



# IUSS Bulletin 137



International Union of

Soil Sciences (IUSS)

Bulletin 137

December 2020

IUSS Reports

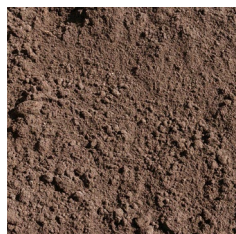
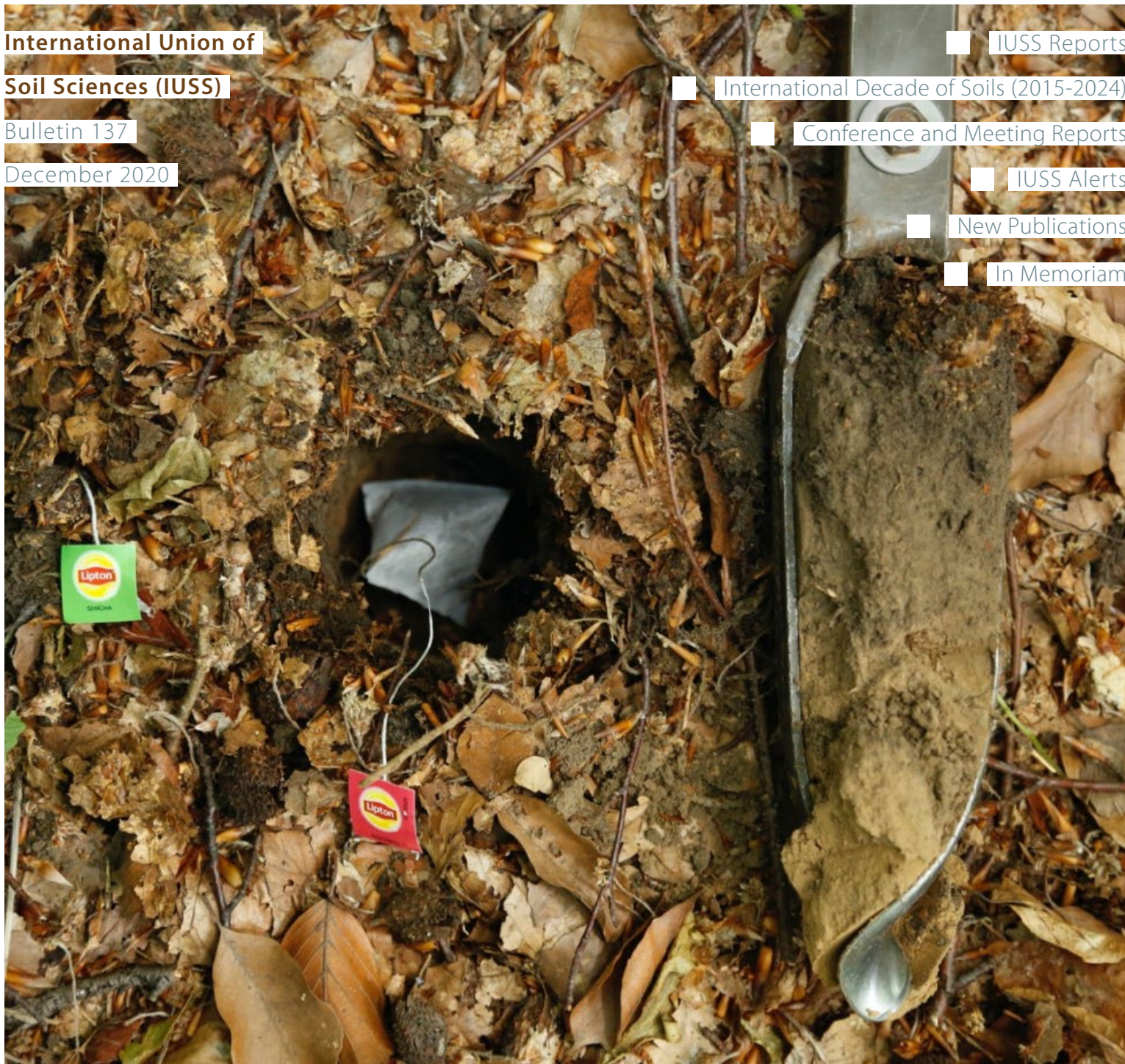
International Decade of Soils (2015-2024)

Conference and Meeting Reports

IUSS Alerts

New Publications

In Memoriam



## International Union of Soil Sciences (IUSS)

<b>President</b>	Takashi Kosaki	<a href="mailto:kosakit8@vega.aichi-u.ac.jp">kosakit8@vega.aichi-u.ac.jp</a>
<b>President-Elect</b>	Laura Bertha Reyes Sánchez	<a href="mailto:lbrs@unam.mx">lbrs@unam.mx</a>
<b>Past President</b>	Rattan Lal	<a href="mailto:lal.1@osu.edu">lal.1@osu.edu</a>
<b>Vice President Congress</b>	Bruce Lascelles	<a href="mailto:Bruce.Lascelles@arcadis.com">Bruce.Lascelles@arcadis.com</a>
<b>Secretary</b>	Sigbert Huber	<a href="mailto:iuss@umweltbundesamt.at">iuss@umweltbundesamt.at</a>
<b>Treasurer</b>	Andreas Baumgarten	<a href="mailto:andreas.baumgarten@ages.at">andreas.baumgarten@ages.at</a>
<b>Division 1</b>	Erika Micheli	<a href="mailto:micheli.erika@mkk.szie.hu">micheli.erika@mkk.szie.hu</a>
<b>Division 2</b>	Ryusuke Hatano	<a href="mailto:hatano@chem.agr.hokudai.ac.jp">hatano@chem.agr.hokudai.ac.jp</a>
<b>Division 3</b>	Bal Ram Singh	<a href="mailto:balram.singh@nmbu.no">balram.singh@nmbu.no</a>
<b>Division 4</b>	Damien J. Field	<a href="mailto:damien.field@sydney.edu.au">damien.field@sydney.edu.au</a>
<b>Budgets &amp; Finance</b>	John Kim	<a href="mailto:johnkim@uos.ac.k">johnkim@uos.ac.k</a>
<b>Awards</b>	Tom Sauer	<a href="mailto:Tom.Sauer@ars.usda.gov">Tom.Sauer@ars.usda.gov</a>
<b>Statutes &amp; Structures</b>	Alfred Hartemink	<a href="mailto:alfred.hartemink@wisc.edu">alfred.hartemink@wisc.edu</a>
<b>Presidential elections</b>	Rainer Horn	<a href="mailto:rhorn@soils.uni-kiel.de">rhorn@soils.uni-kiel.de</a>

<b>Contact Information</b>	Sigbert Huber Secretariat of IUSS T: +43-(0)1-313 04/3670 M: +43-(0) 664 80013 3670 F: +43-(0)1-313 04/3533 <a href="mailto:iuss@umweltbundesamt.at">iuss@umweltbundesamt.at</a>	Spittelauer Lände 5 1090 Wien Austria <a href="http://www.iuss.org">www.iuss.org</a>
----------------------------	---	---

ISSN 0374-0447

Copyright IUSS, Vienna, Austria



Cover photo: © Christian Schneider/UFZ (for details see p. 22)

Graphic Design: Daniël Loos, [www.bureaucontrapunt.nl](http://www.bureaucontrapunt.nl)

The IUSS Bulletin is the official Newsletter of the International Union of Soil Sciences.  
It is freely distributed through the IUSS website.



# Contents

<b>IUSS Reports</b> .....	4
IUSS Events .....	5
Report from the IUSS Secretariat .....	14
News from national and regional Soil Science Societies .....	16
Awards .....	25
Other IUSS News .....	26
Amendment to Report of Division 1: Soils in Space und Time in Bulletin 136 .....	28
<b>International Decade of Soils (2015-2024)</b> .....	32
World Soil Day 2019 .....	33
The IUSS GOES TO SCHOOL project .....	35
Stop Soil Degradation and the IUSS educative project to achieve it .....	36
IUSS – FAO-GSP Children’s book contest on Soil Biodiversity .....	38
Soil Book Series .....	40
Soilutions .....	41
<b>Conference and Meeting Reports</b> .....	42
School of Soil Biodiversity and Indication, XII Cycle .....	43
Public Lectures of the School .....	44
Lectures of the School .....	46
<b>IUSS Alerts June 2019 – November 2020</b> .....	48
Upcoming Conferences & Meetings .....	63
<b>New Publications</b> .....	68
<b>Miscellaneous</b> .....	74
Kiss the ground .....	75
<b>In Memoriam</b> .....	78
Jérôme Balesdent .....	79
Galina Motuzova .....	81
Francisco Silva Mojica .....	83
José Luis Colocho Ortega .....	84
Donald R. Nielsen .....	85
Morris Schnitzer .....	87
<b>IUSS Honorary Members and Award Winners</b> .....	90
IUSS Honorary Members .....	91
IUSS Award Winners .....	93

# IUSS Reports

## IUSS Events

### IUSS Inter-Congress Meeting

The IUSS Inter-Congress Meeting took place virtually (instead of a physical meeting in Glasgow, Scotland, which had been planned for September 2020) 18-23 November 2020. It comprises three sessions each of both the Executive Committee Meeting and the IUSS Council Meeting as well as one Research Forum Meeting. Main topics were the past and future activities of IUSS Presidents, Secretariat and Treasurer, Standing Committees, Divisions, Commissions and Working Groups as well as the Research Forum, internal and international matters of the IUSS, preparation of the 22<sup>nd</sup> World Congress of Soil Science (WCSS 2022 in Glasgow, Scotland), outlook to the Centennial in 2024 as well as the presentations of societies intending to bid for the WCSS in 2030.

Furthermore the election of the new Honorary members was carried out. The following scientists who provided distinctive contributions to soil science in general and the IUSS in particular were elected:

Jozef A. (Seppe) Deckers (Belgium), Flavio Anastacio de Oliveira Camargo (Brazil), Rainer Horn (Germany), Carmelo Dazzi (Italy), Kazuyuki Inubushi (Japan), Kye-Hoon 'John' Kim (Korea), Bal Ram Singh (Norway), Pavel Krasilnikov (Russia), Rosa M. Poch Claret (Spain), Alfred Hartemink (USA).

Congratulations to these candidates on being awarded Honorary Membership of the International Union of Soil Sciences!

### World Congress of Soil Science 2022 (WCSS22): Update



By Bruce Lascelles, IUSS Vice President Congress



**World Congress of Soil Science 2022**  
**31<sup>st</sup> July – 5<sup>th</sup> August 2022**  
**Scottish Event Campus, Glasgow, Scotland, UK**

#### Venue and opening ceremony

The World Congress of Soil Science will be held at the Scottish Event Campus in Glasgow, Scotland. This is a modern, compact venue on the banks of the River Clyde, centrally located in Glasgow and within walking distance of the main hotel district.

Public transport (accessed with a reduced rate delegate travel pass) provides easy access to the city, a place steeped in culture, rich in history and alive with an excitement you can sense as you walk through its elegant streets, squares, parks and gardens.

Glasgow is also just a short distance from the beautiful lochs and mountains of Scotland, ancient castles, world renowned golf courses, quaint whisky distilleries, and scenic West Coast Islands.

The opening ceremony will be held on the Sunday evening at the Glasgow Science Centre, located opposite the SEC, and we have secured full support from Glasgow City for this. This is our opportunity to showcase the best of Scottish culture and provide a space for meeting friends, old and new.

### Logo / Branding

The logo is shown at the top of the previous page and has been included in our current email banner. The graphic has similarities to one of our upland soils, the podzol, and incorporates the thistle, the National Flower of Scotland. We have also included outlines of faces on each side to represent the critical link between soils and people and the ultimate importance of soils to our future – not everyone sees these initially so hopefully a good conversation starter.



The Scottish Event Campus on the banks of the River Clyde in Glasgow (© Marc Turner, PFM Pictures)



Glasgow is just a short distance from the beautiful lochs, mountains and castles of Scotland (this is Eilean Donan Castle) (© VisitScotland)



Delegates being led to the opening ceremony by a piper band (© VisitScotland)

### Theme and Scientific Programme



#### SOIL SCIENCE: CROSSING BOUNDARIES – CHANGING SOCIETY

The development of the scientific programme has been an iterative process directly involving the Divisional Vice-Chairs and, in turn, their various connections with Divisional Chairs and Working Group leaders. The initial focus of the planning was to determine the sessions that

each Division wished to form part of the programme. We have been able to accommodate most of these sessions but there is still some limited work to do to ensure that all sessions can be held within the main conference centre building.

During this process it became clear that there were several common themes. These have formed the basis for the Inter-divisional sessions and have, in turn, informed the choice of Plenary sessions. We are planning four Plenary sessions and eight Inter-disciplinary sessions (run as two parallel sessions). Together these will form the morning programme for all 4 days of the main scientific programme. A two-hour lunch and posters will precede the Divisional sessions in the afternoon. We also aim to build around this space for policy makers to engage and discuss key issues.

### Plenary Sessions

The themes have been selected to complement the Divisional and Inter-divisional sessions and the main conference theme. They are still at the planning stage, but the four working themes are:

1. **Soils and security** – with a focus on food, nutrition and health. Food and nutritional security are major policy concerns globally with climate change and variability, and the loss of biodiversity having large effects on food systems.
2. **The north/south divide** – interactions between economic and soil management allowing the south to thrive. The UN Sustainable Development Goals 2030 were agreed global policy shapers with particular emphasis on change in the developing world.
3. **Soils and land use in the 22<sup>nd</sup> century** – building on the recent IPCC report on land use.
4. **Data and information** – how does the data revolution change the way we work with soils?

Our current planning assumptions are that the one hour of each plenary session will start with a 30 minute lecture presented by an internationally recognised speaker who is not a soil scientist by profession, followed by either a response from a soil scientist or a panel discussion led by a professional facilitator. We are still receiving feedback from Divisions on these proposals.

### Inter-divisional sessions

#### A. Geospatial systems for Decision Support in sustainable soil use and management

Recent progress in soil geography and geospatial Decision Support Systems promises to deliver smart operational land planning and management tools for complex landscapes over large areas (regions to continents). This represents a way ahead for challenges of connecting soil science and land management policy with operational reality. This session aims to bring together current research integrating the fields of (i) soil spatial variation prediction

(e.g. Digital Soil Mapping, Digital Soil Morphometrics) and (ii) implementation of soil spatial knowledge & information into operational land management Decision Support Systems. This synthesis will provide insights into developments in management and protection of soils.

#### B. Soil carbon: From particle to planet

Soil organic matter and soil carbon are keystone properties that influence multiple ecosystem services from climate regulation to food production. Looking at soil carbon through different lenses can reveal mechanisms operating at different scales that control carbon storage and sequestration in soils. At a micro scale we are unravelling the interactions between organo-mineral and biologically mediated processes that control the stability and persistence of organic carbon in soils. At local and regional scale these processes are affected by land management practices and active geomorphic processes. At a global scale the associated interrelations and feedbacks of individual processes vary across different climate zones and soil geographies. This session crosses scales to link biogeochemical processes, land management and global soil geography to identify how to achieve effective soil carbon storage and climate change mitigation potential.

#### C. Interdisciplinary soil science for impact

Soil scientists often cross boundaries between biology, chemistry, pedology, and physics as an integral component of their research, but truly novel and impactful research may benefit from broader collaboration outside soil science. For example, soil science contributes significantly to ongoing globally important research on climate change, economic development, resource availability and human impacts, which in turn has helped guide policy development. This inter-divisional session will showcase the spectrum of interdisciplinary soil science that has produced major impacts.

#### D. Selecting plants for sustainable soils

A recent surge of research on root-soil interactions has shown how plants can shape biological, chemical and physical properties of soils, with a potential to ameliorate soil degradation and increase carbon sequestration. It has also been shown that root trait responses are highly soil specific, showing the importance of soil science in the search for plants suitable for particular environments and more sustainable crops. This session will explore root traits that can improve soils, for applications in ecological restoration, crop breeding and agricultural rotations.

**E. Soil Science and the emerging philosophy of regenerative agriculture**

Alternative approaches to agriculture that are focused on making significant contributions to the Sustainable Development Goals are appearing across the globe. Amongst these, the principle of 'regenerative agriculture' is an emerging approach to nutrient sensitive food production that sustains the health of the ecosystem. The novel management options adopted by regenerative agriculture report impacts on improved biomass production and soil health, and better water management through increased soil carbon. This session will discuss: the concept; observed effects on the soil; possible impacts on supporting ecosystem health when regenerative agriculture is implemented; the effects on soil functions. This provides an opportunity to investigate the many intersections with soil science and the crucial role it has to play.

**F. Best management practices for global soil erosion control under changing climate (including extreme events)**

**Short title: Soil Erosion Sustainability (SES)**  
Accelerated soil erosion rates threaten the sustainability of human society. Agriculture, mining, overgrazing, road and railway embankments, forest fires, and timber production cause soil degradation and lead to high soil erosion rates. Climate change reinforces land degradation processes that have affected the Earth System since humans domesticated plants and animals. The Agricultural Revolution accelerated soil degradation rates and it is urgent that we shift towards agriculture, forestry, mining and infrastructure development that will bring sustainable soil management with soil erosion rates below the soil formation rate. This will allow us to achieve the Sustainable Development Goals of the United Nations, where soil is a key component. The interdivisional session "Soil Erosion Sustainability (SES)" is welcoming laboratory and field experiment, modelling and historical approaches that evaluate sustainable management practices leading to a reduction in soil erosion rates. Biophysical, societal, economical and perception approaches to soil management on agriculture and forest ecosystems are welcome.

**G. Soil securing humanity | Humanity securing soil**

Soil security is the ability for soil to sustain multiple functions to provide planetary services and human wellbeing. This multidisciplinary concept is focused on securing soil's ability to provide a range of functions that sustain

humanity and planetary system functioning through natural, economic, social and political science. Focused on assessing the soil's capability and condition, soil security is serviced by ensuring that the production, natural and conservation capital are evaluated. Supported by increasing soil awareness, education, and adoption of its social license increasing its connectivity with humanity, and where these dimensions are challenged codification of soil governance, policy, regulation and laws are equally essential. The community working on soil security is growing fast and the latest development and future existential challenges will be explored. Through humanity securing soil, this will secure the future of humanity.

**H. Sustainable land use**

Climate change and threats to global biodiversity are two of the biggest environmental threats facing humanity in the 21<sup>st</sup> century and beyond. However, soil science can offer solutions to these interlinked challenges. Both climate change and biodiversity loss will place more pressure on land to provide provisioning services such as food and fibre production, but also other ecosystem services such as regulatory, cultural and supporting services. An improved understanding of the role of soils in helping deliver these services and the trade-offs that occur as a consequence of land use change will be critical to developing more sustainable land use policies. This session welcomes contributions that regional and global analyses of the importance of soils to sustainable land use. The programme and associated space planning within the venue is being developed:

**Arts Programme**

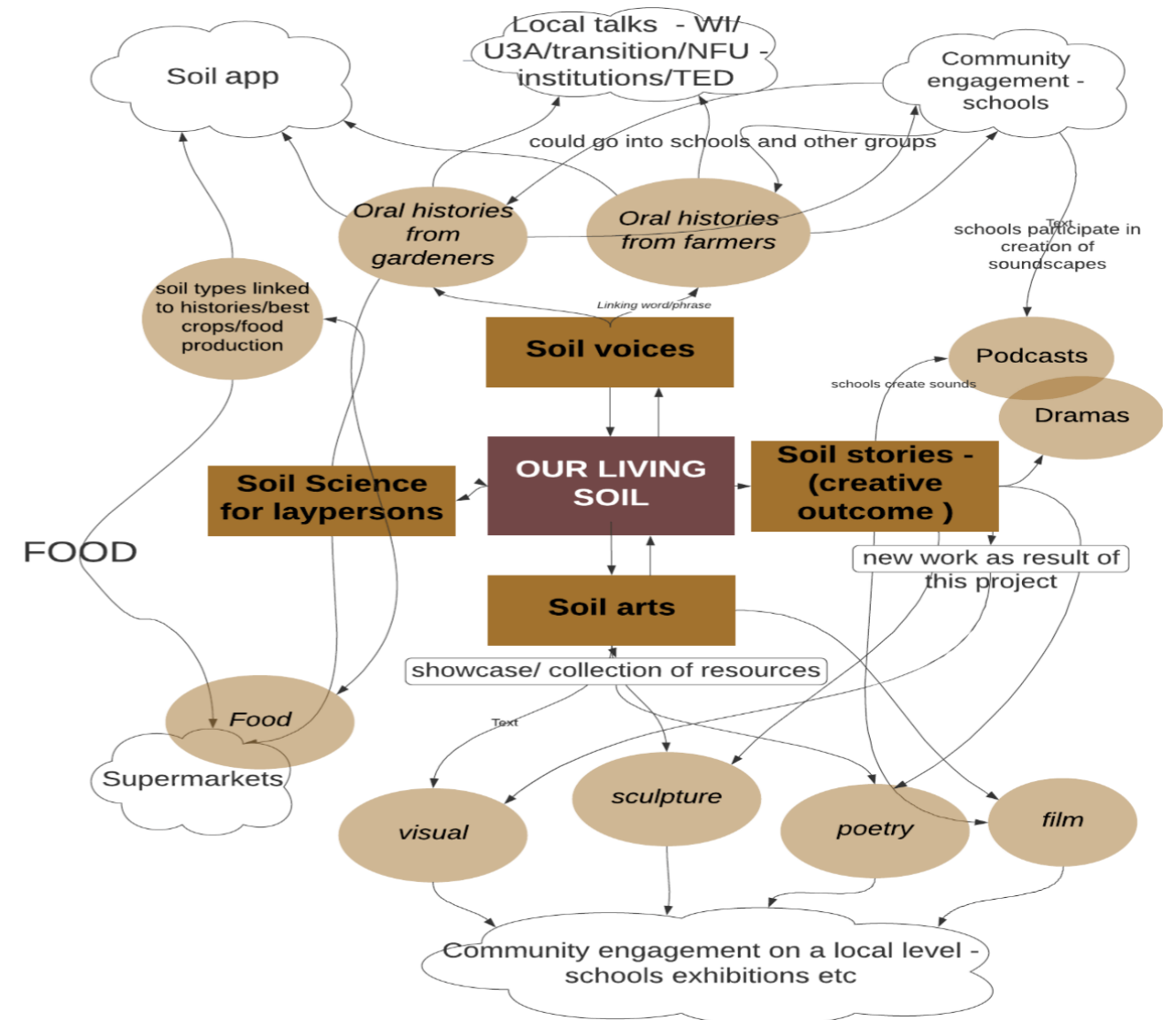
The development of an arts programme continues. Two funding bids have been submitted to Creative Scotland, both were well received and deemed fundable but were ultimately unsuccessful and going forward funding may be more limited due to funds being diverted to keep venues and existing programmes going. The various strands from on-going discussions have been mapped out as shown below which now puts more structure to the conversations and a website has been created by the group – Our Living Soils <https://www.ourlivingsoil.art/>. We are also looking at local partnerships in Glasgow and are hoping to build some events with <https://www.propage.org.uk/> who are a collective based in Glasgow and working across Scotland. Their aim is to nurture and support the emergence of ideas, solutions and practical

projects around the themes of food, communities and resilience, delivering practical projects such as designing and building community growing spaces, and research projects on local food economies and climate resilience. We are now developing more detailed proposals around the four themes to identify what funding is needed to kick start these. This will form a proposal for the British Society of Soil Science to provide this funding whilst we continue to seek grant funding, sponsorship etc. which can be aligned later to these programmes.

**We have two concepts being developed currently:**

**Soil Voices:** Development of an original audio drama story called *Digging Deeper* which will follow Dr Kate Sinclair as she reluctantly returns from the city with her daughter Ella to oversee a peat restoration project fol-

lowing the discovery of a bog body. Missing her friends, Ella discovers she can talk to the soil and makes friends with Pete (peat soil) who tells her incredible stories from throughout time and later introduces her to other soils, some so hurt and exhausted that they can barely speak, others brimming with rich and exciting life. Other characters in the drama include Kate's brother, an intensive farm manager (in more ways than one) from East Lothian and Kate's ex-partner, a small holder struggling to keep going. *Digging Deeper* will be an episodic audio drama encompassing themes of: humans & soil, farming technology, women in soil science and innocence vs experience (how children see soil differently from adults). It will be accessible for all ages and aims particularly to be able to engage younger generations in the stories of soil and its importance.



Various strands from an ambitious two-year art/science programme (© BSSS)

**Soil Stories:** Rather than being seen as in contrast to our culture, soil has to be revalued as part of who we are as humans in relation to our environs. The recent rise in eco-critical literary studies and the popularity of nature writing has shown that story in both literature and the spoken word are a crucial factor in raising social awareness of ecological issues. Story can participate in a reorientation of attention toward the importance of the environment. The humanities can no longer afford to ignore the pressing urgency of the current situation of our soil. This project will initially interview a selection of 6 people about soil, ideally 2 gardeners/farmers, 2 laypersons, 2 scientists and record personal narratives/memories relating to the soil. The questions would focus on how these people feel connected to the soil, and why – considering memories of past relationships with soil and childhood recollections/narratives. As Oral History project, it is important to consider memories and early connections, exploring how these connections have perhaps changed. A very important future extension of the project would be to interview children comparing the memories of soil with current perceptions as well as variants in children's perception of soil depending on location. These interviews will be edited to produce a final output.



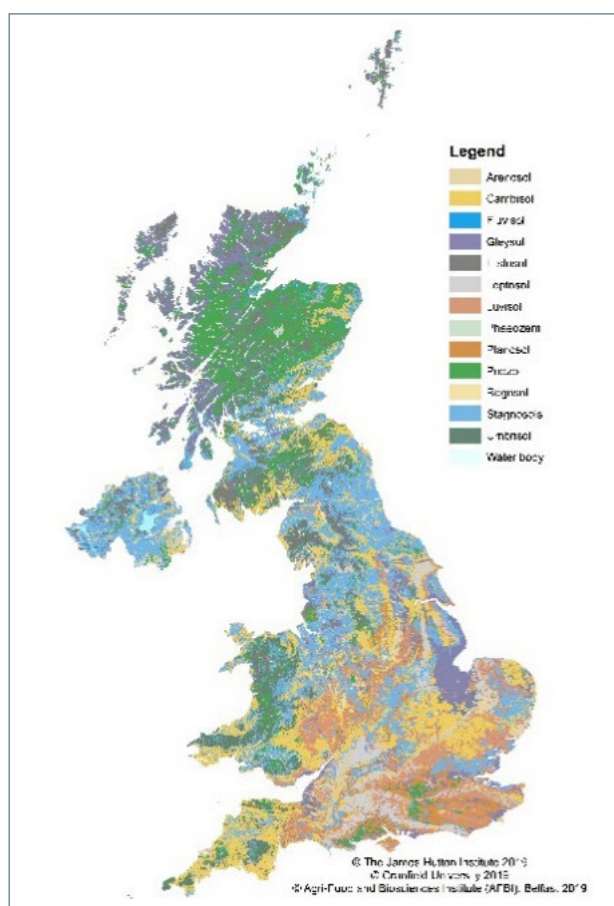
On site assessment of a Scottish soil sample (© BSSS)

These concepts have the potential to form events at the Congress and to be built on following the Congress. Earth Matters, on behalf of the British Society of Soil Science, have started work on our soil film, and have been out in the south west of England and at Cranfield University filming. We have been able to get Lizzie Daley (<https://www.instagram.com/lizziedalywild/?hl=en>), a wildlife presenter, involved in this giving us access to her wider network (for example, on Instagram she has approx. 35k followers). The film is already receiving attention from other presenters and the BBC.

### Tours

Great Britain is a small island covering less than 0.2% of the earth's land surface, yet the diversity of soil forming factors operating across this small area within a narrow latitude has produced 20 (62%) of the 32 global Reference Soil Groups recognized by the International Union of Soil Sciences / FAO World Reference Base. In keeping with the Congress theme the tours programme is entitled '**Small Island, Diverse soils, Big opportunities – Connecting people & soils**'. Its' overall objective is to demonstrate just some of this diversity whilst focussing on the ability of local soils to sustain a variety of soil functions beneficial to society. The various tours proposed will each provide examples of how soil scientists are working with local land managers, environmental, government and educational organisations to demonstrate the benefits provided by local soil types when they are managed to maximise their functional potential and minimise their limitations. A range of options are currently proposed with experts in these areas identified to lead the tours:

Soil map of the UK  
(© The James Hutton Institute 2019)



### Pre-Congress tour: Britain South to North (6 days, 12 locations, 20 soil types).

This 6 day field tour takes delegates from south east England to the Southern Uplands of Scotland embracing a variety of landscapes and soils from intensively farmed lowlands to forested uplands and semi-natural moorland. It will highlight the diversity of Britain's soil forming factors whilst focussing on the ability of different soils to sustain critical functions in a rapidly changing world. Themes of site visits include:

- Resilience of Abrupt Luvisols for sustained agricultural production (The Rothamsted long-term experiments)'.
- Use of Agricultural / Environmental Colleges for early career training programmes.
- Peaty soils of the English Fenland – An unsustainable soil resource?
- The impact of enhanced CO<sub>2</sub> levels on above & below ground tree growth, respiration, and nutrient levels in a mature Oak woodland.
- Vulnerability of upland soils with significant ability to store organic carbon in a rapidly changing world.
- Working with farmers and rural communities to manage vulnerable soils & landscapes to protect local surface water and estuarine environments.
- Management and conservation issues in an upland subalpine site with Skeletic Umbrisols, one of the best area of active stone stripes in Scotland.

### Mid-Congress 1-day tours

**Glasgow Tour** – Impact of the city's Industrial Legacy, Urban Regeneration and Greenspace. This tour will focus on the Clyde Gateway project which is building on the legacy of the 2014 Commonwealth Games in an area with a long history of industrial activity and subsequent stagnation. The Cuningar loop, which was an open coalmine and sand quarry, has been regenerated as an urban park as part of the legacy. An Urban soil profile (Technosol) will be viewed, and the site also hosts the NERC shallow geothermal facility. Shawfield was, at its peak, the world's largest Cr-works and the comprehensive and extensive remediation work now being carried out will be reviewed. Wider issues of the sustainable use of urban and greenspace soils are also a concern and the Glasgow and Clyde Valley Green Network projects will provide exemplars of the successful integration of soil considerations into urban planning.

**Edinburgh tour** – A Snapshot of Scotland's Soil. This tour across the central Lowlands from Glasgow to Edinburgh and back reveals an urban and industrial landscape with a rich mining and agricultural legacy. Soil distribution is determined largely by the type of material deposited by the retreating glaciers of the last ice stage and subsequent dramatic changes in sea level as the local geological crust rebounded from the massive weight of ice that previously covered it. However, this soil pattern has been profoundly modified by human management. Sites to be visited include productive farmland on a raised beach, calcareous sand dune soils, very shallow Lithosols on a volcanic plug and a long-term nitrogen study of a raised bog peatland ecosystem.

**Stirling tour** – Changing Environment: A Historical and Modern Perspective on Soil Use & Management along the Carse of Stirling. The tour will look at soil development, use and management in and around the Carse of Stirling, an area subject to significant environmental changes over the last 8000 years and culminating in the installation of comprehensive drainage systems to create the more fertile farmland that we see today. Profiles in this land will be seen at Stirling University soil teaching pits exposed in raised beach soils. In recent times, peat was also drained to facilitate commercial peat extraction and forest plantations. Despite this extensive reworking of the landscape, the remains of peat bog domes around Flanders Moss are one of the most extensive intact raised bog sites in Europe with peat depth reaching over 7m in places. The National Nature Reserve here will be visited showing restoration work to enhance biodiversity and increase carbon sequestration illustrating the changing value of peatland from a 'waste' to vital carbon sink. Adjacent Forest soils and agricultural land will also be seen.

**Isle of Arran tour** – This full day excursion will visit the Isle of Arran focusing on the relationship between its landscape, geology & soils. The circular tour provides superb views of the changing coastline and dramatic mountains of this scenic island and includes a visit to the local Lagg Whiskey Distillery. Soil aspects of the tour include a focus on the small-scale variation between raised bog (Histosols), Peaty (Histic) Gleysols and peaty (Histic) Podzols and contrasting cultivated and uncultivated Stagnosols.

**Boghall Glen tour** – A tour to Boghall Glen on the Bush Estate [details still in development].

**Post-Congress tours – A Kaleidoscope of Scotland**  
**SW Scotland (3 days, 13 locations, 11 soil types)**

Soils, geomorphology and land use in Galloway: A 3 day excursion highlighting the rocks, quaternary glaciation, Holocene deposition and Anthropocene changes influencing soil development in the southern uplands and on the Irish Sea coast. A microcosm from the mountains to the sea. Its' focus is the anthropic evolution of current land use, agricultural products and practices with emphasis on the sustainability of regional agriculture and soils and the tension between agriculture and bio- and geodiversity. The program is relatively full but not overly so to allow time for cultural edification and exchange.

**The NW coast of Scotland**  
**(4 days, 12 locations, 9 soil types)**

This 4-day field trip will visit North-West Scotland, one of the most diverse part of the UK in terms of mountain and coastal topography, geology, and soils. The tour will provide magnificent view across some iconic cultural landscapes such as Loch Lomond National Park, Glencoe, Loch Ness, the world-class landscape of the UNESCO North West Highlands Geopark and the Cairngorms mountains.

Typical Scottish mountain landscape, Glen Etive  
 (© Glasgow Life)



**NE Scotland (4 days 6-7 locations, 7-8 soil types)**

A diversity of Soil and Landscape – from farmland to flows. This 4-day tour focusses on the eastern coast of Scotland from Glasgow to the Flow country. Starting in the industrial landscapes between Glasgow and Edinburgh before crossing the Firth of Forth with its iconic UNESCO World Heritage rail bridge, the tour passes over some of most productive land in the UK north of this Firth. Here, at the Centre for Sustainable Cropping, an open research facility, aiming to both enhance biodiversity for ecosystem services, and reduce the environmental footprint of crop production, the influence of its imperfectly-draining brown soils (Eutric Cambisols) will be demonstrated along with measures to prevent soil loss. Travelling towards the Highland Boundary Fault into the Grampian foothills and uplands presents a stark contrast in landscape and soils. At the Glensaugh Upland Farm Research Site cultivated and uncultivated organic-rich Podzols and Umbrisols will be shown along with techniques to preserve their carbon stocks against climate change through changes in upland land use and management. Further north, the spectacular coastal links soils around the Moray Firth will be visited to see how changes in climate are transforming this dynamic coast and its distinctive Links soils. North west of the Moray Firth we proceed to the Flow country, one of the largest

areas of blanket bog in the world and a candidate World Heritage site. The tour culminates with a journey through the dramatic landscape of Highland mountains that owes much to prolonged weathering during the humid climate of the Tertiary period and the later effects of ice and meltwater during the last glaciation stopping off to see the work being done to restore the native Caledonian pine forest and impacts on soil profile development.



Famous sights and nightlife of Glasgow (clockwise from top left: a Ceilidh; Merchant Square; Kelvingrove Art Gallery and Museum; Riverside Museum) (© Glasgow Life)

**Social Programme**

The social programme will be developed over the next 6 months, making use of the wide range of fantastic venues available within the heart of Glasgow, such as the Kelvingrove Art Gallery and Museum, The Old Fruit Market, Merchant Square, The Arches, The Corinthian and The Riverside Museum.



**COVID-19 Planning**

We continue to plan for the Congress in Glasgow. However, we are also looking at scenarios should the current pandemic continue to cause disruption, both in terms of potential restrictions in 2022 or changes to other major conferences resulting in pressure on potential delegate numbers in 2022.

These scenarios will include virtual attendance, and we are also assessing how to make part of the Congress virtual as part of the overall package to maximise the opportunities available for as many people to attend from as wide a range of backgrounds, geography etc. Our Professional Conference Organiser, Speakeasy, has great expertise in this area and we will draw on this as required.

Follow us on Twitter: @Soil\_Science and @WorldSoils2022

### VIRTUAL EVENTS

**COMPONENTS OF A VIRTUAL EVENT**

Virtual events are built around content, engagement and data. Although P&S venues and accommodation are no longer relevant, virtual events require many of the same components as their in-person counterparts, all of which Speakeasy can provide, including:

- Event Website
- Event Registration
- Live presentation content
- Live audio or video content
- Pre Recorded Content
- Question & Answer
- Live Polling
- Note Taking
- Interactive Video Conferencing
- Feedback Surveys

speakeasy

VIRTUAL EVENTS | 13

Contact: [Bruce.lascelles@arcadis.com](mailto:Bruce.lascelles@arcadis.com)

Read more: <https://www.soils.org.uk/wcss2022>

# Report from the IUSS Secretariat

## IUSS Presidential Elections 2020

The election of the next President of the IUSS was due this year. The appointment of the President represents a total of six years commitment to the Union by serving two years each as President-Elect (2021/22), President (2023/24) and Past-President (2025/26). The Standing Committee on Presidential Elections has defined the respective procedure and the guidelines. Nominations should be made by two accomplished, highly respected senior soil scientists.

Full nomination documentation had to be submitted electronically to Prof. Dr. Rainer Horn (Email: [rhorn@soils.uni-kiel.de](mailto:rhorn@soils.uni-kiel.de)) by June 1, 2020, copying [iuss@umweltbundesamt.at](mailto:iuss@umweltbundesamt.at).

Nominations for two candidates were received, who fulfill the nomination criteria. The candidates were:

- Edoardo Costantini, Italy
- Victor Chude, Nigeria

The nomination documentation of the candidates was made available on the IUSS website in July 2020 and announced in Alert 181 (July 2020).

Procedure and guidelines: [http://www.iuss.org/media/president\\_election\\_full\\_info\\_2020.pdf](http://www.iuss.org/media/president_election_full_info_2020.pdf)

### Outcome of 2020 IUSS Presidential Election

Edoardo Antonio Costantino Costantini from Italy, current Secretary of the European Society for Soil Conservation, received a clear majority of the votes and was the successful candidate in this election. He will take up the position of President-Elect on 1<sup>st</sup> January, 2021. He will be the first Italian President in the history of IUSS and will celebrate with us the Centennial in Italy in 2024. Let us congratulate him on this success!

IUSS was very pleased to have two strong candidates running for the position.

If you want to know more about both candidates, please click here: <https://www.iuss.org/about-the-iuss/iuss-presidential-election/>

## Elections of Honorary Members 2020

According to the IUSS Statutes Honorary Members will be elected by Council, and shall be living at the time of election. They must be scientists of great distinction in Soil Science and have made substantial contributions to ISSS/IUSS. The number of Honorary Members that can be elected every four years at the Intercongress meeting will be determined by the merit of the candidates, but shall not exceed 10.

The IUSS Secretariat organized the call for nominations in January 2020 and collected nominations until February 29. In total 17 nominations were submitted which were evaluated by an ad-hoc committee of the Executive Committee selected by the President. The Secretariat organized the evaluation by providing and collecting the evaluation tables of the committee members. Based on the assessment of the evaluation tables the Executive Committee regarded 10 candidates as fully fulfilling the criteria and therefore recommended those to be elected as Honorary members. The IUSS Secretariat distributed the nomination documents to the Council members three months before the Inter-Congress meeting. Elections took place on-line by secret ballot among Council members present during the Inter-Congress meeting, 18-23 Nov. 2020.

The following scientists were elected as IUSS Honorary Members:

Jozef A. (Seppe) Deckers	Belgium
Flavio Anastacio de Oliveira Camargo	Brazil
Rainer Horn	Germany
Carmelo Dazzi	Italy
Kazuyuki Inubushi	Japan
Kye-Hoon 'John' Kim	Korea
Bal Ram Singh	Norway
Pavel Krasilnikov	Russia
Rosa M. Poch Claret	Spain
Alfred Hartemink	USA

Congratulations to these candidates on being awarded Honorary Membership of the International Union of Soil Sciences!

## IUSS Website

During the last six months, the main tasks of the webmaster included adding new information to the website (e.g. new events, keeping track of cancellations and postponements due to the COVID19 pandemic; adding news), inputting Alert news into the content management system and sending the Alert out to our readers every month; further, creating new content, programming it backend, and finally, keeping contact information of IUSS members updated. Patching up the content management system, implementing necessary updates and system back-ups rounded off the webmaster's tasks.

As far as new content is concerned, a new subpage was launched, on which news on ongoing initiatives and other information on the educative project *The IUSS Goes to School* will be published.

Read more: <https://www.iuss.org/international-decade-of-soils/iuss-goes-to-school/> as part of the section International Decade of Soils <https://www.iuss.org/international-decade-of-soils/>.

## IUSS on TWITTER

By July 2020, the International Union of Soil Sciences had more than 900 followers. Every week or even more frequently tweets are posted by Laura Bertha Reyes Sanchez, IUSS President Elect. The messages are very well received so that by the beginning of December, the number of followers had risen to nearly 1300. Follow us at the address [@IUSS\\_ORG](https://twitter.com/IUSS_ORG), to promote all our official activities and remain in touch with Soil Science Scientists community worldwide.

## IUSS Stimulus Fund

In 2015 IUSS established an annual Stimulus Fund to support suitable activities within the Commissions and Working Groups. Where appropriate, the Fund will also support other activities to assist the development of Soil Science generally but particularly in regions of the world where lack of resources limit opportunities. To this end, IUSS has set aside a sum of \$15,000 annually, the normal maximum award being \$2,500.

The initial application process requires a short written proposal of no more than 500 words plus a budget indicating how the funds awarded are to be spent. Each year, there are two submission dates:

15 March and 15 September.

Read more:

<https://www.iuss.org/about-the-iuss/iuss-stimulus-fund/>.

From the second round of submissions (deadline 15 September 2020), the IUSS decided to contribute to support four activities:

1. 3 awards for young scientists at 16<sup>th</sup> International Conference on Soil Micromorphology 2021 (ICoSM 2021), Kraków, Poland, August 29 to September 2, 2021
  2. Support for travel expenses to CryoWiSt: Winter State of Cryosols, February-March, 2021 soil science field-class for 5 to 8 students
  3. Financing because of financial losses due to Covid-19 to International Symposium and Field Workshop on Paleopedology, 8-18, August 2021
  4. Support to website development of the IUSS Commission 1.1 Soil Morphology and Micromorphology
- In total, 15,250 USD were approved from the IUSS Stimulus fund in 2020.

**Outlook:** In 2021, there will again be two submission dates for applications: 15 March and 15 September. Applications should be sent to [iuss@umweltbundesamt.at](mailto:iuss@umweltbundesamt.at).





# News from national and regional Soil Science Societies

## News from the American Soil Science Society (ASSS)

### ASA, CSSA, SSSA Town Hall Webinar on Diversity, Equality, and Inclusion – Join Us!

ASA, CSSA, and SSSA have taken action to improve diversity and inclusion across our Societies. We know these actions are not enough and we do not have all the answers. Join us for our Town Hall Webinar on Diversity, Equality, and Inclusion, hosted by our Diversity in Agronomy, Crops, Soils, and Environmental Sciences Committee and SSSA Representation & Recognition Task Force to collect your input on tangible actions we can take immediately to strengthen our community and improve diversity, equality, and inclusion. Tuesday, June 30 at Noon (Central).

Register here: <https://register.gotowebinar.com/register/290622221291667211>

[From: ASA-CSSA-SSSA Science Policy Report: 24 June 2020] **Assessing Soil Health | Free Soil Science Society of America Webinar Series**

This soil health focused webinar series integrates economics, measurement tools, measurement assessment, and modeling to educate, motivate, and equip Certified Crop Advisers, consultants, and agricultural retailers to engage in soil health management systems. A Soil Science Society of America webinar series produced in partnership with The Soil Health Institute and sponsored by The Walton Family Foundation. FREE to all registrants.

Read more: <https://www.soils.org/education/online-courses>  
[From: ASA-CSSA-SSSA Science Policy Report: 22 July 2020]

Impactos en maíz, trigo y Soja  
**Dra. María E. Otegui** (INTA-CONICET-FAUBA)  
**Dra. Claudia Vega** (INTA-CONICET)  
**Dra. Fernanda González** (INTA-CONICET-UNNOBA)

Martes 23 y Jueves 25 de junio - 11 hs. -3GMT  
 Por el canal de YouTube de INTA  
[www.youtube.com/user/webinta](http://www.youtube.com/user/webinta)

Argentine Association of Soil Science

## News from the Latin American Soil Science Society (SLCS)

### Seventh Assembly of the Latin American and Caribbean FAO Regional Soil Alliance

On May 27, the Seventh Assembly of the Latin-American and Caribbean Soil Alliance was held online with the participation of all countries belonging to the Latin-American Soil Science Societies.

#### Webinar on 'Soil Biodiversity, a nature-based solution?'

On May 22, 2020, online.

#### Argentine Association of Soil Science

The Argentine Association of Soil Science organizes the following conference cycle: The agricultural sector against climate change. Every Tuesday and Thursday in June and July at 11 a.m. in Buenos Aires (-3 GMT). Listen in to the conferences: [www.youtube.com/user/webinta](http://www.youtube.com/user/webinta)

#### 9<sup>th</sup> National Symposium on Control of Soil Degradation and Recovery

Organized by the Spanish Soil Science Society this symposium was held at the University Miguel Hernández in Elche, Spain, September 30 to October 2, 2020. Read more: <https://condegres.es/>

#### Soil Science Society of Chile

"The International Network for the Study of the Physical Quality of Volcanic Soils", organized the virtual seminar: "Advances in the study of soils derived from volcanic ash in Latin America", to be held every fortnight from June 11 to December 17, 2020 and from January 7 to 21, 2021. For further info contact [cisvo.uach@gmail.com](mailto:cisvo.uach@gmail.com) and [josedorner@uach.cl](mailto:josedorner@uach.cl)

#### Soil Science Society of Brazil

The Soil Science Society of Brazil organized the **XIII<sup>th</sup> Soil Science meeting of southern Brazil**, which was held online on November 26-27, 2020. Read more: [www.rsbc2020.sbcs-nrs.org.br](http://www.rsbc2020.sbcs-nrs.org.br)

**SEMINARIO VIRTUAL** Avances en el Estudio de Suelos Derivados de Cenizas Volcánicas en América Latina. Una Red Internacional de Colaboración. Transmisión via ZOOM

11 de Junio	11:30h (UTC-4)	Presentación REDES 18018 Dr. José Dorner, Universidad Austral de Chile, Chile. De la Red de Suelos Volcánicos Endurecidos a REDES. Más de 30 Años de Historia Dr. Christian Prof. IRD Francia.
25 de Junio	11:30h (UTC-4)	Características Físicas y Químicas de los Suelos del Páramo del Antisana en el Norte del Ecuador Dr. Xavier Zapata, Dr. Sebastián Pérez, Dr. Marlon Galispá Escuela Politécnica Nacional, Ecuador.
09 de Julio	11:30h (UTC-4)	Análisis de la Degradación de Suelos en Ecuador y Propuestas de Tecnologías Conservacionistas para su Mitigación Dra. Ingrid Martínez, INIA, Chile.
23 de Julio	11:30h (UTC-4)	Propuesta de Indicadores de Calidad para Suelos Volcánicos de Chile y Ejemplos de su Variabilidad Especial Dra. Susana Véliz, Universidad Austral de Chile, Chile.
06 de Agosto	11:30h (UTC-4)	Suelos Volcánicos en Patagonia Occidental: Oportunidades y Desafíos en Investigación Dr. Felipe Zúñiga, Universidad de Aysén, Chile.
20 de Agosto	11:30h (UTC-4)	The Volcanic Soils of Iceland Hlynur Oskarsón, Agricultural University of Iceland, Iceland.
03 de Septiembre	11:30h (UTC-4)	Biogeoquímica en Andisoles Dr. Juan Carlos Loayza, Universidad Nacional de Colombia, Colombia.
24 de Septiembre	11:30h (UTC-4)	Mineral-Carbon interaction in marine antarctic soils. Fildes peninsula King George Island Dr. (c) Francisco Nájera, Universidad de Chile, Chile.
08 de Octubre	11:30h (UTC-4)	Captura de Carbono y Restauración de Suelos Volcánicos Endurecidos Dr. Jorge Echeverría, COLPOS, México.

Los títulos de las presentaciones pueden sufrir modificaciones posteriores.  
 Más información en [www.redevolcanicos.com](http://www.redevolcanicos.com)

Programme of the conference cycle  
 © Soil Science Society of Chile

#### 9<sup>th</sup> National Symposium on Control of Soil Degradation and Recovery

It was announced that because of the pandemic, the Spanish Soil Science Society's 9<sup>th</sup> National Symposium on Control of Soil Degradation and Recovery had to be postponed until further notice. Read more: <https://condegres.es/>

#### Mexican Soil Science Society

The Mexican Soil Science Society invited all interested people to participate in the "International Symposium on the Efficient Use of Nitrogen in Agriculture", which was held online on October 21, 2020. Read more: <http://www.smcmx.org/simposio-nitrogeno-2020>

**XIII REUNIÃO SUL BRASILEIRA DE CIÊNCIA DO SOLO**  
 CONHECIMENTO APLICADO AO CAMPO E À CIDADE  
 26 e 27 de Novembro | 2020 | Porto Alegre | RS  
**EVENTO ONLINE**

**INSCRIÇÕES ABERTAS**  
[www.rsbc2020.sbcs-nrs.org.br](http://www.rsbc2020.sbcs-nrs.org.br)

REALIZAÇÃO: Conselho Brasileiro de Solo (CIBS) / UFRGS SOLOS / UFRGS / INIA  
 ORGANIZAÇÃO: SBRS - Todos os direitos reservados.

© Soil Science Society of Brazil

**Simposio internacional sobre el Uso Eficiente de Nitrógeno en la Agricultura**

OCTUBRE 21 2020

5 Conferencias Magistrales  
 6 Ponencias

Envía tu resumen *in extenso* para memoria ISBN, antes del 11 de septiembre

Sede: Virtual, vía zoom  
 Informes: [smcmx.org](mailto:smcmx.org) / [anacleto.sosa@tamazula.tecmm.edu.mx](mailto:anacleto.sosa@tamazula.tecmm.edu.mx)

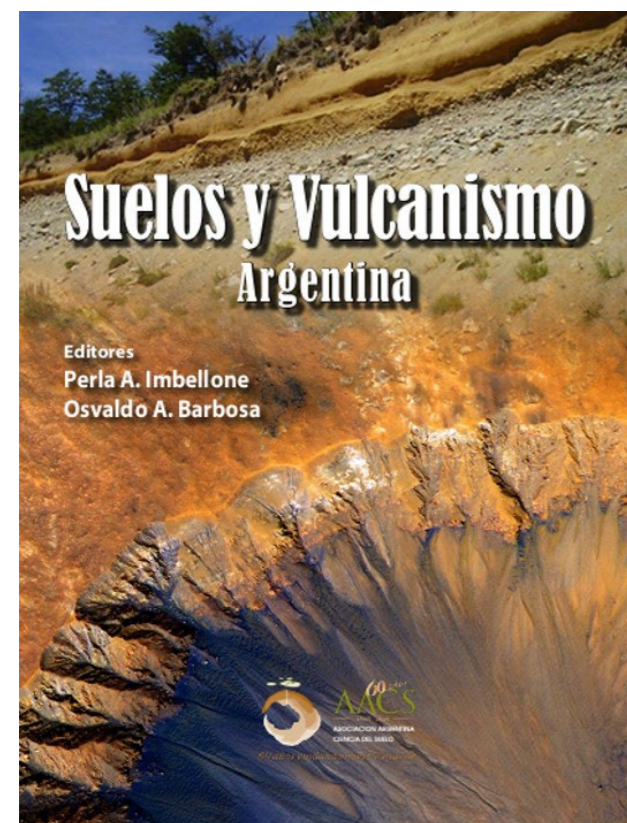
© Mexican Soil Science Society

## Soil Science Society of Brazil

On August 10, 2020, lectures on “Agriculture, sustainable systems and healthy food” were given via YouTube, organized by the UFRRJ. You can see and hear them at <https://www.youtube.com/c/CentrodeEstudiosAvançadosCEAUFRRJ>



© UFRRJ



Book front cover page

## Outlook: XXIII Latin-American Congress of Soil Sciences (XXII CLACS)

The XXIII Latin-American Congress of Soil Sciences (XXII CLACS) will be held on August 22 to 27, 2021, in Florianópolis, Brazil

## Argentine Association of Soil Science

### Suelos y vulcanismo. Argentina

By Dr. Guillermo A. Studdert, President Argentinean Soil Science Association

The Argentinean Soil Science Association (AACS) is pleased and proud to announce the release of a new book, which will be of interest to many soil scientists and researchers, teachers, environmentalists, consultants, policy makers, and producers. This release is part of the **celebration of the 60<sup>th</sup> anniversary of the AACS.**

The book is entitled **Suelos y Vulcanismo. Argentina** (*Soils and volcanism. Argentina*) and has been published online with the ISBN 978-987-46870-1-2. The URL to access and download the book is: [http://www.suelos.org.ar/sitio/wp-content/uploads/2020/11/Suelos\\_y\\_vulcanismo\\_v.pdf](http://www.suelos.org.ar/sitio/wp-content/uploads/2020/11/Suelos_y_vulcanismo_v.pdf).

The current state of knowledge about volcanic soils in Argentina and the influence of volcanic materials on the genesis of very many soils in the country was compiled by two AACS members: Perla A. Imbellone and Osvaldo A. Barbosa. Very many prestigious Argentinean soil scientists contributed their expertise and wisdom and the result is a book of 13 chapters on diverse aspects of volcanism and its relationship with soil formation in Argentina. To find out more about the book, see our video in Spanish: [https://www.youtube.com/watch?v=gkXaxzMDf0&feature=youtu.be&ab\\_channel=Asociaci%C3%B3nArgentinadelaCienciadelSuelo](https://www.youtube.com/watch?v=gkXaxzMDf0&feature=youtu.be&ab_channel=Asociaci%C3%B3nArgentinadelaCienciadelSuelo)



**60 años cuidando nuestros suelos**

Logo announcing the 60<sup>th</sup> anniversary of the AACS

The AACS believes that “Suelos y Vulcanismo. Argentina” (*Soils and volcanism. Argentina*) is an excellent tool for all those who care about soil and want to know more about how volcanos have contributed to soil genesis, not only in Argentina but also all over the world. The AACS invites you to download and enjoy “Suelos y Vulcanismo. Argentina” (*Soils and volcanism. Argentina*).

## National Science and Technology Award of the Republic of Chile for a Soil Science scientist

On August 21, Dr. Edmundo Acevedo Hinojosa, who is an Agronomist from the University of Chile, M.S. Soil Science, and Ph.D. Soil Science, was awarded the National Prize for Applied and Technological Sciences by the Ministry of Education of Chile.



Dr. Edmundo Acevedo Hinojosa  
(© Chilean Soil Science Society)

This award honours his great trajectory, and the international recognition of his work in areas such as the capture of carbon in soils to reduce carbon in the atmosphere to mitigate the effects of climate change, as well as on the adaptation of plants to drought, and about the crop's physiology for the genetic improvement of cereals. Since 2019, Dr. Acevedo has been Emeritus Professor of the Faculty of Agronomic Sciences of the University of Chile. He received numerous awards including the Award for teaching activity at the University of Chile (1977, 1983 and 1996), Award of the Agronomic Society of Chile (1984), Agronomic Merit Award from the Agronomic Society of Chile (1994), Award from the Chilean

Agronomic Society (2002), Carlos Porter Award from the Chilean College of Agricultural Engineers (2006), Rector Ruy Barbosa Academic Merit Medal at the University of Chile (2010), and “Espiga de Oro” Award from the College of Agricultural Engineers (2016).

The Latin-American Soil Science Society congratulates Dr. Edmundo Acevedo Hinojosa on this award that puts soil sciences on the national and Latin-American agendas.

## News from the German Soil Science Society

### Action “Soil of the Year” in Germany

By Prof. Dr. Karl-Heinz Feger (DBG, President), Dr. Gerhard Milbert (Spokesperson of the Board)

Since 2005, the “Soil of the Year” has been selected and presented by a Board consisting of the German Soil Science Society (DBG), the Bundesverband Boden (BVB) and the Ingenieurtechnischer Verband für Altlastenmanagement und Flächenrecycling (ITVA) under the joint umbrella of the “Platform for Action Soil Protection – ABo”. The action was jointly initiated by the BVB and DBG, lobbying for soil as a natural resource. Supported by the German Environment Agency (Umweltbundesamt – UBA) at Dessau, the action intends to raise awareness of soils and their ecological functions. The aim is to capture the interest of as many people as possible in order to foster the responsible handling, and thereby the protection of, this vital resource.

Read more: [https://www.bgr.bund.de/DE/Themen/Boden/Bodenbewusstsein/Boden\\_des\\_Jahres/boden\\_des\\_jahres\\_node.html](https://www.bgr.bund.de/DE/Themen/Boden/Bodenbewusstsein/Boden_des_Jahres/boden_des_jahres_node.html)

Each year the Board organizes the presentation of the respective “Soil of the Year” on the occasion of “World Soil Day”, normally in connection with a UBA conference in Berlin. The “Soil of the Year” is presented to the public by way of posters, flyers, web pages, exhibitions, brochures, newspaper articles, and numerous nationwide events during each respective year. Selected soils are described in detail with respect to their characteristics, formation, significance for the people, ecosystem services, and their regional distribution.

The “Soil of the Year 2020” was chosen as the “Wattboden – Intertidal Flat Soil”, hosted by the Free and Hanseatic City of Hamburg.

Read more: <https://www.hamburg.de/boden-des-jahres> and <https://tagderstadtaturhamburg.de/programm/info.html?id=4627>

The “Soil of the Year 2021” (Lössboden – Loess-derived Soil) was introduced on December 4, 2020 via an online ceremony, which took place at the Federal Institute for Geosciences and Natural Resources (BGR) in Hannover. The event was combined with a forum organized by the ABo, focusing on the questions: “How can we sustain the fertility of soils?” and “The soil in the tension between the diverse interest in use”. On December 3, the online conference “Plastics in the environment – A problem for our soils, or just false alarm?” organized by the *Kommision Bodenschutz beim UBA*.  
Read more: [https://www.bgr.bund.de/DE/Gemeinsames/Nachrichten/Aktuelles/2020/2020-10-30\\_bgr-stellt-boden-des-jahres-2021-vor.html](https://www.bgr.bund.de/DE/Gemeinsames/Nachrichten/Aktuelles/2020/2020-10-30_bgr-stellt-boden-des-jahres-2021-vor.html)



## Soil as a Sustainable Resource for the Bioeconomy – the BonaRes funding initiative

By Dr. Ute Wollschläger (BonaRes Centre & Helmholtz Centre for Environmental Research – UFZ)

The funding measure “Soil as a Sustainable Resource for the Bioeconomy – BonaRes” is an initiative of the German Federal Ministry of Education and Research (BMBF) under the “National Research Strategy BioEconomy 2030”. BonaRes is motivated by the need to safeguard essential functions of soil while maintaining and even increasing the productivity (“fertility”) of soils for biomass production. Several societal discussions have currently highlighted the importance of this goal, for instance, the European “New Green Deal”, including the “Farm to Fork Strategy”, or the German Science Year “BioEconomy”, the German Arable Farming Strategy 2035, and the German National Bioeconomy Strategy. Funding of BonaRes started in 2015 and is intended for a total duration of 9 years split into 3 funding periods of three years each. It provides a unique opportunity to establish an interdisciplinary community of soil and social scientists and the diverse spectrum of involved stakeholders (farmers, policy makers, civil society, etc.) aiming at sustainable soil management. This requires target-oriented coordination with respect to communication, scientific integration and technical support. In Module A, 10 research consortia, including 5 to 12 partners each, are funded. The projects cover a wide range of different aspects of how agricultural management (crop choices and rotations, tillage, fertilization, use of



Leaflets “Boden des Jahres 2020” and “Boden des Jahres 2021” issued by the “Kuratorium Boden des Jahres” and the “Behörde für Umwelt und Energie der Freien und Hansestadt Hamburg” and the Federal Institute for Geosciences and Natural Resources (BGR), respectively

amendments and pest management, spatial arrangements of crops) may alter soil functions through soil processes ranging from biological processes and nutrient dynamics to mechanical aspects of soil compaction. Each of the projects also includes research on the socio-economic assessment and governance of soil functions and management practices. The BonaRes Centre for Soil Research is the coordinating project, having the dedicated mission to support the various actors towards a systemic approach on soil functioning embedded in our terrestrial environment and in our society. The BonaRes Centre provides essential services to the scientific community and is intended to substantially foster and stimulate scientific progress: It coordinates the scientific exchange between all projects funded within the BonaRes initiative and beyond and organizes outreach activities and public relations work. The BonaRes Centre implements a soil-focused data repository on research data and those from long-term experiments. Also, a literature database with special focus on soil processes and soil functions is being developed. All this, together with the scientific progress within the BonaRes program is made available through a web-portal ([www.bonares.de](http://www.bonares.de)). A special scientific challenge lies in the consolidation of existing and newly generated knowledge on soil processes and their complex interactions. One major focus



BonaRes Centre (© Ute Wollschläger)

is on understanding the significance of biotic soil factors interacting within a physically and chemically highly heterogeneous environment. In collaboration with the Module A projects, the BonaRes Centre develops science-based model and assessment tools that are in the position to predict the impact of soil management on soil functions considering the local conditions in terms of soil type, land use and climate. The aspired systemic approach needs to also consider its interaction with the social and economic system, since the social and economic context of farming has an obvious impact on the natural environment. Soil management strategies designed to optimize natural soil functions are assessed against the background of farm level and societal targets including resource use efficiency, ecosystem services and sustainable development goals (SDGs). In addition to this, respective governance instruments are developed. In this way, an important contribution to the sustainable balancing of interests between economy and ecology is expected.

Read more: [www.bonares.de](http://www.bonares.de)

## Creating soil awareness with Citizen Science: “Expedition Soil” in Germany

By Luise Ohmann, Dr. Susanne Döhler (UFZ)

Soils have an immense ecological and economic value. Unfortunately, there is still a lack of soil awareness in the general public because soil is still underrepresented in public discourse on environmental issues such as the protection of climate, water or biodiversity. A good way to bring citizens closer to soil and to involve them in the scientific learning process is Citizen Science. However, the complexity of soil and pedological methods is a real challenge in this context. This may be one reason why Citizen Science is hardly ever used in soil research. In 2021, we aim to change this with the nationwide “Expedition Soil” project, in which citizens of all age groups can participate. They will be encouraged to investigate self-chosen sites using pedological methods that have been adapted to the requirements of Citizen Science. The central method of the “Expedition Soil” is the internationally known Tea Bag Index (TBI), which has been successfully tested in Citizen Science projects to determine the rate of decomposition of organic matter in soils (see [teatime4science.org](http://teatime4science.org)). In order to evaluate the TBI results, to show relationships between decomposition and soil properties and to better understand the soil condition, additional information on land use, pH and soil texture will be collected. The results will be fed into a database and participants will be involved in the data evaluation via the project website.

The overall goal is to create soil awareness and appreciation for the soil as an essential resource. From a scientific point of view, the initiative aims at evaluating to which extent Citizen Science can be applied in soil science and whether the data obtained from 5,000 sites can be further used scientifically, e.g. for soil function assessment and soil modelling. The collected data on the TBI will be shared with [teatime4science](#) and all data will be provided open access after the end of the project.

The project is part of the [German Science Year 2020|21 Bio-Economy](#) and is funded by the German Federal Ministry of Education and Research (BMBF). The [BonaRes](#) Centre for Soil Research and the Department of Soil System Science of the [Helmholtz Centre for Environmental Research \(UFZ\)](#) are scientific partners of the project.

BonaRes "Expedition Soil" will take place in Germany in summer 2021 (© Expedition Erdreich/BMBF)



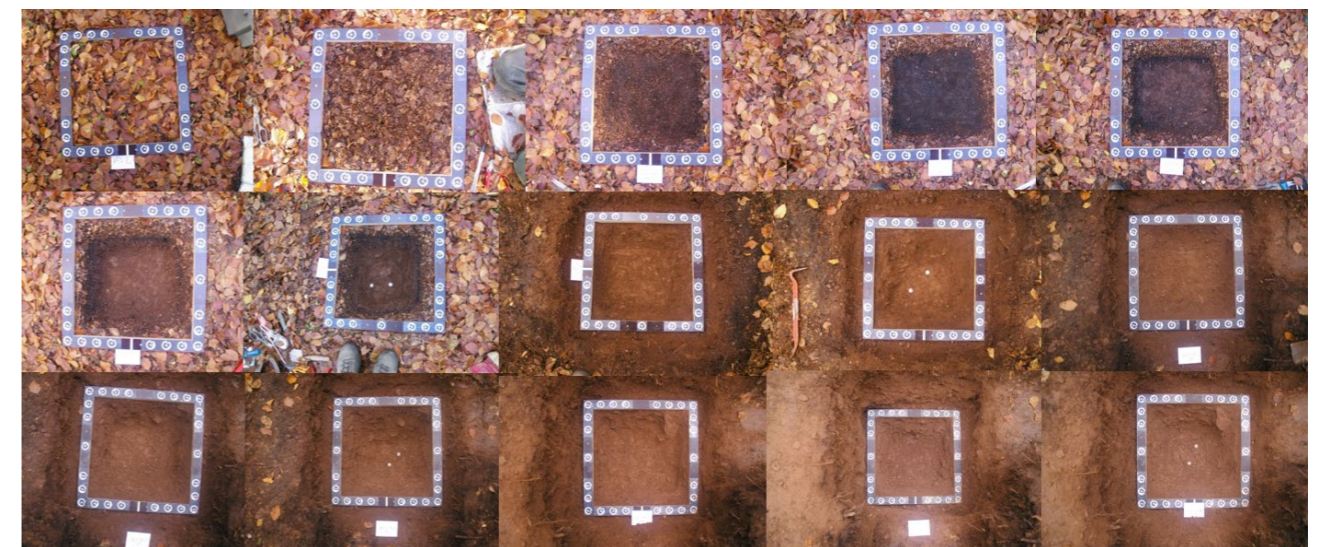
Burying tea bags for determining decomposition rate with the Tea-Bag-Index (© Christian Schneider/UFZ)



### Ecosystem nutrition: Forest Strategies for limited Phosphorus Resources

Forests produce biomass based on an impressively low amount of phosphorus. Yet, basic principles of P nutrition and dynamics in forest ecosystems are still unknown and recent results obtained from forest monitoring indicate that human impact (N-deposition, biomass removal, climate change, etc.) might disturb forests' P nutrition. In combination, these observations highlight how little we know about nutrition at the level of ecosystems. The Priority Program "Ecosystem nutrition" funded by the German Research Foundation (DFG) and the Swiss National Science Foundation (SNSF) had been initiated in 2013 to fill this research gap. We investigate the mechanisms and interactions at the level of ecosystems causing this highly efficient use of P in forest ecosystems. The overall hypotheses tested are that P supply by forest soils controls the mechanisms involved in P cycling and the resulting P use efficiency of forest ecosystems. Over the last six years, more than 100 scientists from soil, plant and forest sciences as well as from geo- and environmental sciences working in Germany and Switzerland have addressed the ecological dimension of ecosystem nutrition of European beech (*Fagus sylvatica*)

ecosystems as part of this program. The analyses of five beech forest ecosystems on silicate rock representing a P geosequence with different parent materials and thus different total P stocks (160–900 g P m<sup>-2</sup>; down to 1 m soil depth) were adjusted to test this hypothesis and linked to additional experimental approaches used by individual projects. Three beech forests at carbonate sites were analyzed to test if processes identified for acid silicate sites can be transferred. In general, the results are in agreement with the assumption of supply-controlled P-nutrition strategies of beech forest ecosystems. All data indicate that P depletion of litter and high rooting intensity foster tight P recycling at P poor parent materials. Dominant mechanisms of P cycling changed continuously along the P gradient, implying adjustment of plant–microorganism–soil feedbacks in beech forest ecosystems to the P status of soils thereby achieving an enormous adaptability to P supply. Tight P re-cycling from organic matter is impaired by high N input and extreme climatic events which can thus deteriorate P nutrition especially at sites with low P supply. Novel findings of the SPP 1685 research program will be presented at the closing conference "Ecosystem Nutrition 2021", planned for June 2021. All external colleagues who wish to present and discuss their new findings in the field of ecosystem nutrition are most welcome to attend this conference. See homepage for further information. Contact: Prof. Dr. Friederike Lang, Chair of Soil Ecology, University of Freiburg, Speaker of PP 1685.



Joint soil sampling in the frame of the research program "Ecosystem Nutrition" was conducted based on a quantitative soil pit approach, which allowed stock calculations down to 1 m soil depth even at sites with very high stone contents. Using photogrammetry the volume of the sampled soil was quantified (© Jaane Krüger)

Further information and literature:

Read more: [www.ecosystem-nutrition.uni-freiburg.de](http://www.ecosystem-nutrition.uni-freiburg.de)

**Lang et al. (2016):** Phosphorus in forest ecosystems: New insights from an ecosystem nutrition perspective.

– *Journal of Plant Nutrition and Soil Science* 179, 129-135.

doi:10.1002/jpln.201500541

**Lang et al. (2017):** Soil phosphorus supply controls P nutrition strategies of beech forest ecosystems in Central Europe. – *Biogeochemistry* 136, 5-29. doi:10.1007/s10533-017-0375-0



Nitrogen and P application for the NxP experiment conducted at three silicate sites with European beech (*Fagus sylvatica*) (© Jaane Krüger)

# Awards

## Awards in Soil Micromorphology

### Young Micromorphology Publication Awards (YMPA) 2021

Commission 1.1 – Soil Morphology and Micromorphology will award the Young Micromorphologist's Publication Award every 2 years: at each International Working Meeting on Soil Micromorphology, and at each World Congress of Soil Science. Considering that the planned IWMSM2020 meeting in Krakow has been postponed to 2021 due to the COVID19 emergency, the award has also been postponed accordingly. It is planned to have two close YMPA awards (IWMSM-2021 and WCSS-2022).

The purpose of this award is to encourage and promote the use of soil micromorphology by young scientists. The award will be given to one, or more, young scientist who has published research in the preceding 4 years, that is an outstanding contribution to the principles, methodology, or application of micromorphology. The author must be less than 35 years old at the time of acceptance of the publication, and he/she must be the first author. The paper must be published in an international journal with wide distribution, but not necessarily a scientific journal. The award is not restricted to papers published in the English language only. The Award Committee is composed of Fabio Scarciglia, Irina Kovda, Peter Kühn and Chair (Fabio Terribile) and Vice-chair (Richard Heck) of Commission 1.1.

Applicants should submit the following: (1) a pdf file of the paper(s) to be considered for the award, (2) proof of age for eligibility (ex: photocopy of ID or other document with birthdate), and (3) a cover letter explaining why they should be considered for this award. Letters of support from senior micromorphologists, outlining the qualities of the publication(s) are also welcome. Applications are due December 31, 2020. Send by email to: Prof. Fabio Terribile [fabio.terribile@unina.it](mailto:fabio.terribile@unina.it)

### Kubiëna Medal 2022

The Kubiëna Medal award is conferred by the IUSS Soil Morphology and Micromorphology Commission (originally Subcommission B – ISSS) to commemorate Walter L Kubiëna for his distinguished contribution to soil micromorphology. This IUSS medal is awarded for outstanding and sustained contribution in the discipline of soil micromorphology. Read more: <https://www.iuss.org/about-the-iuss/awards-prizes/medals/kubiena-medal/>

### How to apply

The nominees may be proposed by institutions, societies, commissions and working groups of the IUSS, and individuals. Members of the Award committee are not eligible to make nominations or second nominations. The proposal for nomination must be submitted to the Award committee chair, and should include:

1. Statement of key achievements and career highlights of the nominee (1 page)
2. Curriculum vitae detailing career history and publication record of the nominee
3. Name of proposer and seconder for the nominee
4. Any other relevant information in support of the nominee
5. Full address and contact details of the nominee

Applications are due March 31, 2021. Send by email applications to: Prof. Fabio Terribile [fabio.terribile@unina.it](mailto:fabio.terribile@unina.it)

## IUSS Past President Rattan Lal to receive the 2020 World Food Prize

The IUSS is very proud that its current Past President Prof. Dr. Rattan Lal has received the 2020 World Food Prize for developing and mainstreaming a soil-centric approach to increasing food production that restores and conserves natural resources and mitigates climate change. This prize is not only a global recognition for an extraordinary soil scientist, but also an important acknowledgement of the critical role that soil science plays in global food security.

Over his career spanning more than five decades and four continents, Prof. Dr. Lal has promoted innovative soil-saving techniques benefiting the livelihoods of more than 500 million smallholder farmers, improving the food and nutritional security of more than two billion people and saving hundreds of millions of hectares of natural tropical ecosystems. He serves as Distinguished University Professor of Soil Science and founding Director of the Carbon Management and Sequestration Center at The Ohio State University (OSU).

Read more: [https://www.worldfoodprize.org/en/laureates/2020\\_lal/](https://www.worldfoodprize.org/en/laureates/2020_lal/), and [https://phys.org/news/2020-06-ohio-state-university-soil-professor.html?fbclid=IwAR298RgD1cB\\_EObxORjEsGMrH4G5JiOni5jdNWQs80grtu6lQWROr7G0CM](https://phys.org/news/2020-06-ohio-state-university-soil-professor.html?fbclid=IwAR298RgD1cB_EObxORjEsGMrH4G5JiOni5jdNWQs80grtu6lQWROr7G0CM)

# Other IUSS News

## IUSS represented at FAO GSP Eighth General Assembly

On June 3-5, 2020 the Eighth Global Soil Partnership Plenary Assembly was held online with the participation of the IUSS President elect Dr. Laura Bertha Reyes Sánchez as its official representative.

Read more: <http://www.fao.org/global-soil-partnership/about/plenary-assembly/eight-session-2020/en/>

## IUSS Past President Rattan Lal speaker at FAO Webinar 'RECSOIL: recarbonization of global soils'

To discuss the feasibility of moving the SOC agenda into action and how RECSOIL – Recarbonization of global soils – can contribute to soil sustainability, this webinar was held on June 17 with the participation of the IUSS Past President Dr. Rattan Lal as the first speaker. The Webinar presentations and recording are available.

Read more: <http://www.fao.org/global-soil-partnership/resources/events/detail/en/c/1277609/>

## Pedometron Newsletter No. 45

The latest issue of Pedometron is available. This issue contains the regular items for you to enjoy, including the Pedometrics Comic, Poetry and Pedomathemagica, 'What's new in R' and several conference reports. An important contribution in this issue is the 'Pedometricians Digital Mind–Mindfulness & Pedometrics' written by Sabine Grunwald. Not only is this an interesting and creative read, it may actually help you to find some peace of mind in these stressful days.

Read more: <http://pedometrics.org/issue-45-of-pedometron/>

## Newsletter of Commission 1.6

The June issue of the Paleopedology Newsletter is now available on the IUSS website. Among others, it contains information on the new setting for the INQUA Paleopedology Groups, an article on Paleosols of the Old Red Continent by Susan Marriott & Paul Wright, and a contribution on Paleosols in Tibet: A window into geological and anthropogenic past (written by Fei Yang) and a tribute to Alain Ruellan.

Read more: <https://www.iuss.org/newsroom/newsletters/paleopedology-newsletters-commission-16/>

## Commission 1.1 Newsletter online

Commission 1.1. Soil Morphology & Micromorphology's Newsletter No. 26 August 2020 is available online. Among many interesting articles, the "pills of wisdom" section contains an invited contribution from Prof. Ahmet Mermut, a prominent soil scientist and micromorphologist, former Chair of Division 1 and Honorary Member of the IUSS. This contribution is important because it both provides (i) a call to further integrate soil morphology within Commission 1.1, and (ii) an engaging perspective about the value of soil micromorphology.

Read more: <https://www.iuss.org/newsroom/newsletters/soil-morphology-and-micromorphology-newsletters-commission-11/>

## Tenets of Regenerative Agriculture in Response to the COVID-19 Pandemic

Quarterly Viewpoint from the desk of Rattan Lal, Past President, International Union of Soil Sciences. The COVID-19 pandemic has disrupted the traditional food production and supply chains and aggravated the global problem of food and nutritional insecurity. The disruption caused by the COVID-19 pandemic is an important cause for a paradigm shift and reemphasizes the need to focus on strengthening of local food production systems and enhancing their resilience against any future disruptions caused by political or natural perturbations. The global disruption in all aspects of the food supply chain has also enhanced the importance of using the practices of regenerative agriculture (RA), or the soil-centric approach to innovative farming. Therefore, basic tenets must be adhered to for enhancing the adoption and adaptation of RA under site-specific conditions to mitigate the adverse effects of the COVID-19 pandemic.

Read more: [https://www.iuss.org/index.php?rex\\_media\\_type=download&rex\\_media\\_file=2020\\_july\\_quarterly\\_viewpoint\\_iuss.pdf](https://www.iuss.org/index.php?rex_media_type=download&rex_media_file=2020_july_quarterly_viewpoint_iuss.pdf)

## IUSS Viewpoint Fall 2020 : 'Seizing the moment'

In this viewpoint, Prof. Rattan Lal, Past President of the International Union of Soil Sciences, points out that now is the time for soil scientists to **seize the moment** and work with policymakers for translating science into action for addressing issues of local, regional and global significance.

He encourages soil scientists to take action as policymakers are looking up to the soil science community for guidance on the theme of re-carbonization of the biosphere in general and world soils in particular with focus on farming carbon and its commoditization as a saleable farm commodity that can be traded in a market.

Read more: <https://www.iuss.org/newsroom/viewpoints/>

## Invitation to take part in soil repository/archive survey

The U.S. National Academies of Sciences, Engineering, and Medicine's Board of Agriculture and National Resources, in collaboration with the U.S. National Committee for the International Union of Soil Sciences, is organizing a workshop entitled **Exploring a Dynamic Soil Information System** to be held in March 2021 (<https://www.nationalacademies.org/our-work/exploring-a-dynamic-soil-information-system-a-workshop>).

As part of this work, we are constructing a **list of physical soils repositories/soil archives in the world**.

Please contribute to this effort by completing this quick survey for **each** of the soil repositories/archives with which you are familiar at <https://www.surveygizmo.com/s3/5786076/Soil-Repository-Survey>. The list of physical sample repositories/archives will be made openly accessible on the workshop's website when complete and published in the workshop's proceedings.

## News from the IUSS Working Group WRB

For our students, we made a video explaining soil description according to the FAO Guidelines and classification according to WRB.

Read more: <https://www.boku.wzw.tum.de/index.php?id=wrb-teaching-material&L=0>

## New WRB video

Some weeks ago, the IUSS Working Group WRB published a video explaining soil description according to the FAO Guidelines and classification according to WRB. To this video in English, they have now added a video in Spanish.

You find both videos here, along with some teaching material: <https://www.boku.wzw.tum.de/index.php?id=wrb-teaching-material&L=0>

## Congratulations – Finalist for the 2020 edX Prize

The Massive Open Online Course (MOOC) on tropical soils is among the 10 finalists for the EdX prize 2020 for 'Exceptional Contributions in Online Teaching and Learning!' Kindly find the official release here: <https://blog.edx.org>. It would be great if you could share the news to your network to attract even more learners to the course and get them enthusiastic about the tropics, soils and sustainable management.

The MOOC is now in its 3<sup>rd</sup> run on EdX.org, you can access the current run here: <https://www.edx.org/course/as-above-so-below-an-introduction-to-soils-ecology-2>

The development of this MOOC was financially supported by the IUSS Stimulus Fund.

# Amendment to Report of Division 1: Soils in Space und Time in Bulletin 136

Division 1 deals with the soil body in the landscape context. The commissions and working groups coordinate, and harmonize research activities on observation, genesis, classification and mapping of the soil body and landscapes and communicate results to the soil science community, soil users and the general public.

## Amendment to Bulletin 136: Report of Crysol Working Group (CWG)

### Short overview of recent activities

In continuation of the international and regional conferences convened by the International Permafrost Association, the 5<sup>th</sup> European Conference on Permafrost (EUCOP 2018) was held in Chamonix-Mont Blanc, France, 23<sup>rd</sup> June – 1<sup>st</sup> July 2018. The conference aimed at covering all rel-



Above: Megan Balks (University of Waikato, Hamilton, New Zealand) at the EUCOP-5, Chamonix Mont-Blanc  
Below: Members of Soil Cryology laboratory (IPCBPSS RAS, Pushchino, Russia) at the EUCOP-5, Chamonix Mont-Blanc (both: © Aleksei Lupachev).

evant aspects of permafrost research, engineering and outreach on a global and regional level. Cryogenic soils were widely discussed and CWG members presented more than ten soil-related talks within different sessions. Highlight of the program was a 1-day local excursion to the summit of mount Brévent, featuring a breath-taking panorama of the Mont Blanc massif. At this event, junior and senior scientists shared their knowledge and passion about alpine mountain permafrost research in the French Alps.



Sergei Goryachkin  
(Institute of Geography RAS)  
at the International conference  
“Solving the Puzzles from Cryosphere”,  
Pushchino, Russia  
(© Aleksei Lupachev)

Mid-April 2019, the Institute of Physicochemical and Biological Problems in Soil Science held the international conference “Solving the Puzzles from Cryosphere” in Pushchino, Russia. The event gathered 160 participants from scores of scientific and educational institutions from five countries. The main subjects of discussion were the permafrost-affected soils in the Arctic and Antarctic region. The reports of the cryopedological session, which was co-chaired by Alexey Lupachev (IPCBPSS RAS) and Andrei Dolgikh (IG RAS), covered different aspects of genesis, properties and ecological functioning of the permafrost-affected soils.



Attendees of the International conference “Solving the Puzzles from Cryosphere”, Pushchino, Russia (© Andrei Abramov)

The Cryosol Working Group (CWG) had an active presence with two sessions at SouthCOP (the first Southern Hemisphere Conference on Permafrost, an International Permafrost Association Regional Permafrost meeting) held in Queenstown, New Zealand from December 4-14, 2019. The chair of the Cryosol Working Group, Alexey Lupachev (pictured above) was an invited plenary speaker at SouthCOP speaking about the genesis, diversity and ecological functions of soils in coastal Antarctica. The programme included a session on Cryogenic Soils of the Arctic and Antarctic chaired by Alexey Lupachev and Elanor Jones, and a session on Cryosols and permafrost at high altitudes in Asia chaired by Fujun Niu and Sebastian Pereira. Pre, post and mid conference field trips took participants to explore the Southern Alps as well as the rain forests of the West Coast of South Island and the high dry mountain areas of inland Otago.



Aleksei Lupachev (IPCBPSS RAS, Pushchino, Russia) at the first Southern Hemisphere Conference on Permafrost, Queenstown, New Zealand (© Yuri Dvornikov)



Field excursion at SouthCOP – the first Southern Hemisphere Conference on Permafrost, Queenstown, New Zealand (© Megan Balks)

In January 2020 two jubilees that are significant for cryopedologists (as mainly polar scientists) were held in the Russian Federation – the 200 years anniversary of Russian Antarctic exploration expedition by Lazarev and Bellingshausen and the 100 years anniversary of the foundation of the Arctic and Antarctic Research Institute in St.-Peters-

burg. The international Scientific Conference “Comprehensive research of the natural environment of the Arctic and Antarctica” was dedicated to both of them and CWG was represented with a summarizing talk on Antarctic soils by Elya Zazovskaya (IG RAS).



Chairs of the Organizing Committee of the International Scientific Conference “Comprehensive research of the natural environment of the Arctic and Antarctica” dedicated to the 100 years anniversary of Arctic and Antarctic Research Institute foundation in St.-Petersburg (© AARI press office)



Elya Zazovskaya (Institute of Geography RAS) at the International Scientific Conference “Comprehensive research of the natural environment of the Arctic and Antarctica” (© AARI press office)

Due to the current COVID-19 epidemiological situation nearly all of the conferences planned for 2020, where CWG was expected to be represented (12<sup>th</sup> International Conference on Permafrost (Lanzhou, China); 4<sup>th</sup> Vinogradov Conference “Hydrology: from learning to world view” (St.-Petersburg, Russia) and many others) had to be postponed. Some of them (e.g. EGU General Assembly 2020 (Vienna, Austria) were conducted in an online format.

By Alexey Lupachev, [Personal website](#)  
*IUSS Cryosol Working Group, Chair*  
*PhD, Senior Researcher, Soil Cryology Lab*  
*Institute of Physical, Chemical and Biological Issues*  
*in Soil Science, Russian Academy of Sciences*

**Literature:**

- Filip Hrbáček et al. (2018). Active layer monitoring in Antarctica: an overview of results from 2006 to 2015, *Polar Geography*, DOI: 10.1080/1088937X.2017.1420105
- Abramov A. et al. Two Decades of Active Layer Thickness Monitoring of North-East Asia. *Polar Geography*, 2019. DOI: 10.1080/1088937X.2019.1648581
- A. V. Lupachev, S. V. Gubin, and M. I. Gerasimova. Problems of the Cryogenic Soils’ Diagnostics in the Recent Russian Soil Classification System. *Eurasian Soil Science*, 2019, Vol. 52, No. 10, pp. 1170–1174. DOI: 10.1134/S1064229319080106
- A. Lupachev, E. Abakumov, S. Goryachkin and A. Vermeeva. Soil cover of the Fildes Peninsula (King-George Island, West Antarctica) // *Catena*\_ 193, 2020 (104613). <https://doi.org/10.1016/j.catena.2020.104613>





# International Decade of Soils (2015-2024)

## World Soil Day 2019

### FAO: Join us for WORLD SOIL DAY 2020

#### World Soil Day Global Ceremony

4 December 2020, 13:00-14:30 CET

The WSD ceremony was held virtually on 4 December with the participation of Mr Qu Dongyu – FAO Director-General, Ms Elizabeth Maruma Mrema (tbc) – Executive Secretary of the Convention on Biological Diversity and thousands of soil fans. IUSS President Elect Laura Bertha Reyes Sanchez participated in the celebration, too.

The winners of the Glinka prize and King Bhumibol WSD award as well as the IUSS – FAO-GSP Children's book contest on Soil Biodiversity was announced during the celebration.

Register for this event at: [https://fao.zoom.us/webinar/register/WN\\_3qBU60pKRgWJCTLbpLFV2Q](https://fao.zoom.us/webinar/register/WN_3qBU60pKRgWJCTLbpLFV2Q)

#### Glinka World Soil Prize

Looking for the new soil hero? The winner of the Glinka World Soil Prize was announced during the official WSD celebrations on 4 December 2020.

Read more: <http://www.fao.org/world-soil-day/glinka-world-soil-prize/en/>

#### King Bhumibol WSD Award

The call for application is now closed and the winner was announced on 4 December 2020.

Read more: <http://www.fao.org/world-soil-day/wsd-award/en/>

#### IUSS – FAO-GSP Children's book contest on Soil Biodiversity

You are interested how the best scientific children's books on Soil Biodiversity look like?

The winners were announced during the official WSD celebrations on 4 December 2020.

Read more: <https://www.iuss.org/international-decade-of-soils/>

#### Pin your event on the map!

If you haven't already done so, register your event on the World Soil Day map! Don't forget to send us the photos of your event and share them on your social media channels using the hashtags #WorldSoilDay and #SoilBiodiversity, if you would like to be featured in the official photogallery!

Register your event here: <http://www.fao.org/world-soil-day/worldwide-events/add-events/en/>

#### Campaign material

Are you planning a social media campaign, a community-building activity, a workshop, or a virtual event? Whether you are a government, private business, NGO, journalist, city, or an individual, we need you to spread the WSD call for actions.

On the Trello board and in the WSD work space, you will find a range of multimedia content in several languages to support your WSD event.

Access the campaign material here: <http://www.fao.org/world-soil-day/campaign-materials/en/>

#### Video animation

Do you need a 5-minute animation to start your World Soil Day event? This animation introduces the main drivers, key functions, and challenges to combat soil biodiversity loss, indicating possible ways to protect and enhance soil biodiversity as a nature-based solution.

Watch the video *Keep soil alive, protect soil biodiversity*: [https://www.youtube.com/watch?v=hbdsHOND\\_gw&feature=youtu.be](https://www.youtube.com/watch?v=hbdsHOND_gw&feature=youtu.be)

This video and several others are available in many different languages for you to download at the FAO website in the section campaign materials.

#### Photo Contest

Akshara Samarasuriya from Sri Lanka and Eric Palesvky from Israel have won the contest with their entries "Secret colony of termites under the soil" and "Soil predatory mite feeds on the nematode".

Read more: <http://www.fao.org/about/meetings/soil-biodiversity-symposium/contest/en/>

All articles above are from the Global Soil Partnership (GSP) Special announcement No. 28, 18 November 2020

## SSA / NZSSS Virtual World Soil Day Event

4 December 2020, Virtual event

The special online event was to celebrate World Soil Day and featured the Virtual Soil Judging Competition prize-giving.

Download flyer: <https://www.soilscienceaustralia.org.au/wp-content/uploads/2020/11/Virtual-Soil-Judging-Competition-2020-Flyer-1.pdf>

## U.S. World Soil Day event: A Diverse Soil Science Future

December 4, 2020, virtual event from 2-5 pm EST

The National Academies of Science, Engineering, and Medicine's U.S. National Committee for Soil Sciences, in collaboration with the Soil Science Society of America, held this virtual event on December 4, 2020 from 2-5 pm EST to celebrate World Soil Day 2020. This online meeting focused on two deeply interrelated topics: the future of soil science and diversity and inclusion in the soil science community. Each session will include a keynote and short presentations with a Q&A session followed by a discussion at the end.

Link to the agenda: [https://www.iuss.org/media/usnc\\_agenda\\_112320\\_people-1.pdf](https://www.iuss.org/media/usnc_agenda_112320_people-1.pdf)

Website: <https://www.nationalacademies.org/event/12-04-2020/a-diverse-soil-science-future>

## The IUSS GOES TO SCHOOL project

On December 5, 2020, in the frame of the celebration for World Soil Day, the project "THE IUSS GOES TO SCHOOL" was initiated to inform children and young people about the importance of the soil resource in our lives and the urgency to protect it.

In the beginning of December 2020 a new sub-site was created on the IUSS website, in which recent activities of this initiative are described: <https://www.iuss.org/international-decade-of-soils/iuss-goes-to-school/>.

As main communication platform a special website for children was created at <http://www.iuss-goes-to-school.org.mx/>. The IUSS is creating this space for all children around the world and inviting them to take care of the Soils of their Nation and teach their parents and teachers to do so.

### Celebrating World Soil Day 2020, the educative Project 'THE IUSS GOES TO SCHOOL'

- offers a virtual space to all children around the world inviting them to take care of the soils of their nations: [www.iuss-goes-to-school.org.mx](http://www.iuss-goes-to-school.org.mx) #TheSoilsLife,
- presents the children from Poland with the **Book Chrońmy gleby**, the Polish version of the Book "Living in the Soil", which was created in collaboration with soil science societies from Spain and Poland: <https://www.secs.com.es/wp-content/uploads/2020/11/ChrońmyGleby-Polish-2020.pdf> #GlebaToŻycie,

- offers the **Book Vermicomposting for schoolchildren** to all children speaking Spanish. #TheSoilsLife, English: <http://edafoeduca.es/wp-content/uploads/2020/11/Vermicomposting-Kids-IUSS-SECS-UPV.pdf> Spanish: <http://edafoeduca.es/wp-content/uploads/2020/11/Vermicompostaje-Escolares-IUSS-SECS-UPV.pdf>
- gives to all children speaking English and Spanish the **Book 'Soil Erosion'**. #TheSoilsLife, English: [http://edafoeduca.es/wp-content/uploads/2020/11/Erosion-Kids-IUSS-SECS-UPV\\_IUSS-GOES-TO-THE-SCHOOL.pdf](http://edafoeduca.es/wp-content/uploads/2020/11/Erosion-Kids-IUSS-SECS-UPV_IUSS-GOES-TO-THE-SCHOOL.pdf) Spanish: [http://edafoeduca.es/wp-content/uploads/2020/11/Erosion-Escolares-IUSS-SECS-UPV\\_LA-IUSS-VA-A-LA-ESCUELA.pdf](http://edafoeduca.es/wp-content/uploads/2020/11/Erosion-Escolares-IUSS-SECS-UPV_LA-IUSS-VA-A-LA-ESCUELA.pdf)
- gives all children speaking English and Spanish the **Book 'Perfilito, a very lucky boy'**. #TheSoilsLife, English: [http://www.iuss-goes-to-school.org.mx/wp-content/uploads/i\\_upload/PERFILITO%20a%20very%20lucky%20Boy.pdf](http://www.iuss-goes-to-school.org.mx/wp-content/uploads/i_upload/PERFILITO%20a%20very%20lucky%20Boy.pdf) Spanish: [http://www.iuss-goes-to-school.org.mx/wp-content/uploads/i\\_upload/PERFILITO%20un%20chico%20con%20mucha%20suerte.pdf](http://www.iuss-goes-to-school.org.mx/wp-content/uploads/i_upload/PERFILITO%20un%20chico%20con%20mucha%20suerte.pdf)

# Stop Soil Degradation and the IUSS educative project to achieve it

Within the framework of its activities during the International Decade of Soils (2015-2024) you may remember "Thus are the soils of my Nation". The project is expected to be fully launched in 2021. Below please find an account of recent activities.

## Mexican Soil Science Society

As part of its national educative project "Thus are the Soils of my Nation" and with the HashTag "#TheSoilsLife", the Mexican Soil Science Society (SMCS) launched its National Network for Soil Science Education and Teaching, and its LOGO.

Through this action, the Mexican Soil Science Society links its project "Thus are the soils of my Nation" with the educational project "THE IUSS GOES TO THE SCHOOL" to work on joint actions.

## Integral Plan for sustainability from UNAM

Within the framework of the "International Decade of Soils 2015-2024" of the IUSS and the FAO GSP, the National Autonomous University of Mexico (UNAM) called on all national actors to form the National Alliance for the soil in 2015.

Now, as part of this National Alliance, with the participation of UNAM's soil scientists, the "INTEGRAL PLAN FOR SUSTAINABILITY FROM UNAM" is promoted in response to the IDS, GSP and SDGs.



Logo of the educative project 'TheSoilsLife' (© SMCS and 'Thus are the Soils of my Nation' educative project)

## Argentine Association of Soil Science

As part of its national educative project: "Thus are the Soils of my Nation", the Scientific Commission on Soil Education of the Argentine Association of Soil Science join into "THE IUSS GOES TO THE SCHOOL" activities to produce didactical educative material for children and young people through its Argentine Network for Soil Science Education and Teaching.

Within the framework of the National Day of Soil Conservation 2020 the Argentine Association of Soil Science (AACS) invited girls and boys to participate with artistic works (see the announcement below). The objective of the event was to commemorate July 7, National and International Day of Soil Conservation and promote among children the importance of care and good use of soils.

Contact: [conservaciondesuelosyagua.aacs@gmail.com](mailto:conservaciondesuelosyagua.aacs@gmail.com)

**Día Nacional de la Conservación del suelo | 7 de Julio**

**Convocatoria artística para niños de todas las edades**

**Pautas para las contribuciones**

- Contribuciones de tipo artístico libre con interpretación sobre la conservación de los suelos.
- Cada obra debe incluir el nombre de la escuela y la localidad.
- El soporte de envío de las obras será en fotografía o video\*.
- A fin de que los niños se capaciten y se inspiren en sus obras, se comparte material educativo. Se sugiere a docentes y padres disfrutarlos con discusiones pedagógicas que ayuden a los niños a entender la importancia para toda la sociedad del cuidado de nuestros suelos.

**Material y videos educativos sobre suelos: <https://acortar.link/cuidemoselsuelo>**

**Consultas y envíos de obras: [conservaciondesuelosyagua.aacs@gmail.com](mailto:conservaciondesuelosyagua.aacs@gmail.com)**

Con las contribuciones recibidas se realizará un video conmemorando los 60 años de la AACS y valorando el aporte de las nuevas generaciones.

\*Siendo los autores menores de edad, podrán aparecer sus rostros en la fotografía mostrando las obras, sólo si los padres o tutores envían nota firmada que autorice publicar la fotografía de los niños. La autorización podrá ser enviada como foto legible o escaneo de la nota. Solicitar modelo de nota por email.

**Jornada Nacional de Conservación de Suelos 2020**

Invitation of the Argentine Association of Soil Science (AACS) to children to submit works of art in the framework of the National Day of Soil Conservation 2020 (© AACS)

# IUSS – FAO-GSP Children’s book contest on Soil Biodiversity

IUSS and FAO-GSP together launched a scientific children’s book contest on Soil Biodiversity in the framework of WSD 2020. The motto is “Keep soil alive, protect soil biodiversity”. FAO, IUSS and GSP invite all those interested in soil and biodiversity – soil scientists, researchers, professors, teachers, classrooms, individual students, soil practitioners, designers, photographers or experts from any professional background – to submit their freestyle book proposal by 10 November 2020. In the submission email, author(s) had to fill out and submit the mandatory Registration form. The winner stood to receive a cash prize of 1 000 USD, with the second and third prize receiving a cash prize of 500 USD and 250 USD respectively from IUSS and FAO’s GSP. The winners were announced on World Soil Day, 5 December 2020 (see below).

Read more: <https://www.iuss.org/international-decade-of-soils/>

Flyer: [https://www.iuss.org/media/gsp\\_iuss\\_booklet\\_contest.jpg](https://www.iuss.org/media/gsp_iuss_booklet_contest.jpg)

## Winners of the IUSS-FAO-GSP Children’s Book Contest on Soil Biodiversity

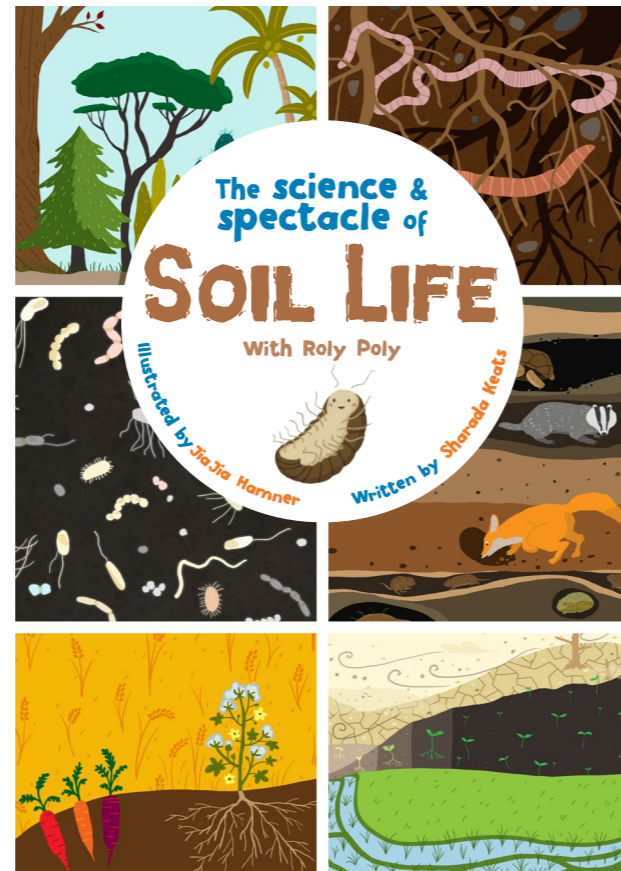
In the framework of World Soil Day 2020 IUSS, FAO and GSP are pleased to announce the winners of the Children’s Book Contest on Soil Biodiversity:

**1<sup>st</sup> place: ‘The science & spectacle of Soil Life by Roly Poly**, created by JiaJia Hamner (freelance, United States) and Sharada Keats (Global Alliance for Improved Nutrition, United Kingdom).

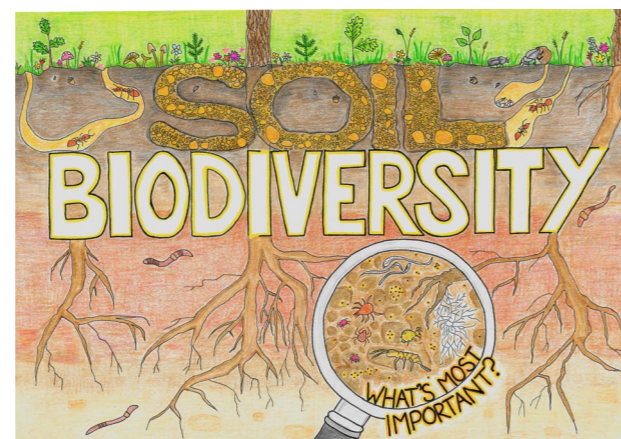
**Download the book:** [The home of life. I am a living soil](#) (42 MB)

**2<sup>nd</sup> place: ‘Soil biodiversity. What’s most important?’** by Katelyn Lutes and Benjamin Ellert (Agriculture & Agri-Food Canada).

**Download the book:** [Soil biodiversity. What’s most important?](#) (134 MB)



1<sup>st</sup> place: ‘The science & spectacle of Soil Life by Roly Poly’

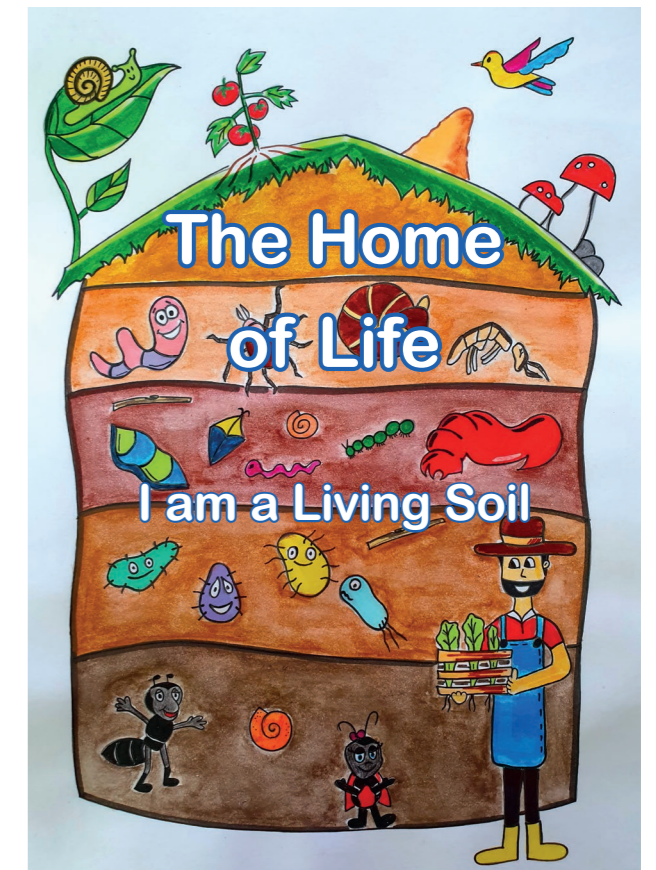


2<sup>nd</sup> place: place: ‘Soil biodiversity. What’s most important?’

**3<sup>rd</sup> place: ‘The home of life. I am a living soil**, by Claudio Lucas Capeche, Julia Franco Stuchi, Milena Pessoa Pagliacci, Fabrício de Martino, Alexandre Abrantes Cotta de Mello, Antonio Augusto Bianchi, Maya Stuchi Tedjini, Kelita Carlos Andrade (Embrapa Solos, Brazil).

**Download the book:** [The home of life. I am a living soil](#) (36 MB)

All the first ten classified and awarded books as well as the mentions of honour can be found at <http://www.fao.org/world-soil-day/bookcontest/contest-results/en/>. IUSS, FAO and GSP received over 100 books from 60 countries for the contest. Launched in the run-up to WSD2020, the book contest on soil biodiversity gave visibility to the importance of soil organisms and raised awareness on the urgency of protecting soil biodiversity. Congratulations to the winners and finalists and a big thank you to all participants!



3<sup>rd</sup> place: place: ‘The home of life. I am a living soil’

# Soil Book Series

## Soil Sciences Education: Global Concepts and Teaching

Edited by Takashi Kosaki, Rattan Lal, Laura Bertha Reyes Sánchez. Published in the CATENA series GeoEcology essays in December 2020; 198 pages, 96 figures, 28 tables, 17 x 24 cm, US-ISBN: 1-59326-272-8, ISBN 978-3-510-65523-6. The book can be ordered from the IUSS Secretariat ([iuss@umweltbundesamt.at](mailto:iuss@umweltbundesamt.at)) at the price of EUR 29.90 (plus shipping costs); reduced price for IUSS members: EUR 25.00 (plus shipping costs).

Who knows, knows of, or even has awareness of soils? If many more people knew about soils, the land surface, which soil, water, flora, fauna and ourselves inhabit, our planet could not have suffered from the variety of global environmental problems that it suffers from today. The International Union of Soil Sciences has identified education and public awareness of soils and soil sciences as one of the most important goals of the International Decade of Soils 2015-2024, which is reflected in this book.

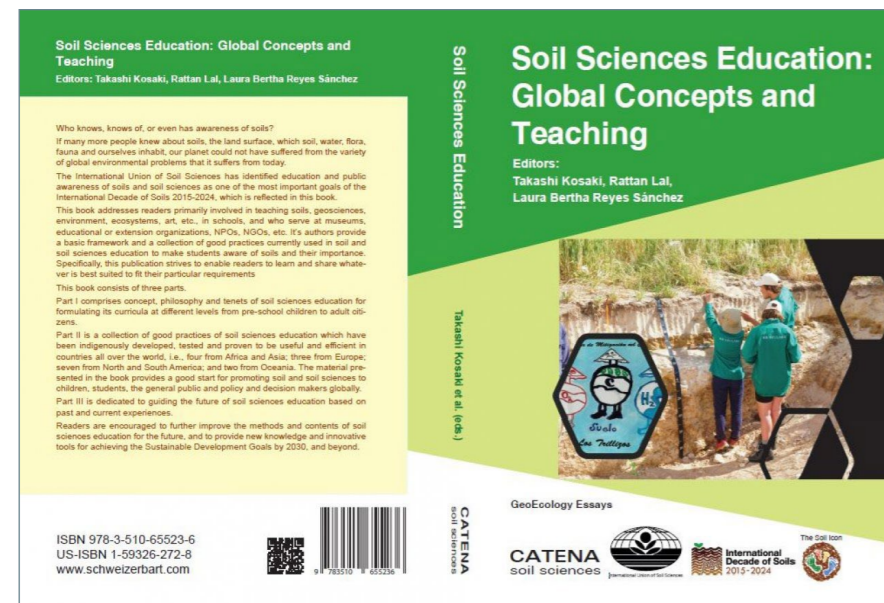
This book addresses readers primarily involved in teaching soils, geosciences, environment, ecosystems, art, etc., in schools, and who serve at museums, educational or extension organizations, NPOs, NGOs, etc. Its authors provide a basic framework and a collection of good practices currently used in soil and soil sciences education to

make students aware of soils and their importance. Specifically, this publication strives to enable readers to learn and share whatever is best suited to fit their particular requirements.

This book consists of three parts. *Part I* comprises concept, philosophy and tenets of soil sciences education for formulating its curricula at different levels from pre-school children to adult citizens. *Part II* is a collection of good practices of soil sciences education which have been indigenously developed, tested and proven to be useful and efficient in countries all over the world, i.e., four from Africa and Asia; three from Europe; seven from North and South America; and two from Oceania. The material presented in the book provides a good start for promoting soil and soil sciences to children, students, the general public and policy and decision makers globally.

*Part III* is dedicated to guiding the future of soil sciences education based on past and current experiences. Readers are encouraged to further improve the methods and contents of soil sciences education for the future, and to provide new knowledge and innovative tools for achieving the Sustainable Development Goals by 2030, and beyond.

Read more: <http://www.schweizerbart.com/9783510655236>



Cover of the new book in the IUSS Soil book series under the umbrella of the International Decade of Soils 2015-2024

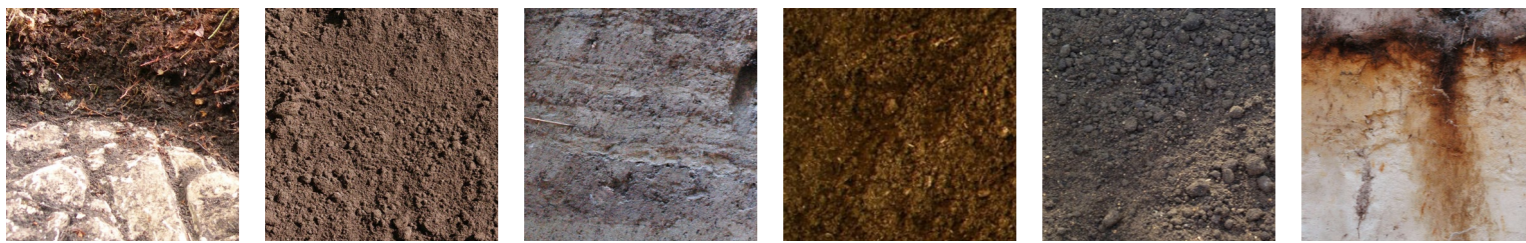
# Soilutions

Following a poster contest 'Soilutions' to find new solutions for soil problems, which the IUSS launched in 2019, it was decided to use the best 12 posters plus a cover poster to produce a 'Soilutions' calendar. The calendar was made available for download on the IUSS website. Printed copies will be made available in the beginning of 2021 and can be ordered from [iuss@umweltbundesamt.at](mailto:iuss@umweltbundesamt.at).

Read more: <https://www.iuss.org/international-decade-of-soils/>



Winning poster of IUSS Poster Contest 'Soilutions' to solve soil degradation problems (© Hernández Huerta Aldo Alfredo)



# Conference and Meeting Reports

**Due to the Corona pandemic and ensuing travel restrictions** most of the events planned for 2020 had to be cancelled or postponed. For the complete list of upcoming events, please see the corresponding section in this report or consult the IUSS website: <https://www.iuss.org/meetings-events/>.

## School of Soil Biodiversity and Indication, XII Cycle: Soil Management and Quality in the Era of Sustainable Agriculture Intensification

Organized by SISS (Italian Society of Soil Science) and Università Cattolica del Sacro Cuore. Piacenza, 16-18 June 2020.

Report prepared by Prof. Edoardo Puglisi (School Chair) and Dott. Eren Taskin (School Secretary)

The whole school was organized online with remote sessions due to the COVID-19 outbreak. It focused on the relationship between soil management and quality, with particular attention to the role of soil biodiversity in maintaining and achieving Sustainable Agriculture Intensification (SAI). The challenging concept of SAI is that farmers aim to produce more food from the same land, while at the same time reducing environmental impact and providing social, economic and environmental benefits, the three main pillars of sustainability. Soils play a pivotal role in the SAI challenge, as an increase in future agricultural production without facing depletion of natural resources in the short and long term is possible only through maximization of soil fertility. The school addressed

this complex issue by providing a series of lectures, videos and training activities which were aimed at an understanding of the role played by soil biodiversity in sustaining fertility, potential advantages of reduced or no tillage, exploitation of novel biostimulants in agriculture to reduce its dependence on chemical fertilizers and pesticides, assessment of the impact of pesticides on soil biodiversity and quality, and agronomical practices that can be implemented to maintain and increase SOM. The aim was to make all participants familiar with the key concepts of soil biodiversity and fertility, and with possible solutions for achieving the strategic goal of SAI. The total number of participants who attended the school was limited to 20 in order to facilitate both inter-participant and participant-lecturer communications. The school secretariat received more than 40 requests for participation from members of various institutions all over the world from India to Nigeria, Turkey, Italy, England and Colombia. The commission therefore had to use the following selection criteria to reduce the number

of participants to 20: (i) backgrounds and career levels (ii) inclusion of international participants and (iii) gender parity. The commission admitted a total number of 20 participants who were mostly at MSc or PhD candidate level, plus one laboratory technician. About 40% of the school attendees were international participants, and gender equality was perfectly achieved. The school schedule included sessions dedicated to interaction in order to ensure active communication among the participants themselves and between the participants and lecturers. Participants were divided into four working groups related to the main themes of the school, namely (i) agronomy, (ii) soil microbiology, (iii) ecotoxicology and bioindicators, and (iv) metabolomics. The last day of the school was completely dedicated to group work activities supervised by school lecturers in the morning and presentations of the groups' activities in the afternoon. Anonymous feedback forms sent to the participants after the school's last day indicated, when returned to the organisers, that the participants were satisfied, showing overall that the school's activities had received very good reviews.

## Public Lectures of the School

The school opened on its first and second day with lectures that were open to the public. At their peak, the numbers of participants in both lectures were about 70. The profile of the participants attending these lectures can be described as follows: MSc and PhD candidates, university professors and officials from public/private institutions related to agriculture and environment, mostly Italian but a significant number of participants coming also from various other countries. Public lectures were recorded and made available online at the SISS YouTube channel: <https://www.youtube.com/channel/UC8p2FI2B9IJSkDIUM3I64pw>

Public Lecture 1:  
Tuesday, 16 June 2020 – 14:30-15:30

### THE IMPORTANCE OF SCALE FOR STUDYING SOIL MICROBIAL DIVERSITY

Christoph Tebbe, Thünen Institute, Germany  
[christoph.tebbe@thuenen.de](mailto:christoph.tebbe@thuenen.de)  
[https://www.youtube.com/watch?v=k2PmquX8O\\_g](https://www.youtube.com/watch?v=k2PmquX8O_g)  
Professor Tebbe presented the results of his very recent research, demonstrating that (i) microbial diversity is structured by interactions between micro-organisms and soil particle surfaces, (ii) soil aggregates represent spatial entities which reflect microbial community interactions much better than analyses of the conventionally used gram-scale, and (iii) that there are several bacterial taxa which are characteristic of land-use in Europe, irrespective of the geographical region. Taken together, these studies underline the strength of cultivation-independent, nucleic acid-based microbial community analyses, and they also point to the further challenges of linking this structural diversity to functional parameters, as they are most relevant for understanding, protecting and stimulating soil microbial ecosystem services for the future.

Public Lecture 2:  
Wednesday, 17 June 2020 – 09:00-10:00

### EXPLOITING NATIVE SOIL BIODIVERSITY TO PROMOTE CROP PRODUCTIVITY AND SUSTAINABILITY

Stefano Mocali, CREA, Italy [stefano.mocali@crea.gov.it](mailto:stefano.mocali@crea.gov.it)  
<https://www.youtube.com/watch?v=lvo1cxPKqDI>  
Prof. Mocali presented his research in a public lecture in which he pointed out once again the crucial role of soil biodiversity in sustainable agriculture and its role in the restoration of natural ecosystem functioning and soil properties, which is known to be a long-term process, dependent upon the time it takes to restore connections between different components of the community. His presentation included a case study on the use of microbial inocula to enhance native soil biodiversity and functioning, which is an intriguing strategy for the promotion of sustainable agriculture intensification.



Cover slide of the presentation given by Stefano Mocali

## Lectures of the School

The following lectures were organized for and attended only by the 20 selected participants. These private lectures aimed to provide the participants with up-to-date information and to stimulate critical thinking about the issues related to the school's main theme "Soil Management and Quality in The Era of Sustainable Agriculture Intensification".

### **SOIL ORGANIC MATTER MANAGEMENT AND DYNAMICS IN THE ERA OF AGRICULTURAL SUSTAINABLE INTENSIFICATION**

G. Renella, [giancarlo.renella@unipd.it](mailto:giancarlo.renella@unipd.it),

University of Padua, Italy

C. Marzadori, [giancarlo.renella@unipd.it](mailto:giancarlo.renella@unipd.it),

University of Bologna, Italy

The lectures illustrated the biochemical mechanisms linking microbial metabolic activity and SOM dynamics as fundamental to agricultural sustainable intensification, and showed how these soil properties are affected by soil management, and how correct management of the physiological link between SMB and SOM may improve nutrient availability and soil C turnover in terrestrial and agricultural soils.

### **EFFECTS OF NO-TILL ON AGROECOSYSTEM SERVICES: YIELD, CARBON SEQUESTRATION, WATER REGULATION, GHG EMISSIONS, SOIL BIODIVERSITY**

Vincenzo Tabaglio [vincenzo.tabaglio@unicatt.it](mailto:vincenzo.tabaglio@unicatt.it),

Andrea Fiorini [andrea.fiorini@unicatt.it](mailto:andrea.fiorini@unicatt.it),

Università Cattolica del Sacro Cuore, Italy

Cristina Menta, [cristina.menta@unipr.it](mailto:cristina.menta@unipr.it),

University of Parma, Italy

This lecture aimed to show how agricultural management practices lead to qualitative and quantitative alterations of plant litter inputs and soil microhabitats in terms of both soil physical and chemical qualities, and thus impact on soil quality and biodiversity from a soil fauna perspective. They are important because of the role they play in maintaining soil quality and health, and in providing ecosystem services. During this lecture, a 10-minute virtual visit was paid to the no-till experimental fields at the CERZOO research station of Università Cattolica del Sacro Cuore. Issues of reduced tillage practices, cover crops, efficient water and nutrient management were also addressed.

### **THE CENTRAL DOGMA AT THE ROOT OF SOIL FERTILITY: OMICS TECHNOLOGIES TO ASSESS PLANTS, SOIL AND MICROBES INTERACTIONS AT THE RHIZOSPHERE LEVEL**

Edoardo Puglisi, [edoardo.puglisi@unicatt.it](mailto:edoardo.puglisi@unicatt.it),

Luigi Lucini, [luigi.lucini@unicatt.it](mailto:luigi.lucini@unicatt.it),

Università Cattolica del Sacro Cuore, Italy.

This lecture showed how the so-called "omics" technologies can shed light on the complex interactions that take place at the rhizosphere level between microorganisms, soil constituents and plants and how soil microorganisms react to stressors, changes in agronomical practices and ecological conditions at plant level. Several case studies dealing with the modulation of root metabolic processes in response to environmental factors, including the biostimulant effects of microorganisms, were also presented.

### **School Secretariat**

Eren Taskin

### **Local Organizing Committee**

Edoardo Puglisi (Chair), Cristina Menta (Co-chair),

Giancarlo Renella (Co-chair), Vincenzo Tabaglio,

Luigi Lucini, Andrea Fiorini, Eren Taskin

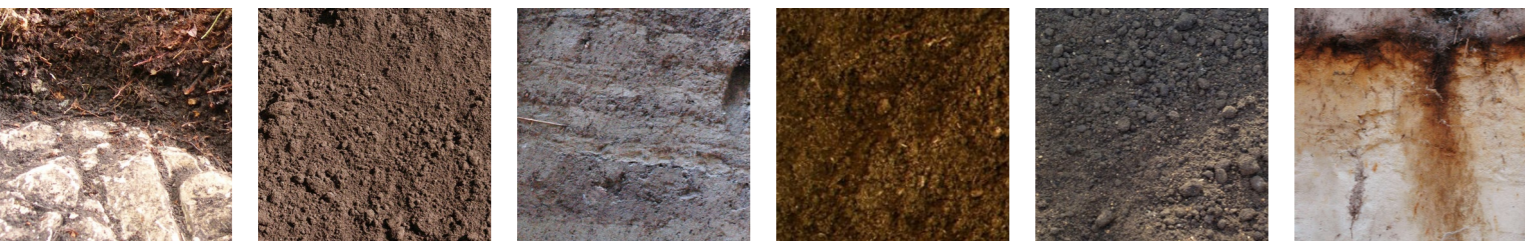
### **Scientific Committee**

Paola Adamo, Edoardo Puglisi, Stefano Mocali,

Cristina Menta, Giancarlo Renella, Claudio Marzadori,

Vincenzo Tabaglio, Luigi Lucini





# IUSS Alerts

June 2019 – November 2020

## Information for and from the global soil science community

**IUSS Alerts** were e-mailed to more than 2,700 people in over 100 countries. Please forward the IUSS Alerts to your friends and colleagues. Send information for IUSS Alerts to [iuss@umweltbundesamt.at](mailto:iuss@umweltbundesamt.at). Below are still relevant contributions that appeared in the IUSS Alerts between June 2020 and November 2020.

### Contribute to the Special Issue on “Global Gridded Soil Information Based on Machine Learning”

A Special Issue on “Global Gridded Soil Information Based on Machine Learning” is open for contributions in Remote Sensing (IF: 4.118, ISSN 2072-4292). The deadline for manuscript submission is 31 December 2021.

Read more: [https://www.mdpi.com/journal/remotesensing/special\\_issues/Gridded\\_Soil\\_Information\\_Machine\\_Learning](https://www.mdpi.com/journal/remotesensing/special_issues/Gridded_Soil_Information_Machine_Learning)

### Call for nomination of the best deserving researchers – Philippe Duchaufour Medal and the Soil System Sciences Outstanding Early Career Scientists Award 2021

The Philippe Duchaufour medal is awarded every year for distinguished contributions to soil science. Detailed information on the selection process and how to propose a candidate is available on the Awards & Medals section of the EGU website. Nominations for all the medals and awards must be submitted via an online nomination form (<https://www.egu.eu/awards-medals/nominations/>).

The deadline for submissions was 30 June 2020.

Read more: <https://www.egu.eu/awards-medals/proposal-and-selection-of-candidates/>

### Report, recording & presentations | Webinar on ‘Soil Biodiversity, a nature-based solution?’

The webinar on soil biodiversity is a great preparation for the *World Soil Day* celebration on 5<sup>th</sup> December 2020 and the *Global Symposium on Soil Biodiversity* (GSOBI20) to be held in February 2021. The key objective of the symposium is to fill some critical knowledge gaps and promote discussion to find a solution to live in harmony with nature, and ultimately, achieve the SDGs through the conservation and sustainable use of soil biodiversity. The Webinar *Presentations, Recording, and Report* are now available.

Presentations: <http://www.fao.org/global-soil-partnership/resources/events/detail/en/c/1275159/>

Listen to the recording: <https://www.youtube.com/watch?v=Hb6C69FG-xk&feature=youtu.be>  
Download the report: <http://www.fao.org/3/ca9533en/ca9533en.pdf>

Finally, in the framework of the GSOBI20, the **photo & video contest** is launched, get involved now, the submission date is 30 June 2020.

Read more: <http://www.fao.org/about/meetings/soil-biodiversity-symposium/contest/en/>

### ISC statement on combating systemic racism and other forms of discrimination in science

In the wake of the death of George Floyd and the global response it has ignited, we recognize the need for critical reflection and concerted, impactful action to eradicate racism and other forms of injustice in our own scientific communities and the systems that support them.

The International Science Council has published a statement on combating systemic racism and other forms of discrimination and we will continue to reflect on concrete steps aimed at correcting systemic discrimination in science during the coming weeks. We kindly encourage you to read the statement and to consider sharing and disseminating it among your networks.

Read more: <https://council.science/current/news/statement-on-combating-systemic-racism-and-other-forms-of-discrimination/>

### Recent ISC and CFRS Statements

In addition to the above mentioned *ISC statement on combating systemic racism and other forms of discrimination*, the ISC Committee for Freedom and Responsibility in Science (CFRS), which aims to promote and address freedom and responsibility of science issues at the global level, released a statement this week on ethical responsibilities of scientists at a time of global threat: <https://council.science/current/press/cfrs-statement-15-june-2020/>.

We kindly encourage you to read the statements and to consider sharing and disseminating them.

## Falling Walls Breakthroughs of the Year 2020

*Falling Walls* – an international platform for leaders from the worlds of science, business, politics, the arts and society – is calling for *nominations for the most recent breakthroughs* in ten categories, from life sciences to science management, to highlight breakthrough thinking from all over the world. Due to the COVID-19 pandemic, *Falling Walls* has shifted from a series of meetings and one conference with a limited number of speakers and topics to a global showcase that gathers, celebrates and discusses a much broader set of breakthroughs in science and society. With this new format, they seek to contribute to the post-COVID-19 agenda through dedicated sessions by sharing thrilling research for a few minutes per day over several weeks, with a global digital meeting on 9 November 2020.

Deadline for nominations: 1 September 2020

Read more: <https://falling-walls.com/breakthroughyear/nominate/>

## Low biomass production limits cover crop effects on soils

Cover crop impacts on soil properties depends on cover crop productivity. Planting cover crops early and in a diverse mix of species could be an option to boost biomass production and enhance benefits to soils. However, the impacts of early planting and species mixes on soil properties are not well understood. A new article in *Agronomy Journal* investigates how broadcasting cover crops pre-harvest or drilling post-harvest affected biomass production and soil properties after four years. Cover crops were cereal rye, a mix of rye, legumes, and brassicas, and a no-cover-crop control.

Read more: <https://access.onlinelibrary.wiley.com/doi/10.1002/csan.20106>

[From: ASA-CSSA-SSSA Science Policy Report: 24 June 2020]

## Climate-friendly almond farmers coax life from drying Spanish soil

Almond farmers in Southern Spain are increasingly utilizing regenerative practices in the hopes of restoring soil health while also increasing profits. While global markets have suffered in recent months, an almond marketing company from the region Almedrehesa hopes consumers will become more receptive to ideas like regenerative agriculture due to the current disruptions to the global food chain.

Read more: <https://www.reuters.com/article/us-climate-change-farming-spain/climate-friendly-almond-farmers-coax-life-from-drying-spanish-soil-idUSKBN2331JR>  
[From: ASA-CSSA-SSSA Science Policy Report: 10 June 2020]

## No-till agriculture increases crop yields, environmental gains over long haul

A study in *Global Change Biology* clearly demonstrates significant benefit to the environment and to crop yield for farmers practicing no-till versus tilled agriculture consistently over many years. The Michigan State University scientists' work demonstrates the importance of long-term research for obtaining meaningful results, especially on the outcomes of management changes that can be slow to develop and to detect, such as the attributes of cropping systems on soil structure and organic matter. Using data from the National Science Foundation Kellogg Biological Station Long-Term Ecological Research site to study how land use intensity affects agriculture and environment, researchers explored the long-term agricultural and environmental effects of converting agriculture management practices from tilled to no-till.

Read more: [https://www.nsf.gov/discoveries/disc\\_summ.jsp?cntn\\_id=300631&org=NSF&from=news](https://www.nsf.gov/discoveries/disc_summ.jsp?cntn_id=300631&org=NSF&from=news)

[From: ASA-CSSA-SSSA Science Policy Report: 27 May 2020]

## Modeling gas diffusion in aggregated soils

Agricultural soils contribute to 16% of total greenhouse gas emissions, particularly nitrous oxide (N<sub>2</sub>O). Migration of gases in the agricultural subsurface and emission across the soil-atmosphere interface is primarily controlled by diffusion and explained by soil gas diffusivity. Since experimental determination of soil gas diffusivity can be expensive and time consuming, predictive models are commonly used to estimate diffusivity from easy-to-measure soil properties like soil total porosity and soil air content. New research in the *Soil Science Society of America Journal* introduces a descriptive soil gas diffusivity model.

Read more: <https://access.onlinelibrary.wiley.com/doi/10.1002/csan.20102>

[From: ASA-CSSA-SSSA Science Policy Report: 27 May 2020]

## What the f\*\*\* is biodiversity? – Episode 1: Soil biodiversity with Dr Valerie Behan-Pelletier

In this episode of *What the f\*\*\* is biodiversity*, Ann and Val talk about the incredibly biodiverse world of soil and how it connects to the ground above that we as humans inhabit. We rely so much on the work of many different arthropods, like soil mites, since these teeny-tiny creatures are an integral part of the soil food web. Wherever there is food or vegetation, there are soil mites. And without the vital work they do, the quality of our food would seriously decline.

<https://www.listennotes.com/podcasts/what-the-f-is/episode-1-soil-biodiversity-5wqsAOjdmUn/>

## Researchers make greenhouse gas emissions from tropical peat soils with higher accuracy

Tropical peatlands store lots of carbon and have an important role in the global carbon cycles. Tropical peatlands account for about 5 to 10% of global soil carbon. Peatland C stocks have been significantly depleted due to climate change and human disturbances. Clearing of forests and draining of peatlands have accelerated the emission of CO<sub>2</sub> from peats. This has been the major talking point at numerous international forums aiming to combat climate change. Recently, FAO published a report on peatland mapping and monitoring in which one of the recommendations is to update the IPCC emission factors of greenhouse gas (GHG) emissions for peatlands.

[https://phys.org/news/2020-05-greenhouse-gas-emissions-tropical-peat.html?fbclid=IwAR0QVW\\_27RysdodRG86xvintjaceNyX28R7BN0WmisJYijmee6cCeJzuhRO](https://phys.org/news/2020-05-greenhouse-gas-emissions-tropical-peat.html?fbclid=IwAR0QVW_27RysdodRG86xvintjaceNyX28R7BN0WmisJYijmee6cCeJzuhRO)

## Global soil science research collaboration in the 21<sup>st</sup> century: Time to end helicopter research

Global soil science research collaboration is essential to understand soil and its role in global ecosystem functioning. In particular, collaboration between developed and less-developed countries can generate new knowledge and provide capacity building. However, this collaboration is not always equal. 'Helicopter research' in soil science describes the situation where scientists from wealthier nations collect soil samples from less-developed countries, take the samples back to their country for analysis and publish the results with little involvement of local researchers. This article briefly reviews colonial science and helicopter research from different fields including soil science, and highlights the negative effects. The

argument that local scientists do not fulfil the criteria of being an author is often used as an excuse for not establishing true collaboration. Finally, this paper offers suggestions to achieve equal research partnerships and ground helicopter research. Soil science can provide leadership in this issue which is less-discussed in cognate fields.

<https://www.sciencedirect.com/science/article/pii/S0016706120305036?fbclid=IwAR1Ac0sklrFEwDKS18sWr8npO3JMB5vmhZ9d6aDDERTyLOjzT93HqEy1mDE>

## Glinka World Soil Prize 2020

Nominations for the Glinka World Soil Prize 2020 are officially open. The prize consists of a USD 15,000 check and a medal. The nomination is open to individuals or organizations that are dynamic change-makers dedicated to solving soil degradation at all levels. If you think you are an eligible candidate, propose your nomination to the GSP country focal point or the closest GSP partner (see list: <http://www.fao.org/global-soil-partnership/partners/en/>).

Submit the *nomination form* by 30 September 2020 to [GSP-Secretariat@fao.org](mailto:GSP-Secretariat@fao.org).

Read more: <http://www.fao.org/world-soil-day/glinka-world-soil-prize/en/>

[From: Global Soil Partnership newsletter No 28, 9 July 2020]

## King Bhumibol WSD Award 2020

If you have organized an outstanding WSD event for the 2019 campaign 'Stop soil erosion, Save our future', don't miss the chance to win the King Bhumibol World Soil Day Award, edition 2020. The award consists of a medal, a USD 15 000 check and a trip to Thailand. All participants from last year's campaign can apply.

The call for application should be submitted by 30 September 2020 to GSP Secretariat together with an informative dossier containing proof of success.

Read more: <http://www.fao.org/world-soil-day/world-soil-day-award/en>

[From: Global Soil Partnership newsletter No 28, 9 July 2020]

## The 8<sup>th</sup> GSP Plenary Assembly, a digital success

The Plenary was held from 3 to 5 June 2020 in a virtual format on the Zoom platform. All official documents were made available online together with the condensed agenda and presentations.

Read more: <http://www.fao.org/global-soil-partnership/about/plenary-assembly/eight-session-2020/en/>  
[From: Global Soil Partnership newsletter No 28, 9 July 2020]

### Towards the GSSmap

To support the sustainable management of Salt-Affected Soils (SAS), the FAO-GSP is coordinating the development of the Global Soil Salinity Map (GSSmap). This follows a country-driven approach whereby countries will be able to generate their national soil salinity maps. A very intense capacity development programme involved experts from Near East and North Africa, Eurasia, Asia, Latin America and the Caribbean, Africa, and the Pacific. [Read more: http://www.fao.org/global-soil-partnership/resources/highlights/detail/en/c/1269946/](http://www.fao.org/global-soil-partnership/resources/highlights/detail/en/c/1269946/)  
[From: Global Soil Partnership newsletter No 28, 9 July 2020]

### Contribute to SoILEX

The GSP is currently developing an innovative tool – SoILEX – to raise awareness on soil legislation and facilitate the search for national legal instruments and the exchange of experiences in soil governance among countries. Support the creation of the online platform by answering the SoILEX questionnaire and join the new Working Group on soil legislation, now! [Read more: http://www.fao.org/global-soil-partnership/resources/highlights/detail/en/c/1274929/](http://www.fao.org/global-soil-partnership/resources/highlights/detail/en/c/1274929/)  
[From: Global Soil Partnership newsletter No 28, 9 July 2020]

### GLOSOLAN breakthrough

Institutions and experts from around the world are joining efforts thanks to the Global Soil Laboratory Network (GLOSOLAN) in using spectroscopy technology to support decision-making on soil protection, improve agricultural productivity, reverse land degradation, improve soil assessment, and increase international collaboration. [Read more: http://www.fao.org/fao-stories/article/en/c/1271807/?utm\\_content=bufferc9892&utm\\_medium=social&utm\\_source=twitter.com&utm\\_campaign=buffer](http://www.fao.org/fao-stories/article/en/c/1271807/?utm_content=bufferc9892&utm_medium=social&utm_source=twitter.com&utm_campaign=buffer)  
[From: Global Soil Partnership newsletter No 28, 9 July 2020]

### Progress on soil import legislation

The SIMPLE database – a new FAO tool – has just been launched to promote and facilitate the execution of international inter-laboratory comparisons while simplify-

ing the shipment of soil samples between countries for research purposes. It is the result of a global effort led by GLOSOLAN. [Read more: http://www.fao.org/global-soil-partnership/resources/highlights/detail/en/c/1295934/](http://www.fao.org/global-soil-partnership/resources/highlights/detail/en/c/1295934/)  
[From: Global Soil Partnership newsletter No 28, 9 July 2020]

### Video on soil biodiversity

Discover how soil biodiversity is a key provider of ecosystem services and one of the main nature-based solutions to face all the current global challenges. Watch the video: [https://www.youtube.com/watch?v=hbdshOnd\\_gw&feature=youtu.be](https://www.youtube.com/watch?v=hbdshOnd_gw&feature=youtu.be)  
[From: Global Soil Partnership newsletter No 28, 9 July 2020]

### WSD post-campaign

World Soil Day (WSD) 2019 'Stop soil erosion, Save our future' was celebrated in 100 countries with over 560 events. Media coverage reached 653 million. BBC, Al Jazeera, the New York Times covered the theme "Stop soil erosion, Save our future". On Twitter #WorldSoilDay reached 400 million users. Discover the highlights of the WSD in video: <https://www.youtube.com/watch?v=K2WCfg7jfpw&feature=youtu.be>  
[Read more: http://www.fao.org/3/ca8233en/ca8233en.pdf](http://www.fao.org/3/ca8233en/ca8233en.pdf)  
[From: Global Soil Partnership newsletter No 28, 9 July 2020]

### Webinar: RECSOIL

The GSP webinar 'Recarbonization of global soils' held on 17 June 2020, with 1452 participants from 136 countries, discussed the importance of RECSOIL, as a new tool that supports national and regional greenhouse gas mitigation and carbon sequestration initiatives by incentivizing SSM through tradable carbon credits. The [presentations](#), [recording](#) and the [report](#) are now available: Presentations: <http://www.fao.org/global-soil-partnership/resources/events/detail/en/c/1277609/>  
Listen to the recording: <https://www.youtube.com/watch?v=k4P634TQ9kA&feature=youtu.be>  
The report can be downloaded here: <http://www.fao.org/3/ca9925en/ca9925en.pdf>  
[Read more: http://www.fao.org/global-soil-partnership/resources/events/detail/en/c/1277609/](http://www.fao.org/global-soil-partnership/resources/events/detail/en/c/1277609/)  
[From: Global Soil Partnership newsletter No 28, 9 July 2020]

### Call for Collaboration in Soil Organisms

Raúl Ochoa-Hueso and colleagues recently published a call for collaboration in Soil Organisms called "Ecosystem and biogeochemical coupling in terrestrial ecosystems under global change: A roadmap for synthesis and call for data." For more information, see their article in Soil Organisms. Please be aware that this is not an RFP, and there is no available funding. This is only a call for data and collaboration, deadline: July 31, 2020 [Read more: http://www.soil-organisms.org/index.php/SO/article/view/121](http://www.soil-organisms.org/index.php/SO/article/view/121)  
[From: GSBI (Global Soil Biodiversity Initiative) newsletter, July 2020]

### How global changes affect soil microbial biodiversity and function

Biodiversity of plants and animals on the Earth is changing at an unprecedented rate due to a variety of global change factors, such as warming, carbon-dioxide enrichment, altered precipitation, atmospheric nitrogen deposition, nutrient fertilization, land-use change, and their combinations. Soil microbial communities are surprisingly diverse and abundant. In specific, 1 trillion (10<sup>12</sup>) microbial species harbor on the Earth, and 1 g soil contains up to 1 billion (10<sup>9</sup>) bacterial cells consisting of tens of thousands of taxa. [Read more: https://www.globalsoilbiodiversity.org/blog-beneath-our-feet/2020/6/19/how-global-changes-affect-soil-microbial-biodiversity-and-function](https://www.globalsoilbiodiversity.org/blog-beneath-our-feet/2020/6/19/how-global-changes-affect-soil-microbial-biodiversity-and-function)  
[From: GSBI newsletter, July 2020]

### Springtails bounce Dr. Adrian Smith into discoveries on Collembola behavior

This past winter I noticed something incredible, actually a bunch of things, right outside my door. The things came crawling out of the ground in my yard. Noticing things crawling out of the ground is part of my job. I'm an entomologist who has specialized in studying ants for the past 15 years. But this was different, these weren't ants. They weren't even insects. Covering my back patio, my garbage cans, and the leaf litter were thousands of globular springtails, tiny soil arthropods. [Read more: https://www.globalsoilbiodiversity.org/blog-beneath-our-feet/2020/7/9/springtails-bounce-dr-adrian-smith-into-discoveries-on-collembola-behavior](https://www.globalsoilbiodiversity.org/blog-beneath-our-feet/2020/7/9/springtails-bounce-dr-adrian-smith-into-discoveries-on-collembola-behavior)  
Watch the fascinating video: [https://www.youtube.com/watch?time\\_continue=38&v=Qu01EUeE5PM&feature=emb\\_title](https://www.youtube.com/watch?time_continue=38&v=Qu01EUeE5PM&feature=emb_title)  
[From: GSBI newsletter, July 2020]

### Contribute to the Review of the Report for the IPBES Transformative Change Assessment

With reference to the Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES) notification EM/2020/4, the draft scoping report for the transformative change assessment (thematic assessment of the underlying causes of biodiversity loss and the determinants of transformative change and options for achieving the 2050 vision for biodiversity) is open for external review. The aim of the review is to increase the policy relevance of the scoping report by engaging governments and stakeholders early in the process of defining the policy questions that this assessment will address. Deadline for contributions: 28 August 2020. [Read more: https://ipbes.net/transformative-change/scoping-document-registration](https://ipbes.net/transformative-change/scoping-document-registration)

### ISC 2019 Annual Report: Now available online

We are delighted to share the International Science Council's 2019 Annual Report. In the Council's first full year of operation we were proud to launch an Action Plan for the coming years, to develop new initiatives and partnerships, and to consolidate existing scientific activities. In line with the Council's [sustainability principles](#), and in the context of the COVID-19 pandemic, we will not be sending out printed copies of the 2019 Annual Report. Instead, we invite you to browse the Report online, where you will find additional audio-visual content and links to the latest information about the Council's initiatives. If you have any questions or comments, please contact our Membership Liaison Officer Anne Thieme ([Anne.Thieme@council.science](mailto:Anne.Thieme@council.science)). [Read more: https://council.science/annual-report-2019](https://council.science/annual-report-2019).

### Soil offers key to curbing climate change – Efforts to boost carbon capture could offset increases in greenhouse gas emissions

Sarah Singla is a cereal farmer who does not know how to plough. That is a sign not of professional laxness, but of her dedication to the conservation agriculture that her father embraced. Since taking over the 100-hectare family farm in the southern French department of Aveyron a decade ago, Ms Singla has further developed the practices he initiated in 1980. Conservation agriculture aims to minimise or suppress tillage, ensure that soil always has a cover crop, and use crop rotation to enhance soil fertility.

Read more: [https://amp.ft.com/content/a2e1476a-9390-11ea-899a-f62a20d54625?shareType=nongift&\\_\\_twitter\\_impression=true&fbclid=IwAR3WfAdg1n1CmW4708x8F82hwPVYxgCzEZqQx\\_yTBMnLc\\_683n9IryitXnU](https://amp.ft.com/content/a2e1476a-9390-11ea-899a-f62a20d54625?shareType=nongift&__twitter_impression=true&fbclid=IwAR3WfAdg1n1CmW4708x8F82hwPVYxgCzEZqQx_yTBMnLc_683n9IryitXnU)

### More work crucial to ensure our soil recovers from bushfires – Australian Academy of Science publishes bushfire expert brief

The Australian Academy of Science has published a bushfire expert brief titled *Soil Conditions After Bushfires*. The brief is calling for a nationally consistent approach to soil data collection, storage and access to aid recovery from the 2019-20 bushfire season.

Read more: <https://www.science.org.au/supporting-science/science-policy-and-analysis/evidence-briefs/soil-condition-after-bushfires>

### The global odyssey of plastic pollution

Scientists who once studied microplastics (plastic debris <5 mm in size) as ocean pollutants have now detected them in soils, biota, and Earth's atmosphere. To decipher the global fate of microplastics, scientists have begun to ask questions about the "microplastic cycle," which is akin to global biogeochemical cycles (nitrogen, carbon, and water). For example, what are the sources of microplastics, and how do they transform as they move from one pool (e.g., a beach, inside an organism, or a river bed) to another? And what processes ("fluxes") transfer microplastics between pools? On page 1257 of this issue, Brahney *et al.* (1) report high-resolution spatial and temporal data that provide evidence of both global and regional microplastic transport, thus increasing our understanding of the microplastic cycle.

Read more: <http://www.sciencemag.org/about/science-licenses-journal-article-reuse>

### Plutonium and Cesium inventories in European topsoils

The two radionuclides (cesium, plutonium) were released during military nuclear tests, particularly in the 1960s, but cesium also during the Chernobyl accident in 1986. A group of researchers used 160 samples from a European LUCAS topsoil database (2009) from undisturbed soils to develop the Cs and Pu footprint in European soils. The produced maps help to understand the magnitude of the fallout sources, establish a baseline in case of future radionuclide fallout and define a baseline for geomorphological reconstructions of soil redistribution due to soil erosion processes. The dataset includes the Baseline

Caesium-137 topsoil (0-20cm), Baseline Plutonium-239+240 topsoil, the Chernobyl-derived 137Cs and Global-derived 137Cs. Details on how this dataset has been developed can be found in the relevant publication.

Read more: <https://esdac.jrc.ec.europa.eu/themes/plutonium-and-cesium-inventories-european-topsoils>  
[From ESDAC Newsletter No 122, May-June 2020]

### Caring for soil is caring for life

"Caring for Soil is Caring for Life" is the title of the mission proposed by the Soil Health and Food Mission Board. The mission's goal is to "ensure that 75% of soils are healthy by 2030 and are able to provide essential ecosystem services", such as the provision of food and other biomass, supporting biodiversity, storing and regulating the flow of water, or mitigating the effects of climate change. The target corresponds to a 100% increase of healthy soils against the current baseline. This interim report sets out the vision and the blueprint to reach this ambition through a combination of research and innovation, training and advice, as well as the demonstration of good practices for soil management using "Living labs" and "Lighthouses".

Read more: <https://op.europa.eu/en/web/eu-law-and-publications/publication-detail/-/publication/32d5d312-b689-11ea-bb7a-01aa75ed71a1>  
[From ESDAC Newsletter No 122, May-June 2020]

### Invitation to Biochar survey

Biochar has been discussed as a greenhouse gas removal option and could hold benefits and risks in soil use. In order to investigate barriers to biochar's implementation and potential impacts on soil and the environment in the UK, we invite you to anonymously complete the survey. While this survey does have a UK focus and was originally circulated through the BSSS membership, we would like to extend the survey to the wider IUSS community to gain greater insights into biochar. Expertise of UK soils and/or policy is not necessary: all levels of participant familiarity will be helpful our research. Participants who complete the survey can choose to be entered in a drawing to win a £50 voucher.

Link to survey: [https://edinburgh.eu.qualtrics.com/jfe/form/SV\\_5hajm9exW21U9Eh](https://edinburgh.eu.qualtrics.com/jfe/form/SV_5hajm9exW21U9Eh)

### World Soil Day, December 5<sup>th</sup> – Add an event

Planning to have an event on soils? Etching your student, giving a lecture? Put your event on our map and help us build soils awareness!

Read more: <http://www.fao.org/world-soil-day/worldwide-events/add-events/en/?fbclid=IwAR3IQ4yRxoJK57en5f59HdPKNMG55urJlFjtSHVrcLISZT3fnQnCOUc4Wc>

### FAO Webinar: Sustainable Soil and Land Management for Climate Smart Agriculture: Preventing and mitigating land degradation

This international technical webinar, which took place 20 June 2020, is part of the series organized by the FAO eLearning Academy, Agreenium (l'Institut agronomique, vétérinaire et forestier de France) and UN-ESCAP (United Nations Economic and Social Commission for Asia and the Pacific).

Link to the webinar: <https://vimeo.com/432460070>  
Net erosion data and sediment transport at 25m (WaTEM / SEDEM)

This dataset includes a model estimation of the potential spatial displacement and transport of soil sediments due to water erosion at European scale. Long-term averages of annual soil loss and deposition rates were computed by means of the extensively tested spatially distributed WaTEM/ SEDEM mode. Due to large number of requests to provide the 25m data resolution, we make them available in ESDAC.

Read more: <https://esdac.jrc.ec.europa.eu/themes/sediment-transport-using-watemsedem>  
[From: ESDAC Newsletter No 121 (March – April 2020)]

### Indicators on soil erosion

For non-GIS users, policy makers, advisors, students and other group of people, ESDAC provides the aggregated data on soil erosion: Agro-environmental Indicator – SDG Indicators, CAP Context Indicator, Wind erosion estimates, Global soil erosion estimates. Recently we estimated the soil erosion indicator (year: 2016) to support the performance of the Common Agricultural Policy (CAP) and the progress towards the Sustainable Development Goals (SDGs). Our objective is to develop a kind of scoreboard for all the relevant datasets (Soil organic carbon, biodiversity, nutrients, soil properties, etc).

Read more: <https://esdac.jrc.ec.europa.eu/themes/indicators-soil-erosion>  
[From: ESDAC Newsletter No 121 (March– April 2020)]

### Microbiome Centers Consortium and COVID-19 Efforts

An invitation to join forces

The Microbiome Centers Consortium (MCC) is a new collaborative network of US-based academic microbiome

centers. This message addresses colleagues working on microbiome-related research and COVID-19. This includes environmental soil samples. You do not have to be from the USA to participate, and you can be an individual working on this effort.

We are currently working to leverage the strengths of microbiome centers around the country to help with the COVID-19 response. The effort aims to coordinate and assist ongoing research as many microbiome centers are struggling with similar challenges.

Fill out the survey: [https://docs.google.com/forms/d/e/1FAIpQLSeNCKFKgTH6Gd4rVGY5T\\_wZAlbRW9GW7Q\\_jQWdLaUNgiN9w9g/viewform](https://docs.google.com/forms/d/e/1FAIpQLSeNCKFKgTH6Gd4rVGY5T_wZAlbRW9GW7Q_jQWdLaUNgiN9w9g/viewform)  
[From Global Soil Biodiversity Initiative newsletter, 4 August 2020]

### The FRST national soil fertility database

The Fertilizer Recommendation Support Tool (FRST) is a database and online tool in development to bring together soil fertility information on a national scale. A core team conducted the first nationwide soil fertility and philosophy survey since 1998 to develop minimum requirements for data inclusion in the database. The tool will not only help all those involved in making soil fertility recommendations but will conserve historical soil test data.

Read more: <https://access.onlinelibrary.wiley.com/doi/10.1002/csan.20218>  
[From: ASA-CSSA-SSSA Science Policy Report: 5 August 2020]

### Could a Detroit experiment unleash the power of urban soil?

Over the past few months, the COVID-19 crisis has hit Detroit hard, resulting in more 12,000 cases and more than 1,500 deaths. It's also produced an unemployment rate perhaps as high as 29 percent and a surging demand at area food banks. These problems have brought renewed focus to the importance of food sovereignty in Detroit and elsewhere, and on a changing climate, which could make pandemics worse. Urban farming and gardening sit at the intersection of these issues – and offer a possible way forward, allowing communities to access healthy food close to home and possibly mitigate climate change by capturing carbon in soil.

Read more: <https://civileats.com/2020/07/16/could-a-detroit-experiment-unleash-the-power-of-urban-soil/>  
[From: ASA-CSSA-SSSA Science Policy Report: 5 August 2020]

## Urgent – Photos Needed ASAP

GSBI has an urgent request from Dr. Ronald Vargas, FAO (UN Food and Agricultural Organization), for assistance in acquiring photos for the report “The State of Knowledge of Soil Biodiversity”. Specifically, they need photos of ants, isopods (sowbugs, roly-polys) and moles.

These **photos need to be YOURS, previously unpublished, and of high resolution (300 dpi)** for print work. If used, your images will be attributed to you/your team in the report. Images are needed ASAP to complete this important report!

If you have photos to contribute, please **send** them **directly to** [Ronald.Vargas@fao.org](mailto:Ronald.Vargas@fao.org) and FAO soil biologists Rosa Cuevas Corona [Rosa.CuevasCorona@fao.org](mailto:Rosa.CuevasCorona@fao.org) and Vinisa Saynes [viniss@yahoo.com](mailto:viniss@yahoo.com). They will respond to questions regarding images and other information needed.

## Storing carbon in the prairie grass

Scientists say the world needs to cut greenhouse gas emissions nearly in half by mid-century to avert catastrophic effects from global warming. Carbon dioxide is the most prevalent greenhouse gas; the amount in the atmosphere has been rising as humans burn fossil fuels. Not only must the world stop releasing more carbon, some CO<sub>2</sub> already in the air also must be removed, experts say. That’s where the prairie comes in.

Read more: [https://www.washingtonpost.com/climate-solutions/2020/08/19/climate-change-prairie/?arc404=true&utm\\_campaign=wp\\_the\\_optimist&utm\\_medium=email&utm\\_source=newsletter&wpisrc=nl\\_optimist](https://www.washingtonpost.com/climate-solutions/2020/08/19/climate-change-prairie/?arc404=true&utm_campaign=wp_the_optimist&utm_medium=email&utm_source=newsletter&wpisrc=nl_optimist)

[From: ASA-CSSA-SSSA Science Policy Report: September 8-10, 2020]

## Carbon mitigation potential and radiative agricultural land management

To reach the Paris climate targets, the mitigation capacity needs to be maximized across all components of the Earth system, especially land. Mitigation actions through land management, such as cover crops in agricultural soils, are often evaluated in terms of their carbon sequestration potential, while radiative forcing related to surface albedo changes is often ignored. The aim of this study was to assess the mitigation potential of cover crops, both as changes in biogenic greenhouse gas fluxes (CO<sub>2</sub> and N<sub>2</sub>O) and albedo-driven radiative forcing at the top of the atmosphere. To achieve this, we have integrated a biogeochemistry model framework running on approximately 8,000 locations across the European Union with

detailed soil data, supplemented with time series of albedo measurements derived from satellite remote sensing.

Read more: <https://esdac.jrc.ec.europa.eu/content/carbon-mitigation-potential-and-radiative-agricultural-land-management>

[From ESDAC Newsletter No 123, July-August 2020]

## Projections of Global soil erosion by water (2015-2070)

We use the latest projections of climate and land use change to assess potential global soil erosion rates by water to address policy questions. Three alternative (2.6, 4.5, and 8.5) RCP scenarios were used and resulted in a potential increase of global soil erosion rate by 30-66% by 2070. The Global South is estimated to bear the brunt of the erosion. Rich countries with high fertiliser use and moderate climates can expect erosion at a lower rate. Current conservation agriculture practices will only reduce the projected soil erosion rate by 5%. The study has published recently in PNAS. Data are available in ESDAC. Read more: <https://esdac.jrc.ec.europa.eu/content/global-soil-erosion-water-2070>

[From ESDAC Newsletter No 123, July-August 2020]

## Global phosphorus losses due to soil erosion

The world’s food production depends directly on phosphorus. We combine spatially distributed global soil erosion estimates (only considering sheet and rill erosion by water) with spatially distributed global P content for cropland soils to assess global soil P loss. The world’s soils are currently being depleted in P in spite of high chemical fertilizer input. Africa, South America and Eastern Europe have the highest P depletion rates. Agricultural soils worldwide will be depleted by between 4–19kg ha<sup>-1</sup> yr<sup>-1</sup>, with average losses of P due to erosion by water contributing over 50% of total P losses. The study has published in Nature Communications and the data are available in ESDAC.

Read more: <https://esdac.jrc.ec.europa.eu/content/global-phosphorus-losses-due-soil-erosion>

[From ESDAC Newsletter No 123, July-August 2020]

## Sustainable soil management within the European Green Deal

The new European Green Deal has the ambition to make the European Union the first climate-neutral continent by 2050. The European Commission presented an ambitious package of measures within the Biodiversity Strategy 2030, the Farm to Fork and the European Climate

Law including actions to protect our soils. The Farm to Fork strategy addresses soil pollution with 50% reduction in use of chemical pesticides by 2030 and aims 20% reduction in fertilizer use plus a decrease of nutrient losses by at least 50%. The Biodiversity Strategy has the ambition to set a minimum of 30% of the EU’s land area as protected areas, limit urban sprawl, reduce the pesticides risk, bring back at least 10% of agricultural area under high-diversity landscape features, put forward the 25% of the EU’s agricultural land as organically farmed, progress in the remediation of contaminated sites, reduce land degradation and plant more than three billion new trees. The maintenance of wetlands and the enhancement of soil organic carbon are also addressed in the European Climate Law.

Read more: <https://www.sciencedirect.com/science/article/pii/S0264837720304257>

[From ESDAC Newsletter No 123, July-August 2020]

## Pushing soil animals to the extreme

Ecologists can answer a lot of the scientific questions that they grapple with about organisms from ‘extreme’ environments where plants, animals, or microbes barely cling on to life. A team of scientists from France, Hungary and Ireland recently had an opportunity to study a group of worms called Enchytraeidae, or potworms, in soils of a unique long-term experiment that has created extreme chemical soil conditions. Located in the world-famous ‘Palace of Versailles’ outside Paris, this experiment consists of small plots of land that have been receiving different fertilizers each year since 1928 but have no plants or crops whatsoever.

In this study scientists found 13 different species of enchytraeid worms, which is remarkable given the fact that no plants grow on these plots, and thus the soils do not receive any carbon or nutrient inputs (through roots or as litter) from plants.

Read more: <https://www.globalsoilbiodiversity.org/blog-beneath-our-feet/2020/8/28/pushing-soil-animals-to-the-extreme>

[From GSBI Newsletter – September 2020]

## Release of the GSOC MRV Protocol

FAO/GSP and its Intergovernmental Technical Panel on Soils (ITPS) are pleased to announce the release of the document “GSOC MRV Protocol: A protocol for measurement, monitoring, reporting and verification of soil organic carbon in agricultural landscapes”.

This Protocol represents a significant advance for soils around the world and for users who can now measure, monitor, report and verify Soil Organic Carbon (SOC) gains and changes at the farm level.

Read more: <http://www.fao.org/global-soil-partnership/resources/highlights/detail/en/c/1308261/>

[From The Global Soil Partnership Special announcement No. 28, 17 September 2020]

## Call for inputs to shape a priority action agenda for science

There are still some days left to submit your expert views on priorities for science that can deliver game-changing action regarding Science for Sustainability Transformations, and Transformations of Science Systems by completing this survey: <https://council.science/science-funding/global-call/>.

Deadline for contributions: 2 October 2020

Please feel free to share this call for inputs with your members and wider networks.

## Prize question – What can science achieve during pandemics?

The Austrian Academy of Sciences (OeAW) shall award a cash prize for each of the three best answers to the above question.

1<sup>st</sup> prize € 12,000

2<sup>nd</sup> prize € 8,000

3<sup>rd</sup> prize € 4,000

The competition is open to individuals and groups. Entries are requested in writing in the form of an essay and they are not subject to a restriction of characters. The competition is open for essays in German, English, French, Italian, Russian and Spanish.

Submissions can be sent by email to [preisfrage@oeaw.ac.at](mailto:preisfrage@oeaw.ac.at) or by post to the Actuarial Office of the Austrian Academy of Sciences, Dr. Ignaz Seipel-Platz 2, 1010 Vienna, by 31 December 2020. The date of the postmark will apply. The judging and prize ceremony shall be carried out by an interdisciplinary prize commission. The winners will be notified by May 2021.

Read more (please scroll down to the English version):

<https://www.oeaw.ac.at/en/preisfrage/>

[From ISC Newsletter, August 2020]

## The Equality, Diversity, and Inclusion in Geoscience (EDIG) Project – SURVEY

The Equality, Diversity, and Inclusion in Geoscience (EDIG) project was started by a group of geoscientists who are working together to better understand the impact of prejudice, inequity, sexism, bias, exclusion, and discrimination within the larger geoscience community. The EDIG team is asking for your help to understand these issues by completing *an anonymous survey* about your experiences/lack of experiences related to these topics. Even if you do not feel these readily apply to you, they would still like to hear from you.

The *survey* ran from **14 – 28 September, 2020**.

Read more: <https://www.icrag-centre.org/edig/>

## WASWAC Youth Outstanding Paper Award (DATUM) 2021 Open for Application

To encourage early-career scientists to contribute to soil and water conservation in the world, The World Association of Soil and Water Conservation (WASWAC) has held the WASWAC Youth Outstanding Paper Award three times since 2015. The fourth award in 2021 will be presented at the Third International Youth Forum on Soil and Water Conservation (IYFSWC), which will be held from May 16 to 21, 2021 in Iran (Tehran-Capital and Noor City on Caspian Sea Shore). The application for the award is open from now.

This award will be presented to early-career scientists of outstanding research papers on soil and water conservation. The award consists of a Certificate from the WASWAC and a \$1000 (USD) honorarium. In the case of multi-author papers, the award will be presented only to the first author. The WASWAC Youth Outstanding Paper Award (DATUM) 2021 is financially supported by the Beijing Datum Technology Company.

Read more: <http://iyfswc.modares.ac.ir/> or <http://www.waswac.org/>

## Land and Soil Management Award 2020/21 – call now open

### About the Award

The prize (5,000 EUR) rewards land use and soil management practices mitigating soil threats i.e. soil degradation, erosion, reduction of organic matter content, diffuse contamination, and compaction as well as the reduction of soil biodiversity, salinization, sealing, flooding and landslides. In doing so, the award sheds light on outstanding achievements, encouraging new concepts of land and soil protection and their implementation in land man-

agement, as well as enhancing awareness about the importance of land and soil functions.

### Who can apply?

Farmers, landowners, land managers, groups of farmers, on their own or in collaboration with research institutes, universities and/or private companies.

### Deadline: 31 December 2020

Read more and download the application form:

[https://www.europeanlandowners.org/awards/soil-land-award?mc\\_cid=037be4d8bd&mc\\_eid=ddef1af97b](https://www.europeanlandowners.org/awards/soil-land-award?mc_cid=037be4d8bd&mc_eid=ddef1af97b)

## News from the International Science Council (ISC)

*Share with us your grey literature on freedom and responsibility in science*

The ISC Advisory Committee for Freedom and Responsibility in Science (CFRS) has initiated the *project* “Freedom and responsibility in the 21<sup>st</sup> century: a contemporary perspective of the responsible practice of science” to examine a contemporary meaning and interpretation of freedom and responsibility of science. As part of the project, CFRS members will aim to develop an overview to track the recent evolution of notions of scientific freedom and the responsible practice of science, indicating that scientists have been concerned about this for many years, and that their conclusions have changed over the last decades reflecting the evolution of society.

In the frame of this project, the CFRS is seeking contributions from ISC members regarding grey literature documents, including organizational statements, policies, reviews, (non-academic) articles as well as historical documents looking at the organizations’ and disciplinary societies’ views of freedom and responsibility in science since the post-World War II period.

Please send your contributions to Vivi Stavrou (CFRS Executive Secretary): [vivi.stavrou@council.science](mailto:vivi.stavrou@council.science) and feel free to share this request with your members and wider networks.

Read more: <https://council.science/actionplan/defending-the-free-and-responsible-practice-of-science/>

## Measuring greenhouse gases starts in soil

Carbon dioxide dominates the greenhouse gas (GHG) story planet-wide. But did you know there is a more potent GHG you probably haven’t heard about? It’s nitrous oxide (N<sub>2</sub>O), agriculture’s quiet but formidable contribution to climate concerns. N<sub>2</sub>O represents only seven percent of all GHG emissions, rendering it a minor player compared to CO<sub>2</sub> and methane. But N<sub>2</sub>O has significant,

lesser-known, implications. In the atmosphere, N<sub>2</sub>O absorbs (and radiates) more energy than other gases and can linger for decades, according to the EPA. It’s not just an atmospheric sweater, but an electric blanket above us.

Read more: <https://cals.ncsu.edu/news/measuring-greenhouse-gases-starts-in-soil/>

[From: ASA-CSSA-SSSA Science Policy Report: 14 October 2020]

## Release of the LUCAS Soil 2015 data from ESDAC

The European Commission Joint Research Centre is pleased to announce the release of the soil dataset based on samples collected during the 2015 LUCAS Survey (LUCAS Soil 2015). LUCAS Soil provides harmonised data for the entire territory of the European Union (EU), addressing all major land cover types simultaneously, in a single sampling period (April – October 2015), using a standard sampling protocol and a single laboratory for analysis.

Data are presented for 21,859 locations across all EU Member States and cover 90% of the locations where soil samples were taken in 2009 and 2012 (only Romania and Bulgaria). The remaining 10% were substituted by new locations in each country, new territories, and points above 1,000 m elevation. In addition to the parameters analysed in 2009 and 2012, electrical conductivity has been added to measure salt content in soils.

Data can be requested here: <https://esdac.jrc.ec.europa.eu/content/lucas2015-topsoil-data>

Read more: <https://esdac.jrc.ec.europa.eu/projects/lucas>

## GSBI joins European Commission’s Global Coalition for Biodiversity

The Global Soil Biodiversity Initiative voices support for biodiversity and joins the EC’s Global Coalition for Biodiversity. Launched in March 2020, the Coalition calls on museums, parks, and research institutions to join forces in raising an alarm about the nature crisis.

Press release: <https://files.constantcontact.com/a3128908401/21d594ee-b94d-4d48-ab55-7069c829c8e8.pdf>

[From GSBI Newsletter – October 2020]

## Read the New Posts in the GSBI Blog Beneath Our Feet

Belowground productivity accounts for 46% of total terrestrial C fixation, by Dr. Laureano Gherardi, School of Life Sciences, Arizona State University, USA.

Read more: <https://www.globalsoilbiodiversity.org/blog-beneath-our-feet/2020/9/25/belowground-productivity-accounts-for-46-of-total-terrestrial-c-fixation>

[From GSBI Newsletter – October 2020]

## It’s alive! Soil is much more than you think.

*Soil biodiversity: the foundation for human life*

Soils are a major reservoir of global biodiversity, supporting agriculture and food security, regulating greenhouse gas emissions and promoting plant, animal and human health. Without them, our daily routine wouldn’t be the same. But soil biodiversity is under constant threat. Unsustainable farming practices, the effects of climate change and soil pollution are just a few of the things that can adversely affect the health and biodiversity of our soils.

Read more: <http://www.fao.org/fao-stories/article/en/c/1263004/>

[From The Global Soil Partnership Newsletter No. 29, 30 September 2020]

## Intergovernmental Technical Panel on Soils

The Intergovernmental Technical Panel on Soils (ITPS) is composed of 27 high-level soil experts representing all the regions of the world. ITPS members provide scientific and technical advice and guidance to the GSP on global soil issues and advocate the inclusion of sustainable soil management in the different sustainable development agendas. With the aim of sharing its position about different soil topics or issues, the ITPS created the ITPS Soil Letters as a wide channel of dissemination. In its first issue of September 2020, the ITPS defines the concept of “soil health”.

Read the first issue: <http://www.fao.org/3/cb1110en/cb1110en.pdf>

[From The Global Soil Partnership Newsletter No. 29, 30 September 2020]

## Soil: the great connector of our lives now and beyond COVID-19

The COVID-19 pandemic is testing the ability of societies to survive an extreme global situation. The Intergovernmental Technical Panel on Soils shares its understanding of the crucial role played by Soils and Sustainable Soil Management in the new global reality. Appropriate soil management is imperative for solving and anticipating food security and nutrition requirements that governments and individuals will face in the post-pandemic world.

Read more: <http://www.fao.org/global-soil-partnership/resources/highlights/detail/en/c/1298070/>

[From The Global Soil Partnership Newsletter No. 29, 30 September 2020]

### SOILS4NUTRITION

How sustainable soil management can improve the nutritional quality of food.

Through a 3-year project initiative, funded by the government of Germany, FAO's Global Soil Partnership is promoting Sustainable Soil Management (SSM) practices to improve the nutritional quality of locally-produced food. The project has set up pilot sites in Bangladesh, Burkina Faso and Malawi to test and demonstrate the effects of SSM practices on micronutrient contents in the edible parts of crops.

Read more: <http://www.fao.org/global-soil-partnership/resources/highlights/detail/en/c/1305568/>

[From The Global Soil Partnership Newsletter No. 29, 30 September 2020]

### WORLD SOIL DAY Campaign – 5 December 2020

World Soil Day 2020 (#WorldSoilDay) and its campaign “Keep soil alive, Protect soil biodiversity” aims to raise awareness of the importance of maintaining healthy ecosystems and human well-being by addressing the growing challenges in soil management, fighting soil biodiversity loss, increasing soil awareness and encouraging governments, organizations, communities and individuals around the world to commit to proactively improving soil health.

Read more: <http://www.fao.org/world-soil-day/en/>

[From The Global Soil Partnership Newsletter No. 29, 30 September 2020]

### SOC sequestration potential map

With the release of the Technical specification and country guidelines, the development of the Global Soil Organic Carbon Sequestration Potential Map has started. The GSOCseq simulates SOC stocks over a 20-year period in agricultural lands and quantify sequestration potential. Read more: <http://www.fao.org/global-soil-partnership/pillars-action/4-information-and-data-new/global-soil-organic-carbon-gsoc-map/en/>

[From The Global Soil Partnership Newsletter No. 29, 30 September 2020]

### GLOSOLAN Spectroscopy plenary meeting

23-25 September 2020

After the launch of the initiative on soil spectroscopy by the Global Soil Laboratory Network (GLOSOLAN) of the Global Soil Partnership in April 2020, GLOSOLAN organized its first plenary meeting on soil spectroscopy from 23 to 25 September 2020. The meeting was attended by 350 participants from 63 countries, including leading institutions and organizations in the field of soil spectroscopy.

Read more: <http://www.fao.org/global-soil-partnership/resources/highlights/detail/en/c/1310301/>

[From The Global Soil Partnership Newsletter No. 29, 30 September 2020]

### Nanoclay: the liquid turning desert to farmland

Inspired by the secret to the Nile Delta's fertility, engineers are using a concoction of clay, water and local soils to grow fruits in the desert.

Read more: <https://www.bbc.com/future/bspoke/follow-the-food/the-spray-that-turns-deserts-into-farmland.html?fbclid=IwAR0vuKftYZVPay4qfBeTqmJARmO6OsFTZxnGys6oJiYXF5Ump8JOOINt39E>

### iSDAsoil: Open access soil property and nutrient maps for Africa at 30m resolution

iSDA is a social enterprise building on the legacy of AfSIS to create financially sustainable agronomy solutions for smallholder farmers. On the 22<sup>nd</sup> October, iSDA launched iSDAsoil (<https://isda-africa.com/isdasoil>) – a high spatial resolution soil information service for Africa mapped at 30m spatial resolution for two standard depth intervals (0–20cm and 20–50cm). The soil variables (16+) include: soil pH, organic carbon (C) and total (organic) nitrogen (N), total carbon, extractable – phosphorus (P), potassium (K), calcium (Ca), magnesium (Mg), sulfur (S), sodium (Na), iron (Fe), zinc (Zn), silt, clay and sand, bulk density and depth to bedrock. Predictions were generated using a 2-scale Ensemble Machine Learning (<https://github.com/Envirometrix/landmap>), a combination of Sentinel-2, Landsat, DEM derivatives and coarse resolution covariates (MODIS, PROBA-V) and over 100,000 soil sampling training points.

The soil property maps are available under an Open Data license (CC-BY 4.0) via a REST API (<https://isda-africa.com/isdasoil/developer>) and Zenodo (<https://zenodo.org/search?page=1&size=20&q=iSDAsoil>). To learn more about iSDAsoil, visit the Technical Information (<https://www.isda-africa.com/isdasoil/technical-information/>) and FAQs (<https://www.isda-africa.com/isdasoil/faqs/>) pages.

If you are interested in using iSDAsoil tools, services or products for agribusiness or smallholder farmers, get in touch with iSDA at [info@isda-africa.com](mailto:info@isda-africa.com). If you are aware of soil samples collected within the African continent that could be used for predictive soil mapping, we would love to hear from you: help us improve these predictions so we can increase the data usability in the next update.

Several eminent soil scientists discussed the project and its implications here: <https://medium.com/isda-africa/soil-science-and-smallholders-the-contribution-of-soil-to-sustainable-african-agriculture-35a1f67c19a8>

To subscribe to updates please visit the iSDA website at <https://isda-africa.com>

### Dust Bowl 2.0? Rising Great Plains dust levels stir concerns

In October 2020 a storm front swept across the Great Plains of the United States, plowing up a wall of dust that could be seen from space, stretching from eastern Colorado into Nebraska and Kansas. It was a scene straight from the Dust Bowl of the 1930s, when farmers regularly saw soil stripped from their fields and whipped up into choking blizzards of dust.

Better get used to it. According to a new study, dust storms on the Great Plains have become more common and more intense in the past 20 years, because of more frequent droughts in the region and an expansion of croplands. “Our results suggest a tipping point is approaching, where the conditions of the 1930s could return,” says Gannet Haller, an atmospheric scientist at the University of Utah who led the study.

Read more: [https://www.sciencemag.org/news/2020/10/dust-bowl-20-rising-great-plains-dust-levels-stir-concerns?utm\\_campaign=SciMag&utm\\_source=JHubbard&utm\\_medium=Facebook](https://www.sciencemag.org/news/2020/10/dust-bowl-20-rising-great-plains-dust-levels-stir-concerns?utm_campaign=SciMag&utm_source=JHubbard&utm_medium=Facebook)

### No soils, no life

We walk on soils, but often give little thought to what's right under our feet. In fact, soils are the nation's – and the world's – breadbasket, providing food and a host of other necessities, including new medicines and materials. No soils, no life.

Read more: <https://beta.nsf.gov/science-matters/no-soils-no-life>

[From: ASA-CSSA-SSSA Science Policy Report: 28 October 2020]

### New meta-analysis finds Bt crops have no impact on soil biota

A new meta-analysis finds that genetically modified Bt crops – in stark contrast to some pesticides – have no impact on soil invertebrates. The new research provides further weight to the argument that Bt crops, which control pests in a very targeted way using insecticidal proteins (Bt) expressed in plant tissues, protect biodiversity by helping farmers reduce their use of broad-spectrum insecticide sprays.

Read more: <https://allianceforscience.cornell.edu/blog/2020/09/new-meta-analysis-finds-bt-crops-have-no-impact-on-soil-biota/>

[From: ASA-CSSA-SSSA Science Policy Report: 16 September 2020]

### Red parent soils create wetland problems

Identification and protection of wetlands requires recognition of hydric soils. Usually this is straightforward, but sometimes challenging or problematic situations arise. Recent research demonstrated that problematic red parent material (PRPM) soils, which we have known about for several decades, are actually quite widespread and found from Michigan to Arizona and from Texas to Massachusetts.

Read more: <https://access.onlinelibrary.wiley.com/doi/10.1002/csan.20238>

[From: ASA-CSSA-SSSA Science Policy Report: 16 September 2020]

### Nematodes driving the fate of carbon under climate change

Ecological theory suggests that certain plant species may respond to drought by producing fewer leaves because leaves lose water through transpiration, and instead allocate more production to roots, which capture water. These patterns are important in the context of ecosystem responses to climate change because they set limits on ecosystem carbon assimilation and biomass production. Plants interact with many other organisms in ecosystems, and the response of those to drought may also affect plant responses. Our previous multi-site grassland field study revealed that more frequent extreme droughts can increase populations of root-feeding soil nematodes (roundworms) in sub-humid grasslands by suppressing their predators.

Read more: <https://www.globalsoilbiodiversity.org/blog-beneath-our-feet/2020/10/22/nematodes-driving-the-fate-of-carbon-under-climate-change>

[From GSBI Newsletter – November 2020]

## The EU Soil Observatory was launched on Friday 4 December 2020

The new Soil Observatory is a dynamic and inclusive platform that will provide Commission Services, and the broader soil user community, with the information and data needed to safeguard soils. Healthy soils are at the heart of the Green Deal for Europe. Once lost, soils are non-renewable in terms of human lifetimes. In addition to providing us with food, fibres and fuel, soils play a key role in regulating the Earth's climate, providing us with clean water, protecting us from floods and preserves our cultural heritage. The meeting consisted of the formal launch by EU Commissioners, high-level presentations and panel discussions in the morning, followed by an open technical discussion in the afternoon. The meeting involved representatives from the EU Member States, the European Commission, the European Agencies, international organisations and civil society.

The event was open to the public.

[From ESDAC Newsletter No 125, November 2020]

## Roadmap for the new EU soil strategy

The European Commission has published the roadmap for the new Soil Strategy. Part of the EU biodiversity strategy for 2030, this initiative will update the current strategy to address soil degradation and preserve land resources ('land degradation neutrality'). It welcomes stakeholders' feedback via the 'have your say' website until **10 December 2020**. Feedback will be taken into account for further development and fine tuning of the initiative. The Commission will summarise the input received in a synopsis report explaining how the input will be taken on board and, if applicable, why certain suggestions can't be taken up.

Have your say: <https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12634-New-EU-Soil-Strategy-healthy-soil-for-a-healthy-life>

[From ESDAC Newsletter No 125, November 2020]

## Past Rainfall Erosivity and trend detection (1961-2018)

In a published *study* we reconstructed past rainfall erosivity in Europe for the period 1961–2018, with the aim to investigate temporal changes in rainfall erosivity. As input data, we used the Rainfall Erosivity Database at European Scale (REDES) and Uncertainties in Ensembles of Regional Reanalyses (UERRA) rainfall data. Based on the reconstructed data, we derived a rainfall erosivity trend map for Europe where the results were qualitatively validated. Among the stations showing a statistically significant trend, we observed a tendency towards more positive (15%) than negative trends (7%). In addition, we also observed an increasing tendency of the frequency of years with maximum erosivity values. This dataset is part of Rainfall Erosivity package and REDES including 10 datasets.

Read more: <https://esdac.jrc.ec.europa.eu/content/rainfall-erosivity-european-union-and-switzerland>

[From ESDAC Newsletter No 125, November 2020]

# Upcoming Conferences & Meetings

## 2021

### Global Symposium on Soil Biodiversity

2-5 February 2021, digital edition

The Global Symposium on Soil Biodiversity will follow a virtual format from 2 to 5 February 2021. The 1<sup>st</sup> and 4<sup>th</sup> day will be devoted to panel discussions, while abstract presenters will have the floor on the 2<sup>nd</sup> and 3<sup>rd</sup> days. High-level panelists are expected to join this new digital edition.

Read more: <http://www.fao.org/about/meetings/soil-biodiversity-symposium/en/>

[From The Global Soil Partnership Newsletter No. 29, 30 September 2020]

### EGU General Assembly 2021 (vEGU21)

19–30 April 2021, virtual event

In 2021, EGU will be hosting **vEGU21: Gather Online (#vEGU21)**, a fully virtual meeting that will be held in place of the General Assembly in Vienna. vEGU21 will provide as full a representation of the experience that EGU members enjoy at the annual meeting in Vienna as possible.

Abstract submissions will be accepted until

**13 January 2021 at 13:00 CET.**

Please note that session **SSS12.1 Soil, Legislation and Social Equity** is co-sponsored by IUSS and ECSSS

(<https://meetingorganizer.copernicus.org/EGU21/session/39140>), with Laura Bertha Reyes-Sanchez, IUSS president in 2021, as one of the conveners.

Read more: <https://www.egu21.eu/>

### SSS11.3/BG2.14 Call for abstracts: 'Analytical methods as innovation sources in soil science'

Aim of the session is to present the usage of different laboratory methods and techniques in soil research and give the possibility for researchers to exchange their experiences. The special goal of this session is to promote a wider use of innovative analytical methods for determination of chemical compounds in mineral and organic soils, sediments, substrates and composts. The innovative methods covering soil organic matter and humic substances analysis are acknowledged.

The EGU journal SOIL is considered (provisional acceptance) to publish selected papers presented at the session.

Read more: <https://meetingorganizer.copernicus.org/EGU21/session/39210>

The deadline for abstract submission (100 to 500 words) is 13 January 2021 at 13:00 CET.

Information about submitting abstracts:

[https://egu21.eu/abstracts\\_and\\_programme/how\\_to\\_submit\\_an\\_abstract.html](https://egu21.eu/abstracts_and_programme/how_to_submit_an_abstract.html)

If you have any questions about the session, contact with Tõnu Tõnutare on [tonu.tonutare@gmail.com](mailto:tonu.tonutare@gmail.com) or Manfred Sager on [m.sager@bioforschung.at](mailto:m.sager@bioforschung.at)

### First IUSS Conference on Sodic Soil Reclamation

10-12 May 2021, Changchun, China

**!Postponed from Sept. 2020!**

Deadline for abstract submission: March 1, 2021

Deadline for full text of paper: April 1, 2021

Contact: [wangzhichun@iga.ac.cn](mailto:wangzhichun@iga.ac.cn)

Website: <http://ssr.csp.science.cn/dct/page/65578>

### Intersol 2021: Soils: Opportunities for the Transition of Territories

18-20 May 2021, Paris, France

Call for papers open until January 25, 2021

Website: [www.intersol.fr](http://www.intersol.fr)

3<sup>rd</sup> ISMC Conference – Advances in Soil Systems Modeling  
18-22 May 2021, Tianjin, China. The Conference will be hosted as virtual event.

Deadline for submitting abstracts: 14 March 2021

Early-bird registration deadline: 18 April 2021

Late registration deadline: 3 May 2021

Conference website: <https://soil-modeling.org/ismc-conference/ismc-conference>

### 9<sup>th</sup> National Symposium on Control of Soil Degradation and Recovery

May 24-26, 2021, "Ciutat d'Elx" Congress Center, Elche, Spain

Soil is a key element for sustainability, mitigation of the effects of climate change and food production. In addition, it is the support of human activities, both cultural and productive. The symposium focuses on aspects associated with soil degradation, with an emphasis on



Mediterranean environments, and proposes solutions to reverse these situations.

Read more: <https://condegres.es/>

### 100 years of agricultural experimentation at the Faculty of Agriculture and Biology at the Warsaw University of Life Sciences in Warsaw

27-28 May 2021, Warsaw and Skierniewice, Poland

**!Postponed from May 2020!**

Conference website: <http://sggw2020.pl>

### 5<sup>th</sup> International Conference on Contaminated Land, Ecological Assessment and Remediation CLEAR2020

9-11 June 2021, Middlesex University, London, United Kingdom

A new call for abstracts and participation will be announced shortly.

Conference website: <http://clear2020.mdx.ac.uk/>

### 8<sup>th</sup> World Congress on Conservation Agriculture

June 21-24, 2021, Zollikofen, Bern, Switzerland

New abstracts can be submitted from now on until January 15<sup>th</sup>, 2021

The online registration process re-opened

September 1<sup>st</sup>, 2020

Conference website: <https://8wcca.org/>

Download 4<sup>th</sup> announcement:

[https://www.iuss.org/media/4th\\_announcement\\_def.pdf](https://www.iuss.org/media/4th_announcement_def.pdf)

### WRB Workshop Summer 2021

20-25 June 2021, Toruń, Poland

**!Postponed from September 2020!**

Website: <https://sites.google.com/site/summerwrb/home>

### Soils Conference 2021 – Soils, investing in our future

27 June – 2 July 2021, Cairns, Queensland, Australia.

**!Postponed from Nov./Dec. 2020**

**due to Covid-19 pandemic!**

Soil Science Australia and New Zealand Society of Soil Science's joint conference

Website: <https://www.soilscienceaustralia.org.au/2021-joint-conference/>

Download: [media/ssa\\_nzsss\\_ppt\\_conference\\_slides.pptx](media/ssa_nzsss_ppt_conference_slides.pptx)

### 17<sup>th</sup> International Clay Conference 2021 (17<sup>th</sup>-ICC) – New interfaces: bridging continents and cultures with clays

12-16 July 2021, Istanbul, Turkey

January 15, 2021: Opening of abstract submission

Conference website: [www.icc.aipea.org](http://www.icc.aipea.org)

### XXIII Latin-American Congress of Soil Sciences (XXIII CLACS)

22-27 August 2021, Florianópolis, Brazil

Website: [www.slcs.org.mx](http://www.slcs.org.mx)

Facebook <https://www.facebook.com/clacs.cbcs2021>

Instagram <https://www.instagram.com/clacs.cbcs2021>

### XIV<sup>th</sup> International symposium and field workshop on paleopedology (ISFWP-XIV) – Paleosols, pedosediments and landscape morphology as archives of environmental changes

8- 18 August 2021, Altai, Russia

**!Postponed from August 2020!**

Website: <http://isfwp.100igras.ru/>

Download: [media/2\\_circular\\_xiv-isfwp-2020.pdf](media/2_circular_xiv-isfwp-2020.pdf)

### International Colloquium on Soil Zoology

16-21 August 2021

**!New date!**

Bolzano, South Tyrol, Italy

Website: <https://icsz2020.eurac.edu/>

### International Conference on Soil Micromorphology

THE CONFERENCE – August 29 – September 2, 2021:

August 29 (Sunday) – registration (in the afternoon) and ice-breaking party, Faculty of Forestry, University of Agriculture in Kraków; visit of the Museum of Soils

August 30 (Monday) – registration, opening session, plenary sessions, poster session 1, afternoon: visit of the Kraków city center with a guide (undergrounds beneath the Main Market Square, a walk around the city center, dinner in a restaurant)

August 31 (Tuesday) – Plenary sessions, poster session 2, IUSS Business Meeting, Banquet

September 1 (Wednesday) – Mid-conference trip (Kraków and its close vicinity)

September 2 (Thursday) – Plenary sessions, summary and closing ceremony

### POST-CONFERENCE TRIP – September 3–5 (from Friday to Sunday)

Polish Upland tour with emphasis to: contemporary soils (e.g. Chernozems, soils developed on gypsum and carbonate rocks), sequences of paleosols in loess, fossil Lower Jurassic podzols, influence of metal mining on soil environment.

MICROMORPHOLOGICAL COURSE – September 6–11

(from Monday to Saturday)

Registration for the conference will start in autumn 2020.

Previous registrations will be cancelled, thus please register again once the registration starts in a proper time.

Web page: <http://www.icosm2020.sggw.pl/>

### 2021 SSSA Kirkham Conference

29 August 2021 to 3 September 2021, Kruger National Park, South Africa

**!Postponed from Sept. 2020!**

The Theme: Soil Physics in Agricultural Production, Water Resources and Waste Management

Questions? Please contact Kirkham Conference Chair Brent Clothier at [brent.clothier@plantandfood.co.nz](mailto:brent.clothier@plantandfood.co.nz)

Website: <https://cwrr.ukzn.ac.za/conferences/kirkham-conference-2020/>

### LuWQ2021 – 5<sup>th</sup> International Interdisciplinary Conference on LAND USE AND WATER QUALITY: Agriculture and the Environment

September 13-16, 2021, Maastricht, The Netherlands. A conference on the cutting edge of science, management and policy to minimise effects of agriculture and land use changes on the quality of groundwater and surface waters. Target groups (professionals, fields of expertise, audience) are scientists, managers and policy makers involved in the policy cycle for water quality improvement. Read more: <https://www.luwq2021.nl/>

### Global Symposium on Salt-Affected Soils

13-16 September 2021, Tashkent, Uzbekistan

The symposium will be organized by FAO-GSP, ITPS, the Government of Uzbekistan and the International Union of Soil Sciences (IUSS).

Read more: <http://www.fao.org/global-soil-partnership/resources/events/detail/en/c/1264612/>

### RAMIRAN 2021 – Managing Organic Resources in a Changing Environment

20-23 September 2021

University of Cambridge in Eastern England, UK

**!Postponed from Sept. 2020!**

Read more: <https://www.compostnetwork.info/news/event/ramiran-2020/>

### VI International Soil Classification Congress in 2020 in Mexico – new dates

15-22 October 2021, Mexico

**!Postponed from Oct. 2020!**

FIELD WORKSHOP- Cuatro Ciénegas-Querétaro:

October 15-19, 2021

CONGRESS- Campus UNAM-Juriquilla, Querétaro:

October 20-22, 2021

XII INTERNATIONAL WORKSHOP OF SOIL CLASSIFICATION

Campus UNAM-Juriquilla, Querétaro: October 25-30, 2021

V INTERNATIONAL COURSE-WORKSHOP OF SOIL QUALITY INDICATORS Campus UNAM-Juriquilla, Querétaro:

October 25-30, 2021

Congress website: <http://iscc2020.org/>

### International Symposium on Forest Soils (ISFS2020) – Forest Soils under Global Change: Processes, Biodiversity and Ecological Services

17-20 October 2021, Hangzhou, China

**!Postponed from October 2020!**

Deadline for abstract and poster submission: May 30, 2021

Conference website: <http://isfs2020.csp.escience.cn/dct/page/1>

### 9<sup>th</sup> International Acid Sulfate Soils Conference – Acid Sulfate Soils: Progress, Policy and Prospects

November 21 to 26, 2021, Adelaide, Australia

**!Postponed from Nov. 2020!**

Abstract Submission closes 1<sup>st</sup> April 2021

Early Registration closes 31<sup>st</sup> May, 2021

Read more: <https://biological.adelaide.edu.au/acid-sulfate-soil/iassc>

## 2022

### Global Conference on Sandy Soils

30 May – 3 June 2022 (**postponed from 2020**);

University of Wisconsin-Madison, USA

Deadline for Abstract submission is March 31, 2022.

The papers from the conference will be published in the Progress of Soil Science Series (Springer).

Read more: <https://sandysoils.org/>

### 22<sup>nd</sup> World Congress of Soil Science 2022

Sunday, 31. July 2022 to Friday, 5. August 2022

Glasgow, United Kingdom

Current website: <https://www.soils.org.uk/wcss2022>

## Events that had to be postponed to an ulterior date (as of yet unknown) due to the Corona pandemic

### 2020 Soil Biology Lab Skills Course

~~Monday, 31 August 2020 to Friday, 4 September 2020,~~

~~Wageningen University, Netherlands~~

***!Postponed to 2021!***

Website: [www.wur.eu/lab-skills-course](http://www.wur.eu/lab-skills-course)

### International Conference Contaminated Sites 2020

~~26-28 October 2020, Trnava, Slovak Republic~~

***!Postponed to spring or early summer, 2021!***

Conference website:

<http://contaminated-sites2020.sazp.sk/>

### 2<sup>nd</sup> joint workshop on digital soil mapping and GlobalSoilMap WGs

~~14-18 December 2020, Goa, India~~

~~Abstract submission is open until September 1, 2020-~~

***!Postponed to 2022 due to COVID travel limitations!***

Website: <https://sites.google.com/view/soilmapping2020>

### Global Soil Conference 2020 – Caring Soils Beyond Food Security

~~9-13 December 2020, New Delhi, India~~

***!Postponed to 2021!***

Download: <https://www.iuss.org/media/globalsoilconference2020.pdf>

### The Third Global Soil Biodiversity Conference

~~1-3 November 2021, Dublin, Ireland~~

***!Postponed to March 2023!***

Read more: <https://gsb2021.ie/>

For the complete list of upcoming events, please see the event calendar on the IUSS website:

<https://www.iuss.org/meetings-events/>



# New Publications

## Sustainable Agriculture. Advances in Technological Interventions

By Ajoy Kumar Singh, Vishwa Bandhu Patel. 1<sup>st</sup> published May 20, 2020 by Apple Academic Press, 560 Pages – 9 Color & 72 B/W Illustrations, ISBN 9780429325830, price hardback GBP 147.00, Vital Source eBook Purchase GBP 132.30, 6 month rental GBP 73.50, 2 month rental GBP 88.20.

This new volume looks at the evolution and challenges of sustainable agriculture, a field that is growing in use and popularity, discussing some of the important ideas, practices, and policies that are essential to an effective sustainable agriculture strategy. The book features 25 chapters written by experts in crop improvement, natural resource management, crop protection, social sciences, and product development. The volume provides a good understanding of the use of sustainable agriculture and the sustainable management of agri-horticultural crops, focusing on eco-friendly approaches, such as the utilization of waste materials. Topics include ecofriendly plant protection measures, climate change and natural resource management, tools to mitigate the effect of extreme weather events, agrochemical research and regulation, soil carbon sequestration, water and nutrient management in agricultural systems, and more.

Read more: <https://www.routledge.com/Sustainable-Agriculture-Advances-in-Technological-Interventions/Singh-Patel/p/book/9780429325830>

## The Soils of Sri Lanka

Edited by Mapa, Ranjith B. 1<sup>st</sup> ed. published by Springer in 2020, XXI, 128 p. 92 illus., 59 illus. in color. ISBN 978-3-030-44144-9, price hardcover 129,99 € | £109.99 | \$159.99; price eBook: 106,99 € | £87.50 | \$119.00;

This book presents a comprehensive and up-to-date overview of the soils of Sri Lanka. Including sections on the soil research history, climate, geology, geomorphology, major soil types, soil maps, soil properties, soil classification, soil fertility, land use and vegetation, soil management, soils and humans, soils and industry, and future soil issues, the book summarizes the current state of knowledge in a concise and highly reader-friendly way.

Read more: <https://www.springer.com/de/book/9783030441425>

## Soil Proverbs

By Paola Adamo, Gian Franco Capra, Andrea Vacca, Gilmo Vianello. 1<sup>st</sup> edition published in 2020 by Edizioni dell'Orso, Alessandria (Italy), with the contribution of the Italian Society of Soil Science. 243 Pages, ISSN 2704-9183, ISBN 978-88-3613-032-0, price hardcover 25,00 €

With this book, the Italian Society of Soil Science (SISS) wants to offer to a wide audience, made up of readers who are not necessarily "insiders", an invaluable collection of soil proverbs enriched by the dialectal cadences of thirteen regions and an autonomous province of Italy. The book contains around 300 proverbs, which preserve and transmit knowledge of the soil and its management that has its roots in daily experience and the reflective capacity of those who preceded us. The translation and explanation in Italian and English are reported for each proverb.

The recovery of the past, in this case of the oral tradition of proverbs, expresses the meaning and the value that the soil had for the generations that preceded us, as well as the very topical awareness of the importance of preserving and enhancing it so that it can also benefit the future generations.

The publication of this volume takes place in continuity with the spirit that has always been the hallmark of the SISS, keen to promote the spread of Soil Science and its applications, and to stimulate active collaboration among its aficionados. Furthermore, the volume is part of the activities and objectives of the International Decade of Soils (2015-2024), proclaimed by the International Union of Soil Sciences (IUSS) to raise awareness and promote the vital importance of the soil for human life on planet Earth.

Read more: <https://www.ediorso.it/proverbi-del-suolo-soil-proverbs.html/>

## Sustainable Agriculture – Advances in Technological Interventions

By Ajoy Kumar Singh, Vishwa Bandhu Patel. 1<sup>st</sup> edition published May 20, 2020 by Apple Academic Press, 560 Pages – 9 Color & 72 B/W Illustrations, ISBN 9780429325830, price hardback GBP 117.60 (will be shipped after September 16), VitalSource eBook Purchase – GBP 117.60; 6 Month Rental – GBP 73.50, 12 Month Rental – GBP 88.20.

This new volume looks at the evolution and challenges of sustainable agriculture, a field that is growing in use and popularity, discussing some of the important ideas, practices, and policies that are essential to an effective

sustainable agriculture strategy. The book features 25 chapters written by experts in crop improvement, natural resource management, crop protection, social sciences, and product development. The volume provides a good understanding of the use of sustainable agriculture and the sustainable management of agri-horticultural crops, focusing on eco-friendly approaches, such as the utilization of waste materials. Topics include ecofriendly plant protection measures, climate change and natural resource management, tools to mitigate the effect of extreme weather events, agrochemical research and regulation, soil carbon sequestration, water and nutrient management in agricultural systems, and more.

Read more: <https://www.routledge.com/Sustainable-Agriculture-Advances-in-Technological-Interventions/Singh-Patel/p/book/9780429325830>

### Managing Soils and Terrestrial Systems

By Brian D. Fath, Sven Erik Jorgensen. 2<sup>nd</sup> edition published July 5, 2020 by CRC Press, 642 Pages – 182 B/W Illustrations, ISBN 9781138342651, price hardback GBP 100.00, VitalSource eBook Purchase – GBP 35.99; 6 Month Rental – GBP 22.50, 12 Month Rental – GBP 27.00.

Bringing together a wealth of knowledge, *Environmental Management Handbook*, Second Edition, gives a comprehensive overview of environmental problems, their sources, their assessment, and their solutions. Through in-depth entries and a topical table of contents, readers will quickly find answers to questions about environmental problems and their corresponding management issues. This six-volume set is a reimagining of the award-winning *Encyclopedia of Environmental Management*, published in 2013, and features insights from more than 400 contributors, all experts in their field.

In this third volume, *Managing Soils and Terrestrial Systems*, the general concepts and processes of the geosphere with its related soil and terrestrial systems are introduced. It explains how these systems function and provides strategies on how to best manage them. It serves as an excellent resource for finding basic knowledge on the geosphere systems and includes important problems and solutions that environmental managers face today. This book practically demonstrates the key processes, methods, and models used in studying environmental management.

Read more: [https://www.routledge.com/Managing-Soils-and-Terrestrial-Systems/Fath/p/book/9781138342651?utm\\_source=crpress.com&utm\\_medium=referral](https://www.routledge.com/Managing-Soils-and-Terrestrial-Systems/Fath/p/book/9781138342651?utm_source=crpress.com&utm_medium=referral)

### Particulate Plastics in Terrestrial and Aquatic Environments

By Nanthi S. Bolan, M.B. Kirkham, Claudia Halsband, Dayanthi Nugegoda, Yong Sik Ok. 1<sup>st</sup> edition published July 16, 2020 by CRC Press, 466 pages, paperback ISBN 9780367511401, price GBP 41.99, hardcover ISBN 9781138543928, price GBP 155.00.

The manufacture of plastic as well as its indiscriminate disposal and destruction by incineration pollutes atmospheric, terrestrial, and aquatic ecosystems. Synthetic plastics do not break down; they accumulate in the environment as macro-, micro-, and nanoplastics. These particulate plastics are a major source of pollutants in soil and marine ecosystems. *Particulate Plastics in Terrestrial and Aquatic Environments* provides a fundamental understanding of the sources of these plastics and the threats they pose to the environment. The book demonstrates the ecotoxicity of particulate plastics using case studies and offers management practices to mitigate particulate plastic contamination in the environment.

Read more: <https://www.routledge.com/Particulate-Plastics-in-Terrestrial-and-Aquatic-Environments/Bolan-Kirkham-Halsband-Nugegoda-Ok/p/book/9780367511401>

### Soil and Root Damage in Forestry

*Reducing the Impact of Forest Mechanization*

By Iwan Wasterlund. 1<sup>st</sup> edition published 20 August 2020 by Elsevier, 200 pages, ISBN: 9780128220702, eBook ISBN: 9780128220733, price paperback USD 153.00, eBook USD 153.00, print & ebook bundle USD 180.00

Agroforestry has significantly impacted our forests, but an often-overlooked issue is the effect of harvesting on soils and root systems. *Soil and Root Damage in Forestry* explains how soil and roots might be damaged through logging activities or silvicultural activities, how resulting root diseases impact the root and soil systems, and the impacts of chemical applications on the soil and root system. This book goes beyond the 'why' to also provide methods to reduce the impacts of machines on soils and offers solutions to minimize the impacts of machines on soils. *Soil and Root Damage in Forestry* serves as a valuable resource not only for those already working in soil science and forest ecology, but also provides insights for advanced students seeking an entrance to the "hidden half" of the planet.

Read more: <https://www.elsevier.com/books/soil-and-root-damage-in-forestry/wasterlund/978-0-12-822070-2>

### Microbiomes and Plant Health

*Panoply and Their Applications*

Edited by Manoj Solanki, Prem Kashyap, Rizwan Ansari, Baby Kumari. 1<sup>st</sup> edition published 29<sup>th</sup> August 2020 by Academic Press, 518 pages, Paperback ISBN: 9780128197158, eBook ISBN: 9780128226018, price paperback USD 170.00, eBook USD 170.00, print & ebook bundle USD 200.00.

This tome includes the most recent advances in phyto-biome research. The book emphasizes the use of modern molecular tools such as smart delivery systems for microbiol inoculation, next-generation sequencing, and genome mapping. Chapters discuss a variety of applications and examples, including the sugarcane microbiome, rhizoengineering, nutrient recycling, sustainable agricultural practices and bio-potential of herbal medicinal plants. Written by a range of experts with real-world practical insights, this title is sure to be an essential read for plant and soil microbiologists, phytopathologists, agronomists, and researchers interested in sustainable forestry and agriculture practices.

Read more: <https://www.elsevier.com/books/microbiomes-and-plant-health/solanki/978-0-12-819715-8>

### Climate Impacts on Agricultural and Natural Resource Sustainability in Africa

Edited by B.R. Singh, A. Safalaoh, N.A. Amuri, L.O. Eik, B.K. Sitaula, R. Lal. 1<sup>st</sup> edition published 2020 by Springer, XVIII, 637 pages, 123 illus., 98 illus. in color, hardcover ISBN 978-3-030-37536-2, eBook ISBN 978-3-030-37537-9. Price hardcover 139,99 € | £119.99 | \$169.99, eBook 117,69 € | £95.50 | \$129.00, printed eBook € | \$ 24.99.

This book discusses knowledge-based sustainable agro-ecological and natural resource management systems and best practices for sustained agricultural productivity and ecosystem resilience for better livelihoods under a changing climate. With a focus on agriculture in Africa, the book assesses innovative technologies for use on smallholder farms, and addresses some of the key Sustainable Development Goals to guide innovative responses and enhanced adaptation methods for coping with climate change.

Read more: <https://www.springer.com/gp/book/9783030375362>

### Soil testing methods manual

*Doctors Global Programme – A farmer-to-farmer training programme*

By FAO/GSP, published in 2020 in Rome, Italy. 105 pages, ISBN: 978-92-5-131195-0

The Soil Doctors programme is developed under the umbrella of the Global Soil Partnership and promotes the establishment of a farmer-to-farmer training system. The Soil Doctors Global Programme aims to build the capacity of smallholder farmers on the practice of sustainable soil management and, by doing so, support governmental agencies and organizations working on agricultural extension at the field level (promoting broader impact and a reduction of costs). Trainings will also rely on the establishment of demonstration farms and experimental fields by the Soil Doctors, which might attract the interest of research institutes and universities involved in the programme.

The programme also aims to educate farmers on soil science principles for practices of sustainable soil management and aims to achieve this by providing them with a set of tools composed of some educational materials and a soil testing methods (STM) manual for preliminary soil analysis. The STM is a collection of locally relevant, and easy to use, soil analyses procedures that would be selected by each area where the program is implemented.

Read more: <http://www.fao.org/documents/card/en/c/ca2796en>

### Handbook of Bioremediation: Physiological, Molecular and Biotechnological Interventions

Edited by Mirza Hasanuzzaman and Majeti Narasimha Vara Prasad. 1<sup>st</sup> Edition published on 19 October 2020 by Elsevier. 764 pages, Paperback ISBN: 9780128193822, eBook ISBN: 9780128193839, price paperback: EUR 196.35, eBook: EUR 196.35, Bundle: EUR 242.00.

The tome discusses the mechanisms of responding to inorganic and organic pollutants in the environment using different approaches of phytoremediation and bioremediation. Part One focuses specifically on inorganic pollutants and the use of techniques such as metallothionein-assisted remediation, phytoextraction and genetic manipulation. Part Two covers organic pollutants and consider topics such as plant enzymes, antioxidant defense systems and the remediation mechanisms of different plant species. This comprehensive volume is a must-read for researchers interested in plant science, agriculture, soil science and environmental science.

The techniques covered in this book will ensure scientists have the knowledge to practice effective bioremediation techniques themselves.

Read more: <https://www.elsevier.com/books/handbook-of-bioremediation/hasanuzzaman/978-0-12-819382-2>

### Rethinking Food and Agriculture – New Ways Forward

Edited by Amir Kassam Laila Kassam. 1<sup>st</sup> Edition published in October 2020 by Elsevier, 476 pages, Paperback ISBN: 9780128164105, eBook ISBN: 9780128164112, price paperback: EUR 169.58, price eBook: EUR 169.58, Bundle: EUR 209.00.

Given the central role of the food and agriculture system in driving so many of the connected ecological, social and economic threats and challenges we currently face, *Rethinking Food and Agriculture* reviews, reassesses and reimagines the current food and agriculture system and the narrow paradigm in which it operates.

*Rethinking Food and Agriculture* explores and uncovers some of the key historical, ethical, economic, social, cultural, political, and structural drivers and root causes of unsustainability, degradation of the agricultural environment, destruction of nature, short-comings in science and knowledge systems, inequality, hunger and food insecurity, and disharmony. It reviews efforts towards 'sustainable development', and reassesses whether these efforts have been implemented with adequate responsibility, acceptable societal and environmental costs and optimal engagement to secure sustainability, equity and justice. The book highlights the many ways that farmers and their communities, civil society groups, social movements, development experts, scientists and others have been raising awareness of these issues, implementing solutions and forging 'new ways forward', for example towards paradigms of agriculture, natural resource management and human nutrition which are more sustainable and just.

Read more: <https://www.elsevier.com/books/rethinking-food-and-agriculture/kassam/978-0-12-816410-5>

### LUCAS 2015 Topsoil Survey – presentation of dataset and results

This report accompanies the release of the LUCAS 2015 soil dataset. It presents an overview of the laboratory analysis data and provides a detailed description of the results for the EU-28 territory. The report describes the spatial variability of soil properties by land cover (LC) class and a comparative analysis of the soil properties

by NUTS 2 regions. The LUCAS Soil Module is the only mechanism that currently provides a harmonised and regular collection of soil data for the entire territory of the European Union (EU). Regular monitoring provides a unique perspective on pressures affecting soils. LUCAS Soil supports the specific needs of the European Commission by collecting data that characterises soil condition and health.

Read more: [https://esdac.jrc.ec.europa.eu/public\\_path/shared\\_folder/dataset/66/JRC121325\\_lucas\\_2015\\_topsoil\\_survey\\_final\\_1.pdf](https://esdac.jrc.ec.europa.eu/public_path/shared_folder/dataset/66/JRC121325_lucas_2015_topsoil_survey_final_1.pdf)

### Assessment of changes in topsoil properties in LUCAS samples between 2009/2012 and 2015 surveys

In this report, we provide a detailed evaluation of the LUCAS topsoil sampling and the laboratory analysis. We also assess changes in topsoil properties between LUCAS 2009/2012 and 2015 surveys based on data of paired samples (i.e. samples collected in revisited LUCAS soil points in 2009/2012 and in 2015). The ultimate goal of this report is to assess the efficacy of the LUCAS Topsoil Module for the early detection of changes in soil conditions, since this is a primary objective for scientific and policy organizations to improve their policies for a sustainable land use and management.

Read more: [https://esdac.jrc.ec.europa.eu/public\\_path/shared\\_folder/dataset/66/JRC120138\\_lucas\\_changes\\_09-15\\_-\\_final\\_1.pdf](https://esdac.jrc.ec.europa.eu/public_path/shared_folder/dataset/66/JRC120138_lucas_changes_09-15_-_final_1.pdf)

### CO<sub>2</sub> certificates for carbon sequestration in soils: methods, management practices and limitations

By Wiesmeier, M., Mayer, S., Paul, C., Helming, K., Don, A., Franko, U., Steffens, M., Kögel-Knabner, I.; Published in October 2020 in the BonaRes Series. DOI: 10.20387/bonares-ne0g-ce98

Agricultural soils have a great potential for carbon (C) sequestration due to the build-up of soil organic matter (SOM), which consists of about 58% C. Positive efforts in SOM management could therefore make a significant contribution to climate protection. For farmers, CO<sub>2</sub> certificates for the build-up of soil organic carbon (SOC) represent an additional incentive to implement SOM-enhancing management measures. These CO<sub>2</sub> certificates are issued by private initiatives and companies in the voluntary CO<sub>2</sub> market. Especially in the field of agriculture, certificate trading for sequestered C in agricultural soils is currently growing in the German-speaking coun-

tries. In order to contribute to climate protection, certain criteria must be met when issuing certificates. In practice, however, minimum scientific standards have so far been given little consideration. In this study, recommendations are given regarding the quantification of SOC (sampling, analytics, SOC stock calculation), an evaluation of agricultural practices for C sequestration, as well as information on general limitations regarding climate protection via CO<sub>2</sub> certificates. Generally, CO<sub>2</sub>-certificates can give a positive impulse for farmers to deal with sustainable cultivation and SOM supply of their soils. Since SOM is a key property for many soil functions and not least soil fertility, every effort to increase SOM is important. Farmers who are interested in building up SOC should therefore receive comprehensive support and advice on site-specific and farm-specific options for the sequestration of C in their soils.

Read more: <https://tools.bonares.de/doi/doc/29/>

### International Union of Geological Sciences Manual of Standard Geochemical Methods for the Global Black Soil Project

Edited by Demetriades, A., Dai, H., Liu, K., Savin, I., Birke, M., Johnson, C.C., Argyraki, A., 2020. International Union of Geological Sciences, Commission on Global Geochemical Baselines, Special Publication No. 1, Athens, Hellas, ISBN: 978-618-85049-0-5, 107 pages, 49 figures, 4 Tables and 4 Appendices.

The manual is now available from the CGGB website at: <https://www.globalgeochemicalbaselines.eu/content/162/black-soil-project-manual/>

### Soils and Landscape Restoration

Edited by John A. Stanturf and Mac Callaham. 1<sup>st</sup> edition published by Academic Press on 27 October 2020. Paperback ISBN: 9780128131930, eBook ISBN: 9780128131947, 440 pages, price paperback EUR 88.20, price eBook EUR 88.20, price bundle: EUR 115.50.

*Soils and Landscape Restoration* provides a multidisciplinary synthesis on the sustainable management and restoration of soils in various landscapes. The book presents applicable knowledge of above- and below-ground interactions and biome specific realizations along with in-depth investigations of particular soil degradation pathways. It focuses on severely degraded soils (e.g., eroded, salinized, mined) as well as the restoration of wetlands, grasslands and forests. The book addresses the need to bring together current perspectives on land degradation and restoration in soil science and restoration

ecology to better incorporate soil-based information when restoration plans are formulated.

Read more: <https://www.elsevier.com/books/soils-and-landscape-restoration/stanturf/978-0-12-813193-0>

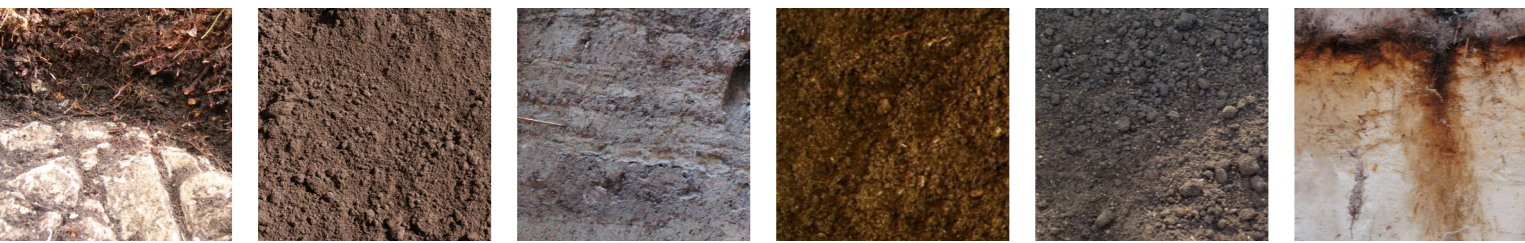
### The Soils of Nevada

Edited by Blackburn, P.W., Fisher, J.B., Dollarhide, W.E., Merkle, D.J., Chiaretti, J.V., Bockheim, J.G. published by Springer in World Soil Book Series, 2021. 301 p. 104 illus., 84 illus. in color. eBook ISBN 978-3-030-53157-7, price EUR 106.99, hardcover ISBN 978-3-030-53156-0, price 129.99 EUR.

This book discusses Nevada in the context of the history of soil investigations; soil-forming factors; general soil regions; soil geomorphology; taxonomic structure of the soils; taxonomic soil regions; soil-forming processes; benchmark, endemic, rare, and endangered soils; and use of soils.

This book presents the first report on the soils of Nevada and provides the first soil map of Nevada utilizing soil.

Read more: <https://www.springer.com/de/book/9783030531560>



# Miscellaneous

## Kiss the ground

### Josh and Rebecca Tickell, 2020 – Big Picture Ranch

#### In soil we trust

Gian Franco Capra<sup>a</sup>, Arun Dilipkumar Jani<sup>b</sup>

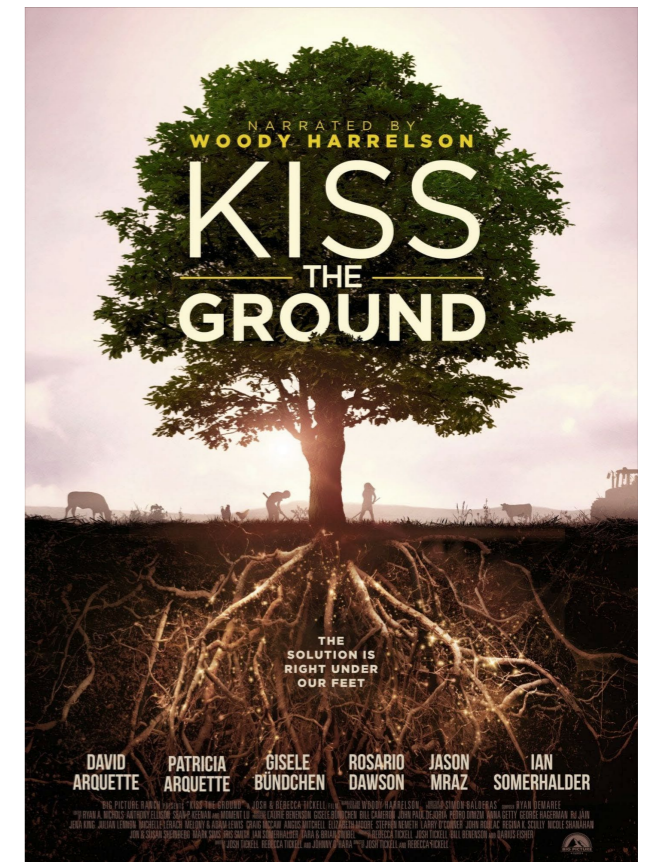
<sup>a</sup> Dipartimento di Architettura, Design e Urbanistica, Università degli Studi di Sassari, Via Colombo n 1, 08100 Nuoro, Italy, [pedolnu@uniss.it](mailto:pedolnu@uniss.it)

<sup>b</sup> USDA-NRCS Ecological Sciences Division Portland, Oregon, 97232, USA, [Arun.Jani@usda.gov](mailto:Arun.Jani@usda.gov)

'Kiss the Ground' is not the first "documentary" talking about soils. Distinguished predecessors were, among others, 'The Agronomist' (Jonathan Demme, 2003), 'Dirt' (Gene Rosow and Bill Benenson, 2009), 'Symphony of the Soil' (Deborah Koons, 2012), and 'Between Earth and Sky: Climate Change on the Last Frontier' (Paul Hanton, 2016). So, what differentiates 'Kiss the Ground' from its illustrious predecessors? What are its merits?

'Kiss the Ground' has several merits. First, the term "documentary" is reductive when used for the Tickells' mate movie, both from an artistic and technical viewpoint. The movie is the result of almost 10 years of research and 300 hours of footage from all over the world. Footage was shot using innovative techniques, an obsessive attention to detail and an inspired, but never didactic or self-satisfying approach to direction. The editing is tight and engaging, the photography enveloping, and the soundtrack compelling. The film is able to communicate complex issues in a way that is disarmingly popular and has rarely been seen before.

Also, defining 'Kiss the Ground' as a "documentary" applies only to a limited extent, since behind the film there is a complex and articulated series of action programs, all fully reported on the official website and boasting terrific graphics and easily accessible content (<https://kisstheground.com/>). The action programs envisage, in addition to the promotion of regenerative agriculture and best soil management practices, the production of short movies, podcasts and a training program which is aimed at farmers who are interested in reconverting their soil according to regenerative principles. The project also gives space to aspects of disclosure: from the site, it is possible to access non-profit organizations and univer-



Official poster of the movie  
(source: <https://kisstheground.com/>)

sities, where the movie is available free of charge on request for informational purposes.

All actions aim to increase knowledge and awareness about soils among people, by drawing their attention to the fact that sometimes the solutions for problems related to climate change, although almost invisible to our eyes, can be found right under our feet. Woody Harrelson is the main narrator – a tremendously talented actor widely acclaimed for his performances in films such as 'True Detective' (Nic Pizzolatto, 2014) and 'Three Billboards Outside Ebbing, Missouri' (Martin McDonagh, 2017) – and his voice makes the words at the beginning of the movie particularly compelling. The actor's voice is superimposed on a series of heavenly images of our planet that are underlined by the phrase "Planet earth [...] it's a great

place to live." This fairytale vision, however, stands in stark contrast to a syncopated succession of images that follows immediately afterwards, recalling catastrophic natural events such as tornadoes, floods, melting glaciers, fires, mass extinctions, as covered by the media (the facts are purposely told, with the help of short clips taken from various news broadcasts, as emblematic signs of climate change processes).

Faced with such images, the viewer is often pervaded by pessimism and despair, and by a sort of unconscious abandonment to catastrophism. As a matter of fact, a recent survey of citizens' perception of climate change, and its impact on their lives (European Investment Bank, 2019) has shown that the fear of the consequences of climate change is perceived all over the world. Most Europeans (82%) think climate change will force people from all over the world to move away from their country of origin. About a quarter of Europeans can imagine having to move to another country because of climate change, with about half of them ranking climate change as the biggest challenge in their lives, exceeding concerns about healthcare services (39%) and unemployment (39%). The situation does not seem to be better on other continents. In the USA, citizens rank climate change (39%) only behind access to healthcare services (45%), while the Chinese are even more pessimistic, with climate change perceived as the biggest challenge facing their society (73%), far more worrying than access to healthcare services (47%) or financial crises (33%). What is the solution? To feel overwhelmed and hopeless? Probably yes, if you do not know anything about soil!

A key scene of the film addresses this catastrophic vision of the future that seems to pervade a large part of public opinion. The music changes, it stops, and Harrelson's persuasive voice explains that the "solution [...] is right under our feet [...] we call it soil...". In the remaining 83 minutes, the movie takes us on a short but extremely intense journey. We discover the soil and its properties that are of paramount importance in the fight against climate change.

During this "journey of hope", in which the soil is portrayed as a protagonist representing "hope", we meet famous activists such as Gisele Bündchen, Tom Brady, Jason Mraz, Ian Somerhalder, Patricia Arquette, and Rosario Dawson (second narrator). However, the absolute protagonists are the experts in soil management and the farmers who act as direct witnesses to the possible environmental

and socio-economic changes that sustainable soil management can bring about. From the agronomist Ray Archuleta of the USDA Natural Resource Conservation Service, who travels the country far and wide to explain to farmers how to conserve and manage soil, the film turns to Kristine Nichols, a soil microbiologist who is involved in the movement for promoting regenerative principles in soil management, and to Gabe Brown, a farmer who, after acquiring land where he suffered crop yield losses in 3 consecutive years as a result of common agricultural management practices, completely changed his technique and adopted regenerative agriculture, which has allowed him to earn ten times more money compared to his neighbors who use traditional methods of intensive agriculture. One of the most impressive parts of the movie is when Gabe illustrates the differences between his revived farmland and his neighbor's degraded lands.

All of them, along with numerous other protagonists, tell us that another world is possible, provided that current methods of soil management are rethought, which would involve abandoning destructive practices such as deep ploughing or heavy reliance on pesticides and synthetic fertilizers. The goal is to take care of the "dirt under our feet", treating it as a living organism. At times, the script seems to deliberately recall the song 'El cóndor pasa (If I Could)' (Simon & Garfunkel, 1970), in particular the verse that says, "I'd rather feel the earth beneath my feet" (and further deepens the meaning of "I'd rather be a forest than a street" in the previous verse).

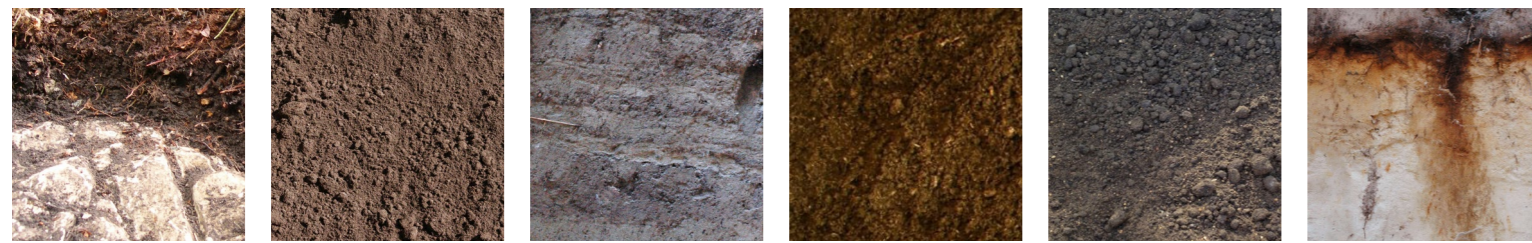
The proposed "simple solutions" do not exclusively include regenerative and conservation agriculture. They include other practices as well such as those based on circular economy principles, e.g. waste (re)use through byproduct composting, or improving indigenous knowledge on sustainable soil management, sustainable forest conservation practices (regenerative agroforestry), farmland and degraded area restoration.

Regardless of what you think about the subject, we recommend that everyone should see the movie and that schools and universities should show it to their students. It will certainly serve to increase their awareness of soil as a fundamental, living resource. They will probably fall in love with it.

The movie is available on the official website <https://kisstheground.com/> and on Netflix.

## References

European Investment Bank, 2019. 2<sup>nd</sup> EIB climate survey. Citizens' perception of climate change and its impact. EIB Media Centre, Luxembourg



# In Memoriam

## Jérôme Balesdent

(1957-2020)



Jérôme Balesdent (© Jérôme's family)

Jérôme Balesdent passed away on July 19, 2020, at the age of 63. The scientific community has lost an outstanding researcher and a colleague who has always been committed to teamwork and the involvement of the younger generation.

Jérôme has been creative throughout his career, starting in Nancy, then Versailles, Cadarache and finally, Aix-en-Provence. As an agronomist, he has left his mark on the world of soil science. He is among the most internationally recognized French researchers for his work on soils and the dynamics of soil organic matter.

Jérôme Balesdent was always one step ahead. He was the inventor of the use of  $^{13}\text{C}$  to trace constrain carbon

dynamics in soils. Using  $^{13}\text{C}$ , he measured, as a function of time, the introduction of corn-derived carbon ( $\text{C}_4$  photosynthesis) into a soil that had only seen  $\text{C}_3$  plants. The constraint of the fast component of soil organic matter dynamics was born. This approach, published in 1987 [1], is today a reference with nearly 800 citations and many emulators. This stable carbon isotope was a complement to his toolbox, which already contained another carbon isotope,  $^{14}\text{C}$ , with which he had already studied the dynamics of the slower components of SOC [2]. Beyond the design of novel methods and the acquisition of invaluable data, Jérôme was also a pioneer in the modelling of soil organic matter content [3]. His 1995 paper was a landmark, and it is still this exponential form of the soil carbon age profile that is used in current models.



One will also recall his intervention at the French Academy of Agriculture in 1999 [4], during which he already affirmed that the soil “could be a huge potential source or sink of CO<sub>2</sub> and that an annual increase in this reservoir of only 0.4% per year would store as much carbon as the burning of fossil carbon emits”. It is this vision that served as the basis for the international initiative “4‰ – soils for food security and climate” that was launched by France in 2015 at the COP21, 15 years after his intervention at the Academy. In 2018, in a meta-analysis published in Nature [5], he insisted on the inertia of the carbon cycle in soils, particularly at depth, and therefore on the need to consider the soil profile in its entirety when it comes to modelling the global carbon cycle and its links with the climate. This paper illustrates the interest that Jérôme has always had in the modelling and conceptualization of soil carbon processes.

Beyond mathematical and conceptual approaches, Jérôme not only enjoyed teaching, but also putting his expertise and integrative vision at the service of public policies. He was, for example, a pillar in the conceptual development of the recent French INRAE report on the “4 per 1000” opportunities and costs [6-7].

Here we would like to pay tribute to the great soil scientist and generous man that Jérôme was. He will be greatly missed by the French and international soil science communities.

## References

- [1] Balesdent J., Mariotti A., Guillet B. (1987) Natural <sup>13</sup>C abundance as tracer for studies of soil organic matter dynamics. *Soil Biology & Biochemistry* 19, 25-30.
- [2] Balesdent J., Guillet B. (1982) Les datations par le <sup>14</sup>C des matières organiques des sols – Contribution à l'étude de l'humification et du renouvellement des substances humiques. *Science du Sol* 2, 93-112.
- [3] Elzein A., Balesdent J. (1995) Mechanistic simulation of vertical distribution of carbon concentrations and residence times in soils. *Soil Science Society of America Journal* 59, 1328-1335.
- [4] Balesdent J., Arrouays D. (1999) Usage des terres et stockage de carbone dans les sols du territoire français. Une estimation des flux nets annuels pour la période 1900-1999. *Compte rendus des séances de l'Académie d'Agriculture de France*, 85(6), 265-277 (séance du 19 mai 1999)
- [5] Balesdent J., Basile-Doelsch I., Chadoeuf J., Cornu S., Derrien D., Fekiacova Z., Hatté C. (2018) Atmosphere-soil carbon transfer as a function of soil depth. *Nature* 559, 599-602.
- [6] Sylvain Pellerin et al., 2019. Stocker du carbone dans les sols français, Quel potentiel au regard de l'objectif 4 pour 1000 et à quel coût? Synthèse du rapport d'étude, INRA (France), 114 p.
- [7] I. Basile-Doelsch, J. Balesdent, S. Pellerin (2020) Reviews and syntheses: The mechanisms underlying carbon storage in soil, *Biogeoscience*, doi.org/10.5194/bg-2020-49, in press

By Isabelle Basile-Doelsch,  
CEREGE and Delphine Derrien, INRAE

# Galina Motuzova

(1940-2020)



Galina Motuzova (© Elena Timofeeva, Lomonosov MSU)

Galina Motuzova, Professor of Soil Chemistry, passed away on October 30, 2020. Professor Motuzova served at the Department of Soil Chemistry, Lomonosov Moscow State University. She was a leading Russian expert in the systemic organization of chemical compounds in soils, soil buffering capacity, and early diagnosis of soil pollution. She published over 400 papers and authored original lecture courses on *Soil Ecological Monitoring* and *Soil Resistance to External Chemical Impact*.

Professor Motuzova was an energetic and science-devoted person. For many years she was the chairwoman of the Dissertation Council of the Soil Science Faculty of Lomonosov MSU, a member of the International Society for the Chemistry of Humus, the International Society for

Biogeochemistry of Microelements, the International Society for the Conservation of Soil and Water Resources, and the International Working Group on Contaminated Lands. Being a member of the Central Council and chairwoman of the Soil Chemistry Commission of the Dokuchaev Soil Science Society, she initiated and organized a series of International Conferences on Contemporary Soil Pollution.

Her service was marked with numerous awards. She was a laureate of the USSR State Education Committee prizes for her works *Contemporary Soil Research Techniques* (1985) and *Heavy Metals in the Environment* (1988); was awarded the Veteran of Labor medal (1990) and the medal In Commemoration of the 850<sup>th</sup> Anniversary of

Moscow (1997), a certificate of honor for the Virgin Lands campaign (1958), a certificate of honor for Merits in Development of Lomonosov MSU (1980), a jubilee badge on 250 years of Lomonosov MSU, and the Kovalsky medal (2014).

Everyone felt her indifference to both scientific and human problems, her kind attitude, a desire to listen and to help. Professor Motuzova treated her students as warmly and cordially as only a close and dear person can. Galina Vasilievna was an amazingly modest and selfless person. The pursuit of a career and financial enrichment, the satisfaction of personal ambitions – all these common incentives did not exist for her, she thought in completely different categories, lived by true human values.

*By Elena Timofeeva (Lomonosov MSU) and  
Alexey Alekseenko (St. Petersburg Mining University)*

# Francisco Silva Mojica

(1926-2020)

## Founder of the SLCS

It is with deep regret that the Latin-American Soil Science Society (SLCS) announces the death of **Don Francisco Silva Mojica**, who was a founding member of the SLCS, our first General Secretary, and a distinguished Honorary Member.

He was a Colombian chemist who graduated from the National University of Colombia and undertook post-graduate studies in Soil Chemistry (advanced level) at the University of Wisconsin.

He was also a founding member of the Colombian Soil Science Society (SCCS) and the SCCS's President from 1969 to 1970. From 1955 to 2000, he was the editor of the scientific journal "Suelos Ecuatoriales" and, from 1995 to 2004, he was General Secretary of the Latin-American Soil Science Society (SLCS).

During his tenure at the head of the General Secretariat of the SLCS, he distinguished himself by his constant commitment to a strong Latin-American Soil Science Society and to Soil Science, always working in close and respectful collaboration with the International Union of Soil Sciences.

In 1992, the SCCS created a National Soil Science Award that bears his name. It is an award that is given to undergraduate and graduate students. In 1997, he created the Analytical Control Network of Soil Laboratories of Colombia (CALC), which to date has 32 laboratories. In 2016, the Latin-American Soil Science Society awarded him the honour "Distinction for a Whole Life Dedicated to Soil Science" and in 2019, he was awarded the title of Honorary Member of the SLCS.

Rest in peace Don Francisco Silva Mojica.

*By Laura Bertha Reyes Sanchez, IUSS President Elect*

# José Luis Colococho Ortega

(1954-2020)



José Luis Colococho Ortega (© Luís Carlos Colococho Utarte)

José Luis Colococho Ortega, born in El Salvador was an Agricultural Engineer (ENA – 1976), specialized in Boviniculture (UFP – 1980), Master on Plant Physiology (UFLA – 1983) and Soil Fertility (UFV – 1987), and D.Sc. in Plant Nutrition (UFV – 1990). For more than 20 years he spearheaded the Soil Science Society of El Salvador, aiming to build up and strengthen the Salvadorian Soil Science. He served as President of the Salvadoran Soil Science Association.

He was an acting member and collaborator of the Latin-American Soil Science Society and a regular attendant at the Brazilian and Latin-American Congresses of Soil Sci-

ence. Professionally he distinguished himself as a prolific scientist, businessman, and consultant for the Latin American Coffee Community. He was honored by his peers in El Salvador in the year 2010 as the Agronomist of the Year. José Luis' impact on the Latin Soil Science community is based on his cordial and friendly personality, provoking enthusiasm for soil science in many students and colleagues. We lost not only an outstanding scientist, but a loving father, friend and colleague who had always a true smile from the heart. We will miss him in so many ways.

*By Luís Carlos Colococho Utarte*

# Donald R. Nielsen

(1931-2020)



Donald R. Nielsen and his wife Joanne (© Joanne Nielsen)

There are no words to describe the professional dedication and achievements of Don. Throughout his career at the University of California in Davis (UC Davis) and beyond, he has influenced countless people, colleagues, students, career staff and others who had an opportunity to spend time with him. Many of us at UC Davis, and so many others nation-wide and abroad across countries and continents have benefited from his interactions. All of those who have known him, will remember his unique and outspoken personality, his candidness that perhaps has not always been appreciated but spoken with his intent to better others, his dedication to the student education and professional service, as well as his friendliness throughout.

Donald Rodney Nielsen was born on October 10, 1931, in Phoenix, Arizona. He gained an early appreciation for soils and agriculture through his father's farming of vegetables in Arizona. Don received a BS degree in agricultural chemistry and soils in 1953 and an MS degree in soil microbiology in 1954 from the University of Arizona. In 1958 he received his PhD in soil physics at Iowa State University under the supervision of Don Kirkham, after which he took a position at UC Davis. After his retirement in 1994, he established himself a home office, from where he continued to interact with students and colleagues around the globe.

Don died on July 24, 2020, after a short stay in the hospital because of complications after surgery related to a fall. He is survived by his wife Joanne, their five children, 10 grandchildren and 3 great-grandchildren. Don was a giant within the field of soil physics as such, as well as far beyond. He voiced strongly for integration of soil science with related environmental fields of agronomy, hydrology, and other disciplines. He was not shy to make his case, always with convincing arguments. Yet in doing so he was not always successful, which could frustrate him enormously. In all, he has made lasting impacts on many people and the profession because of his dedication, inspiration and tremendous work ethics. Let us briefly account for some of his accomplishments.

Don Nielsen spent his entire career at UC Davis, where he contributed enormously to all levels of the university through his teaching, research, and service. He shepherded the UC approval of M.S. and Ph.D. degrees in Earth Sciences and Resources, as well as in Hydrologic Science. He was internationally renowned for his innovative achievements in the areas of chemical transport in soils, in spatial variability of field soils, determining nitrogen pollution levels from agricultural operations, quantifying the hydrological properties of soils, and studying how soil management affects microbial transformations. He was instrumental in designing alternative agronomic experiments using 'non-aggie' statistics to derive management decisions that are meaningful to farmers. He authored more than 300 publications and was an invited speaker at numerous national and international conferences. Very significant early in the 1960s was his work with Jim Biggar on formalizing the theory of miscible displacement in unsaturated soils, which did lead to some 100 joint publications. Continued collaboration with Jim in the 1970s involved their pioneering work on the characterization of field soil variability and implications for water movement and solute transport. Even with an extensive research program on these and related topics, he carried out a full teaching load in the classroom, while serving simultaneously at several levels of administration within the College and the UC Academic Senate. He further served as statewide Director of the Kearney Foundation of Soil Science and Director of the Food Protection and Toxicology Center. He also served as Chair of two of the largest campus departments (Land, Air and Water Resources, and Agronomy & Range Science) and was Executive Associate Dean of the College of Agricultural and Environmental Sciences.

Don has been the advisor for many outstanding graduate students and has been the host to more than 90 international scientists from nearly 40 different countries. Through his teaching, research and administrative efforts, as well as his service on countless national and international organizations, he has had a tremendous impact not only in the soil and hydrological sciences, but also on agricultural and environmental sciences in general. He was President of the Soil Science Society of America (SSSA) and the American Agronomy Society (ASA), as well as President of the Hydrology Section of the American Geophysical Union (AGU). He also served on the National Research Council's (NRC) Board on Agriculture and chaired the U.S. National Committee of Soil Science, thereby representing the National Academy of Science (NAS) and U.S. soil scientists to the International Union of Soil Science (IUSS). Don held many contributing positions at the IUSS, being President of the Soil Physics Commission from 1978-82, member of its Budget and Finance Committee, and organizing or chairing several of its symposia. Many other roles can be cited, such as being a long-time consultant for the International Atomic Energy Agency, or his work for other national and international agencies. For example, he served on panels of Remote Sensing for Soil and Water Resources of the Space Applications Board of NRC and the Geophysics Board of the Water Resources Review Committee of the Food and Agriculture Board of the NAS. He further served on numerous journal editorial boards and review panels of universities and research organizations, as well as consulted for national and international government agencies. Particularly noteworthy was his service on the editorial board of *Water Resources Research* and becoming its editor-in-chief in 1965.

Because of his unique accomplishments in research, student education and professional service, Don Nielsen was honored with numerous awards. He became a Fellow of ASA, SSSA and AGU. He received the M. King Hubbert Award of the National Ground Water Association, was made a Honorary member of IUSS and the European Geophysical Society. He further received the very prestigious Horton Medal of AGU's Hydrology section "for his fundamental and pioneering work in hydrology, combined with his uncanny love for the profession". In 2008 he was awarded the Don and Betty Kirkham International Soil Physics Medal, which is awarded once every 8 years.

Don has been an unselfish servant to the soil, hydrologic and environmental communities worldwide. Throughout his career, he guided, challenged, moved, supported, and inspired people and organizations alike. Clearly, his vision, energy, skills, impact, and legacy are beyond words. Through his service and mentoring of junior scientists, Don Nielsen has directed research needs and opportunities in soil physics and hydrology. He always had very strong views on studying, appreciating, and managing soils. For example, he was very active, through his leadership roles within the U.S. Committee on Soil Science, to introduce soil science in grade and high schools. He also was adamant for graduate students to be innovative and creative, and to follow through on their own ideas without being overly constrained by their professor's need

to execute funded proposals. His inspiration to students and colleagues was largely founded by his conviction that there is a universal need to protect and maintain soils globally, and to develop science and technologies that enable management of the globe's natural resources without soil exhaustion. His ultimate wish was for this to be accomplished by upcoming generations of scientists and to avoid regional and global conflicts because of this.

Let us all take time to digest his aspirations and to direct our energy and resources towards similar goals that serve our society.

*By Jan W. Hopmans, Martinus Th. van Genuchten, and Ole Wendroth – Friends and Colleagues of Don Nielsen*

# Morris Schnitzer

(1922-2020)



Dr Morris Schnitzer (© Soil Science Society of Canada)

Morris Schnitzer, born in Bochum, Germany, passed away peacefully on 9<sup>th</sup> June 2020 at the age of 98. He published a book on his early life odyssey under the title "My Three Selves" (Lugus Publications, Toronto, 2002), soon to be reissued as a textbook under a new title by the Azrieli Foundation. Morris obtained his B.Sc. honors in 1951, M.Sc in 1952, and Ph.D. in 1955 in soil chemistry all from McGill University, Canada. From 1954 to 1956 he worked as a Research and Development Chemist for the Aluminum Company of Canada (ALCAN) in Arvida, Quebec, Canada. His task was to develop analytical methods for the analysis of metals in aluminum alloys. In 1956 he joined the Research Branch of Agriculture Canada. His first research dealt with the formation of complexes between metals and fulvic acid in Spodosols soils. The characterization of these complexes led to in-depth studies on the characteristics of fulvic acid and its chemical structure. From 1961 to 1962, Morris did post-doctorate studies in the Organic Chemistry Department of the Imperial College of Science and Technology in London, England, under the guidance of Sir Derek Barton, Nobel Laureate in Organic Chemistry. He conducted his research on a

Spodosol fulvic acid which he had brought from Canada. More important than the research were his many discussions with Sir Derek on how to apply natural products chemistry for solving structural problems in fulvic acid. After his return to Canada, Morris started a long-term investigation on the oxidative degradation of humic acids, fulvic acids and humins as well as whole soils, using a variety of oxidants. These studies showed that: (a) isolated aromatic rings are important structural units of all humic substances; (b) aliphatic chains are linking aromatic rings to form aromatic networks; and (c) humic substances structures contain voids of various molecular dimensions that can trap organics and inorganics. In the early 1980's his research focused on <sup>13</sup>C-NMR analysis of humic substances, soil organic matter, and whole soils. These experiments showed the importance of aliphatic C in these materials. In another application, Curie point-pyrolysis-gas chromatography/mass spectrometry was used in structural studies on humic and fulvic acids. This research resulted in the development of two-dimensional structural models for humic acids. In other investigations, Morris and his co-workers examined colloid-chemical

properties of humic materials, mechanism of water retention, reaction with metals and minerals, and with organic pollutants including pesticides. A more comprehensive account of Morris' life-time research has been published in *Advances in Agronomy* 68: 1-58, 2000. Morris retired in January 1991 and was appointed Emeritus Distinguished Research Scientist by Agriculture and Agri-Food Canada. He continued his research until 2012. Over the years, Morris attracted about 30 visiting scientists from 15 different countries in addition to numerous Canadian scientists to work in his laboratory in Ottawa, Canada. Morris authored and co-authored more than 400 scientific papers in peer reviewed journals, 3 books including the first book ever published on humic substances in the environment and numerous book chapters on humic materials and soil organic matter.

Morris was awarded Fellowships by the Canadian Society of Soil Science (1971), Soil Science Society of America (1977), American Society of Agronomy (1977), Honorary Member, International Humic Substances Society (1982, 1986), and Royal Society of Canada (1991). He received the Soil Science Award of the Soil Science Society of America in 1984, the Soil Science Distinguished Service Award of the Soil Science Society of America in 1995 and was awarded in Israel the Wolf Prize in Agriculture in 1996. He was chairman of Commission II (Soil Chemistry) of the International Society of Soil Science (1978-1982), and served on the editorial boards of the *Canadian Journal of Soil Science*, *Soil Science and Geoderma*.

*Morris will be greatly missed by his friends, colleagues, co-workers and scientists all over the world involved in humic research. He is survived by his daughter Eve Schnitzer and her family.*

*Obituary provided by the Soil Science Society of Canada*



# IUSS Honorary Members and Award Winners

## IUSS Honorary Members

Year	Member	Country
1924	L. Cayeux †	France
	K. Glinka †	USSR
	Jos. Kopecky †	Czechoslovakia
	G. Murgoci †	Romania
	E. Ramann †	Germany
	Sir John Russell †	UK
	S. Winogradski †	USSR
1927	P. Treitz †	Hungary
1935	E.A. Mitscherlich †	Germany
	A. d'Sigmond †	Hungary
	J. Stoklasa †	Czechoslovakia
1950	G. Wiegner †	Switzerland
	A. Demolon †	France
	D.J. Hissink †	Netherlands
1954	W.P. Kelley †	USA
	S. Mattson †	Sweden
1956	E. Truog †	USA
	G. Bertrand †	France
	E.C.J. Mohr †	Netherlands
1960	F.A. Bear †	USA
1964	J.A. Prescott †	Australia
1968	F. Hardy †	UK
	W.L. Kubiena †	Germany
	L.A. Richards †	USA
	A.A. Rode †	USSR
	R. Bradfield †	USA
1974	G.V. Jacks †	UK
	Ch.E. Kellogg †	USA
	M.K. Kononova †	USSR
	A. Oudin †	France
	F. Scheffer †	Germany
	G. Barbier †	France
1978	V. Ignatieff †	Canada
	Y. Ishizuka †	Japan
	L. Krolikowski †	Poland
	L. Vettori †	Brazil

Year	Member	Country
1982	Ph. Duchaufour †	France
	W. Flaig †	Germany
	V. Kovda †	USSR
	E. Mueckenhausen †	Germany
	E.W. Russell †	UK
1986	H. Jenny †	USA
	D. Kirkham †	USA
	S.K. Mukherjee †	India
1990	R. Tavernier †	Belgium
	G. Aubert †	France
	E.G. Hallsworth †	Australia
	J.S. Kanwar	India
	P. Schachtschabel †	Germany
1998	R.W. Simonson †	USA
	I. Szabolcs †	Hungary
	G.H. Bolt †	Netherlands
	R. Dudal †	Belgium
	K.H. Hartge †	Germany
	M. Kutilek †	Czech Rep.
	J. Quirk	Australia
	W.G. Sombroek †	Netherlands
	K. Wada	Japan
	D.H. Yaalon †	Israel
2002	S.V. Zonn †	Russia
	Richard W. Arnold	USA
	Gleb V. Dobrovolsky †	Russia
	Wilford Gardner †	USA
	Hassan M. Hamdi †	Egypt
	Luis A.L. Sarmiento	Colombia
	Fiorenzo Mancini †	Italy
	Boris S. Nosko	Ukraine
	Ramon Rosell †	Argentina
	Alain Ruellan †	France
Akira Tanaka †	Japan	
Bernard H. Tinker	UK	

Year	Member	Country	
2004	Winfried E.H. Blum	Austria	
	Hans-Peter Blume	Germany	
	Johan Bouma	Netherlands	
	Seong-Jin Cho †	S Korea	
	Jan Glinski †	Poland	
	Marcel G.H. Jamagne †	France	
	Donald R. Nielsen †	USA	
	Hans V. van Baren †	Netherlands	
	Larry P. Wilding †	USA	
	2008	Christian Feller	France
Kikuo Kumazawa		Japan	
Kazutake Kyuma		Japan	
John Ryan		Ireland	
Bob A. Stewart		USA	
Victor Targulian		Russia	
György Varallyay †		Hungary	
Jai Singh Pal Yadav †		India	
2012		Jai-Joung Kim	Korea
		John M. Kimble	USA
	Ahmet Ruhi Mermut	Canada	
	Nicola Senesi	Italy	
	Donald L. Sparks	USA	
	Robert E. White	Australia	
2016	I. P. Abrol	India	
	Jaume Bech	Spain	
	Maria Gerasimova	Russia	
	Martin H. Gerzabek	Austria	
	Mary Beth Kirkham	USA	
	Josef Kozak	Czech Republic	
	Stephen Nortcliff	United Kingdom	
	Marcello Pagliai	Italy	
	Piotr Sklodowski	Poland	
	Karl Stahr	Germany	
	Roger Swift	Australia	
	Tengiz F. Urushadze	Georgia	
Jae Yang	Korea		

Year	Member	Country
2020	Jozef A. (Seppe) Deckers	Belgium
	Flavio Anastacio de Oliveira Camargo	Brazil
	Rainer Horn	Germany
	Carmelo Dazzi	Italy
	Kazuyuki Inubushi	Japan
	Kye-Hoon 'John' Kim	Korea
	Bal Ram Singh	Norway
	Pavel Krasilnikov	Russia
	Rosa M. Poch Claret	Spain
	Alfred Hartemink	USA

## IUSS Award Winners

Dokuchaev Award		
Year	Member	Country
2006	Victor Targulian	Russia
2010	Dan Yaalon †	Israel
2014	Alex McBratney	Australia
2018	Johan Bouma	Netherlands

Von Liebig Award		
Year	Member	Country
2006	Rattan Lal	USA
2010	Don Sparks	USA
2014	Magdi Selim †	USA
2018	John Ryan	Ireland

Jeju Award		
Year	Member	Country
2018	John Bennett	Australia

