration plan that should be effective for limiting soil erosion. NBS are also highlighted in the new EU strategy on adaptation to climate change, adopted by the European Commission on 24 February 2021 (European Commission 2021c). It states that:

*“Climate change will have impacts at all levels of society and across all sectors of the economy, so adaptation actions must also be systemic. The Commission will continue to actively mainstream climate resilience considerations in all relevant policy fields. It will support the further development and implementation of adaptation strategies and plans at all levels of governance with three cross-cutting priorities:*

- *integrating adaptation into macro-fiscal policy*
- *nature-based solutions for adaptation*
- *local adaptation action.*”

In all these documents and schemes, common keywords are used which define the main foreseen target actions:

- Data harmonisation
- Harmonised monitoring
- Knowledge and database sharing
- Hazard potentialities mapping
- Improvement of remote sensing technics and modelling for large-scale mapping
- Limiting soil-related hazards
- If adapted, promoting Nature-Based Solutions
- Developing integrative and adaptive risk management and prevention strategies
- Raising awareness about soil preservation and risk prevention
- Mainstreaming European, national, regional, and local project results

### Starting points

- **GreenRisks4Alps:** gravitational risks modelling toolbox, protective forest economical evaluation.
- **Links4Soils:** soil management practices and soil ecosystem services in the Alps, the creation of the Alpine Soil Partnership.
- **RockTheAlps:** first harmonised Alpine model for rockfall risk mapping, a new concept for quick and large-scale rockfall risk assessment and protective forest mapping, forest management guidelines.
- **Art Up Web:** a methodology for the characterisation and analysis of the resilience of territories based on the analysis of the resilience of road networks to snow avalanches, rockfalls, and landslide risks.
- **EUSALP:** mainly Action Groups 6 and 8.
- **Alpine Convention:** Soil Protection and PLANALP working groups.
- **LUCAS:** soil survey.

- **EFFI:** European Forest Fire Information System – supports the services in charge of the protection of forests against fires in the EU and neighbour countries and provides the European Commission services and the European Parliament with updated and reliable information on wildland fires in Europe.
- **COPERNICUS:** databases and satellite images.
- **European Soil Observatory/European Soil Data Centre:** databases.
- **European Climate Assessment & Dataset project.**

## 6.2 Actions

Short-term actions (until 2024)	Outputs/Indicators
Identification of available and usable data sources.	Research of existing data Report on data sources
Reflection on the implementation of a participatory science action for the inventory/survey of events.	Drafting of the specifications of future applications
+Medium-term actions (until 2030)	Outputs/Indicators
Development of a common concept of natural hazard modelling and use to develop open-source models.	Report on the concept Developed models
Creation of a harmonized database for the calibration of propagation models.	Harmonised database
Long-term actions (until 2050)	Outputs/Indicators
Production of harmonised natural hazard maps for the entire Alpine region taking into account climate change impacts according to IPCC scenarios.	Several thematic maps
Maintenance and updating of databases, models, and maps.	Updated models, databases and maps Reports are available
Support of the Alpine Climate Action Plan.	Reports are available
Setting up training sessions for stakeholders: summer universities, massive open online courses, etc.	Events and sets of training materials
Support of spatial planning initiatives dedicated to NBS and natural risks integrative/adaptive management.	Report on each initiative





## 7. ALPINE-WIDE CONCEPT OF DATA COMPARABILITY AND MONITORING

*Chapter authors: Arwyn Jones (European Union, JRC), Thomas Peham (Government of Tyrol), Andrea Spanischberger (Austrian Federal Ministry for Agriculture and Forestry, Regions and Water Management), Christian Steiner (Lower Austria, Authority of Land Reform, Department for Rural Development).*

### 7.1 Background

In Europe, various actors (e.g., European Commission, national and regional authorities, universities) are carrying out soil sampling campaigns and analyses, all according to differing standards, resulting in non-harmonised data. In addition, data accessibility differs significantly. Both these issues hamper the assessment of soils (e.g., soil quality, sequestration potential, contamination, biodiversity).

#### Significance of the issue in the Alpine region

In the Alpine region, several uses (e.g., agriculture, forest, industry, infrastructure, tourism) concur strongly in the very limited permanent settlement areas. In addition to direct emissions, soil pollution occurs as a result of different emission streams. Finally, a large area, especially in the Alpine zone, is underrepresented in monitoring schemes and soil surveys.

#### Initial situation, including targets

- Soil Conservation Protocol Article 20 and 21, Climate Action Plan 2.0 implementation pathways (IP\_S1, IP\_S2 and IP\_S3).
- EUSALP AG6 “Declaration Sustainable Land Use and Soil Protection – Joining Forces for Nature, People and the Economy”.
- European Green Deal with special focus on the EU Soil, Farm to Fork and Biodiversity Strategies, and the Zero Pollution Action Plan.

## Starting points

- European Soil Observatory (EUSO)/European Soil Data Centre,
- National data centres (e.g., BORIS in Austria (Austrian Environmental Agency Austria 2022),
- Project Links4Soils,
- Long-term monitoring sites.

## 7.2 Actions

Short-term actions (until 2024)	Outputs/Indicators
Specific instructions for the LUCAS 2022 sampling on Alpine sites.	Instructions are distributed
Workshop on sampling Alpine sites during the LUCAS coordinators seminar 2022.	Input during workshop was held
Medium-term actions (until 2030)	Outputs/Indicators
Develop an Alpine-wide soil classification system (IP_S1_1aa).	The soil classification system is available OR adaptations are done to existing classification systems (e.g., WRB)  Respective trainings to soil classification are offered
Evaluating the synergies and comparability potential of LUCAS, national, and regional soil monitoring programmes.	Report is available
Long-term actions (until 2050)	Outputs/Indicators
Further support the Alpine Convention Climate Action Plan 2.0 implementation steps.	Engagement in respective working groups
Develop, apply, and spread easily understandable deductions of the existing data to improve the understanding and sustainable management of soils.	Soil awareness activities  Farmers consultancy activities



## 8. IMPROVING SOIL LITERACY AND AWARENESS IN THE ALPINE REGION

*Chapter authors: Elena Havlicek (Swiss Federal Office for the Environment), Silvia Stanchi (University of Torino), Michele Freppaz (University of Torino, President Alpine Soil Partnership), Evelyne Navillod (Region Aosta Valley).*

### 8.1 Background

Binding soil protection legislation, whether at national, regional or international level has so far proven to be insufficient for an effective and widespread implementation of soil protection measures. Moreover, voluntary soil protection measures are not sufficient to achieve sustainable soil management. In many cases, a lack of awareness has been identified as one of the underlying causes of unsustainable soil management practices, of the general lack of investment and of the political reluctance to adopt measures that preserve and enhance soil conditions. During the last EUROSIL congress in 2021, the “Connecting People and Soil” initiative identified key topics related to soil awareness. Stakeholders operating in different sectors with impact on soils have voiced their needs regarding improved soil literacy for all and the definition of a common language. It appears that the main barriers to scaling up practices that allow the preservation of soil capital are the low level of soil knowledge, the limited common understanding between the different stakeholders and, insufficient sharing of appropriate data between the scientific, policy, and field implementation levels.

Contrary to other vital resources, soils are biologically active: they are not only a milieu for living organisms but are built up by these organisms. Despite its essential role, soil biodiversity remains invisible and is therefore difficult to understand and protect. Moreover, the physical, chemical and biological properties of soils interact with each other in a complex way, giving soils their diversity of functions. This complexity often generates incomprehension in the broad audience. The rationale based on soil functions as the contribution of soils to major societal

issues such as climate change, water management, biodiversity losses, nutrient flows, food security, and land preservation, has proven to be effective and should be further developed. Moreover, good narratives and proposals to engage people on an emotional level help to involve the general audience.

### Significance of the issue in the Alpine region

Similar to other regions, soil is the basis of Alpine ecosystems. In the Alpine region, soils and soil functions are particularly vulnerable to threats, especially due to climatic conditions at elevated and high altitudes. On the one hand, the formation time of soils is much longer and after a disturbance soils and their functions cannot be quickly regenerated and restored. On the other hand, climate change is occurring more rapidly in mountain areas and although its effects on soils are not yet fully assessed, negative changes are to be expected.

### Initial situation, including targets

Members of the FAO established the Global Soil Partnership in December 2012. For fulfilling its mandate, the GSP addresses five pillars of action – among them pillar 2 “Encourage investment, technical cooperation, policy, education, awareness and extension in soil”. These activities are reflected in the regional and sub-regional soil partnerships, such as the European Soil Partnership (ESP) or the Alpine Soil Partnership (AlpSP). The AlpSP was established during the EU Alpine Space project Links4Soils, focused on raising awareness of soils in the Alpine region, reviewing the existing regional and national soil data, transferring knowledge and best management practices to policymakers, decision-makers, and other stakeholders. The AlpSP establishes a link between existing Alpine and soil networks and is particularly committed to the implementation of the Soil Conservation Protocol of the Alpine Convention. The activities of the AlpSP secretariat, formulated in five pillars based on the ESP, include the following targets:

- Coordination and Alpine-wide networking of soil stakeholders by actively supporting the members of the Alpine Soil Partnership as well as the exchange with other soil protection actors in the form of annual meetings and webinars and the development of identity-creating symbols.
- Promotion and communication of sustainable soil management by building up knowledge of relevant actions to be taken by local and regional decision makers.
- Raising awareness and innovative soil communication through digital media.

The Soil Conservation Protocol directly addresses communication and awareness raising in its article 22, which seeks to promote the education as well as the information of the public. Active cooperation with the AlpSP coordination unit and members as well with the other relevant partners will help to meet the objectives of the Protocol.

## Starting points

Partners: Alpine Soil Partnership, Global and European Soil Partnerships

### Publications & activities specific for the Alpine region

Book on Alpine Soil Ecosystem Services (long & short versions)	<a href="https://alpinesoils.eu/wp-content/uploads/2019/11/2019-1025_SoilEcosystemServicesInTheAlps-WEB.pdf">https://alpinesoils.eu/wp-content/uploads/2019/11/2019-1025_SoilEcosystemServicesInTheAlps-WEB.pdf</a>
Soil Ecosystem Services logos	<a href="https://alpinesoils.eu/description-of-link4soils-ses-logos">https://alpinesoils.eu/description-of-link4soils-ses-logos</a>
Earthworms Book & Identification sheets	<a href="https://alpinesoils.eu/portfolio/links4soils-earthworms-booklet-and-identification-sheets/">https://alpinesoils.eu/portfolio/links4soils-earthworms-booklet-and-identification-sheets/</a>
Soil etiquette	<a href="https://alpinesoils.eu/soil-etiquette/">https://alpinesoils.eu/soil-etiquette/</a>
Digital soil check	<a href="https://alpinesoils.eu/soilcheck/">https://alpinesoils.eu/soilcheck/</a>
Videos: Soil in the Alps (in EN/ FR/ GER/ IT/ SL)	<a href="https://www.youtube.com/channel/UCZ_OUdjiHspNob1sk6DVdEQ/videos">https://www.youtube.com/channel/UCZ_OUdjiHspNob1sk6DVdEQ/videos</a>
Alpine SOILutions congress	<a href="https://alpinesoils.eu/the-alpine-soilutions-congress/">https://alpinesoils.eu/the-alpine-soilutions-congress/</a>
Summer school in Pokliuck for high school students from the Alpine region	<a href="https://alpinesoils.eu/summer-school/">https://alpinesoils.eu/summer-school/</a>

### Publications & links (not specific for the Alpine area)

Towers et al. (2010): Soil awareness and education – developing a pan European approach	<a href="https://www.iuss.org/19th%20WCSS/Symposium/pdf/2106.pdf">https://www.iuss.org/19th%20WCSS/Symposium/pdf/2106.pdf</a>
International Decade of Soils 2015-2024	<a href="https://www.iuss.org/international-decade-of-soils/">https://www.iuss.org/international-decade-of-soils/</a>
Soil4life: Toolkit for raising awareness	<a href="https://soil4life.eu/wp/wp-content/uploads/2020/03/Raising-Awareness-final-with-links.pdf">https://soil4life.eu/wp/wp-content/uploads/2020/03/Raising-Awareness-final-with-links.pdf</a>
Dazzi & Lo Papa (2021): A new definition of soil to promote soil awareness, sustainability, security and governance	<a href="https://www.sciencedirect.com/science/article/pii/S2095633921000708">https://www.sciencedirect.com/science/article/pii/S2095633921000708</a>
GSP webpage, dedicated to the WSD (Awareness raising   Global Soil Partnership   Food and Agriculture Organization of the United Nations)	<a href="https://www.fao.org/global-soil-partnership/en/">https://www.fao.org/global-soil-partnership/en/</a>



## 8.2 Actions

Short-term actions (until 2024)	Outputs/Indicators
Identification of soil protection and management relevant projects in the Alpine region.	List of relevant projects
Annual mailing to communicate on current findings and promote projects on sustainable soil management.	Annual mailing and newsletter to be prepared in collaboration with the AlpSP secretariat
Organisation of a meeting with relevant stakeholders in order to define priorities for Alpine soils (communication, management practices, etc.).	Publication of a report on the results of the meeting, jointly by the WG Soil Protection and the AlpSP secretariat
World Soil Day (WSD): organisation and/or promotion of the WSD in the Alpine region and include the Alpine events on the GSP webpage, dedicated to the WSD.	Events held in the Alpine region Events on the GSP WSD webpage
Medium-term actions (until 2030)	Outputs/Indicators
Making the information acquired in the short-term action permanent (identification of soil protection and management relevant projects in the Alpine region) by publishing the relevant information on the website <a href="http://www.alpinesoils.eu">www.alpinesoils.eu</a> .	Evolving information and exchange platform
Identification and adaptation of at least two points of the Voluntary Guidelines on Sustainable Soil Management (VGSSM published by the GSP) that are relevant for the Alpine region.	Online publication of sustainable soil management practices specific to the Alpine region on the relevant websites (e.g., <a href="http://www.alpinesoils.eu">www.alpinesoils.eu</a> )
Long-term actions (until 2050)	Outputs/Indicators
Adaptation and concretisation of the Voluntary Guidelines on Sustainable Soil Management, to the Alpine context.	Publication in all Alpine Convention languages of a booklet/document linked to the GSP VGSSM



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# Soil functions and spatial planning in the Alps

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***Munich, 29-30 March 2022***

***Workshop documentation***



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**Spatial Planning and Sustainable Development and  
Soil Protection Working Groups of the Alpine Convention**

*Mandate 2020-2022*



ALPENKONVENTION  
CONVENTION ALPINE  
ALPSKA KONVENCIJA  
CONVENZIONE DELLE ALPI

## IMPRINT

This documentation summarises the results of a workshop organised jointly by the Spatial Planning and Sustainable Development Working Group of the Alpine Convention chaired by Germany and the Soil Protection Working Group of the Alpine Convention chaired by Austria. The workshop took place at the Catholic Academy in Munich on 29-23 March 2022. It was also organised as a contribution to the Climate Action Plan 2.0 of the Alpine Convention.

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Christian Steiner (*Amt der Niederösterreichischen Landesregierung* – Office of the Federal Government of Lower Austria)

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## TABLE OF CONTENTS

1. Welcome notes .....	1
2. Keynote Rethinking Land in the Anthropocene (Prof. Dr. Karen Pittel) .....	2
3. Keynote Youth Perspective on soil protection (Tassilo Lex) .....	3
4. Land saving targets and present land take in the Alps (Florian Lintzmeyer, Prof. Dr. Tobias Chilla).....	4
5. Implementations to combine qualitative and quantitative soil protection in Tyrol, Austria (Dr. Thomas Peham).....	4
6. Good implementation practices .....	5
Soil protection in Tyrol, Austria (Christian Drechsler) .....	5
Protection of agricultural areas in Slovenia (Jernej Červek) .....	5
7. Parallel workshops .....	6
Regulatory framework: Which options do we have?.....	6
The role of municipalities and regions: Which implementation options exist?.....	7
Who benefits from land saving: potential stakeholder alliances?.....	8
8. Introduction: Soil functions deserve more attention—the case of incorporating soil functions in spatial planning (Christian Steiner) .....	10
9. Soil protection in local land use planning (Gertraud Sutor) .....	10
10. Parallel workshops .....	10
Data for planning: What soil data do spatial planners need at which spatial level? .....	10
Communication: How do we sensitize local and regional decision makers for the value of soil functions? .....	12
Planning processes: How do we strengthen soil functions in the weighing of interest? .....	13
11. Panel discussion: What can be an ambitious target for “soil-sensitive” spatial planning at the Alpine Convention level? How can the Alpine Convention promote it? .....	16
12. Wrap-up: What does the soil sector expect from spatial planning? What are the needs of the planning sector to adequately consider soil functions? Outlook.....	18
13. Further reading.....	19
14. Impressions.....	20
ANNEX 1 Presentation “Rethinking Land in the Anthropocene: the trilemma of land use and the role of soils”.....	22
ANNEX 2 Presentation “Land-saving targets in Alpine countries” .....	23
ANNEX 3 Presentation “Implementations to combine qualitative and quantitative soil protection in Tyrol, Austria” .....	24

ANNEX 4 Presentation “Agricultural Provision Areas – A Contribution of Spatial Planning to Quantitative Soil Protection” .....25

ANNEX 5 Presentation “Instruments for Agricultural Land Protection in Slovenia, Including Spatial Planning” .....26

ANNEX 6 Presentation “Soil functions deserve more attention” .....27

ANNEX 7 Presentation “Soil Protection in Local Land Use Planning” .....28

ANNEX 8 Programme .....29



## 1. Welcome notes

Dr. Daniel Meltzian and Christian Steiner welcomed the participants on behalf of the organising German Federal Ministry for Housing, Urban Development and Building, the Austrian Federal Ministry for Climate Action, Environment, Energy, Mobility, Innovation and Technology, the Federal Government of Lower Austria, and the Alpine Convention Working Groups Soil on Protection as well as Spatial Planning and Sustainable Development. Dr. Daniel Meltzian referred to the long-term objectives of net-zero land take in all Alpine countries and the currently high and diverse demands for land use. The role of spatial planning is to consolidate the spatial interests and mitigate conflicts. To discern and protect the functional most valuable soils in this process, tools and instruments are needed.



Dr. Daniel Meltzian (German Federal Ministry for Housing, Urban Development and Building)



Christian Steiner (Office of the Federal Government of Lower Austria)

Christian Steiner provided an overview over the mandate of the Soil Protection Working Group and presented the following key messages from the perspective of the Working Group: A legal framework creates a binding basis but does not guarantee the implementation of soil protection. For that, all relevant actors need to be involved to fulfil the obligations. Active networks are important for dissemination, joint action and cross-border exchange. Transnational exchange and national implementation examples are reciprocally important. Awareness raising and concrete local action are indispensable.



Alenka Smerkolj (Secretary General of the Alpine Convention)



Dr. Gerd von Laffert (Bavarian Ministry for Economic Affairs, Regional Development and Energy)

Secretary General Alenka Smerkolj stressed the importance of exchange and networking between the interrelated topics of soil protection and spatial planning and thanks the organizing Working Groups for their initiative to establish cross-sectoral and international cooperation and

collaboration. Climate change adaptation and mitigation, food production, biodiversity and quality of life heavily depend on a strong connection between spatial planning and soil protection. The workshop is one of many steps towards the implementation of the Alpine Climate Targets set for 2050. For future generations, we need to step up our efforts to save land and to ensure that high-quality soils are safeguarded. Looking for common ground and solutions to combat land take is crucial for sustainable life in the Alps.

Dr. Gerd von Laffert welcomed participants on behalf of the Bavarian Ministry for Economic Affairs, Regional Development and Energy. He drew attention to the manifold drivers of land take, including short-term policy effects. The objective of net zero land take requires a dramatic reductions and efficiency increases in land use.

## 2. Keynote Rethinking Land in the Anthropocene (Prof. Dr. Karen Pittel)

Prof. Dr. Karen Pittel provided an overview of the German Advisory Council on Global Change (WBGU) Flagship Report “Rethinking Land in the Anthropocene: from Separation to Integration” (see Annex 1). Humankind has fundamentally transformed the terrestrial biosphere. Growing global demand for land and terrestrial ecosystem services is increasingly resulting in the destruction of natural life-support systems. Overuse and competition are exerting ever-bigger pressures on terrestrial ecosystems, with the result that around a quarter of the global ice-free land surface is affected by human-caused degradation.



Prof. Dr. Karen Pittel (ifo Institute – Leibniz Institute for Economic Research at the University of Munich)

Climate protection, food security and biodiversity conservation pose diverse demands on land. They are already in competition with each other. Further land degradation will have a negative impact on all three aspects in the short and long term. The WBGU calls this the 'trilemma of land use': at first glance, it appears that each of these challenges can only be met at the expense of the other two. Finding solutions here will be decisive for sustainable land stewardship.

The Flagship Report argues for a changing perspective on land use – from separation to integration of uses. Land needs to be recognised as a global commons: The focus should be on halting the destruction of terrestrial ecosystems and on investing massively in their conservation and restoration. An integrated form of land stewardship that combines the

multiple goals and, where possible, realizes them all on the identical area can help overcome competition.

Of the five multiple-benefit strategies for sustainable land stewardship, Prof. Pittel focussed on two approaches: restoring terrestrial ecosystems and promoting diversity-based agriculture. The first encompasses the restoration of biodiverse and site-appropriate forests, wetlands and grasslands, while simultaneously removing CO<sub>2</sub> from the atmosphere as an additional benefit. The latter foresees a phasing-out of industrial farming methods by carrying out a comprehensive ecological transformation.

### 3. Keynote Youth Perspective on soil protection (Tassilo Lex)

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Tassilo Lex (Youth Parliament to the Alpine Convention (2018-2021)) stressed that the topic of soil protection is not new. Nonetheless, open spaces continue to be transformed to settlement and traffic areas. Spatial planning plays a key role to address massive land consumption and soil sealing.



Tassilo Lex (Youth Parliament to the Alpine Convention)

The example of Tyrol illustrates the urgency of the issue, with only 5% of the total land area of 12% suitable for permanent settlement being left for agricultural use and further expansion of building areas. At the current pace, the Inn valley is expected to be built up entirely by 2050. Apart from the well-known negative effects of excessive land consumption and soil sealing such as flooding, loss of soil fertility, loss and fragmentation of habitats, loss of carbon storage capacities, the recent developments have illustrated our dependency on other countries in regard to food reliance and growing pressure on agricultural land globally.

Tassilo Lex pointed out the discrepancy between land-saving targets and missing action which will be at the expense of future generations. The system that drives land take remains in place, with a tax system that creates incentives for land take and spatial planning regulations being weakened. Besides strict legal guidelines, he called for a broad decision-making process encompassing expertise and real citizen participation and thinking beyond local boundaries and municipal interests. If given the chance, the young generation will get involved in such processes.

#### 4. Land saving targets and present land take in the Alps (Florian Lintzmeyer, Prof. Dr. Tobias Chilla)

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Florian Lintzmeyer gave an overview of land-saving targets in the Alps at national level and for selected Alpine regions/provinces (see Annex 2). In the past, land-saving targets were often missed due to insufficient policy frameworks, implementation instruments and their non-binding character. Consequently, the current mid-term (2030) and long-term (2050) land-saving targets remain a challenge and require substantial efforts at every spatial level.

Prof. Dr. Chilla drew attention to the specificities the Alpine territory poses for the issue of land take. The limited area suitable for settlement confines settlement and infrastructural development predominantly to valley floors and other mostly plain areas. On the other hand, Alpine towns are important as service providers for their catchment areas, which results in certain infrastructural needs. The situation is a particular challenge as most parts of the Alpine settlement system undergo demographic growth.

#### 5. Implementations to combine qualitative and quantitative soil protection in Tyrol, Austria (Dr. Thomas Peham)

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Before introducing the audience to soil function assessment in Austria, Dr. Thomas Peham gave a brief overview of different soil functions (see Annex 3). Soil function assessments are taken into consideration in various planning procedures. He stressed that while being a helpful tool for considering the value of soil in planning processes, soil function assessments by themselves are not sufficient to reduce land take.



Dr. Thomas Peham (Office of the Federal Government of Tyrol) discussing soil samples with participants



## 6. Good implementation practices

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### Soil protection in Tyrol, Austria (Christian Drechsler)

Christian Drechsler introduced the planning instrument of agricultural provision areas as an approach to determine spaces on which land use changes are not possible based on objective criteria (see Annex 4). Based on a mandate of the Tyrolean Parliament and the Provincial Government in 2015, these agricultural provision areas have been assessed and mapped for Tyrol according to a consistent methodology that takes location parameters (soil value, slope gradient, minimum extent), existing zoning and protected areas into account. After seven years of implementation, a positive resume can be drawn regarding the effectiveness of the instrument for soil protection and spatial planning on a function-oriented level.



Christian Drechsler (Office of the Federal Government of Tyrol)

### Protection of agricultural areas in Slovenia (Jernej Červek)

Jernej Červek outlined the instrument of strategic areas for agriculture and food production in Slovenia (see Annex 5). Protection of agricultural land through spatial planning takes place in the form of a categorization of land according to its strategic importance for agriculture and food production. In coordination between spatial planning authorities and local communities, permanently protected agricultural land as well as subsequent agricultural land are being determined in the procedure of drafting municipal spatial planning documents, ensuring that they cannot undergo land-use changes for a 10-year period. Additional measures in regard to the protection and cultivation of agricultural land include mitigation measures, compensation payments, pre-emption rights and cultivation obligations.



Jernej Červek (Slovenian Ministry of Environment and Spatial Planning)

## 7. Parallel workshops

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### Regulatory framework: Which options do we have?

Moderator: Arthur Schindelegger

#### *Background*

The Net zero land take target 2050 is set in most Alpine Countries, but implementation into the national/regional regulatory framework differs. Looking at the approaching milestone of 2030, the group discussed the role and deficits of the regulatory framework in regard to meeting the targets and initiating or continuing reduction pathways for 2030 and beyond. The guiding questions were:

- What are your experiences – is the regulatory framework in your country/region sufficient to reach the target?
- Which regulations are successful in your country/region?
- Which regulations would you need?
- What is missing in the regulatory framework? What would be helpful? (e.g. land budgets, growth boundaries, tradeable land use certificates, fiscal instrument such as taxes on unused building plots)
- How can we prevent or mitigate potential negative side-effects of stricter land use policies?



#### *Discussion*

- Lack of national planning competences to implement national land take targets (AT)
- At national level, focus on quantitative only, not qualitative soil protection as well (AT)
- Instrument “Agricultural Priority Areas” (Tyrol):
  - Good experience with the regulatory approach: transparent deduction, common methodology



- Category of “Green Zones” – with its qualitative landscape focus – proved to be more controversial and subjective than protecting land for agricultural use
- Bavarian Land Saving Initiative as a bracket for regulatory steps such as the introduction of the 5 ha by 2030 benchmark in the Bavarian Spatial Planning Act and the Ministerial instruction on the methodology of needs assessments
- Municipalities are the decision-makers – they need to be addressed:
  - Assessment necessary what information on soil functions actually arrives and is understood at the local level
  - Soil awareness is lacking, very few municipalities are actively engaged (e.g. Bavarian pilot project “Urban fringe assessment soil / Pilotprojekt "Stadttrandbewertung Boden")
  - Six soil functions are too complex for decision-makers to take into consideration → information needs to be aggregated
- Challenge for communication and monitoring: Land take is comparably easy to measure, qualitative soil protection not
- Scope of instruments:
  - A combination of various types of instruments is necessary, informal instruments alone are not sufficient to reach targets:
    - Regulations (Bavarian Alpenplan was named as a good practice)
    - Financial incentives (fiscal, funding)
    - Informal instruments, including interdisciplinary aspects (e.g. building culture)
    - Public sector has to be a forerunner (role model)
    - Loopholes in regulatory instruments need to be closed (example Environmental Impact Assessment/Strategic Environmental Assessment → municipalities often manage to avoid obligations to address soil issues)
- Regulatory tools often at hand, but not properly implemented (example: land use plans should be based on evidence (needs assessment, quantitative and qualitative soil protection), but are often insufficiently balanced in reality)

#### **The role of municipalities and regions: Which implementation options exist?**

Moderator: Prof. Dr. Tobias Chilla

The municipal and regional level is key to implementing land saving targets, but at the same time, these territories rely economic prospering and demographic attractiveness. Municipalities are in the ambivalent situation to compete for inhabitants and businesses and at the same time contribute to the reduction of land take. The guiding questions were:

- Thinking about success stories: What approaches proved to be effective to limit land take?
  - Regulations and zoning at municipal and regional level
  - Participation and involvement of local population
  - Town planning and technical expertise (architecture, village planning)
- Net zero land take – what would it mean for municipalities/regions?

- How could a circular use of urbanised land be implemented at the regional or local level?
- Is regional coordination essential? In what respect?



### *Discussion*

- Collection of good examples. Each participant contributed one or two examples for measures to limit land take from different planning levels and sectors
- The measures were clustered into four different categories:
  - Technical approaches (e.g. vertical use of land, densification, monitoring approaches)
  - Legislative implementation (e.g. legally binding targets, shift of competences)
  - Financial measures (e.g. financial support, management of real estate)
  - Participatory or soft measures (e.g. awareness rising, model projects)
- Importance to focus on functional areas when it comes to define entities for planning approaches or measures
- Benefits of joint planning approaches on a regional scale or cross-border cooperation
- Challenge and benefits of taking away competences from municipalities

### **Who benefits from land saving: potential stakeholder alliances?**

Moderator: Maria Schachinger

### *Background*

In order to create more momentum for land saving and soil protection, new alliances are necessary that help to create political pressure and support implementation activities at various levels. The guiding questions within this session were:

- Who has an interest in intact soils and non-urbanised land? Who will profit directly or indirectly from Net zero land take? Who are our potential partners?
- Existing stakeholder alliances? What benefits do they have and which obstacles are they facing?
- Can new alliances be forged among traditionally “unfamiliar partners”? How can stakeholder groups be involved and alliances be facilitated?



### *Discussion*

The discussion focused mainly on the question: “Who has an interest in intact soils?”. The following stakeholder groups were identified:

- (most) farmers, seed donors (7 notes)
- Green economy players
- Tourism sector and tourists
- Plants and animals
- NGOs – Nature advocacy (4 notes)
- Future generations
- (Local) communities
- Broad public
- Citizen and society in general
- Municipalities
- Regional media should be interested in the issue – but are not yet interested

The following success factors were identified:

- Knowledge about soils and their role, this could be provided by expert organisations
- Budget
- Speaking with one voice
- Social consulting → sociologic process

## Day 2: The role of soil functions in spatial planning

### 8. Introduction: Soil functions deserve more attention—the case of incorporating soil functions in spatial planning (Christian Steiner)

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In his input, Christian Steiner outlined the threats that soils are facing in the EU and the specific role of invertebrates, fungi and mycorrhiza for soil fertility as well as the ecosystem services soils provide (see Annex 6).

Soil as an environmental medium is often undervalued, partly due to the fact that it is generally invisible and only perceived indirectly. The current droughts in Central Europe have brought to attention that desertification processes are not limited to the global south but can affect also Central Europe now and increasingly in the future.

Soil fertility constitutes a particularly important soil function, which heavily depends on an active diverse soil life in the form of e.g. earthworms, fungi and mycorrhiza. Soil-related ecosystem services can be differentiated into natural soil functions, utilisation, productivity or carrier functions and archive functions.

Christian Steiner underlined the importance of a legal basis for soil assessments, including the Soil Conservation Protocol of the Alpine Convention, the SEA Directive and the EIA Act. Still, soil is often dealt with in general declarations, but not in concrete detail in individual planning procedures. Therefore, a common technical level between of soil protection and spatial planning is necessary. Soil aspects should be more concretely integrated in planning processes.

### 9. Soil protection in local land use planning (Gertraud Sutor)

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Gertraud Sutor presented results from the project “Implementing the Soil Conservation Protocol of the Alpine Convention in municipalities” (Bodenschutz in der örtlichen Raumplanung im Alpenraum, UBA Texte 220/2020) (see Annex 7). The project addressed soil function evaluation, communication measures as well as measures to incorporate soil protection in land-use planning in Bavarian and Austrian municipalities. Workshops in these municipalities provided valuable experiences how to communicate soil protection at the municipal level. The challenge remains to customize information and build capacities and decision-making levels to put soil function evaluations into practice.

### 10. Parallel workshops

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**Data for planning: What soil data do spatial planners need at which spatial level?**

Moderator: Gertraud Sutor

#### *Background*

Practical soil science has developed considerably in recent years, but the general public still has little knowledge of soil and soil functions. Comprehensive statements on soil functions are indispensable so that soil as a protected resource can be taken into account appropriately in planning and environmental assessments. Following the example of individual Austrian

provinces (Upper Austria, Salzburg), a uniform approach could be envisaged in all countries of the Alpine region. The guiding questions were:

- What data are available for the assessment of soil functions in the countries of the Alpine region?
- Which are the good practice examples for the integration of soil functions in the balancing processes for spatial planning decision making?
- Which support and practical and technical aids are useful to have in daily work routine?
- Ideas on how soil functions could be implemented and integrated in the respective planning processes in the best possible way?



### *Discussion*

- Data needed – there is no common database about soils in the Alps → what is the smallest common ground of available data? At which timescale may common data be available?
- In Bavaria soil estimation data (ongoing since the 1930s) for agricultural land, two types of data:
  - From laboratories
  - Classified data
- In Bavaria soil maps (1:25,000) are available (soil forms), from this information soil functions, and soil function maps are derived; not all functions, but five
- In Italy there is a lot of scientific soil data from universities and research, but they are patchy and not in adequately usable form → a unified way to get usable data (for spatial planners) is needed
- In Italy no data about soil functions are available
- Spatial planners need directly applicable data as base for decisions
- In Bavaria check lists for planners exist, but they are too complicated for non-experts → therefore best practice examples are needed
- “Translation” is needed from soil data to usable data for the planning process → Translation from soil expert to planners and municipalities → Soil function maps are such translations
- Key for implementation are qualified experts and budget
- In Bavaria soil maps as a good basis exist, but soil experts are lacking
- A task for the Alpine Convention could be to map Alpine-specific soils and to safeguard soils
- Alpine-specific system of soil classification needed
- It might be a question of valorising ecosystem services



## Communication: How do we sensitize local and regional decision makers for the value of soil functions?

Moderator: Michael Roth

### *Background*

The goal of economical and sustainable use of soils must be implemented especially at the local and regional level. The decision-makers responsible for this should be sensitized through suitable communication methods. The guiding questions in this session were:

- Thinking about success stories: Which methods are suitable for informing and convincing decision-makers, e.g.
  - Dissemination of good practice examples
  - Excursions with decision makers
- Application of soil function maps – what would it mean for the communication of the municipalities/regions with their residents and with population in general?
  - Would this change the perspective on which areas could be built on in the future and which could not?
- How could the use of soil function maps be communicated on the regional or local level?
  - Is regional coordination essential? In what respect?



### *Discussion*

- Data:
  - Data need to be relatable and easily comprehensible
  - Complexity needs to be reduced (Mayors: “We need one map”)
- Stakeholders to be involved
  - Local media are key, but rarely address soil function issues so far
  - CEOs, e.g. of supermarket chains etc.
- Obstacles:



- Municipalities face conflicts of interest: housing, commercial and business development, soil protection etc.
- Information events have their limits:
  - Online events reach a broad audience and require fewer staff resources, but effectiveness and impact are hard to assess
  - Smaller and personal formats produce better outcomes, but are more staff and budget intensive and cannot be significantly scaled up
- Promising approaches/good practices:
  - Use thematic trends to attach soil topic to issues with a political momentum (current example: wetland protection and its contribution to carbon sequestration is currently high on the political agenda)
  - Local cycles: Financial incentives for households to collect organic waste → locally transform organic waste to compost → redistribute it to farmers for melioration
  - Declaration “Protected green areas” (Deklaration Geschütztes Grünland<sup>1</sup>) by the City of Salzburg: Designation of green zones → modifications of these zones require a 75% approval by the city council as well as a positive vote in a public referendum
  - Mobile architectural boards

### Planning processes: How do we strengthen soil functions in the weighing of interest?

Moderator: Maria Legner

#### *Background*

Despite the importance of soils and their different functions, the aspect of soil protection is often not adequately represented in planning processes and the weighing of interests. Looking ahead the challenge remains how to strengthen soil function aspects in future planning processes. As guiding questions constituted:

- Different approaches for soils with high functionalities (worthy of protection) and compromised soils (in need of protection)
- Are planning authorities in the position to assess soil functions and weigh them against other interests on a case-basis and in the regional context?
- Can soil functions and the implications of land use changes be assessed to an extent that allows their adequate consideration in the weighing of interests?
- Can you name planning decisions that have been influenced by soil protection issues/soil qualities?
- Part of the weighing of interest are compensations (avoid – mitigate – compensate). Could stricter compensation schemes lead to a more economical use of soils?

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<sup>1</sup> <https://www.stadt-salzburg.at/index.php?id=58294>



### *Discussion*

- Qualitative and quantitative soil protection is needed
- Different efforts to improve soil protection
- Political dimensions of spatial planning
  - Pressure to serve different needs, some factors are prioritized such as housing or economy
  - Soil functions are often not considered at all or have no priority during planning processes
- In practice there is an implementation gap (AT, DE, IT, SI)
- Often discrepancy between different planning levels: on a national or regional level, the protection of soil is part of strategies and planning processes, however it is rarely implemented at the local level.
  - Quantitative aspects are best to be addressed on a regional scale, municipalities need defined targets for land consumption
- The legislation is often considered too weak for the protection of soil. There is the need to change legislation in a way that protecting soil is the standard and greenfield development an exception.
  - E.g. by German law you should use land and soil sparingly, however this is not the reality. You could change the law to the perspective that greenfield development is only permissible if brownfield development is not possible. (DE)
  - E.g. the federal forestry law, where forest is strongly protected in general. There is no comparable principle for open space. (AT)
  - The first step should be to protect open space by strong restrictions. When it comes to planning on open land, important soil functions must be considered in the decision-making process.
- Need for measurable targets: How to define the appropriate demand for land use?
- How can we make brownfield development easier and more attractive?

- Depending on the country, the information about soil functions is not adequate to be easily integrated into a planning process:
  - Good Practice example Tyrol/TIRIS (AT)
  - Good data is the foundation of protecting soil functions
  - Fear of the spatial planning discipline to provide information on soil, due to pressure and difficulties to fulfil all needs
- The true costs of greenfield development compared to brownfield development are often not transparent and not considered in the process of decision making, in particular the external costs of the loss of soil functions
- Measures to improve the integration of soil functions into the planning process
  - Procedural measures, e.g.
    - Capacity building
    - Workshops for communities
    - Provide easily accessible information on soil functions
    - Enhance visibility of soil functions
    - Soil functions as part of the requirements e.g. for public development projects or architectural competitions
  - Regulative instruments, e.g.
    - Changes in legislation
    - Measurable targets
    - Financial support
  - Communication measures, e.g.
    - demonstrate the real costs of greenfield development
    - demonstrate benefits for the planning when integrating soil functions
    - enhance communication between disciplines
    - bring together stakeholders
      - awareness raising for the effects of soil destruction

## 11. Panel discussion: What can be an ambitious target for “soil-sensitive” spatial planning at the Alpine Convention level? How can the Alpine Convention promote it?



Panellists (clockwise): Alenka Smerkolj (Secretary General of the Alpine Convention), Stefan Marzelli (moderator), Thomas Wimmer (EUSALP Youth Council, Youth Parliament to the Alpine Convention (2017-2018)), Maria Legner (Alpine Soil Partnership, Climate Alliance Austria), Michael Roth (Austrian Federal Ministry for Climate Action, Environment, Energy, Mobility, Innovation and Technology)

Moderated by Stefan Marzelli (ifuplan), a panel discussion put the discussions of the workshop in the context of activities at the Alpine-wide level:

*Question 1: The need to limit the conversion of land and the loss of soils is obvious and has also arrived in terms of the net-zero goal at the political level. What would be a concrete vision to facilitate this paradigmatic shift at an Alpine level, in line with the Alpine Convention and its ambition and having your specific context in mind?*

Alenka Smerkolj: Action is needed to protect soils. Spatial planning is an important tool to achieve that objective. This year marks the 20<sup>th</sup> anniversary of the Alpine Convention Protocols Soil Conservation and Spatial Planning and Sustainable Development. The topic of this workshop has been addressed by the Alpine Convention Compliance Committee in-depth review on Economical Use of Soil. I welcome building upon these existing documents.

Political targets and frameworks such as the SDGs (Agenda 2030) target on land degradation neutrality are important. It is on us to implement them.

Maria Legner: The necessary societal transformation process in regard to the 2050 targets is very slow. Currently, we may have reached the phase of “early adopters”. Still, it is important to have potential solutions readily available.

A different approach to governance and transformation as well as different solutions might be necessary in the future. The discussion about instruments might not be sufficient, a broader perspective is necessary.

Thomas Wimmer: Not enough is being done at the moment. It is interesting to see that there is no unified data base. This seems to be important for evidence-based decisions.

Michael Roth: Harmonisation of data and tools remains one of the biggest challenges. While the EU has no competence in the field of spatial planning, it can still exert influence, e.g. by tying EU funds to the formulation of soil protection strategies at national state level. Approaching an Alpine Spatial Planning Concept would be a very beneficial exercise.

The challenge for the Alpine Convention is that it has no regulatory competence for its perimeter. The implementation of the Alpine policies depends on bilateral agreements, which also makes exchanges between the Alpine Convention working groups so important. The municipal level remains very powerful.

I suggest to not only focus on open spaces, but also on settlement areas and the need to reduce land take. Construction of new buildings has a twofold negative effect: First on site through land take and soil sealing, the other through excavation at the origin of building materials and energy sources (grey energy). Architectural qualities (Baukultur) have a very important role to play, as well as the public sector as the biggest owner of land and consequently important role model.

Alenka Smerkolj: The fact that soil is an underestimated resource makes a collaborative approach to the weighing of functions even more important.

Thomas Wimmer: The most crucial soil functions in the Alps seem to be risk management, natural hazard prevention and water retention.

Maria Legner: We have to underline that soil protection is at the same time climate protection. The integrated landscape development concept presented by Prof. Pittel is fascinating. Soils can also be regenerated/improved. These improvement measures are usually also multiple-benefit strategies in the sense of the WBGU Flagship Report.

Adaptation processes require additional efforts and innovative governance approaches. Mobile land forums could be a promising governance structure.

Michael Roth: Multiple-benefit approaches would be very much in line with the objectives of the Alpine Space Programme and EUSALP action groups. In general, the “doors are open” at these institutions for respective project proposals. It is crucial to establish interfaces between thematic “silos” and the Alpine Space would be the perfect model case for that.

Comment Verena Ringler (Agora Green Deal): Given the urgency, time is running out. We are very late in addressing the issue of soil protection and therefore need to jump-start innovation and funding. We need to reframe soil as a public good and overcome the polarised idea of land ownership.

The topic is not present in regional broadcasting in the Alps, which is a relevant source for creating local awareness. How can the Alpine Convention help to improve media coverage?

Alenka Smerkolj: The Alpine Convention is not a decision-making body; it is a platform for discussion. It can use this platform also for educational purposes.



*Question 2: If you could wish for something in the context of our workshop, what would it be?*

Thomas Wimmer: I would opt for stricter regulation with more binding character. Additionally, I would transfer decision-making competences from the municipal to the regional planning level.

Maria Legner: My wish would be better implemented democratic decision-making processes, a culture of communication and decision-making. Additionally, I would wish for a better use of networks and resources at the Alpine Convention level.

Michael Roth: I would wish for better supporting municipalities in self-action, also through support by other levels, and capacity building for decision-makers and administrations. A big wish would be a positive narrative for protecting soils.

Alenka Smerkolj: I would wish for an increased awareness and life-long learning by all relevant stakeholders. The fact that two working groups meet to develop answers how to solve interdisciplinary problems is a good example for building necessary alliances.

## 12. Wrap-up: What does the soil sector expect from spatial planning? What are the needs of the planning sector to adequately consider soil functions? Outlook

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Dr. Daniel Meltzian stressed the importance of reciprocal awareness between the soil and the spatial planning sphere and an increased consideration of soil protection in spatial planning. The challenge for spatial planning lies in the need to tackle and weigh a multitude of different aspects against each other. In this respect, not all tasks should be assigned to the municipal level – particularly when considering the difficulties of weighing abstract, supra-local interests and policy objectives with local interests.

According to Christian Steiner, multidimensional approaches are needed. The spatial planning sector needs to more intensively consider soil as a valuable resource in all spatially relevant planning processes. Soil protection must not remain at the level of a general and generic declaration of intent. Despite differing data bases across the Alps, a uniform output and resolution level for soil function maps would be desirable. The responsibilities will remain at the national level, but there is need to arrive at a common understanding of the importance of soil as a resource, its limitations and the numerous ecosystem services it provides.

A more uniform approach would strengthen this common understanding among different stakeholders as well as make data and information more usable across regional and national borders. The public sector has a particularly important function as role model.

Voluntary approaches are important, but for scaling-up, legal obligations and a legal anchoring is seen as indispensable by Mr. Steiner.

Both WG Chairs pledged that the cooperation between the Working Groups will continue. The results of the workshop will feed into the drafting of the new 2023/2024 mandate proposals of the Working Groups. After laying the groundwork in its current first mandate, the Spatial Planning and Sustainable Development Working Group will focus on concrete implementation activities in the future. In general, topic-specific cooperation between the two working groups has a great added value and should be continued in the future.



### 13. Further reading

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Geitner, Clemens / Tusch, Markus / Dittfurth, Jörn (2018): Bodeninformation als Grundlage des Bodenschutzes am Beispiel des Fachplans Boden der Landeshauptstadt München. Schriftenreihe des Kompetenznetzwerkes Stadtökologie, CONTUREC 3 („Qualität der Stadtlandschaften – Indikatoren, Planung und Perspektiven“). Salzburg.

[https://www.researchgate.net/publication/327350740\\_Bodeninformation\\_als\\_Grundlage\\_des\\_Bodenschutzes\\_am\\_Beiispiel\\_des\\_Fachplans\\_Boden\\_der\\_Landeshauptstadt\\_Munchen#read](https://www.researchgate.net/publication/327350740_Bodeninformation_als_Grundlage_des_Bodenschutzes_am_Beiispiel_des_Fachplans_Boden_der_Landeshauptstadt_Munchen#read)

Permanent Secretariat of the Alpine Convention (2018): Economical and prudent use of soil in the Alps. Innsbruck. Developed by the Soil Protection Working Group of the Alpine Convention: [https://www.alpconv.org/fileadmin/user\\_upload/Organization/TWB/Soil/Report-Economical\\_and\\_prudent\\_use\\_of\\_soil\\_in\\_the\\_Alps-afterACXVI.pdf](https://www.alpconv.org/fileadmin/user_upload/Organization/TWB/Soil/Report-Economical_and_prudent_use_of_soil_in_the_Alps-afterACXVI.pdf)

Permanent Secretariat of the Alpine Convention (2020): In-depth review of the Compliance Committee of the Alpine Convention on the subject “Economical use of soil” : <https://www.alpconv.org/en/home/news-publications/publications-multimedia/detail/in-depth-review-of-the-compliance-committee-of-the-alpine-convention-of-the-subject-economical-use-of-soil/>

Permanent Secretariat of the Alpine Convention (2021): Climate Action Plan 2.0: <https://www.alpconv.org/en/home/news-publications/publications-multimedia/detail/climate-action-plan-20/>

Sutor, Gertraud / Knoll, Sebastian / Voerkelius, Ulrich (2020): Bodenschutz in der örtlichen Raumplanung. In: Bodenschutz 2/2020. Pg. 73-79. <https://bodenschutzdigital.de/ce/bodenschutz-in-der-oertlichen-raumplanung/detail.html>.

Online resources:

- Alpine Soils Platform: <https://alpinesoils.eu/>
- Alpine Climate Target System with its Implementation Pathways Spatial Planning and Soil: <https://alpineclimate2050.org/>
- Soil Conservation and Spatial Planning and Sustainable Development Implementation Protocols of the Alpine Convention: <https://www.alpconv.org/en/home/convention/protocols-declarations/>

## 14. Impressions





## ANNEX 1 Presentation “Rethinking Land in the Anthropocene: the trilemma of land use and the role of soils”

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Speaker: Prof. Dr. Karen Pittel (ifo Institute - Leibniz Institute for Economic Research at the University of Munich)






**WBGU**

German Advisory Council on Global Change

**Rethinking Land in the Anthropocene: the trilemma of land use and the role of soils**

1

**WBGU Flagship Report 2020**





**WBGU**

German Advisory Council on Global Change

Summary

**Rethinking Land in the Anthropocene: from Separation to Integration**





FROM  
**TRILEMMA TO**  
INTEGRATION

**MULTIPLE-  
BENEFIT**  
STRATEGIES  
FOR SUSTAINABLE  
LAND  
STEWARDSHIP

**TRANSFORMATIVE  
GOVERNANCE**  
FOR  
SOLIDARITY-BASED  
LAND  
STEWARDSHIP

Source: WBGU

2

WBGU - "Rethinking Land in the Anthropocene"

03.05.2022

2

# “Trilemma“ of land use

  
Climate protection

  
Biodiversity conservation



  
Food security

Source: WBGU

3

# Land, climate, biodiversity and food security



- > Terrestrial ecosystems and their biodiversity provide us with diverse nature's contributions to people (NCPs)
- > Land use focused on material NCPs, while reducing biodiversity and regulating and non-material NCPs

Source: IPBES Global Assessment, SPM 2019

4



# Key messages for a global land-use transformation

**SYSTEMIC**  
INTERRELATIONS AS A  
KEY TO GLOBAL  
SUSTAINABILITY

**SYNERGISTIC**  
INTERACTION: FROM  
SEPARATION TO  
INTEGRATION

**SOLIDARITY-BASED**  
ASSUMPTION OF  
RESPONSIBILITY



**1**  
From conflict and  
competition to  
multiple benefits

**2**  
From destruction  
to the conservation  
and restoration of  
terrestrial ecosystems

**3**  
Use the integrated  
landscape approach  
as an orientation  
mark

**4**  
Enable and strength-  
en the assumption of  
responsibility  
along entire value  
chains

**5**  
Promote the  
transformation of  
land use through  
effective global  
governance


Source: WBGU

5

# Five multiple-benefit strategies



 **Ecosystem  
restoration**

 **Protected-  
area systems**

 **Diversified  
agriculture**

 **Changing  
dietary  
habits**

 **Timber-  
based  
construction**

Source: WBGU

6

## 1 – Foster Ecosystem restoration

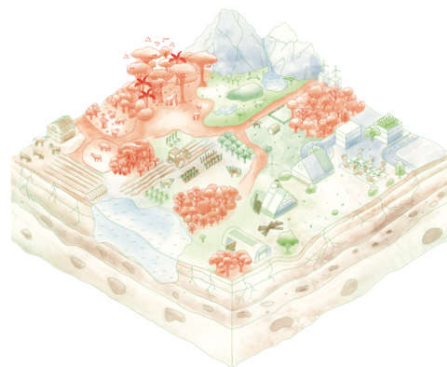


> **Restoration** can make land-based CO<sub>2</sub>-removal synergistic

Source: WBGU

7

## 2 – Expand and upgrade protected-area systems



> An **effective protection** of 30% of the global land area can prevent the destruction of ecosystems

Source: WBGU

8

### 3 – Diversify farming systems



- > A diversified, **ecologically intensive agriculture** worldwide can secure food, protect the climate, enable landscape resilience and maintain biodiversity

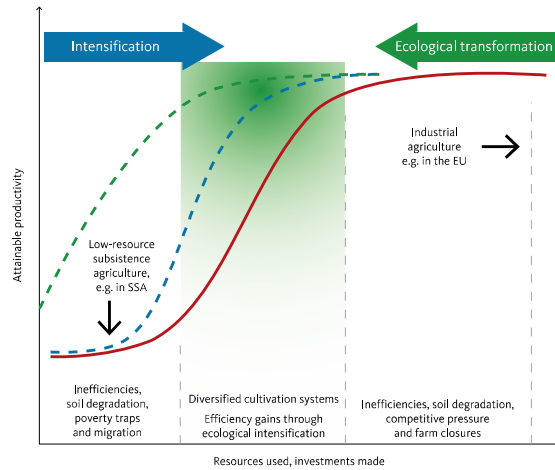
Source: WBGU

### 3 – Diversify farming systems

- > Both **industrial agriculture** and **subsistence farming** jeopardize climate-change mitigation and biodiversity and degrade the soils
- > **Need to transform** largely monofunctional, production-oriented agricultural systems into ecologically intensive, multifunctional systems



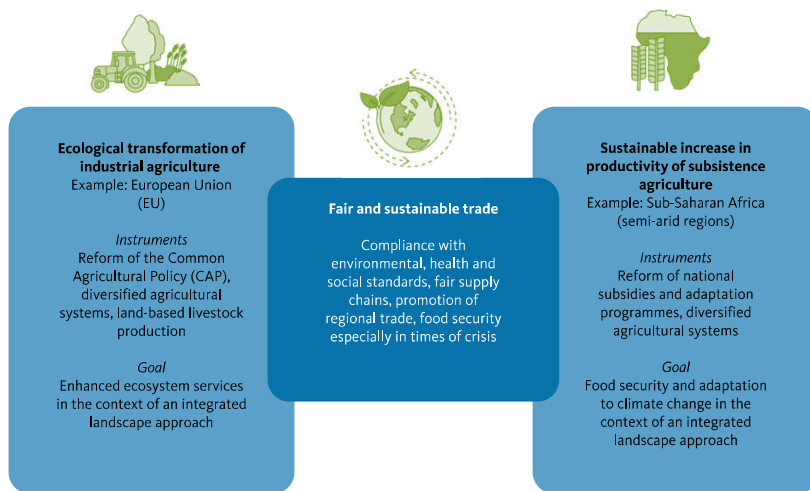
### 3 - Diversify farming systems



Source: WBGU

11

### 3 - Diversify farming systems



Source: WBGU

12

## 4 – Transform **dietary habits**

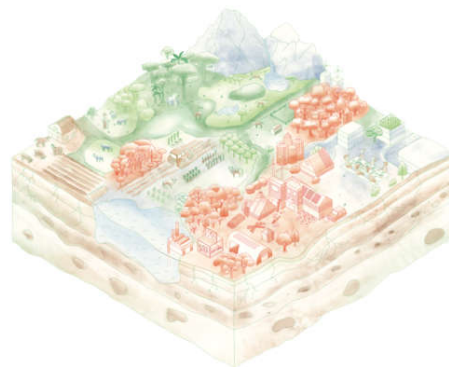


- > Healthy diets with low proportions of animal-based products, e.g. **Planetary Health Diet** are important levers for overcoming the trilemma

Source: WBGU

13

## 5 – Shape the **bioeconomy** responsibly and promote **timber-based construction**



- > **Sustainable bioeconomy** needs a limiting framework and gives priority to material use cycles, e.g. timber construction

Source: WBGU

14

## Multi-gain strategies through integrated landscape approach

WBGU

### Landscape

- area characterized by specific geographical, natural, ecological and historical similarities
- frame of reference for governance: small enough to keep decision-making processes manageable, large enough to accommodate the interests of different stakeholders

### Integrated landscape approach

- multifunctionality and multiple benefits
- participation and reciprocity of stakeholders
- shared framework for monitoring and evaluation
- adaptive management



Source: WBGU

15

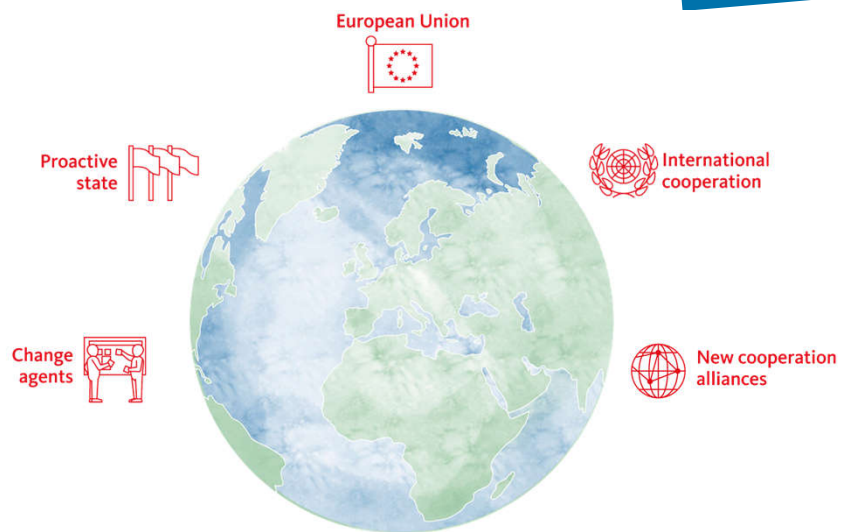
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15

## Five governance strategies

WBGU



Source: WBGU

16

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16



## 1 – Support change agents

- > Numerous examples of individual and institutional change agents employing **new land-related practices**



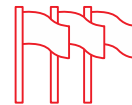
- > **Change agents**

- > are pioneers for sustainable land use
- > can transform everyday routines
- > generate change "from the bottom-up"

- > **BUT: the right framework conditions are needed to support such pioneering activities**

Source: WBGU

## 2 – Set national political framework conditions



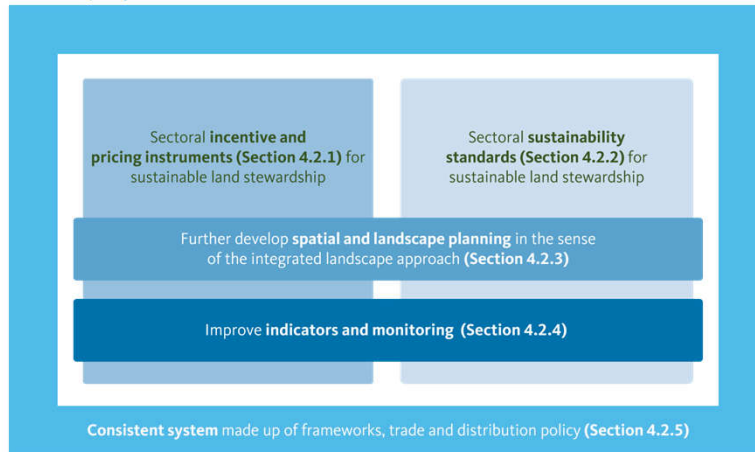
States should **pro-actively** ensure

- > that **negative impacts** of their land-related actions are taking into account
- > that **positive contributions** are rewarded

Source: WBGU

## 2 – Set national political framework conditions

(National) policy mix



Source: WBGU

## 3 – Tackle land-use transformation in the EU

- > EU is particularly well suited for **testing a land-use transformation** over a large area
  - > **European Green Deal** as an opportunity
  - > CAP should be further developed into a **Common Ecosystem Policy (CEP)**
- > Essential that the EU use its **foreign-trade policy** to promote a global land-use transformation
  - > "sustainable stewardship of land" a key issue in the negotiations on **trade agreements**
  - > integration of the protection of global commons into the regulations of the **World Trade Organization**

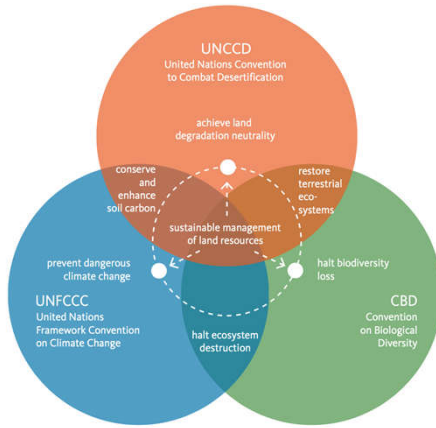


Source: WBGU

## 4 – Strengthen international cooperation



WBGU



> A **joint conference** of the Rio Conventions and a strong CBD post-2020 framework can promote the land transformation

> **New binding protocols for the CBD on the**

- > Sustainable Use of Biological Diversity and
- > Protection and Conservation of Biodiversity

21

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21

## 5 – Establish new cooperation alliances

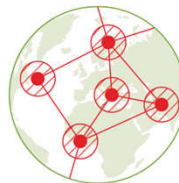
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**Regional alliances**



**Regional alliances** that aim for the cross-border implementation of integrated landscape approaches

**Supranational alliances**



**Supranational alliances** that unite countries to jointly pursue sustainable land stewardship and agree on common values and regulation to achieve this aim

**Global conservation alliances**



**Global conservation alliances** that aim at conserving and restoring valuable ecosystems of special relevance

Source: WBGU

22

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22

## Conclusions

WBGU

1. How we handle land is **key** for a sustainable future
2. **Multiple-benefit strategies** allow addressing multiple crises at the same time
3. Multiple-benefit strategies need **suitable framework conditions and incentive systems at all governance levels**

23

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23

## Many thanks for your attention

WBGU

German Advisory Council on  
Global Change (WBGU)

Wissenschaftlicher Beirat der  
Bundesregierung Globale  
Umweltveränderungen (WBGU)



> Twitter [@WBGU\\_Council](https://twitter.com/WBGU_Council)

> Web [wbgu.de/en](https://wbgu.de/en)

> Full report [wbgu.de/fr2020](https://wbgu.de/fr2020)  
(free download and print)

24

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24



25

## ANNEX 2 Presentation “Land-saving targets in Alpine countries”

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Speakers: Florian Lintzmeyer (ifuplan) / Prof. Dr. Tobias Chilla (FAU Erlangen-Nürnberg)





# Land saving targets in Alpine Countries

Workshop „Soil functions and spatial  
planning in the Alps

Munich, March 29 2022

Florian Lintzmeyer (ifuplan)

Prof. Tobias Chilla (FAU Erlangen-Nürnberg)

## Land take: An increasingly pressing issue across Europe



**Il est urgent de freiner l'artificialisation: les agriculteurs sont en manque de terres, notamment en Paca**  
Les terres les plus arables sont gérées par l'étalement urbain. Le gouvernement a lancé le projet 'Zéro artificialisation des sols d'ici 2050', mais il ne profitera pas forcément aux producteurs également en concurrence avec les espaces naturels.



**Flächenverbrauch: Ein Land verliert den Boden**  
Österreich verbaute Fläche wächst dreimal schneller als seine Bevölkerung. Damit liegt das Land sogar im europäischen Spitzenfeld. Wie es so weit kommen konnte

Wer sich ein wenig mit Bodenverbrauch beschäftigt, stößt schnell auf das eigenartige Wort "Flächenfuß". Dabei hat das Phänomen eher etwas mit stetigen Knädeln zu tun: da ein paar Nüsse, hier ein paar Breads... Am Ende des Abends ist die gesamte Packung des Partyisls weg - und niemand will es gewesen sein.

Es sind viele kleine Stellen, die in Österreich angeknabbert werden: von der Erweiterung einer Abfallanlage in Vorarlberg, von Neubau einer Schulklasse in Niederösterreich, eines neuen Supermarktes im Bundesland Wien bis hin zum Bau eines neuen Parkhauses. Die sind nicht nur unübersichtlich



Pressioni sul territorio: i cambiamenti sono sempre più rapidi, oltre 10 milioni di abitanti sono stati trasferiti in città. Il problema è che...



**Bayern baut sich zu**  
Jeden Tag werden im Freistaat mehr als elf Hektar Landschaft versiegelt. Das Problem ist bekannt, Staatsregierung und Kommunen diskutieren seit Jahren darüber. Und doch ist keine Trendwende in Sicht. Das hat verschiedene Gründe

München, 1. März 2022. In der ersten Hälfte des Jahres 2021 sind in Bayern 11,5 Millionen Quadratmeter Fläche versiegelt worden. Das ist ein Rekordwert. Die Fläche, die in Bayern versiegelt wird, ist größer als die Fläche, die in Bayern neu bewaldet wird. Das ist ein Problem, das die Staatsregierung und die Kommunen seit Jahren diskutieren. Und doch ist keine Trendwende in Sicht. Das hat verschiedene Gründe.

## Austria: Land saving target

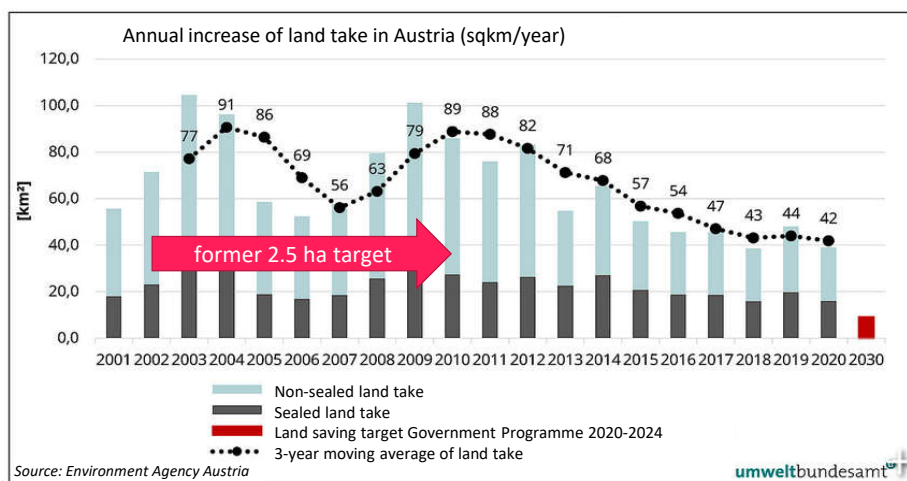
### Target

- 2,5 ha/day until 2030 → Governmental Programme 2020-2024, Austrian Sustainability Strategy NSTRAT 2002 / ÖSTRAT 2010, Austrian Soil Protection Strategy (envisaged in 2022)

### Measures mentioned (non-exhaustive)

- Soft measures (e.g. ÖROK-recommendations, information, good practices, capacity building, ÖREK-partnership “2,5 ha” for targets at Länder level)
- designation of high value agricultural land (e.g. Tyrol) and ecological priority sites
- promotion and extension of brownfield development, innerurban potentials

## Austria: Land-take



10.7 ha/day  
(2020) > 2,5  
ha (2030)

## France: Land saving targets

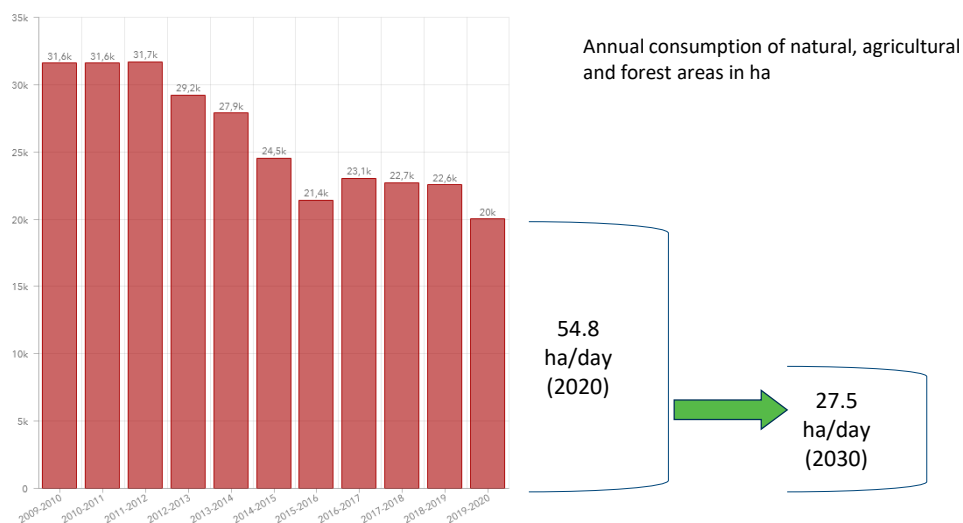
### Targets and sources

- Half-reduction of land take within the next 10 years (2021-2031) → Climate and Resilience Law 2021
- Zero net land take (ZAN) by 2050 → Biodiversity Plan 2018 (Plan biodiversité)

### Measures mentioned (examples)

- Strict application in urban planning (needs assessment, priority densification, inner-urban development)
- Financial devices (promoting brownfield regenerations, ecoconditional aids)
- Soft measures (recommendations, information, good practices, capacity building)

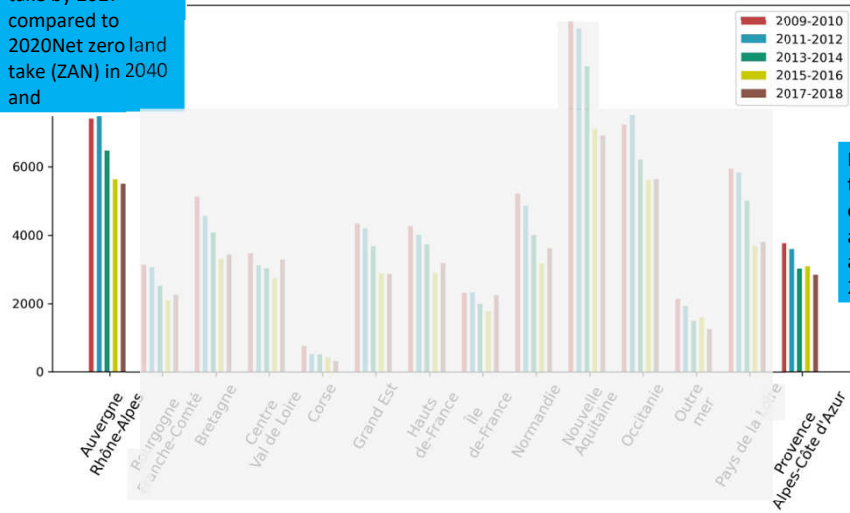
## France: Land-take



## Land take and targets in French regions

Halving of land take by 2027 compared to 2020 Net zero land take (ZAN) in 2040 and

Bi-annual land take of French regions in ha



Halving of land take by 2030 compared to the average annual amount 2006 - 2014.

## Germany: Land saving targets

### Targets

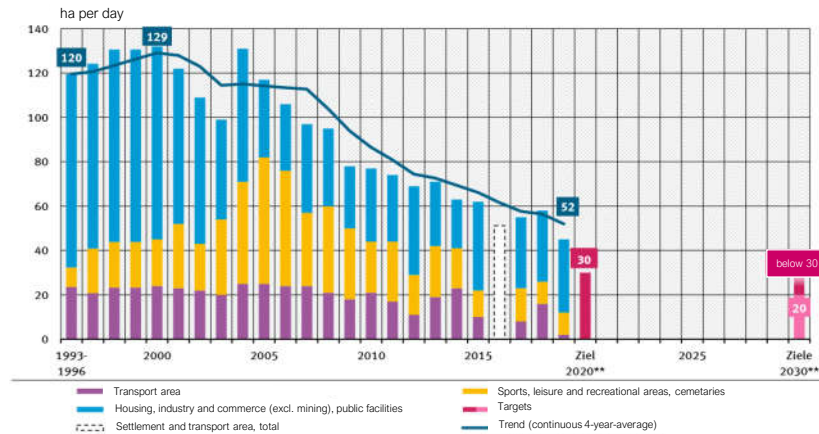
- 30 ha/day minus x until 2030 → Sustainable Development Strategy 2001/2018
- Net zero land take 2050 → Climate Action Plan 2050 (BMUB)

### Measures mentioned (examples)

- Soft measures (recommendations, information, good practices, capacity building)
- Strengthening and vitalising urban centers
- Enabling federal states and regions to enact land saving targets

## Germany: Land take

Increase in settlement and transport area (SuV)



\* Die Flächenerhebung beruht auf der Auswertung der Liegenschaftskataster der Länder. Aufgrund von Umstellungsarbeiten in den Katastern (Überschneidung der Nutzungskarten im Zuge der Digitalisierung) ist die Darstellung der Flächenzunahme ab 2004 verzerrt.  
 \*\* Ziel 2020: "Klimaschutzplan 2050", Ziele 2030: "30 minus" Hektar pro Tag; "Deutsche Nachhaltigkeitsstrategie, Neuauflage 2016", 30 Hektar pro Tag; "Integriertes Umweltprogramm 2030"  
 \*\*\* Ab 2015 erfolgt aufgrund der Umstellung von automatisierten Liegenschaftszähl (ALZ) auf das automatisierte Liegenschaftskataster-Informationssystem (ALKIS) die Unterscheidung zwischen "Gebäude- und Freifläche" sowie "Betriebsfläche ohne Abbauland". Dadurch ist derzeit der Zeitvergleich beeinträchtigt und die Berechnung von Veränderungen wird erschwert. Die nach der Umstellung ermittelte Siedlungs- und Verkehrsfläche enthält weitgehend dieselben Nutzungsarten wie zuvor. Weitere Informationen unter [www.bmu.de/WS2204K10025](http://www.bmu.de/WS2204K10025)

Quelle: Werte aus Statistisches Bundesamt 2021, Erläuterungen zum Indikator „Anstieg der Siedlungs- und Verkehrsfläche (SuV)“ im Planungsatlas Nr. 209 vom 30. April 2022

## Bavaria: Land saving benchmark

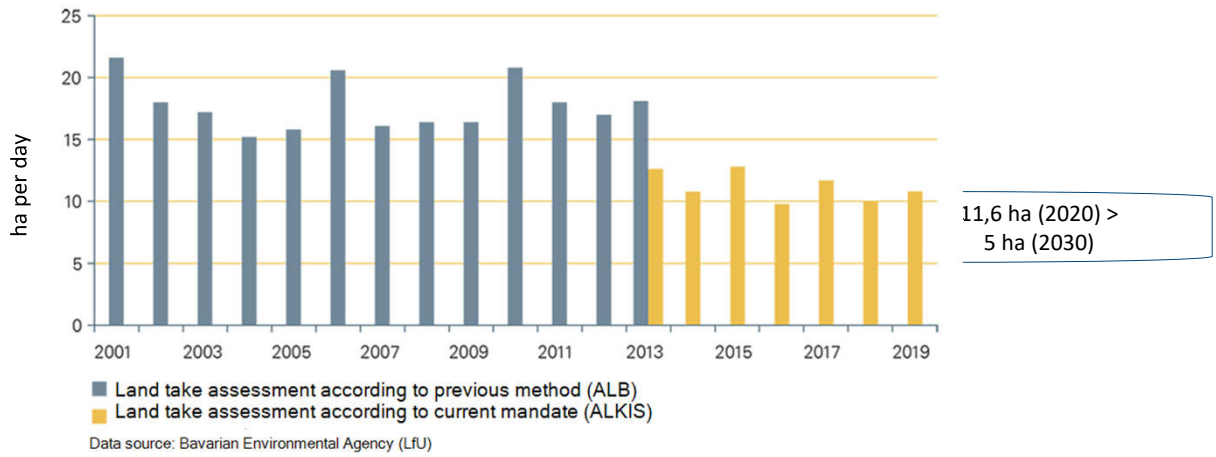
### Benchmark

- 5 ha/day by 2030 → Coalition Treaty 2018-2023, Bavarian Spatial Planning Law, Bavarian Sustainability Strategy
- Circular land use (undefined timeline)

### Measures mentioned (examples)

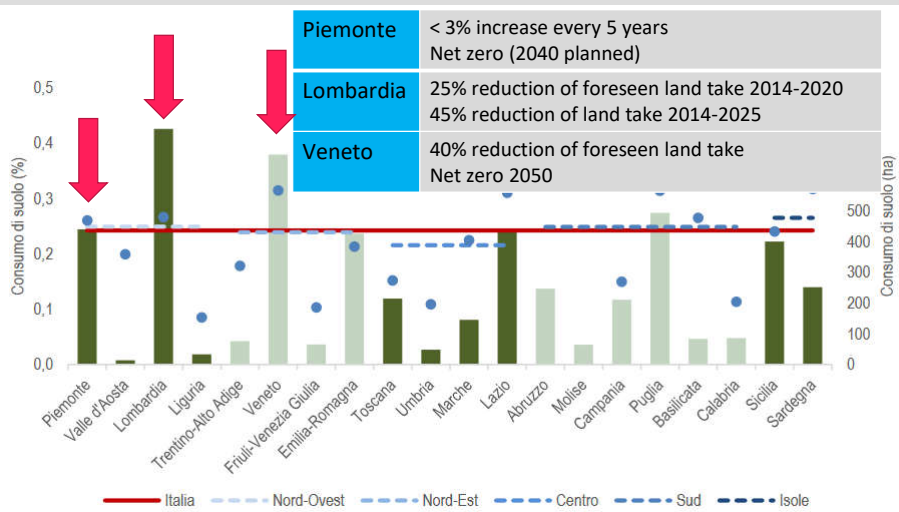
- Land saving initiative (Flächensparoffensive)
- Reuse of inner-urban potentials, densification
- Ministerial interpretation guideline for needs assessment
- Land-saving focal points at provincial governments

## Bavaria: Land-take



11

## Italy: Land-take and targets for Piemonte, Lombardia and Veneto



12



## Veneto: Maximum remaining land take per municipality

				CORRETTIVO INDICATORI PER A.S.O.				CORRETTIVO INDICATORI PER I COMUNI				
Remaining land zoned for settlement <b>21.323 ha</b> (1,15% of Veneto total)				RESIDUO	RESIDUO RIDOTTO DEL 40%	percentuale dopo CORRETTIVO	RESIDUO DOPO CORRETTIVO	Variazione per classe sismica (2=-0,5%; 3=0%; 4=+0,5%)	Variazione per tensione abitativa (no=0%; si=+0,5%)	Variazione per varianti verdi (0,0001+0,05=-0,50%; 0,06+0,10=-1%; 0,11+1,4=-1,5%)	QUANTITA' MASSIMA DI CONSUMO DI SUOLO AMMESSO	Riferimento Tabelle Allegato D
				ha	ha	%	ha	%	%	ha		
26	28001	Abano Terme	Padova	76,57	45,94	90,00%	41,35	0,50%	0,50%	-1,50%	41,13	②
23	29001	Adria	Rovigo	83,77	50,26	100,00%	50,26	0,50%	0,00%	-0,50%	22,24	① ②
16	23001	Affi	Verona	7,95	4,77	75,35%	3,59	0,00%	0,00%	-0,50%	3,58	
21	28002	Agna	Padova	27,73	16,64	92,13%	15,33	0,50%	0,00%	0,00%	15,41	
1	25001	Agordo	Belluno	7,17	4,30	100,00%	4,30	0,00%	0,00%	0,00%	4,30	
14	24001	Agugliaro	Vicenza	16,13	9,68	93,18%	9,02	0,50%	0,00%	0,00%	9,06	
4	25002	Alano di Piave	Belluno	6,61	3,97	95,39%	3,78	-0,50%	0,00%	-0,50%	3,75	

Source: ALLEGATO C DGR nr. 668 del 15 maggio 2018

13

## Slovenia: Land saving target

### Target

- 25% reduction of net growth of built-up land until 2030 (~ 6,7 ha) → Resolution on the National Environmental Protection Programme (ReNPVO20–30)
- Zero net land take by 2050 → ibid.

### Measures mentioned (examples)

- Efforts to avoid sealing
- Integration of land use and landscape protection in decision-making
- Reduction pathway towards net zero

14

## Switzerland: Land saving targets

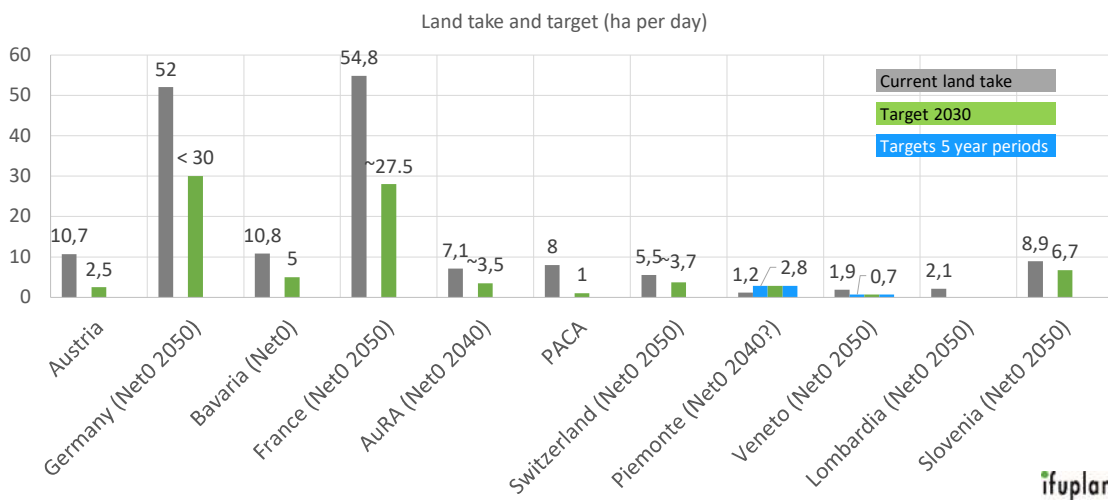
### Targets

- Reduction of land take by a third to 3.7 ha/day by 2030 , compared to the 2020 rate  
→ Swiss Soil Strategy
- Zero net land take by 2050 → Sustainable Development Strategy 2030

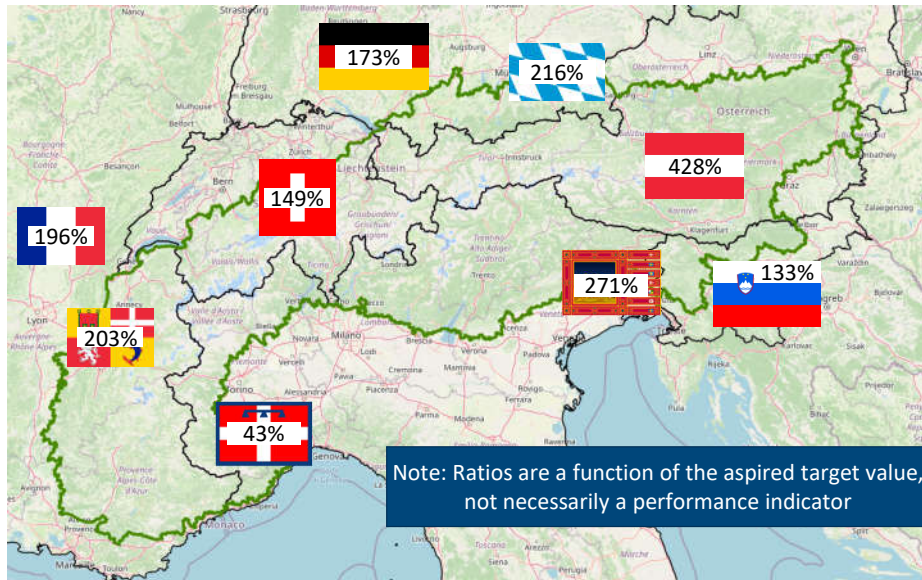
### Measures mentioned (examples)

- 15-year building zone reassessment (Revision of the Swiss Spatial Planning Act)
- Consideration of soil functions in planning processes

## Current land take and targets



## Percentage of current land take in view of 2030 targets



17

## Challenges for the implementation process include...



18



# Land saving targets in Alpine Countries

Workshop „Soil functions and spatial planning in the Alps

Munich, March 29 2022

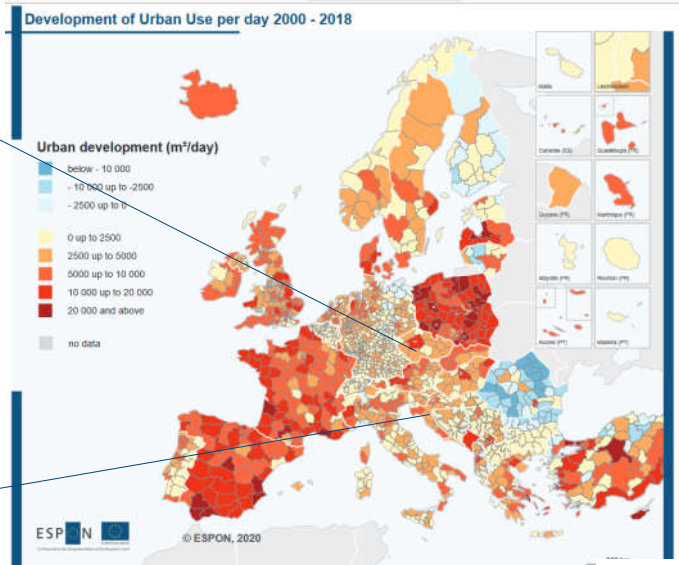
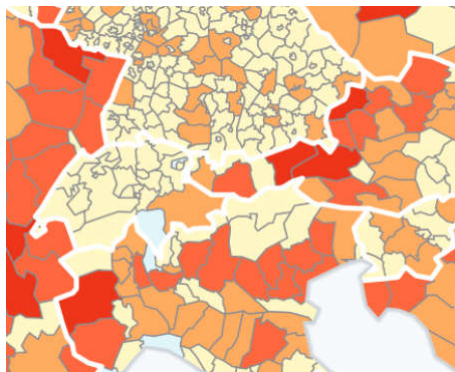
Florian Lintzmeyer (ifuplan)

Prof. Tobias Chilla (FAU Erlangen-Nürnberg)

The Alpine context



## The Alpine Context



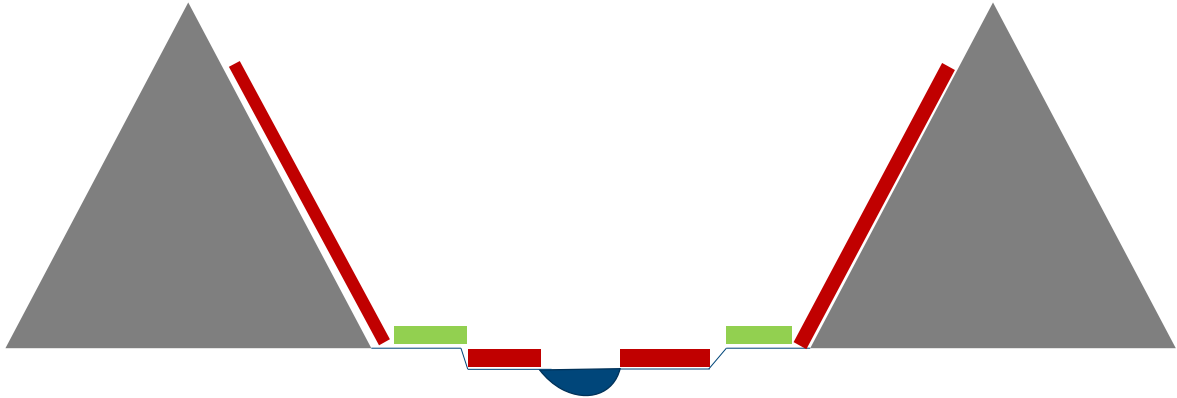
[https://www.espon.eu/sites/default/files/attachments/ESPON%20SUPER%20Final%20Report%20-%20Main%20report\\_newtemplate.pdf](https://www.espon.eu/sites/default/files/attachments/ESPON%20SUPER%20Final%20Report%20-%20Main%20report_newtemplate.pdf)







## The Alpine Context



### Particularity of Alpine Settlement Systems

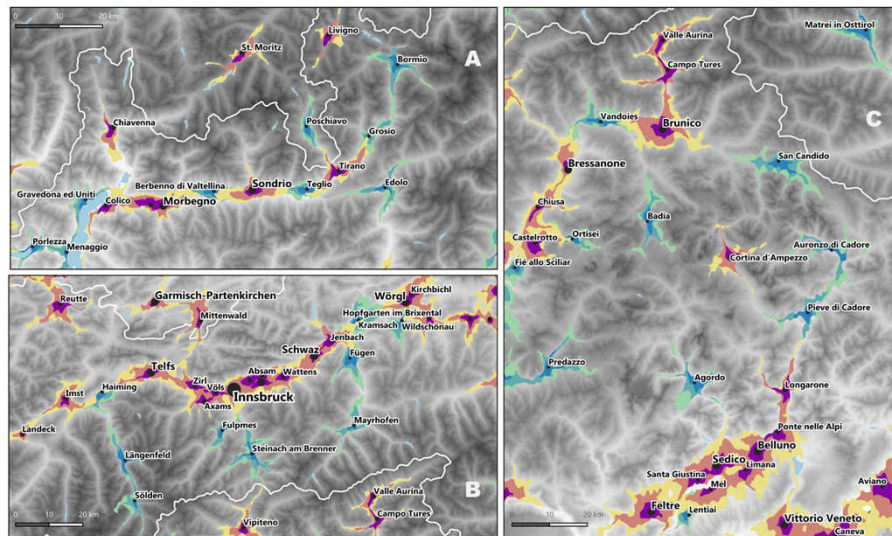
- a) Morphology
- b) Accessibility (Infrastructure, essential services)
- c) Compatibility of land use categories



21



## The Alpine Context



**Population of Alpine Towns**

- > 3,000 - 5,000
- > 5,000 - 10,000
- > 10,000 - 50,000
- > 50,000 - 100,000
- > 100,000

**Alpine Settlement System -zoom in-**

**Accessibility by car in travel time (min)**

**Alpine town (3,000 to 5,000 inh.)**

- 5 mins
- 10 mins
- 15 mins

**Alpine town (more than 5,000 inh.)**

- 5 mins
- 10 mins
- 15 mins

**Political information**

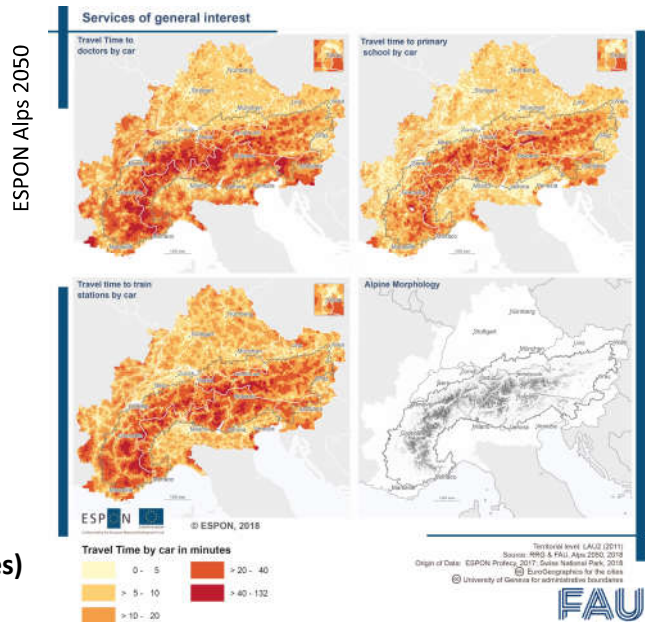
- Alpine Convention
- national borders

**FAU**  
 Friedrich-Alexander-Universität  
 Erlangen-Nürnberg  
 Concept & Cartography: D. Berman, T. Chila, M. Lambrecht, 2022  
 Data: ESPRI Alps 2005; National Statistical Offices, 2016  
 Geodata: © openstreetmap.org by HERE & © OpenStreetMap contributors for  
 the travel time isochrones, © Eurogeographics for the administrative boundaries,  
 Eurostat, IGAT for the Morphological Urban Areas, Data funded under GMES  
 preparatory action 2005 on Reference Data Access by the European Commission,  
 GIS Enterprise and Industry for the Alpine sector data

22



## The Alpine Context

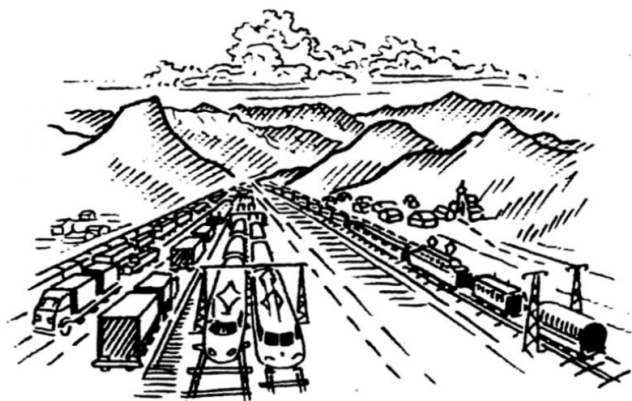


### Particularity of Alpine Settlement Systems

- a) Morphology
- b) Accessibility (Infrastructure, essential services)**
- c) Compatibility of land use categories



## The Alpine Context



<http://inmat.gemeinschaft.de/unsere-ziele>

### Particularity of Alpine Settlement Systems

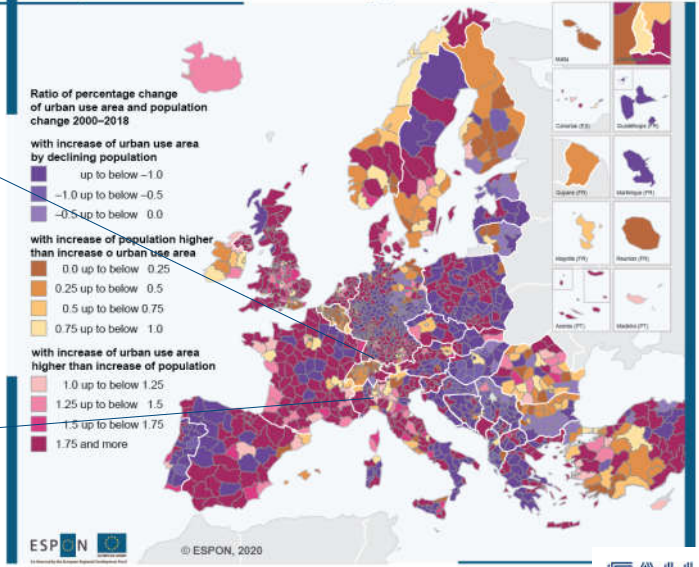
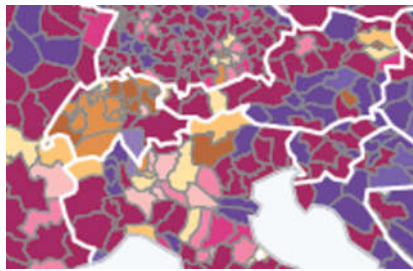
- a) Morphology
- b) Accessibility (Infrastructure, essential services)**
- c) Compatibility of land use categories**





# The Alpine Context

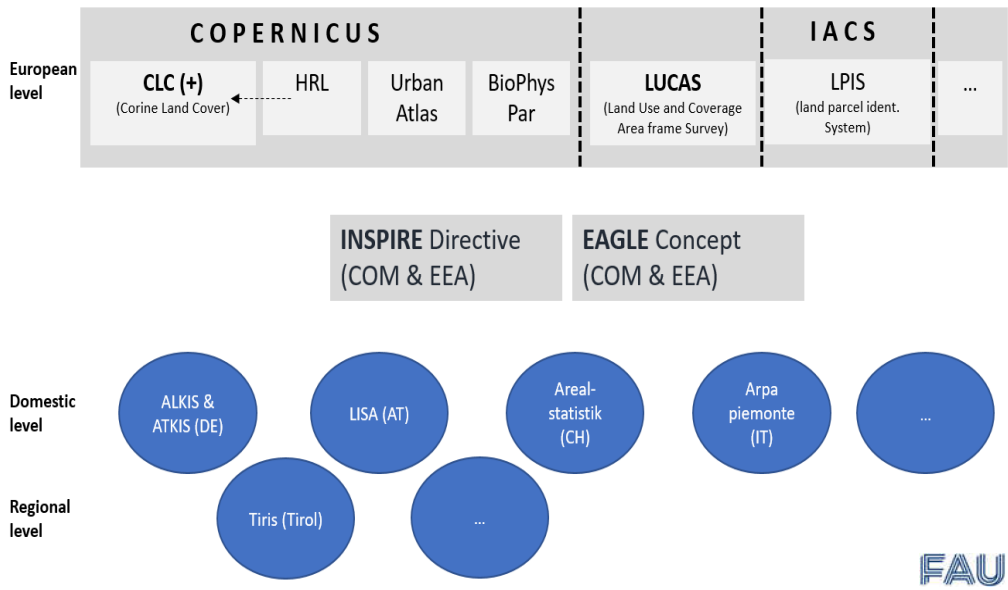
## Development of urban use areas in relation to population development 2000–2018



Eigener Entwurf

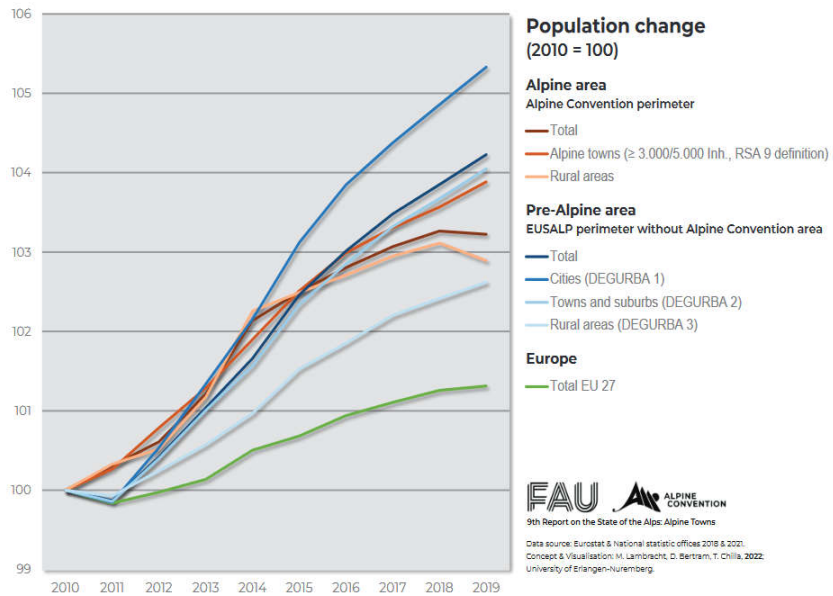


# The Alpine Context



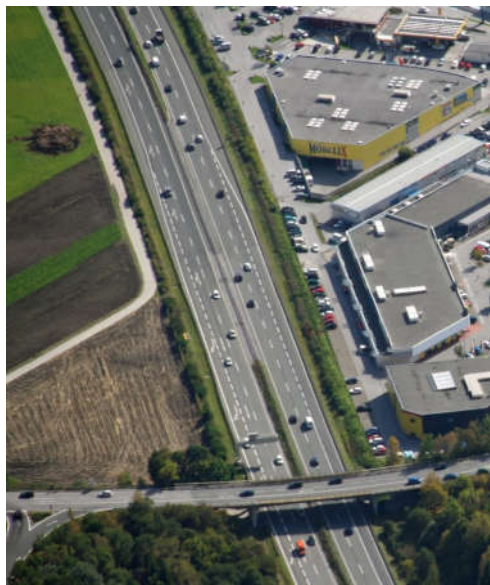


## The Alpine Context



Eigener Entwurf

27



## Land saving targets in Alpine Countries

Workshop „Soil functions and spatial planning in the Alps

Munich, March 29 2022

Florian Lintzmeyer (ifuplan)

Prof. Tobias Chilla (FAU Erlangen-Nürnberg)



28

## ANNEX 3 Presentation “Implementations to combine qualitative and quantitative soil protection in Tyrol, Austria”

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Speaker: Dr. Thomas Peham (Office of the Tyrolean Government)



## Implementations to combine qualitative and quantitative soil protection in Tyrol, Austria



Soil function implementations | 2022-03-29

DI Thomas Peham PhD

### Overview

- Objectives of the presentation
- What is a soil function
- How is soil function assessment done in Austria
- Examples of soil function usage
- Land take and soil functions
- Take-away messages




Soil function implementations | 2022-03-29

DI Thomas Peham PhD

2

## Objectives of the presentation

- Soil functions
- 
- Day 1
  - Day 2
  - Provide some basic information on soil functions and their assessment



## What is a soil function – basic questions

Basic requirement: define soil

Distinguish soil functions  
&  
ecosystem services

Find your target function

Search for soil data





**Soil functions**  
Soils deliver ecosystem services that enable life on Earth

2015 International Year of Soils

Food and Agriculture Organization of the United Nations

with the support of

United Nations Environment Programme  
World Health Organization  
World Bank  
World Meteorological Organization  
World Trade Organization  
World Intellectual Property Organization  
World Tourism Organization  
World Food Programme  
World Bank Group  
World Health Organization  
World Meteorological Organization  
World Trade Organization  
World Intellectual Property Organization  
World Tourism Organization

LAND TIROL

Soil function implementations | 2022-03-29

DI Thomas Peham PhD

5

## What is a soil function – example from Austria

LAND TIROL

1. Habitat functions		2. Part of the ecosystem		3. Medium for degradation, compensation and transformation	
1.1	Basis of existence and habitat for humans	2.1	Function of soil in the water balance	3.1	Filter and buffer for anorganic sorbable pollutants and substances
1.2	Basis of existence and habitat for soil organisms		Runoff regulation	3.2	Filter and buffer for organic pollutants and substances
	Habitat for soil organisms		Contribution to ground water recharge	3.3	Buffer for acidic depositions
	Gene reservoir and biodiversity	2.2	Function of soil in the mass balance		
1.3	Habitat potential for plant communities		Nutrient potential and nutrient availability		
	Habitat potential for natural plant communities		Carbon storage		
	Natural soil fertility		Gas household		

Sub-functions after BMLFUW (2013)  
Blue background: assessable sub-functions according to ÖNORM L 1076  
Tables by Elisabeth Schaber – Links4Soils

Soil function implementations | 2022-03-29

DI Thomas Peham PhD

6



## What is a soil function



Country	Assessable soil sub-functions	Part of the following Ecosystem Service (CICES)
Austria & Bavaria	Habitat for soil organisms	Maintain nursery populations and habitats
Austria & Bavaria	Habitat potential for plant communities	Maintain nursery populations and habitats
Austria Bavaria	Natural soil fertility Yield capacity (forestry, agriculture)	Provide Biomass (nutrition, biomass, energy)
Austria Bavaria	Runoff regulation Precipitation retention	Mediation of liquid flows (flood protection)
Austria & Bavaria	Filtering and buffering of pollutants	Mediation of waste and toxics from biota and ecosystems by means of filtration/sequestration/storage/accumulation
Austria & Bavaria	Archive of natural and cultural history	Intellectual and representative interactions (science, education, cultural heritage)

The Common International Classification of Ecosystem Services (CICES) developed from the work on environmental accounting undertaken by the European Environment Agency (EEA).

Table by Elisabeth Schaber – Links4Soils

Soil function implementations | 2022-03-29

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7

## What is a soil function – example: soil texture



### Particle size

sand	(0.06 mm – 2 mm)
silt	(0.002 mm – 0.06 mm)
clay	(<2 μm)
loam	equal properties of sand, silt, and clay

Legend	
Symbol	Explanation
++	very good
+	good
±	medium
-	low
--	very low

Characteristics / Soil texture	Sand	Silt	Clay	Loam
Cultivation	++	±	--	+
Nutrient storage	--	-	++	+
Nutrient provision	-	+	+	++
Pollutant accumulation	-	+	++	++
Water storage	--	+	++	++
Water provision	-	++	-	+
Mechanical filtration	+	++	-	+
Physico-chemical filtration	--	-	++	+
Drainage	++	--	-	±
Erodibility	±	+	--	-

Table after <https://de.wikipedia.org/wiki/Bodenart>

Soil function implementations | 2022-03-29

DI Thomas Peham PhD

8

# How is soil function assessment done in Austria Austrian standard L 1076 and scientific concept



Soil function implementations | 2022-03-29

DI Thomas Peham PhD

9

## Data basis – Soil evaluation maps

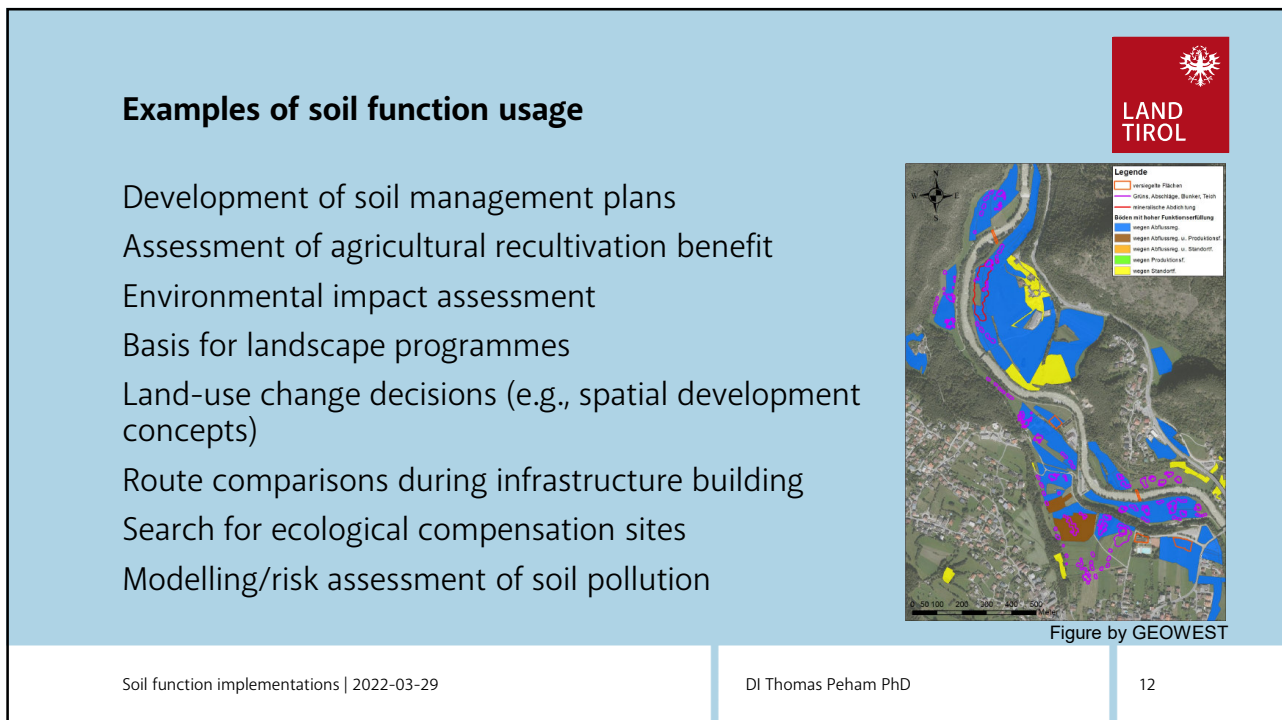
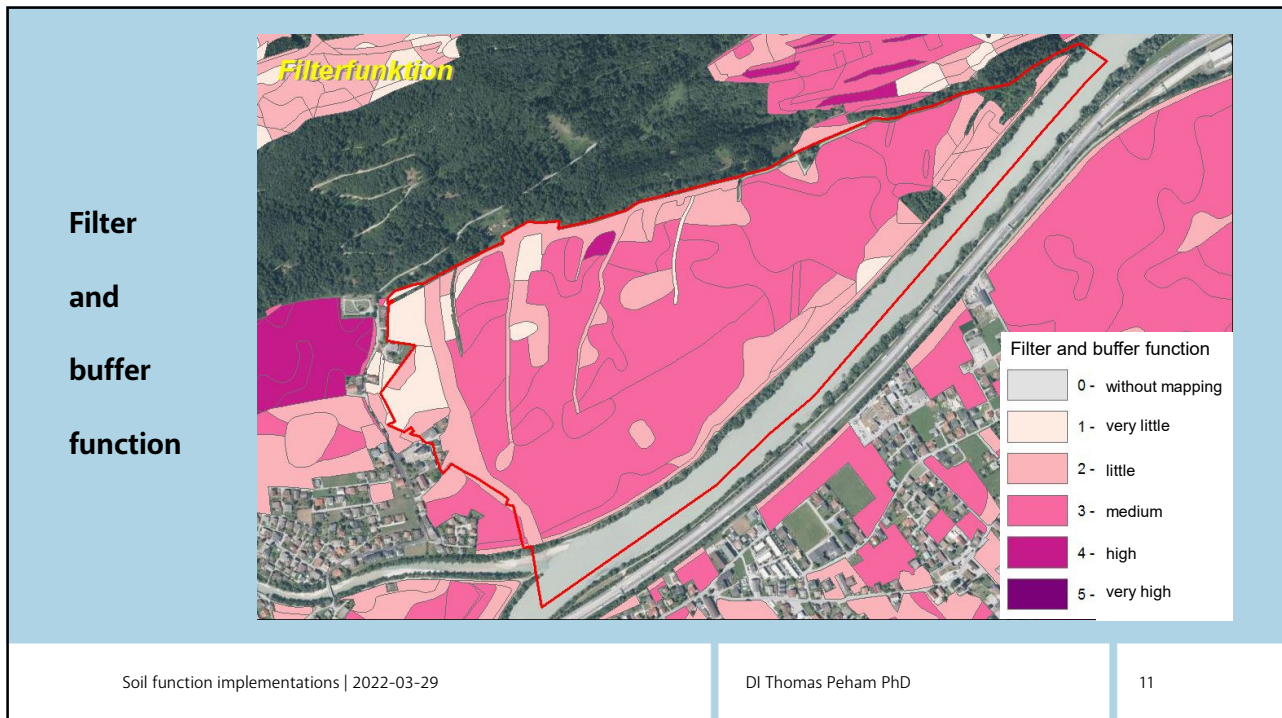


- Spatial resolution: 1 : 2,000
- Covered area: Agricultural area (except high alpine pastures)
- History: Milanese cadastre - 1718  
Soil evaluation law 1970
- Data owner: Customs office, Ministry of Finance
- Currentness of data: Evaluation cycle of 30 years
- Data availability: not public, acquirable

Soil function implementations | 2022-03-29

DI Thomas Peham PhD

10



## Land take and soil functions

Soil functions assessment does not stop land take

But they help to:

Minimize the space required while safeguarding the soil as a livelihood as far as possible.

Protect the best-performing fields!



## Take-away messages

Soils fulfil various functions

Soils are very heterogeneous

Soil function assessment is possible

Soil function assessment describes potentials

Soil function assessment is a fantastic information tool but no protection per se



**Thank you for your attention**



Soil function implementations | 2022-03-29

DI Thomas Peham PhD

15

## ANNEX 4 Presentation "Agricultural Provision Areas – A Contribution of Spatial Planning to Quantitative Soil Protection"

---

Speaker: Christian Drechsler (Office of the Tyrolean Government)





# Agricultural Provision Areas

## A Contribution of Spatial Planning to Quantitative Soil Protection

Christian Drechsler

Workshop on Soil Functions and Spatial Planning in the Alps  
03/29/2022, Munich

Agricultural Provision Areas

Office of the Tyrolean Government, Dept.  
Spatial Planning & Statistics

1

1



### Questions:

1. What are the challenges of open-space-planning in Tyrol?
2. Why agricultural provision areas?
3. How can agricultural provision areas be defined, delimited and legally regulated?
4. What is the “effect”?
5. Can agricultural provision areas be changed?

Agricultural Provision Areas

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Dept. Spatial Planning & Statistics

2

2

## 1. What are the challenges of open-space-planning in Tyrol?



- High dynamics in settlement development => need for “planning the unplanned”
- Attractiveness of landscape vs. multi-layered interests
- Permanent settlement area: 12,8 % of the area of the federal country
- Linear & concentrated arrangement of sealed areas
- Preserve land for agricultural production (self – nutrition)



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3

## 2. Why agricultural provision areas?



OBJECTIVELY

- Supra communal - planning and determining of “open spaces” was not comprehensive & countrywide until 2015 (only in Zillertal, Oberes Lechtal, Wörgl und Umgebung there were so called “green zones”)
- Delimitation of “green zones” was quite “subjective” (agricultural use, value for recreation, landscape) => need to delimitate hard- fact based
- Related to agricultural provision: Soil value, slope gradient, minimum area

INTER-COMMUNAL

- 
- Tyrol: Spatial planning is exclusively in the competence of the municipality
  - 2005: Introduction of the 36 “Planungsverbände” - inter-communal public entities
  - 2015: Start of determining agricultural provision areas sorted by interest pressure on the space. Reference area: Planungsverbände.

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4

### 3.a.) How can agricultural provision areas be defined?

- **Mandate:** Resolution of the Tyrolean Parliament and the Provincial Government of summer 2015
- **Methodology & Frame**
  - Only large areas of **national and regional importance** for agriculture
  - Contiguous agricultural areas with an area size of **4 ha** or more and a soil credit rating of at least **25 points**. (best score in Tirol: 67 points)
  - Location of the areas **within the free areas** according to the local spatial planning concept.(ÖRK) There is no interference with legally binding local zonig plans (FläWi) and already protected areas (no „gold plating“) => GIS based draft
  - Excluded: „closed settlement“ (§ 2 TBO 2011: 5 houses) => desk & field
  - Included: smaller punctual & linear structures => desk & field

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5

5

### 3.b.) How can agricultural provision areas be mapped?



**Soil Valuation**  
(Ministry of Finance)

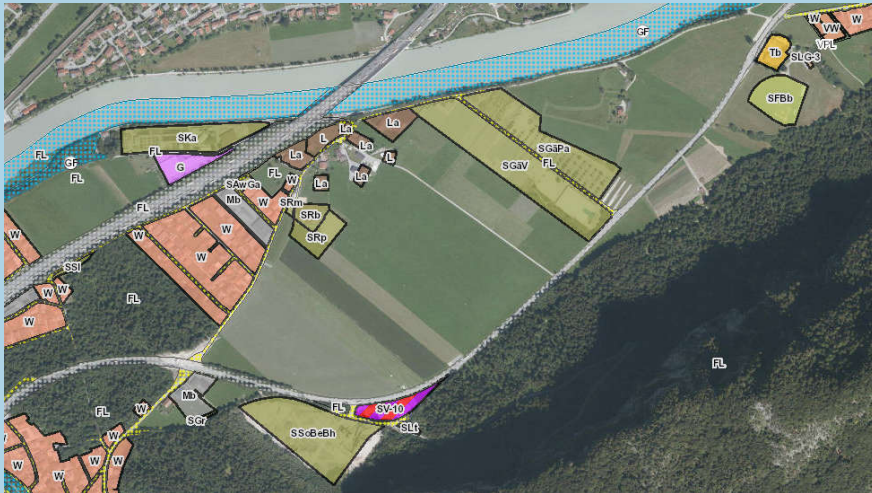
Agricultural Provision Areas

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Dept. Spatial Planning & Statistics

6

6

### 3.b.) How can agricultural provision areas be mapped?



**Local Zoning Plan**  
(Flächenwidmungsplan)

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7

### 3.b.) How can agricultural provision areas be mapped?



**Local Spatial  
Planning Concept**

Örtliches  
Raumordnungskonzept

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Dept. Spatial Planning & Statistics

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8



### 3.b.) How can agricultural provision areas be mapped?



Slope gradient

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9

### 3.b.) How can agricultural provision areas be mapped?



Delimitation of agricultural provision area

Online/tiris

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10

### 3.c.) How can agricultural provision areas be regulated by law?



- **Agricultural provision areas are an ordinance of the Tyrolean provincial government pursuant to § 7 of the Tyrolean Spatial Planning Act 2016 (TROG 2016).**
- Draft „ex officio“ (presented to the Planungsverbände in advance)
- Appraisal procedure (8 weeks, internal and external stakeholders & public)
- Redrafting & final draft as result of the appraisal procedure
- Regulation (Plans, explanatory report, environmental report) & publication (Landesgesetzblatt, online)
- Legally binding provision areas (mentioned e.g. as best practise in the draft of OpenSpaceAlps Strategic Recommendations: IR 7)

<https://www.tirol.gv.at/landesentwicklung/raumordnung/ueberoertliche-raumordnung/raumordnungsprogramme-1/>

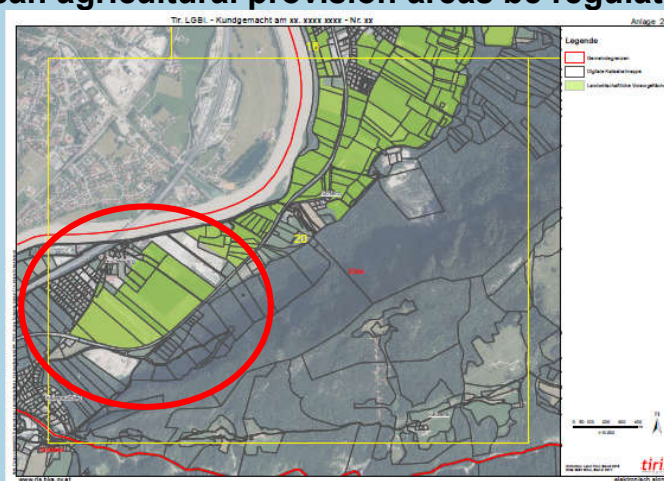
Agricultural Provision Areas

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Dept. Spatial Planning & Statistics

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### 3.c.) How can agricultural provision areas be regulated by law?



Agricultural Provision Areas

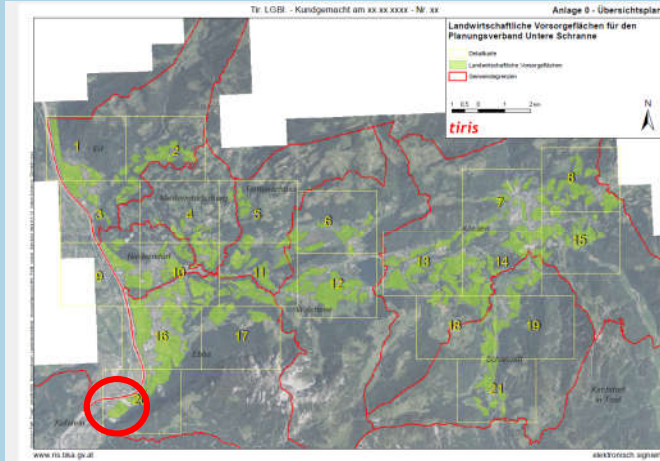
Office of the Tyrolean Government,  
Dept. Spatial Planning & Statistics

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12



### 3.c.) How agricultural provision areas can be regulated by law?



<https://www.tirol.gv.at/landesentwicklung/raumordnung/ueberoertliche-raumordnung/raumordnungsprogramme-1/>

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13

13

### 4. What is the “effect”?



- Prohibition of the designation of settlement extensions for building land in the local spatial planning concepts and of the dedication of building land in the zoning plans.
- Buildings that are permissible in the open countryside are still permitted.
- Special land dedications for agricultural purposes (farms, stables etc.) are also permissible (insofar as they are compatible with the objectives of local spatial planning and respective special criteria i.g. for big freestall-barns).

Agricultural Provision Areas

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Dept. Spatial Planning & Statistics

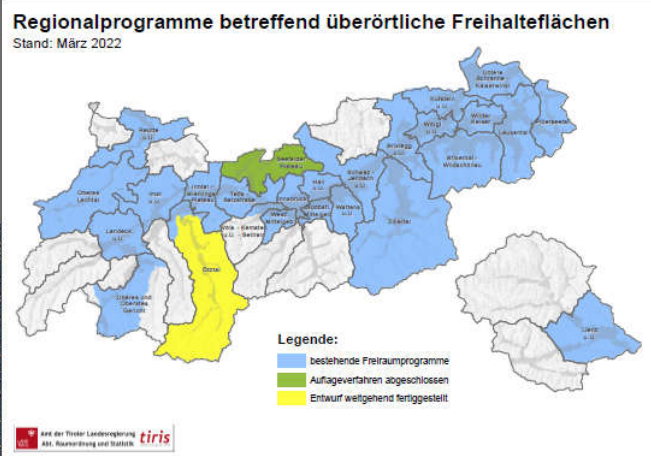
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14

## 4. What is the “effect”?



	DSR in ha	LWVF in ha	Anteil LWVF am DSR
Vols und Kematen	916	420	46%
Zillertal	12390	2.312	19%
Wörgl und Umgebung	5593,1	3.590	64%
Oberes Lechtal	3030	1.148	38%
Hall und Umgebung	2695	1.132	42%
Reutte und Umgebung	3500	1.094	31%
Südostl. Mittelgeb. und Innsbruck	5830	1.260	22%
Inntal - Mieminger Plateau	2.551	1.150	45%
Westliches Mittelgebirge	2167	885	41%
Lienz und Umgebung	7338	2.085	28%
Imst u. Umg., Haiming, Roppen	4.358	1.316	30%
Wattens und Umgebung	2949	742	25%
Kufstein und Umgebung	4278	1.573	37%
Telfs u. Umg. – Salzstraße	4.316	1.609	37%
Untere Schranne – Kaiserwinkel	7404,7	3.477	47%
Landeck und Umgebung	3600	393	11%
Oberperfluss, Unterperfluss und Ranggen	950	362	38%
Leukental	9404	2878,6	31%
Oberes und Oberstes Gericht, Serfaus	3.115	553,3	18%
Wilder Kaiser	4.140	1.183	29%
Pillerseetal	3845	1109	29%
Braxental – Wildschönau	10896	1845	17%
Schwarz – Jenbach und Umgebung	6313	1839	29%
Brnlegg und Umgebung	3.802	1174,1	31%
<b>Gesamt</b>	<b>115380,8</b>	<b>35130</b>	<b>30%</b>



Agricultural Provision Areas

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15

## 5. Can agricultural provision areas be changed?



- 10 – year evaluation cycles of regulation ( ex officio; e.g. changes in the soil value, review of values every 30 years).
- Public interest for a change of delimitation (e.g. fire station, inter-communal recycling facilities) (§ 10 TROG 2016)
- When updating local development concepts
- Zoning authorization for special areas (§ 11 TROG 2016)
- Procedures (§ 10 & 11 TROG 2016) are quite elaborate:
  - Initiative by the municipality & argumentation of public interest
  - Technical examination => Committee (Government & Chambers)
  - Amendment to the regulation => when in force: zoning possible.

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16

16

## Summary



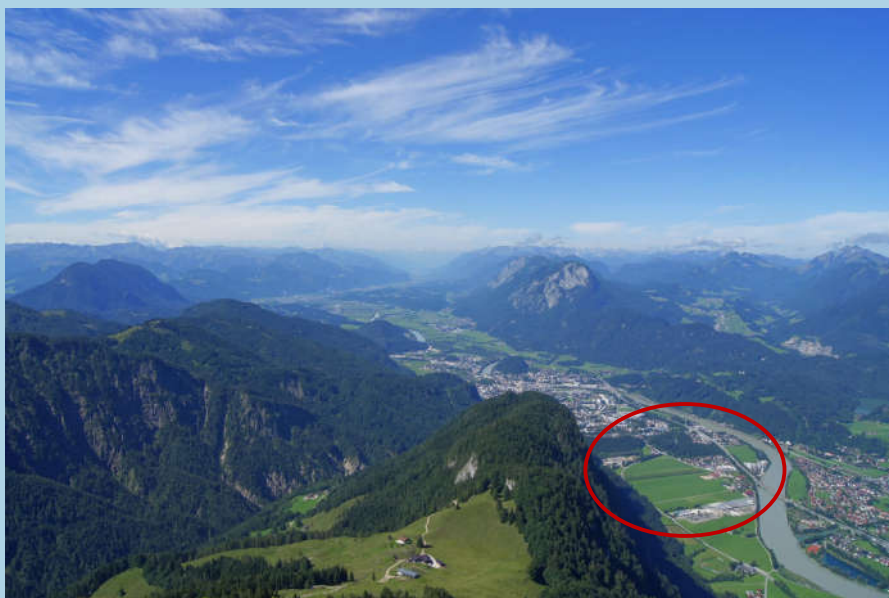
- Soil protection by spatial planning => no/very restricted sealing
- No sealing ≠ no use
- Use = agriculture, farms, stables, special areas of public interest
- But: effective measure to secure open, non sealed spaces
- First resume´ after 7 Years:
  - 30 % of the permanent settlement area is “protected”
  - “Relief” for Mayors (once convinced...)
  - Positive Example for spatial planning on a more function-oriented level

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17

17



**Thank you!**

Agricultural Provision Areas

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Dept. Spatial Planning & Statistics

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18

## ANNEX 5 Presentation “Instruments for Agricultural Land Protection in Slovenia, Including Spatial Planning”

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Speaker: Jernej Červek (Ministry of the Environment and Spatial Planning of the Republic of Slovenia)

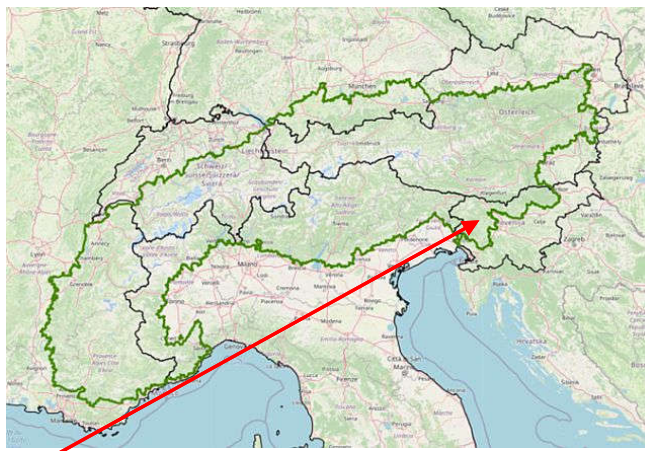
# Instruments for Agricultural Land Protection in Slovenia, Including Spatial Planning


Presentation at workshop on soil functions and spatial planning in the Alps

29-30 March 2022, Munich  
Jernej Červek

1

## The Alps in Slovenia



 The Alpine Region (map of the Alpine Convention)

2

## Levels of government and their responsibilities

**Slovenia** is a unitary country with two levels of government; the national level and local level (212 municipalities).

No **regional level** of government exists in Slovenia, but *Regional Development Agencies* exist to support economic development at the sub-national level (NUTS3). A regional spatial plan has been introduced recently with the Spatial Planning Act.

**Municipalities** have the right to manage the spatial development in their jurisdiction except for those aspects that are under the direct control of the national government.



212 Municipalities of Slovenia

source: insert map/ image source

3

## The protection of agricultural land

### Agricultural land important for many reasons:

- food production,
- environment protection,
- the preservation of cultural landscape,
- rural settlement and
- the fulfilment of ecological functions.



### Tasks of the Ministry for Agriculture, Forestry and Food:

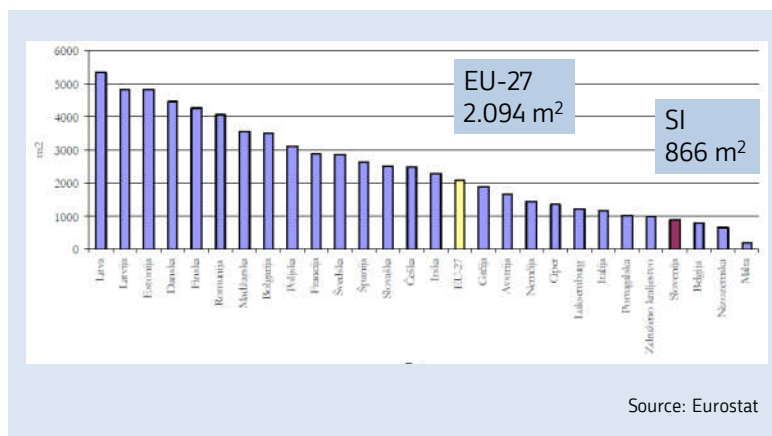
- One of the most important tasks of the is **to ensure an appropriate level of self-sufficiency and food safety.**
- Is responsible for **preparing expert bases, opinions and guidelines** that are in accordance with regulations.
- It participates at **all levels of preparation of spatial acts** and represents the public interest.

4





## Agricultural land per capita in the EU-27



5



## Measures for reversing loss of agricultural land

- Determining strategic areas for agriculture and food production
- Determining the areas of permanently protected agricultural land
- Mitigation measures
- Compensation
- Pre-emption right for the purchase of agricultural land
- The obligation of cultivating agricultural land

6



## Protection of the agricultural land in the framework of spatial planning

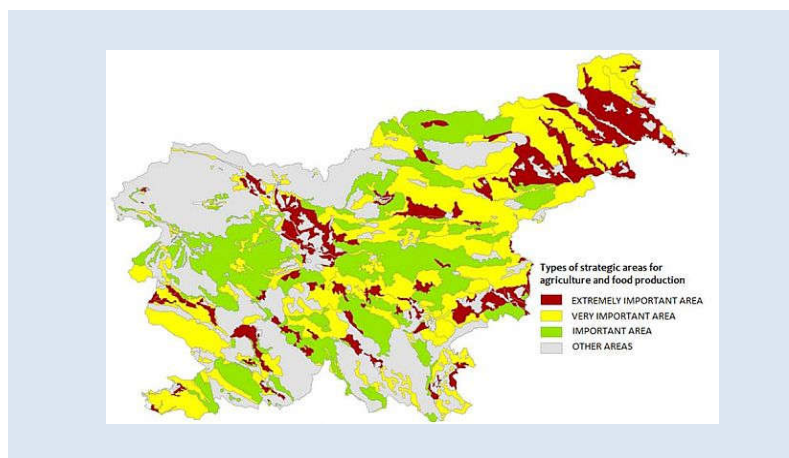
- ❑ Tradition of agricultural land protection through spatial planning since 1981
- ❑ Agricultural land was classified as a first and a second agricultural areas
- ❑ Category of the first agricultural area was binding for spatial planning and had been checked in the process of giving consents to spatial planning documents by the ministry, responsible for agriculture
- ❑ According to the law, exemptions permitting building in the first category agricultural areas were possible and were examined case by case



7



## Types of strategic areas for agriculture and food production



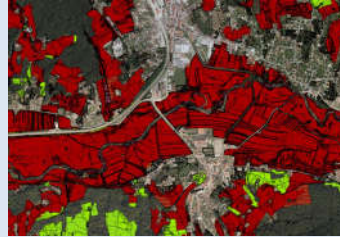
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## The expert basis for permanently protected agricultural land

The areas of **permanently protected** agricultural land and **other** agricultural land:

- ❑ **determined in the procedure of drawing up a municipal spatial planning document** (after coordination between the spatial planning authority and the local community),
- ❑ **cannot be changed for at least 10 years** after they have been determined by the spatial plan.




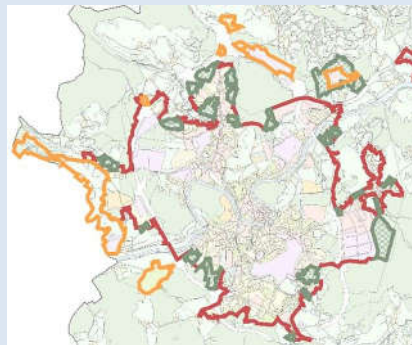
permanently protected agricultural land  
other agricultural land



## Determining of Settlement's Zone

As a basis for a Municipal Spatial Plan settlements' zones are defined for all settlements except for dispersed settlement

- 
- Settlement's zone
  - Zone for a long term settlement development
  - Other settlement zone (no housing)
  - Dispersed settlement zone of less than 10 houses



## Municipal level of spatial planning

### Municipal Spatial Plan

At the municipal level, the main spatial planning document is the Municipal Spatial Plan. It contains a strategic map and land use maps (typically at a scale of 1: 5 000), associated with zoning regulations and permitted uses specified arranged according to land use types or even detailed, covering the entire municipality.



Example: Municipal Spatial Plan City of Kranj

## Mitigation measures

When it is not possible to avoid the intervention in agricultural land, it is **necessary to replace the lost resources**. For example:

- returning or reallocating** the planned use of construction land to agricultural land
- establishing replacement** agricultural land in forests, degraded areas, the areas for extracting mineral resources, etc.
- improving the production potential** of the existent agricultural land (e.g. eliminating overgrowing)





## Compensation payment

**When agricultural land is changed** → it is necessary to **pay compensation** for the intervention.

The amount of compensation depends on:

- surface**
- and quality** of agricultural land.

The funds received from compensation are part of the state budget and are used for the implementation of land policy:

- purchasing agricultural land,
- water reservoirs,
- irrigation systems,
- expert bases.



13



## Transactions involving agricultural land, forests and farms

**Purchasing agricultural land**, a forest or a farm → **pre-emption beneficiaries** may exercise their pre-emption right according to the following order of priority unless otherwise provided by other acts

The aim of this regime is mainly:

- to prevent speculative purchase of agricultural land** and
- enable pre-emption right to the subjects that would **use the agricultural land according to its planned use**.

14



## The obligation of cultivating agricultural land

This kind of protection of agricultural land is important in particular **for preventing the degradation or overgrowing of agricultural land.**

There are two ways of preventing the degradation of agricultural land:

- stimulation** (subventions for agricultural land cultivators),
- repressive policy** (fines for the non-cultivation of agricultural land).



## Possibilities for further strategic planning in agriculture

- revitalisation of functionally **degraded areas**,
- revitalisation of agricultural land that is being **overgrown**,
- establishing **records of available land**,
- awareness-raising of the public** about the importance of good spatial planning and not only taking into account the wishes and initiatives of individuals. **The ownership should not be the main guiding principle.**
- encouraging land operations** (land consolidation, agglomeration, irrigation),
- enhancing the development of agriculture in general** (enhancing knowledge transfer, establishing producer organisations, raising awareness of the public of the situation in agriculture and its importance, promoting the profession of a farmer, promoting the functioning of the public agricultural advisory service, absorbing European funds from the common agricultural policy..).





## REVITUM project – Soča Valley in the Julian Alps → preventing overgrowing areas

- ❑ Local partners; revitalising agricultural land and removing non-native species to promote settlement in remote villages,
- ❑ setting up 8 hectares of grazing areas and conducted trainings for land owners on the importance of preventing overgrowing,
- ❑ future plan to set up an irrigation system.



Before and after of one of the locations. See the sign indicating the same area.

17



## ČERNELIČ good practice example – revitalisation of a degraded area

- ❑ Hydropower plant invited the Biodynamic Farm Černelič **to regenerate the soil** in the area (degraded area of 1,4 ha),
- ❑ by adopting a natural approach, they managed to revitalise the land in approximately **two years**; today, **agricultural activity** takes place on the land.



18



More information:

- ❑ a legislation governing the protection of agricultural land in Slovenia: [Agricultural Land Act](#)
- ❑ [Decree](#) on Areas for agriculture and food production that are of strategic importance for the Republic of Slovenia



Thank you for your attention

[gp.mop@gov.si](mailto:gp.mop@gov.si)  
[jernej.cervek@gov.si](mailto:jernej.cervek@gov.si)  
&  
[gp.mkgp@gov.si](mailto:gp.mkgp@gov.si)  
[darko.brulc@gov.si](mailto:darko.brulc@gov.si)

## ANNEX 6 Presentation "Soil functions deserve more attention"

---

Speaker: Christian Steiner (Authority of Land Reform of Lower Austria)

## Soil functions deserve more attention

30 March 2022, Munich

Christian Steiner, Authority of Land Reform of  
Lower Austria, Department for Rural Development

alpconv.org

1



## Soil Threats

according to the EU Soil Strategy

- Erosion (by wind & water)
- Loss of organic matter
- Local and diffuse contamination
- Soil sealing
- Compaction
- Loss of biodiversity
- Salinisation
- Landslides

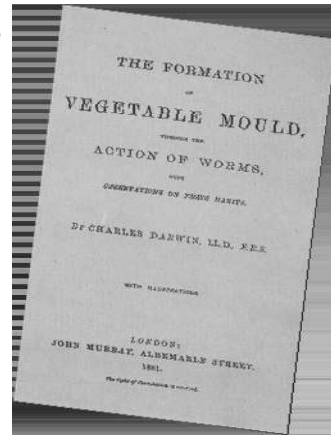


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## Soil Fertility and Earthworms

**Charles Darwin, 1881**

*... long before the plough existed the land was regularly ploughed by earthworms ...*



3

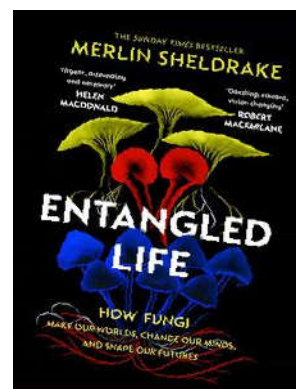
## Soil, Fungi and Mycorrhiza

**Wood Wide Web**

**Mycorrhiza**

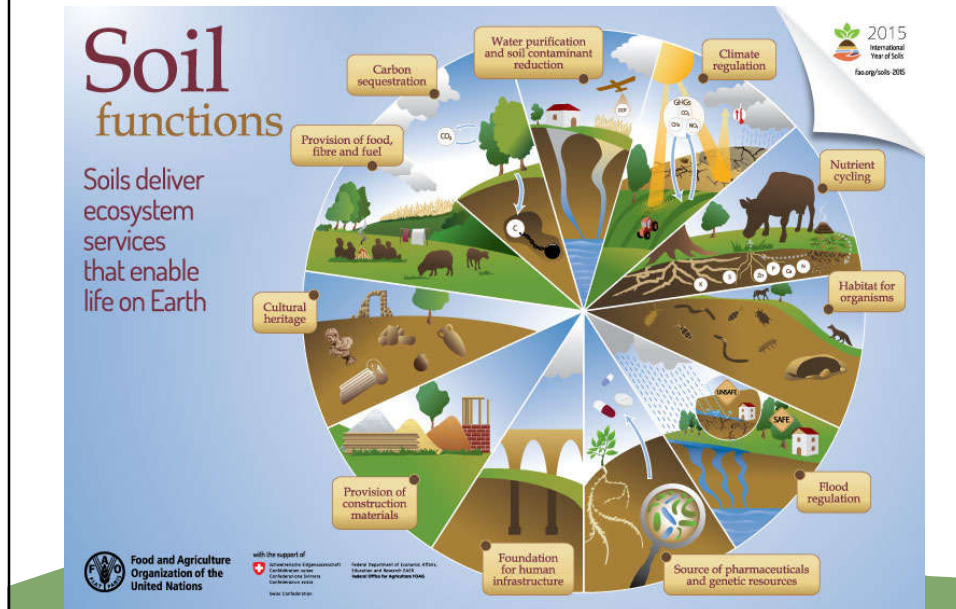
is a symbiosis between fungi and plants:

*... more than than 90% of all plant species depend on mycorrhizal fungi ...*



4

## Soil Functions & Ecosystem Services



5

## Lois Weinberger „Holding the Earth”



Lois Weinberger, Die Erde halten, 2010, mumok - Museum moderner Kunst  
Stiftung Ludwig Wien, Schenkung von Phileas - A Fund for Contemporary  
Art © Lois Weinberger 2020

6



## ANNEX 7 Presentation "Soil Protection in Local Land Use Planning"

---

Speaker: Gertraud Sutor (LAND-PLAN, Ebersberg)



Büro für landschaftsökologische Gutachten und Planung  
**LAND-PLAN**  
 Kriegensiedlung 3 • D-85560 Ebersberg

## Soil Protection in Local Land Use Planning

### Implementing the Alpine Convention's Protocol on Soil Conservation in Bavarian and Austrian Municipalities

**Dr. Gertraud Sutor**  
 Büro LAND-PLAN, Ebersberg (near Munich), Germany

*Results from the project on*  
**"Implementing the Protocol on Soil Conservation (BodP) in Municipalities"**

Presentation for the Workshop on soil functions and spatial planning in the Alps, Munich, 29 - 30 March 2022  
 organised by the Alpine Convention working groups on Soil Protection as well as Spatial Planning and Sustainable Development

Der Vortrag präsentiert die Ergebnisse des Projektes „Alpenkonvention – Umsetzung Protokoll Bodenschutz – Aufbau und Transfer von Wissen zum Bodenschutz in den Gemeinde – Transnationale Kooperation Bayern – Oberösterreich – Tirol“  
 Das Projekt wurde gefördert von:  
 Berlin, Deutschland

 Bundesministerium für Umwelt, Naturschutz und nukleare Sicherheit

Page 1

1



## Topics

- Presentation of the project on "Implementing the Protocol on Soil Conservation in Municipalities"
- Methods
  - Soil function evaluation and soils with special importance for the ecological balance
  - Communicative measures to successfully achieve the goal set
  - List of measures and how to stipulate them in land-use plans
- Results
- Conclusion and outlook


Source: Hofer, R. (2017): Die verborgene Welt der Bodentiere. – Amt der Tiroler Landesregierung (Hrsg.), 58 Seiten, Innsbruck.

Der Vortrag präsentiert die Ergebnisse des Projektes „Alpenkonvention – Umsetzung Protokoll Bodenschutz – Aufbau und Transfer von Wissen zum Bodenschutz in den Gemeinde – Transnationale Kooperation Bayern – Oberösterreich – Tirol“  
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Page 2

2




**Alpine Convention - Implementation of the Protocol on Soil Conservation Development and Transfer of Knowledge for Soil Protection in Municipalities Transnational Cooperation between Bavaria - Upper Austria – Tyrol**

- This project should contribute to the implementation of the Alpine Convention, in particular of the Protocol on Soil Conservation in municipalities.
- According to sect. 1, par. 2 "the ecological soil functions in particular, which form essential elements of the ecological balance, shall be safeguarded and preserved both qualitatively and quantitatively on a long-term basis."
- The goals of the project submitted therefore were:
  - ✓ preparing existing regional and national soil data and provide this data in a user-friendly manner
  - ✓ focusing on knowledge transfer to decision makers and other municipal stakeholders

Page 3

Der Vortrag präsentiert die Ergebnisse des Projektes „Alpenkonvention – Umsetzung Protokoll Bodenschutz – Aufbau und Transfer von Wissen zum Bodenschutz in den Gemeinde – Transnationale Kooperation Bayern – Oberösterreich – Tirol“

Das Projekt wurde gefördert von:  
Berlin, Deutschland



3



**Alpine Convention - Implementation of the Protocol on Soil Conservation Development and Transfer of Knowledge for Soil Protection in Municipalities Transnational Cooperation between Bavaria - Upper Austria – Tyrol**

- *Knowledge transfer:*  
Teach basic knowledge regarding the soil system
- *Capacity building:*  
Develop competence in making independent decisions; here, the competence of non-soil specialists regarding soil protection planning issues



VERNETZEN – VONEINANDER LERNEN  
Workshop-Reihe zu Bodenschutz, Boden in der Raumplanung




Der Vortrag präsentiert die Ergebnisse des Projektes „Alpenkonvention – Umsetzung Protokoll Bodenschutz – Aufbau und Transfer von Wissen zum Bodenschutz in den Gemeinde – Transnationale Kooperation Bayern – Oberösterreich – Tirol“

Das Projekt wurde gefördert von:  
Berlin, Deutschland


Page 4




4




### Alpine Convention - Implementation of the Protocol on Soil Conservation Different Initial Situations







- a lot of experience, active since 2009,  
all municipalities in Upper Austria get support



- medium experience, active since 2016,  
a soil function evaluation has been carried out



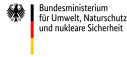
- no experience yet



Page 5


Der Vortrag präsentiert die Ergebnisse des Projektes „Alpenkonvention – Umsetzung Protokoll Bodenschutz – Aufbau und Transfer von Wissen zum Bodenschutz in den Gemeinde – Transnationale Kooperation Bayern – Oberösterreich – Tirol“

Das Projekt wurde gefördert von:  
Berlin, Deutschland

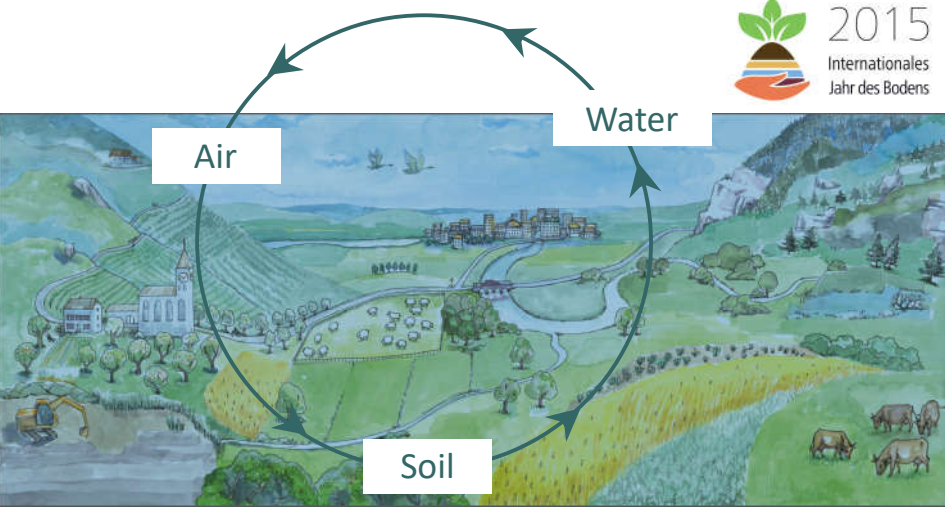



Bundesministerium  
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5



### Soil - an abiotic resource






2015  
Internationales  
Jahr des Bodens

Page 6

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6

## The Austrian land of Upper Austria as a pioneer

### Area-wide provision of soil function evaluation

<http://www.doris.at/>

Snapshots: taken from the Upper Austria's WebGIS application for the area of Hofkirchen, Mühlkreis

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7

## Creation of the summary value

### Planning and balancing process – Illustration of soils with special importance for the ecological balance (BmbB)\* [Böden mit besonderer Bedeutung für den Naturhaushalt]

\* Term used in Austria (currently in the lands of Upper Austria, Salzburg and Vienna)

Soils whose specific soil functions justify a degree of function performance of 5 are regarded as **soils with special importance for the ecological balance** and need to be protected in a special way.

These areas can be illustrated in landscape plans, land-use plans or municipal development plans, thus contributing to the balancing of interests.

Bodeneinheit	Lebensraumfunktion	Standortfunktion	Produktionsfunktion	Reglerfunktion	Filterfunktion	Böden mit besonderer Bedeutung für den Naturhaushalt
1	3	3	5	2	4	ja
2	2	3	4	5	3	ja
3	4	5	3	3	2	ja
4	2	3	5	5	4	ja
5	1	2	3	4	1	nein


Soil functions relevant for the designation of soils with special importance for the ecological balance

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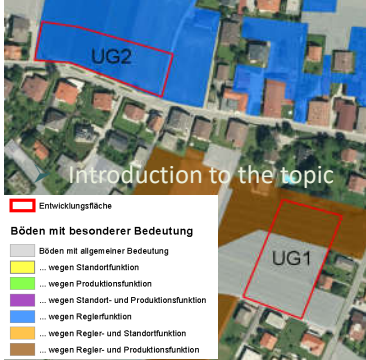
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8



## Soils with special importance for the ecological balance



Introduction to the topic

Entwicklungsfäche

**Böden mit besonderer Bedeutung**


- Böden mit allgemeiner Bedeutung
- ... wegen Standortfunktion
- ... wegen Produktionsfunktion
- ... wegen Standort- und Produktionsfunktion
- ... wegen Regierfunktion
- ... wegen Regier- und Standortfunktion
- ... wegen Regier- und Produktionsfunktion

Soils with special importance for the ecological balance (Source: Municipality of Mutters, one of Tyrol's pilot areas)

Page 9


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9




## List of measures and examples

TYPE OF MEASURES	EXAMPLES
Qualitative mitigation measures	Preserve valuable soil thanks to an adapted use (in particular regarding their productive function)
	Preserve valuable topsoil
	Store soil temporarily and recultivate it in a technically correct manner
Quantitative mitigation measures	Avoid soil sealing as much as possible where soil is cleared
	Limit additional sealing by, first of all, using already cleared soil
Concept development and implementation	Build upwards or downwards (add another floor to existing buildings, build underground parking spaces)
	Develop and implement soil protection concepts
	Develop and implement soil management plans
Commitment of the municipality to "actively protect soil during construction"	Integrate a professional site support (so-called pedological site support)
	Stipulate measures already when setting up land-use plans, if possible
	Become member of the European Land and Soil Association

Page 10

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10



## Different workshop formats


Upper Austria (Austrian land):	
Format: one-day workshop	
Lectures	1.00
Group work	2.00
Discussion (results and questions)	1.00
Lunch break / Networking	1.00
Presentation of the best-practice examples and discussion	2.00
<b>Total:</b>	<b>7.00</b>

Tyrol (Austrian land):	
Format: half-day workshop	
Lectures	1.00
Group work	1.50
Break / Networking	0.50
Discussion (results and questions), best-practice example	0.50
<b>Total:</b>	<b>3.50</b>

Sonthofen (German town):	
Format: 3 workshops of 2 hours	
Workshop 01	
Lectures	1.00
Discussion (results and questions), best-practice example	1.00
<b>Total:</b>	<b>2.00</b>

Page 11

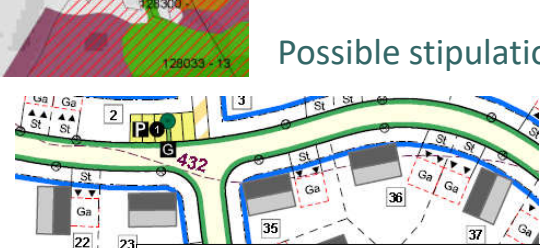
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11

## Possible stipulations in land-use plans



**BEBAUUNGSPLAN**

**TEXTUAL STIPULATIONS**

6 SOIL PROTECTION

Existing topsoil is to be preserved in a useable condition, if possible. Soil compaction is to be avoided.

Naturally grown soil is to be preserved in any place where there are no buildings and where there is no need for sealing.

A soil protection concept is to be developed including a soil protection plan according to the German standard DIN 19639.


Topsoil that is removed from the construction field is to be reused according to the German Federal Soil Protection Act, section 12.

Soil samples are to be taken from the soil material that is removed from the construction field (according to the German Federal Soil Protection Act section 12, para. 3, and section 4).

In the event that topsoil is reused a building permission is needed.

Page 12

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12



## Volders, Tyrol – an example for a best practice municipality

### BODENSCHUTZ in der örtlichen Raumplanung am Beispiel VOLDERS



© TVB Region Hall-Volders-Wattens


<b>Land, Region:</b>	Tirol, Bezirk Innsbruck, A-6111 Volders
<b>Organisation:</b>	Gemeinde Volders – Bundesstraße 23 – A-6111 Volders +43 5224 52311 - gemeinde@volders.tirol.gv.at
<b>Bodenrelevante Sektoren:</b>	Landwirtschaft, Siedlungsraum,
<b>Landnutzungen:</b>	landwirtschaftlich genutzte Flächen
<b>Hauptbedrohungen für den Boden:</b>	Versiegelung, Überbauung --> Verlust der Produktionsfunktion – hohe Bodenfruchtbarkeit, Verlust der Reglerfunktion
<b>die wichtigsten Bodenfunktionen:</b>	Produktionsfunktion, Reglerfunktion

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Page 13



13

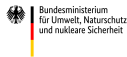


## Results


- Workshops to teach *knowledge transfer* and *capacity building* do work well.
- *Knowledge transfer* can be achieved by means of introductory presentations and group work.
- Underlying data must be compiled and processed for the respective project area (soil function evaluation, soils with special importance).
- Very important: provide working material (list of measures, examples of stipulations used in land-use plans, instruction manual)
- Cartographic illustration of the summary value and resulting conflicts during planning
- *Capacity building* works best in group work situations based on the provided working material.

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Page 14



14




## Conclusion


- Soil is a resource that is essential for our life.  
Loss of soil and soil impairments cannot be regenerated - measured in human time periods.
- There are different soil types.  
They all fulfil a large number of different functions.
- In Austria, four lands (Upper Austria, Salzburg, Tyrol and Carinthia) already have an area-wide soil function evaluation.
- The data of "soils with special importance for the ecological balance" can be used as a decision-making tool for municipal planning issues.
- Possible solutions can be developed for conflict areas using the data of "soils with importance for the ecological balance".

Page 15

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15

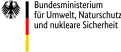


## Outlook

- The municipalities in the Alpine region can benefit from the lessons learned.
- The public sector and the politicians could provide support by carrying out soil function evaluations.
- Ideally, this information would be available for free to the public by means of a WebGIS application.
- A customized instruction manual based on the specific area and needs of the decision-makers (*capacity building*) helps to develop solutions that are easy to put into practice.
- We would wish that the stakeholders consider this approach as useful when implementing the Protocol on Soil Conservation in the future.

Page 16

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16



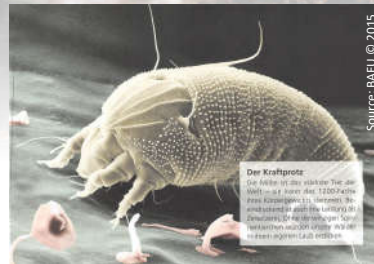
Thank you very much  
for your attention!

Büro LAND-PLAN  
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Phone: +49/(0)8092/865011  
Fax: +49/(0)8092/865012

[www.land-plan.de](http://www.land-plan.de)  
[gertraud.sutor@land-plan.de](mailto:gertraud.sutor@land-plan.de)

**This is how the soil system works!**



Page 17

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## ANNEX 8 Programme

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# Workshop on soil functions and spatial planning in the Alps

29-30 March 2022

Munich, Germany

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## 29 March, day 1: Land take and soil protection

Time	Topic	Speaker
11:45	<i>Lunch</i>	
13:00	<b>Welcome</b>	<b>Daniel Meltzian</b> , German Federal Ministry for Housing, Urban Development and Building, Chair of the Spatial Planning and Sustainable Development Working Group <b>Christian Steiner</b> , Office of the Provincial Government of Lower Austria, Chair of the Soil Protection Working Group <b>Alenka Smerkolj</b> , Secretary General of the Alpine Convention <b>Gerd von Laffert</b> , Bavarian Ministry of Economic Affairs, Regional Development and Energy
13:25	<b>Keynote: Rethinking land in the Anthropocene—the trilemma of land use and the role of soils</b>	<b>Karen Pittel</b> , ifo institute—Leibniz institute for Economic Research at the University of Munich
13:50	<b>Keynote: The youth perspective on soil protection</b>	<b>Tassilo Lex</b> , Youth Parliament to the Alpine Convention (2018-2021)
14:05	<b>Land saving targets and present land take in the Alps</b>	<b>Florian Lintzmeyer</b> , ifuplan—Institute for Environmental Planning and Spatial Development <b>Tobias Chilla</b> , Friedrich-Alexander University Erlangen-Nürnberg
14:30	<b>Implementations to combine qualitative and quantitative soil protection in Tyrol, Austria</b>	<b>Thomas Peham</b> , Office of the Tyrolean Provincial Government
14:50	<b>Good implementation practices</b> <ul style="list-style-type: none"><li>• Soil protection in Tyrol, Austria</li><li>• Protection of agricultural areas in Slovenia</li></ul>	<b>Christian Drechsler</b> , Office of the Tyrolean Provincial Government <b>Jernej Červek</b> , Slovenian Ministry for the Environment and Spatial Planning
15:30	<i>Coffee break</i>	



Time	Topic	Speaker
15:50	<p><b>Workshop in 3 groups:</b></p> <p><b>Alps as a model region for Net0? What is needed to achieve the land saving targets</b></p> <ul style="list-style-type: none"> <li>• <b>Regulatory framework: Which options do we have?</b></li> <li>• <b>The role of municipalities and regions: Which implementation options exist?</b></li> <li>• <b>Who benefits from land saving: potential stakeholder alliances</b></li> </ul>	<p>Moderators:</p> <p><b>Arthur Schindelegger</b>, <i>Vienna University of Technology</i></p> <p><b>Tobias Chilla</b>, <i>Friedrich-Alexander University Erlangen-Nürnberg</i></p> <p><b>Maria Schachinger</b>, <i>WWF Österreich</i></p>
16:50	<b>Briefing on and discussion of the workshop results</b>	Plenum participants
17:20	<b>Closing remarks</b>	
17:30	<b>End of session</b>	
19:00	<i>Dinner</i>	

## 30 March, day 2: The role of soil functions in spatial planning

Time	Topic	Speaker
9:30	<b>Introduction: Soil functions deserve more attention—the case of incorporating soil functions in spatial planning</b>	<b>Christian Steiner</b> , <i>Office of the Provincial Government of Lower Austria, Chair of the Soil Protection Working Group</i>
9:40	<b>Soil protection in local land use planning</b>	<b>Gertraud Sutor</b> , <i>LAND-PLAN—Office for Landscape Ecology Assessment and Planning</i>
10:15	<p><b>Workshop in 3 groups:</b></p> <p><b>How can including soil functions improve spatial planning?</b></p> <ul style="list-style-type: none"> <li>• <b>Data for planning: What soil data do spatial planners need at which planning level?</b></li> <li>• <b>Communication: How do we sensitize local and regional decision makers for the value of soil functions?</b></li> <li>• <b>Planning processes: How do we strengthen soil functions in the weighing of interest?</b></li> </ul>	<p>Moderators:</p> <p><b>Gertraud Sutor</b>, <i>LAND-PLAN—Office for Landscape Ecology Assessment and Planning</i></p> <p><b>Michael Roth</b>, <i>Austrian Federal Ministry for Agriculture, Regions and Tourism</i></p> <p><b>Maria Legner</b>, <i>Klimabündnis Tirol</i></p>
11:15	<i>Coffee break</i>	
11:30	<b>Briefing on the workshop results</b>	

Time	Topic	Speaker
11:45	Panel discussion and plenary: What can be an ambitious target for “soil-sensitive” spatial planning at the Alpine Convention level? How can the Alpine Convention promote it?	<p><b>Alenka Smerkolj</b>, <i>Secretary General of the Alpine Convention</i></p> <p><b>Thomas Wimmer</b>, <i>EUSALP Youth Council, Youth Parliament to the Alpine Convention (2017-2018)</i></p> <p><b>Maria Legner</b>, <i>Klimabündnis Tirol</i></p> <p><b>Michael Roth</b>, <i>Austrian Federal Ministry for Agriculture, Regions and Tourism</i></p>
12:30	<p><b>Wrap up:</b></p> <ul style="list-style-type: none"> <li>• What does the soil sector expect from spatial planning?</li> <li>• What are the needs of the planning sector to adequately consider soil functions?</li> <li>• Outlook</li> </ul>	<p><b>Christian Steiner</b>, <i>Office of the Provincial Government of Lower Austria, Chair of the Soil Protection Working Group</i></p> <p><b>Daniel Meltzian</b>, <i>German Federal Ministry for Housing, Urban Development and Building, Chair of the Spatial Planning and Sustainable Development Working Group</i></p>
12:45	<i>Lunch</i>	
14:00	<b>Excursion: English Garden</b>	

The event will be moderated by **Stefan Marzelli**, *ifuplan—Institute for Environmental Planning and Spatial Development*

*This Workshop is being jointly organised by the Alpine Convention working groups on Soil Protection as well as Spatial Planning and Sustainable Development and is financed by the German Federal Ministry for Housing, Urban Development and Building as well as the Austrian Federal Ministry for Climate Action, Environment, Energy, Mobility, Innovation and Technology.*



**Von:** Alpine Soils <info@alpinesoils.eu>

**Gesendet:** 19 May 2021 09:19

**Betreff:** Alpine Soil News: Caring For Soils, Where Our Roots Grow.

Dear friends of Alpine Soils!

*"If you want to walk fast, go alone.*

*If you want to walk far, walk together."*

**Sustainable soil management needs cooperation.** We are very pleased to announce that the Alpine Soil Partnership and the Soil Protection Working Group of the Alpine Convention will publish a joint newsletter, sharing updates on sustainable soil management in the Alpine area.

**Walking together needs to start by taking a first step.** This first one was already taken years ago, when neither the Alpine Soil Partnership nor the Soil Protection Working Group of the Alpine Convention did exist yet. Back then, various actors in the Alps started to collaborate more intensively and took action for sustainable soil management!

Ever since those first steps, further leaps have been taken. Achievements have been made of which we can be proud, such as the existence of the institutional **Soil Protection Working Group of the Alpine Convention**, into which all Contracting Parties of the Alpine Convention (Austria, France, Germany, Italy, Switzerland, Liechtenstein, Slovenia, Monaco and the European Union) nominate members and the existence of the **Alpine Soil Partnership**, which is open for all people interested in soils to join. Many of you, who are reading this newsletter have been and still are part of this joint development!

In this newsletter edition we want to inform you about

- Alpine Soil Partnership activities
- News and current topics
- Updates on soil-relevant Alpine projects
- Dates & Events

This newsletter is also a call for contributions and expression of interest! We cordially invite you to join our activities - for further information see below.

Best regards,

Maria Legner, Coordination Unit of the Alpine Soil Partnership

Vera Bornemann, Permanent Secretariat of the Alpine Convention

Christian Steiner, Chair of the Soil Protection Working Group of the Alpine Convention

Michele Freppaz, Chair of the Alpine Soil Partnership

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## **News of the Alpine Soil Partnership & Alpine Convention Soil Working Group**

The following contributions represent the current activities of the Alpine Soil Partnership as well as goings-on in the Alpine Convention Soil Working Group.



## Alpine Soil Partnership

Partenariat pour les sols alpins

Partenariato per i suoli alpini

Alpine Bodenpartnerschaft

Partnerstvo za tla Alp

The Alpine Soil Partnership is an open network for sustainable soil management with more than 100 Alpine Soil Partners from all Alpine countries. Decisions are taken by the Steering Committee.

[www.alpinesoils.eu](http://www.alpinesoils.eu)

The Partnership is currently developing new project ideas on sustainable soil management for the upcoming Interreg Alpine Space programme funding period.

Please send a reply to [info@alpinesoils.eu](mailto:info@alpinesoils.eu) until 12<sup>th</sup> June if you are interested in

- thinking about an Alpine project on sustainable soil management,
- contributing to the Alpine SOILutions Congress (see below),
- being an active part of the Alpine Soil Partnership by taking a role in the Steering Committee.

**Save-the-date: On 1st December 2021 the Annual Meeting of the Alpine Soil Partnership will take place (online), electing the new members of the Steering Committee and presenting the outcomes of the Alpine SOILutions Congress (see below).**



### **Alpine SOILutions Congress**

The AlpSP organises the innovative and participatory Alpine SOILutions Congress as part of its outreaching activities. Together with students of all Alpine countries, ideas and prototypes will be developed online and later presented at the Annual Meeting.



### **The Soil Protection Working Group of the Alpine Convention**

consists of delegates from the Alpine Countries as well as the European Union and is chaired by Christian Steiner (Lower Austrian Agricultural District Authority). You can take a closer look into results from the first mandate phase and the current working programme [here](#).



### **Climate Action Plan 2.0 released!**

The Climate Action Plan 2.0 was developed by the Alpine Climate Board during the working period 2019-2020 and



prioritises specific measures to implement the Alpine Climate Target System 2050 in the ten sectors of activity; the horizontal topics (municipal action as well as research and development) are integrated in the sectoral proposals. **Learn more about the actions for sustainable soil management!**

[More information](#)



### **Soil Film Award - Call for entries**

A special price for the best film on the topic of soil will be awarded again during the International Nature Film Festival from 19<sup>th</sup> – 22<sup>th</sup> October 2021 in Innsbruck (Austria). [Submit your movie](#) until 15<sup>th</sup> July and become part of a truly inspiring festival experience.

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## **About Projects**

In this section we want to give the floor to current projects dealing with sustainable soil management or similar topics.



### **LIFE Future Forest (2020-23)**

A follow-up project of Links4Soils deals with the climate change adaptation of forest management in combination with sustainable soil management in Bavaria - both for private forest owners as well as public authorities. The output will be a guideline that can be applied in Europe.

[More information...](#)



### **OpenSpaceAlps (Interreg Alpine Space, 2019-22)**

The project deals with the role of open spaces in Alpine spatial development. Based on a bottom-up approach in three cross-border pilot regions, the project aims to enhance spatial planning governance in order to support green infrastructure planning and limit landscape fragmentation. One of the main outputs is the establishment of an Alpine-wide spatial planning network: the AlpPlan network. **If you want to stay informed about its activities, [you can subscribe to the AlpPlan network newsletter.](#)**



### **Impuls4Action (EUSALP | ARPAF)**

Water use, inner development and peatlands are connected and influence our daily life in the EUSALP area and beyond. In times of climate crisis the Alps are even more affected and therefore vulnerable. What could be

done on a regional level to respect and use our Alpine soils for future generations in a sustainable way, while taking into account economic, social and ecological balance?

**Check out the videos, toolboxes and final conference on 20th May!**

[More information](#)



### **trAIlS (Interreg Alpine Space)**

Transforming Alpine industrial landscapes: an open challenge! After three years of intense transnational cooperation, the Interreg project "trAIlS" is reaching its conclusion. **However, through the recently published Project Handbook and the final symposium LOST&FOUND**, solid foundations have been laid for the future of this unprecedented and relevant spatial development challenge. [More information](#)

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## **Current Topics & Publications**

We want to provide an abstract of current issues on soil protection incl. new publications.

- [Austrian Soil Forum](#) on 4<sup>th</sup> May - exchange on soil activities in Austria
- [Resolution of the EU Parliament](#) on Soil Protection
- [Position paper](#) following a long-term dialogue meetings of agricultural and nature protection representatives coordinated by WWF Germany. Also available in English.
- [Does soil contribute to the human microbiome?](#)  
Innspiring open access article in microorganisms by Blum, Zechmeister-Boltenstern and Keiblinger.
- [Report on the Status of Knowledge of Soil Biodiversity](#) – published 2020 by the FAO and freely available as PDF.
- [Forest site types in Slovenia](#) – a comprehensive overview of forest management, growth, yield and soils. Book published in 2021 among others by the former Links4Soils partner Slovenian Forest Service – available in Slovenian.
- [The new soil map of the Aosta Valley](#) - The map and related paper online.
- [Managing soil erosion in mountain vineyards](#). - A paper comparing soil management approaches in a mountain vineyard.



### Save the dates

20.05. [Final Conference Impuls4Action](#) (online)

22.05. [Project Presentation](#) Future Forest (online, DE)

23.-27.08. [EUROSOIL](#) - with a contribution of the AlpSP

19.-20.10. [AlpPlan international conference](#) (Germany)

16.-24.10. [International Nature Film Festival](#) (Austria)

17., 26., 27.11. [Alpine SOILutions Congress](#) (online)

01.12. [Annual Meeting of the Alpine Soil Partnership](#)  
(online)

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**Our mailing address is:**

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Müllerstraße 7

Innsbruck 6020

Austria

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**Von:** Alpine Soils <[info@alpinesoils.eu](mailto:info@alpinesoils.eu)>

**Gesendet:** 09 November 2021 14:08

**Betreff:** Invitation to the Annual Meeting of the Alpine Soil Partnership 1st December 2021

Dear friends of Alpine soils!

**Science – practice – governance – communication!**

The Covid-19 pandemic has underlined, in an often painful way, the importance of all these four aspects interacting and supporting each other!

This also applies to soil protection, which is an immense field and concerns the very skin of the earth. This newsletter focuses on the invaluable skin covering the densely settled mountain area at the heart of Europe: the Alps.

While the urge to protect soil - this fragile skin - is as pressing as climate protection, there are slow but nonetheless constant developments in all four categories.

The Alpine Convention and the Alpine Soil Partnership, together with many partners, work on connecting governance, science, practice and communicating about them. Be part of the network, participate in spreading the word, and check out some of the recent building blocks connected to soil protection and the Alps below.

**You are cordially invited to join the [Annual Meeting of the Alpine Soil Partnership](#) on 1st December 2 - 5 p.m. online to find out more about recent activities and share your updates with the network!**

Best regards,

Maria Legner, Coordination Unit of the Alpine Soil Partnership

Vera Bornemann, Permanent Secretariat of the Alpine Convention

Christian Steiner, Chair of the Soil Protection Working Group of the Alpine Convention

Michele Freppaz, Chair of the Alpine Soil Partnership



## **News of the Alpine Soil Partnership & Alpine Convention Soil Protection Working Group**

The following contributions represent the current activities of the Alpine Soil Partnership as well as activities of the Alpine Convention and members of the Soil Protection Working Group.



### **Alpine Soil Partnership**

Partenariat pour les sols alpins

Partenariato per i suoli alpini

Alpine Bodenpartnerschaft

Partnerstvo za tla Alp

The Alpine Soil Partnership is an open network for sustainable soil management with more than 100 Alpine Soil Partners from all Alpine countries. Decisions are taken by the Steering Committee.

[www.alpinesoils.eu](http://www.alpinesoils.eu)

#### **Annual Meeting of the Alpine Soil Partnership**

1st December 2021 2-5 p.m.

Election of the Steering Committee - Presentation of the results of the Alpine SOILutions Congress - Discussion of the Interreg Alpine Space project proposal Act4Soils - Alpine & Soil Projects in a nutshell.

More informaton and registration [here](#).



### **The Soil Protection Working Group of the Alpine Convention**

consists of delegates from the Alpine Countries as well as the European Union and is chaired by Christian Steiner (Lower Austrian Agricultural District Authority). You can take a closer look into results from the first mandate phase and the current working programme [here](#).



### **Air quality in the Alps**

Soil and air is closely connected, particularly as soil is often used for air quality monitoring. The eighth Report on the State of the Alps (RSA 8) on air quality has been published. The RSA 8 is the result of a joint effort by experts from all the Alpine countries and the EU to examine the main sources of air pollution and identifies a set of recommendations for policymakers. Read the report [here](#).



### **Caretaker of the Month: Spatial Planning**

Each month, the people and institutions behind the caretakers of the implementation pathways of the Climate Action Plan 2.0 are spotlighted. In August, it was spatial planning's turn. [Find out](#) what spatial planning means to the caretakers, Katharina Zwettler and Marc Pfister, as well as their vision of the Alps in 2050! Check out the website again in December to meet the soil protection caretaker!



### **Creating synergies on Spatial Planning activities**

In August, the Alpine Climate Board organised a workshop for the Spatial Planning Community. Activities dedicated to the spatial planning implementation pathways were shared, such as on land saving targets as well as growth and shrinkage. The aim? To create synergies between the activities of the Alpine Convention Thematic Working Bodies and external institutions working on the topics! The resources from the workshop are available [here](#).

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## **About Projects & Goings-on**

In this section we give the floor to current projects, events and strategies dealing with sustainable soil management and related topics.



### **EUROSOIL 2020**

The [Eurosoil Congress-20th Anniversary](#), originally planned in Geneva in August 2020, was held online from 23rd to 26th of August 2021. Michele Freppaz, Clemens Geitner & Silvia Stanchi, members of the Alpine Soil Partnership and of the Link4Soils project team, chaired a session entitled "Understanding and managing mountain soils, and related ecosystem services".

In line with the conference title "Connecting People and Soil" the Alpine Convention held a presentation in the session on Global soil governance.



### **EU Mission: A Soil Deal for Europe**

EU Missions aim at bringing concrete solutions to some of our greatest challenges. They have ambitious goals and will deliver concrete results by 2030. Find out more about the EU Mission "A Soil Deal for Europe" [here](#) and get involved!



### **EUSO Stakeholder Forum**

A key element of the European Commission's EU Soil Observatory (EUSO) is an open, inclusive and dynamic engagement with its diverse stakeholder base. Find out more and stream the sessions of the recent stakeholder forum [here](#).



## **Strategies for peatland protection in Germany and Bavaria**

The German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety has published a [national strategy for peatland protection](#). It contains aims and measures on the National level which are necessary to conserve peatlands successfully.

The [masterplan peatlands](#) in Bavaria aims at intensifying peatland protection. Raised bogs are being restored in the state forest and the renaturation activities of the nature conservation administration for rewetting bogs are tripled. This creates new habitats for animals and plants in the wetlands and protects the climate. Peatland should be protected from a lowering of the groundwater level.



## **Course on genesis and properties of mountain soils**

On the 19th July a training course was held in Valle d'Aosta Region, entitled "Genesis and properties of soils in the mountains" organized by CONAF, SIPE (Italian Society of Pedology), and the University of Turin-DISAFa, as part of a series of technical meetings denominated "Working against desertification from the Alps to the Mediterranean areas".

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## Save the dates

26.11.2021 [Workshop soil and climate: sponge city](#)

(online)

01.12.2021 Annual Meeting of the Alpine Soil Partnership

02.12.2021 [World soil day: Fachtagung der Kommission Bodenschutz beim Umweltbundesamt „Ohne doppelten Boden: Wie Bodenschutz die Zukunft sichert und unser Klima schützt“](#) (Berlin, Germany)

03.12.2021 Inauguration of the German Soil of the Year 2022 (Berlin, Germany)

08.12. Online Conference [Climate Landscapes](#) (German)

19-20.05.2022 Annual meeting of the European Land and Soil Alliance (Bolzano/Bozen, Italy)

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### Photo credits:

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EUSO, EU Mission = © European Union

Peatland = © Wolfram Güthler (StMUV)





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**mailchimp**

**Von:** Alpine Soils <info@alpinesoils.eu>  
**Gesendet:** 24 May 2022 17:31  
**Betreff:** Alpine Soil News 1/2022

Dear friends of Alpine soils!

Soil as a limited and non-renewable resource – at least not in the span of several human generations– is under increasing pressure.

In view of the current crises such as the climate crisis, the pandemic, and most recently the war in Ukraine, greater self-sufficiency in regionally produced food and fodder, a more rapid switch to renewable energy sources and the continuous land take demand for living, work, tourism, and trade are becoming even more important. These developments massively affect the soils of the Alpine region and will intensify different land use interests as well as resulting conflicts.

However, the soil-related activities of our networks Alpine Convention and Alpine Soil Partnership have been both large in quality and quantity that we decided to outsource the content to the website [www.alpinesoils.eu](http://www.alpinesoils.eu).

Furthermore, we are happy to announce that the proposal Act4Soils - incl. innovative activities for the Alpine Soil Partnership and promoting the Alpine Convention protocols and strategies - has passed the first step of the application process in the Interreg Alpine Space programme. We will keep you updated! :)

Best regards,

Maria Legner, Coordination Unit of the Alpine Soil Partnership

Vera Bornemann, Permanent Secretariat of the Alpine Convention

Christian Steiner, Chair of the Soil Protection Working Group of the Alpine Convention

Michele Freppaz, Chair of the Alpine Soil Partnership





### **Project news and goings-on**

Find all the updates on projects of Alpine Soil Partners and members of the Alpine Convention Working Group on Soil Protection summarised [here!](#)

Thank you to all contributions:

- OpenSpaceAlps
- CIPRA
- Alpine Peatlands & Climate protection
- Together for our soil
- Soil awareness week Freistadt
- LIFE Future Forest
- 100 years Tyrolean Gene Bank
- AGORA European Green Deal
- European Land & Soil Alliance

[Soil-related News](#)



## Upcoming Events

24.-25.05. EUSALP AG 6 [Conference Landscape in Times of Climate Change](#) @Bolzano

31.05.-01.06. [Final Conference OpenSpaceAlps & AlpPlan network meeting](#) @Bolzano

09.06. [Celebrating Soil, Seeds & Senses](#) by AGORA  
European Green Deal

10.06. Webinar [Water in the landscape](#), online

01.07. Regional exchange meeting [Living from soils](#) @Imst

29.-30.09. [European Land & Soil Alliance Annual Conference](#) @Bolzano

29.04.-30.10 [Exhibition Terrain - Cultivar - Variety](#)  
@Innsbruck



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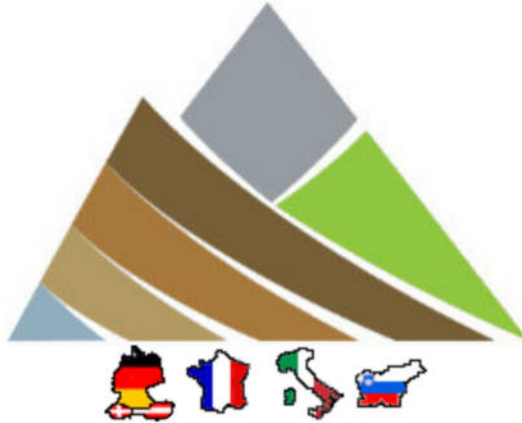




Caring for Soils - Where Our Roots Grow.

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

# The Alpine Soils Platform



## ALPINE SOIL NEWS 1/2022



**MAY 2022**

**ALPINE SOIL NEWS 1/2022**

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wish. [Accept](#) [Read More](#)

Members of the Alpine Convention Working Group on Soil Protection and the Alpine Soil Partnership share their updates:

### **Caretaker of the Month: Soil Protection**

“Soil” was the Climate Action Plan 2.0 implementation pathway chosen for the Alpine Climate Board’s “Caretaker of the Month” back in December. [Read](#) where the Caretaker for Soil Robert Traidl’s fascination for Alpine soils comes from and why soils are so important for the climate.



### **Caretaker of the Month: Natural Hazards**

Wolfgang Lexer is the ACB’s Caretaker for Natural Hazards. In January he shared his thoughts on what needs to change in dealing with natural hazards in the Alps as well as the importance of transnational cooperation in this field.

Read more [here](#).



### **Across the Alps: Explore, Respect, Live!**

On 1 April, the outdoor exhibition “Across the Alps: Explore, Respect, Live!” began its journey through Tyrol in the town of Imst. The main objective of the exhibition is to show how the Alpine Convention promotes the protection and sustainable development of the Alps. The exhibition consists of the former Glockner Bivouac and five side elements, each of which addresses Alpine issues such as soil and biodiversity. Find out more about the exhibition on the dedicated [website](#).



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### **Long-term action needed for soil protection in the Alps**

Since results in the field of soil protection need endurance and continuous efforts, long-term strategies for relevant cooperation partners are necessary. Successful first steps are important and long-term approaches are required for core aspects of soil protection. Thus, the Soil Protection Working Group of the Alpine Convention is currently developing the Long-Term Action Plan for the implementation of provisions and declarations on soil protection in the specific context of the Alpine region. Stay tuned for this document, which will have relevance for you and will be accessible [here](#) after the XVII Alpine Conference in autumn.



### **LUCAS soil survey 2022 started**

The Europe-wide LUCAS soil survey 2022 has recently started the soil sampling phase in the field. During the preparatory seminar for the coordinators of the soil survey in February, specific challenges occurring during sampling soils in mountainous terrain were presented from the Alps.



### **What role can soil functions play in spatial planning processes?**

Land take and soil protection as well as the role of soil functions in spatial planning were the two main topics discussed by participants from the Alpine countries during a two-day cross-sectoral workshop in Munich on 29 and 30 March. Jointly organised by the Alpine Convention Working Groups on Soil Protection as well as Spatial Planning and Sustainable Development, with the support of the Permanent Secretariat of the Alpine Convention and the Alpine Soil Partnership, the workshop showed that such cooperation between disciplines is fruitful, necessary, and should therefore be intensified. Read more about the workshop [here](#).



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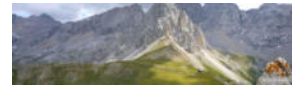
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## Map of the Month

The Alpine Convention's new "Map of the Month" campaign showcases the new Atlas (GIS) tool which allows you to explore, create, and share maps of the Alps. The Atlas contains a wide range of Alpine data such as "Land use based on Corine Land Cover".

Every month, a new map will be published on social media to highlight a topic the Alpine Convention deals with.



© Andrea Girardi

## Alpine Convention film

The precious ground beneath our feet form the backdrop for the new [Alpine Convention film](#), which aims to capture the essence of the Convention through beautiful and captivating scenery and a symphonic soundtrack composed specially for the video.



## Transnational position paper on „safeguarding open spaces in the Alpine region“

A group of members of the AlpPlan network, a transnational network of spatial planning practitioners and researchers coordinated by the Academy for Territorial Development in the Leibniz Association (ARL), elaborated the position paper "Safeguarding open spaces in the Alpine region". It contains assessments and recommendations related to key spatial challenges of transnational relevance in the Alpine region, focussing on the issue of safeguarding open spaces with regard to the continuous land take and landscape fragmentation. The paper can be downloaded from the [ARL website](#).



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### **Saving:Soils**

CIPRA International advocates for a careful treatment of the soils of the Alps. With its project “[Saving:Soils](#)”, CIPRA International is working for a trend reversal in the use of land in peri-urban areas. In order to put scientific findings into practice, the project makes pilot examples visible and encourages imitation. How land sealing, land speculation and fiscal disincentives affect housing prices and food security and why the ecological transition can only be participative and attentive to history can be heard in two new episodes of the [CIPRA podcast](#) (in German and French).



© Darko Todorovic

### **Attention for soil protection**

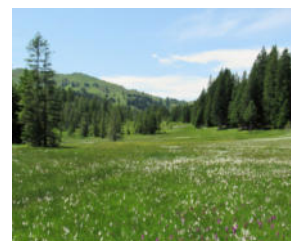
During a workshop with over 50 participants, the Legal Service Centre Alpine Convention of CIPRA Austria assessed which obligations the Soil Conservation Protocol contains and what the implementation of the protocol looks like in Austria. The results of the high-quality programme will be published in volume no. 7 of the CIPRA Austria series of publications about the Alpine Convention by the publisher “Verlag Österreich”. Previous publications of the series on Alpine Convention protocols can be viewed [here](#). A short report about the workshop is available [here](#).



© Sebastian Reisinger

### **Alpine Peatlands and Climate Protection**

The project aims at fostering climate protection through peatland protection in the Alps. The main tasks are the development of methods to derive climate protection potentials and the creation of a network among Alpine peatland actors. More information on the project as well as reports of previous and information on upcoming workshops for international knowledge transfer are available [here](#).



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### **Plant species richness on mountain pastures in Austria**

Mountain pastures in Austria are characterised by a high vascular plant species richness. Especially the plant communities on soils formed from calcareous mica schists have the greatest plant species richness, because calcifuge and calcicole species can coexist. For further information see [here](#).



© Andreas Bohner

### **Conference “Free spaces for soil”**

The Austria-wide initiative “[Together for our Soil](#)” is committed to a long-term and sustainable reduction of soil and land consumption. Solutions are developed together with actors from the sectors and fields concerned. At the conference “Free spaces for the soil” on 31 March 2022 in Innsbruck.



© Ingenieurbüro  
Schnittstelle Boden

### **Soil awareness raising week in Freistadt, Austria**

The energy district Freistadt organized from 2.-6. May the KLAR! Soil Week to inform farmers and interested citizens about central questions regarding soil quality and the consequences of climate change as well as to emphasize the importance of intact soils. The participants were able to dive into the complexity of soil with support of experts during the five parts of the event series. Read about it [here](#).



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Freistadt

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## LIFE Future Forest

It's halftime in the LIFE Future Forest project – the Mid-Term Report has been submitted at the end of March 2022. LIFE Future Forest is a forest conversion project in the district of Landsberg am Lech: Spruce monocultures are a thing of the past and aren't working anymore. We want to create a hardwood-rich mixed forest, which is climate resilient and provides a maximum of ecosystem services such as cooling, water filtration or CO2 reduction.

Our first successes:

- Other private forest owners are working with our system. One key person here is Raimund Hofmann from Weil, who already manages a forest which meets all the criteria of the Future Forest system. His forest is able to bind up to 42 t CO2 per year. The Art & Nature Foundation also agreed to restructure their forest based on our system.
- Networking with strong partners such as the interest group healthy soil and building agriculture have been found. The project team participated in lectures given by them and also gave lectures themselves. Ludwig Pertl from our team has recently been promoted to be the key contact person within the interest group healthy soil in regards of the forest.
- Positive initial discussions with local companies such as Hilti or Hirschvogel regarding the certificate system and their possible participation.

Our Imagefilm: The brand new imagefilm can be viewed here: [https://f.io/\\_4opjS0i](https://f.io/_4opjS0i)



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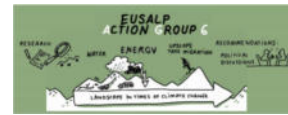
## Dates & events

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### EUSALP Landscape Conference

On the 24<sup>th</sup> and 25<sup>th</sup> of May 2022 the EUSALP Landscape Conference on the topic of Alpine landscapes and renewable energies in times of climate crisis will take place at EURAC Research in Bolzano/Bozen (IT). The aim is to foster an exchange about land-use conflicts related to renewable energy production. Join the discussion to find sustainable solutions and possible strategies to address the challenges in spatial planning, renewable energy production and land use. Please register [here](#).



© Dietrich@graphic-recording.at

### OpenSpaceAlps final conference & AlpPlan network meeting 2022

The central results of the Interreg Alpine Space project OpenSpaceAlps, including e.g. a handbook on open space planning and a series of strategic recommendations, will be presented and discussed at a final conference. The conference will be held along with the annual meeting of the AlpPlan network. It will take place on 31 May and 1 June 2022 in Bolzano/Bozen, South Tyrol (Italy) at Eurac Research, offering presentations, discussions, excursions, and networking opportunities both for practitioners and academics. The registration deadline has now been extended until 20 May 2022. Please find all information and the registration form on the [OpenSpaceAlps project website](#).



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## Celebrating Soil, Seeds & Senses

At 2.334 meters above sea level near Innsbruck, Austria, **AGORA** presents itself to the public in June, convening pioneering policy leaders and practitioners to a *Celebration of Soil, Seeds & Senses*. This is an official Side Event of the EU's first New European Bauhaus Festival from 9 – 12 June 2022.

AGORA's director **Verena Ringler** will host the event, featuring biologists **Stefanie Pontasch, Julia Seeber, Johannes Kostenzer, Thomas Peham, and Christian Steiner**. **Alenka Smerkolj**, Secretary General of the Alpine Convention, will present the *Soil Conservation Protocol* in its 25<sup>th</sup> year after it was signed. Practitioners **Maria Legner, Melanie Plangger, and Claudia Sacher** unveil their good practices. Architect **Anna Heringer** will explain how the built environment can foster ecological balance, while **Christoph Thun Hohenstein**, leader of Vienna's Biennale for Change, envisions our future in eco-digital humanism.

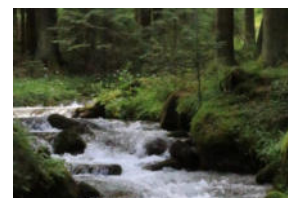
Join **AGORA European Green Deal's premiere** [here](#).



©AGORA EGD

## Water in the landscape

Online workshop as part of the series Soil & Climate. A cooperation event of Climate Alliance and European Land & Soil Alliance. Workshop in German. More information [here](#).



Unsplash

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## **Terrain – Cultivar – Variety: 100 years of Tyrolean Gene Bank**

Exhibition 29<sup>th</sup> April – 30<sup>th</sup> October 2022

The Tyrolean Folk Art Museum pays tribute to the work of the Tyrolean Gene Bank for its 100<sup>th</sup> anniversary by celebrating the genetic diversity of native crops. In 1922, the agricultural scientist Erwin Mayr created the basis for the Tyrolean Gene Bank. It collects, documents, and preserves old varieties of agricultural crops such as cereals, potatoes, and fruit in Tyrol. On the occasion of its centenary, the [Tyrolean Folk Art Museum](#) is displaying the exhibition “Land – Sorten – Vielfalt. 100 Jahre Tiroler Genbank” to pay tribute to the work on the field and in research, thanks to which food sources and biodiversity as well as cultural heritage, are preserved. A selection of the more than 1,000 varieties which survived even sprout in the historical courtyard of the museum.



© Tiroler  
Landesmuseen

## **European Land & Soil Alliance Annual Conference**

The European Land & Soil Alliance (ELSA) returns to the place of its foundation in Bolzano! The Province of Bolzano has gladly agreed to host the Annual Conference on 29 and 30 Sept 2022. Founded in 2002, ELSA currently has around 250 members in 9 European countries, representing more than 8 million people.

Find out more about ELSA [here!](#)

