

WASWAC

HOT NEWS

❖❖❖ ISSUE 7, 2021



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Land Degradation, Soil Conservation and Sustainable Development, 2021

Welcome Messages

Dear colleagues,

Welcome to the International Forum on Land Degradation, Soil Conservation and Sustainable Development, 2021, where a new experience awaits. On behalf of the conference, we are pleased to extend a very warm welcome to attendees. Thank you for joining us and along with us to mark such a special occasion in history.

While the Covid-19 pandemic has meant that we cannot face it in real life, the conference still has an outstanding programme ahead of us. We hope not only for the excellent scientific “spark” to attendees but also for the countless opportunities to engage in friendly and supportive dialogue, cementing existing relationships and making new connections. We will be asking some of you to share these with us over the coming days-----be prepared! Whether you are here for one or two days or the whole conference, we encourage you all to make the most of this valuable opportunity.

LASOSU2021 was conceived in March 2020, and the first circular for session proposals was released in June 2020. So far, we have received support and assistance from more than a dozen organizations and companies around the world. A total of 259 papers have been accepted, which bring together more than 20 countries worldwide. Thanks to the help and support of these friends, we were able to finalize the conference programme, including 2 slots for Keynote Speeches, 1 slot for Focus Group Discussion, and 23 slots for Parallel Sessions. We harbor the hope that our conferences will be the place where we can share our ideas, engage in debate and learn from one another. We also do hope that this event will be followed by others in the coming years. Let us work together to assure the sustainable use of precious global soil and to combat its ongoing degradation. What we are sure will be an energetic global dialogue on the sustainable development.

I wish you all an excellent conference.

Organizing Committee of LASOSU2021



Ability of urban trees, soils to maintain critical ecosystem services

by Dante Lapenta, University of Delaware

If you're a tree, country life is much easier than city living. Rural trees—which can live long, productive lives of sometimes more than 100 years—draw on vast resources of an extensive forest network of nearby trees. In urban areas, friendly, neighboring trees can be few and far between. Heat island effects and variation in nutrient levels leave urban trees more vulnerable to natural environmental pressures. The consequences are depressed growth and an early death.



Former University of Delaware postdoctoral research fellow Carl Rosier poses with 300-year-old American Beech Tree. Credit: University of Delaware

But underneath the tree lies an ally—soil, which provides the tree a welcome anchor for its roots, nutrients for growth and a vast array of soil microbes. In return, trees modify the soil microbial community (SMC), establishing and nourishing crucial bacterial and fungal

life below the surface.

In a research article published in *Scientific Reports*, University of Delaware researchers investigated the pressures of urbanization on SMC associated with specific tree species. The research team included UD faculty member Tara Trammell and former postdoctoral research fellow Carl Rosier.

The research team compared urban, suburban and rural areas. They selected American beech and yellow poplar trees due to canopy and bark differences, but also because of their dominance in both urban and rural forests.

To characterize the soil microbes beneath specific trees, Trammell and Rosier used next generation high throughput sequencing. This technique enabled the researchers to simultaneously sequence millions of DNA molecules allowing specific identification of hundreds of bacterial species. In tandem with this approach, the research team also investigated soil carbon, nitrogen, metal concentrations and pH that comprise the soil under each tree species across all sampled forests. The team's findings suggest urban pressure alters specific soil characteristics, overriding the tree's capacity to maintain a unique SMC.

In rural forests, the researchers found SMC dissimilarity, suggesting that microbes are unique to each tree species. However, city life means greater urbanization pressure, so whether the tree is a beech or poplar, SMC is similar. Rosier said similarity is not the result of biodiversity loss, but rather due to greater overlap of shared organisms.



Carl Rosier and field assistant Gavin Rosier contemplate the day's sampling efforts. Credit: University of Delaware

"We thought that we would lose some of the more sensitive microorganism species within urban environments, but we didn't see that," said Rosier. "The [urban] environment changes SMC to a degree where you have beech and



Carl Rosier collects a one-meter soil core. Credit: University of Delaware

poplar trees with similar SMC composition." With expanding population centers, the study will inform land managers and conservation efforts on how to create more resilient urban forests. Such forestry research illuminates a battle plan for how big an urban forest must be to positively impact ecosystem services.

The tree-soil bond

Pulling carbon from the air and transferring it through their roots and leaf litter, trees are soil's best friend, replenishing soil with rich sources of organic nutrients. These selfless ex-

plants help to create a healthy SMC, which in turn provide critical ecosystem services, including organic matter decomposition, soil structural formation and nutrient cycling.

"When we think about climate change and the ability of soil to sequester carbon, microbes are essential in that process," said Rosier, now a senior project scientist with Material Matters and lead research scientist and co-founder of Agroecology Solutions.

Without the trees to provide critical resources, the soil's composition would change, negatively altering an ecosystem. Plants develop specific communities of microbes around their



Carl Rosier and Gavin Rosier prepare soil samples for soil chemistry analysis. Credit: University of Delaware

roots. Sometimes living hundreds of years, trees spend their life manipulating water, nutrients and other factors like pH in the soil.

"At the base of specific species of trees, you

have a unique soil chemistry; however, as little as one meter away, soil chemistry can differ significantly," said Rosier.

Soil versus city

You might expect rural and urban soil chemistry to be very different. After all, an urban forest faces a lot of human-made environmental pressures. Instead, the chemistry is similar in both locations—very robust and resilient.

In the soil versus city struggle, a casual observer might not give soil much of a chance. But despite being outnumbered by human-made elements, the underdog pulls a Rocky Balboa, fighting deep into the night.

"It shows you how robust soils are," said Rosier. "Soils can take a huge impact before losing organic matter and the ability to sustain plant life."

But once the soil crosses the tipping point where it loses important components such as organic matter, nursing it back to health is incredibly difficult.

"As land managers and stewards of the land, we must be mindful of this critical juncture," Rosier said. "The capacity of soils to perform ecosystem services is critical for humans to survive on our planet."

Sources: <https://phys.org/news/2021-08-ability-urban-trees-soils-critical.html>

Updated Submission Data of ISWCR in July 2021

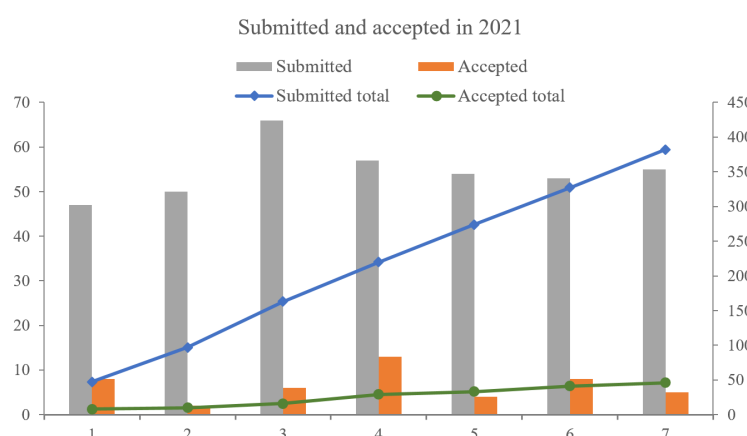
Annual Volume of Submissions and Publishing since 2013

Year	Published	Submitted
2013	27	27
2014	32	32
2015	30	67
2016	38	124
2017	38	231
2018	36	214
2019	39	264
2020	44	475



Monthly Submissions & Acceptance in the current year (2021)

Month	Submitted	Accepted
1	47	8
2	50	2
3	66	6
4	57	13
5	54	4
6	53	8
7	55	5



The International Soil and Water Conservation Research (ISWCR), initiated in June 2013, is a quarterly academic journal in English and publishes in Science Direct of Elsevier with open access globally. Since initiation, ISWCR has developed rapidly and established a good reputation in both international academia and publishing industry. It was indexed by Chinese Science Citation Database (CSCD) in April 2015, covered by SCOPUS in January 2017, and was indexed by Emerging Sources Citation Index (ESCI) of Clarivate Analytics in October 2017. In July 2019, ISWCR was officially indexed by SCIE. The Impact factor of ISWCR is 3.770 in 2019, and 6.027 in 2020.

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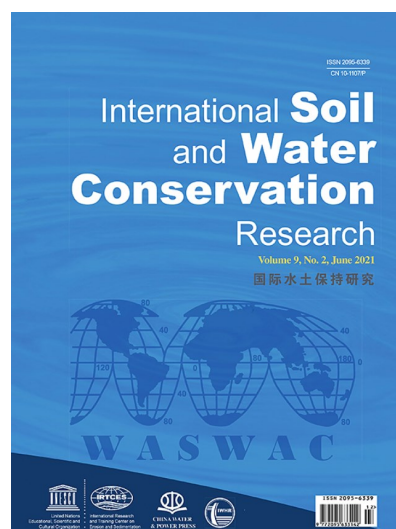
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