

# iFAST: The International Forum on Advanced Environmental Sciences and Technology

*A series of distinguished seminars by eminent scientists*

**8 a.m. CDT, 9 a.m. EDT, 1 p.m. GMT, 9 p.m. China**  
**Wednesday, Oct. 18, 2023**



## **WIM VAN DER PUTTEN**

NETHERLANDS INSTITUTE OF ECOLOGY  
(NIOO-KNAW)

<https://nioo.knaw.nl/en/employees/wim-van-der-putten>

Wim van der Putten is head of Terrestrial Ecology at the Netherlands Institute of Ecology and special professor in Functional Biodiversity at Wageningen University. Van der Putten's main interest is in aboveground-belowground multitrophic interactions, plant-soil feedback, succession, (soil) biodiversity, invasions and climate change-induced range shifts. He had an ERC Advanced grant on community re-assembly under climate warming, is an elected member of the Royal Netherlands Academy of Arts and Sciences and of Academia Europaea, and is a member of the Board of Reviewing Editors of Science. He has co-authored an overview report on soil biodiversity for the [EC DGXI](#), and is co-editor of both the European and Global Atlases of Soil Biodiversity. He co-founded the [Wageningen Centre for Soil Ecology](#) and is a member of the Scientific Advisory Committee of the Global Soil Biodiversity Initiative (GSBI <https://globalsoilbiodiversity.org/>). He has been a member of the editorial team of the first [Global Soil Biodiversity Assessment](#) and of the Global Soil Biodiversity Assessment (2020). He has led the soil assessment for the [European Academy of Sciences Environment Council](#).

## **Aboveground-Belowground Interactions in a Warming World: Consequences for Memories of the Soil Biodiversity**

Current climate warming enables range expansion of many plants, animals and microbes to higher latitude and altitude areas. Many studies have focused on the capacity of plants and (invertebrate) animals to keep up with climate warming; however, fewer analyses exist on plant-enemy interactions along range expansion gradients. Plants are known to interact with enemies both belowground and aboveground, and predictions based on the range expansion capacities suggest that plants may outrun belowground enemies more easily than aboveground enemies. I will present results of several integrated projects where we have examined aboveground-belowground community composition along a range expansion gradient from southeastern to northwestern Europe. We have compared network interactions of plant species that are native along the entire gradient, with congeneric range expanders. In addition, range expanders were included that do not have congeneric natives in the expanded range. Then, I will discuss results of an almost 10-year-old mesocosm experiment where we have experimentally teased apart range expansion of both plants and soil biota. Here, we had the opportunity to examine direct effects of extreme summer droughts and their long-term legacies. We compare effects of soil origin and legacy effects of drought with those of soil conditioning by range-expanding and native plant species on communities of plants and aboveground invertebrates. Results point out that range expansion changes the type and magnitude of belowground memories that result from previous plants and droughts conditioning the community of soil biota. These altered memory effects may even trickle up to plant-aboveground enemy interactions.



DODGE FAMILY COLLEGE OF ARTS AND SCIENCES  
**INSTITUTE FOR ENVIRONMENTAL GENOMICS**  
The UNIVERSITY of OKLAHOMA



**中南大學**  
CENTRAL SOUTH UNIVERSITY

**Zoom webinar ID: 934 8142 2012 ([zoom.us/j/93481422012](https://zoom.us/j/93481422012))**

More details and previous iFAST seminar videos are available on [www.ou.edu/ieg/seminars](http://www.ou.edu/ieg/seminars).

Organizing Committee Chair: Jizhong Zhou (University of Oklahoma, USA; [www.ou.edu/ieg](http://www.ou.edu/ieg))

Xueduan Liu (Central South University, China)

The University of Oklahoma is an equal opportunity institution. [www.ou.edu/eoo](http://www.ou.edu/eoo)