Ecological Society of America Announces 2017 Award Recipients

The Ecological Society of America (ESA) will present the 2017 awards recognizing outstanding contributions to ecology in new discoveries, teaching, sustainability, diversity, and lifelong commitment to the profession during the Society's Annual Meeting in Portland, Oregon. The awards ceremony will take place during the Scientific Plenary on *Monday, August 7, at 8 AM in the Oregon Ballroom, Oregon Convention Center.* Learn more about ESA awards on our home website.

Eminent Ecologist Award: Diana Harrison Wall

The Eminent Ecologist Award honors a senior ecologist for an outstanding body of ecological work or sustained ecological contributions of extraordinary merit.

Soil ecologist Diana Wall, the founding director of the Colorado State University's School of Global Environmental Sustainability, is world-renowned for uncovering the importance of belowground processes. Best known for her outstanding quarter century of research in the McMurdo Dry Valleys in Antarctica, one of the more challenging environments of the planet, her research has revealed fundamental soil processes from deserts and forests to grasslands and agricultural ecosystems to New York City's Central Park. Dr. Wall's extensive collaborative work seeks to understand how the living component of soil contributes to ecosystem processes and human well being—and to in turn uncover how humans impact soils, from local to global scales.

In landmark studies, she revealed the key role of nematodes and other tiny animals as drivers of decomposition rates and carbon cycling. The biodiversity in soils, she found, influences ecosystem functioning and resilience to human disturbance, including climate change. She demonstrated that the biodiversity belowground can at times be decoupled from biodiversity aboveground. Her focus on nematodes in soils in very harsh environments, from the cold, dry Antarctic to hot, dry deserts, opened up a perspective on how life copes with extreme environments. She has a laudable record of publishing excellent papers in top-ranked scientific journals.

Dr. Wall has played a vital role as an ecological leader, chairing numerous national and international committees and working groups and serving as president of the Ecological Society of America in 1999. She is a Fellow of ESA, the American Association for the Advancement of Science, and the Society of Nematologists. In 2013, she received the Tyler Prize for Environmental Achievement for her outspoken efforts as an ambassador for the environmental and economic importance of soils and ecology.

Currently, she is scientific chair of the Global Soil Biodiversity Initiative, which works to advance soil biodiversity for use in policy and management of terrestrial ecosystems. Dr. Wall is well-respected in her role as mentor of young scientists, over several generations, and as a communicator of science outside the usual academic arenas.

Eugene P. Odum Award for Excellence in Ecology Education: Kathleen Weathers

Odum Award recipients demonstrate their ability to relate basic ecological principles to human affairs through teaching, outreach, and mentoring activities.

Kathleen Weathers is a senior scientist and the G. Evelyn Hutchinson chair of ecology at the Cary Institute of Ecosystem Studies, where she focuses on freshwater ecosystems. For more than a decade, she has been dedicated to advancing bottom-up network science, creating training opportunities for graduate students and tools for citizen science engagement. Her efforts strive to equip the next generation of ecologists and managers with the skills needed to protect freshwater resources.

Dr. Weathers played a guiding role in the formation of the Global Lake Ecological Observatory Network (GLEON), and currently acts as co-chair. As part of this international grassroots collaboration, she helped develop Lake Observer, a crowd-sourcing app that streamlines the way that researchers and citizen scientists record water quality observations in lakes, rivers, and streams.

Dr. Weathers has made it a priority to mentor students and early-career scientists participating in GLEON, with an eye toward diversity, inclusion, and instruction. She helped empower GLEON's student association, which contributes meaningfully to governance and training within the broader network. She also spearheaded the development of the GLEON Fellows Program, a two-year graduate immersion in data analysis, international collaboration, effective communication, and team science.

The GLEON Fellows Program has emerged as a model for training initiatives in macrosystem ecology, and will affect the ecological community positively for decades to come, as participants carry their training forward to other institutions and endeavors.

Distinguished Service Citation: Debra Peters

The Distinguished Service Citation recognizes long and distinguished volunteer service to ESA, the scientific community, and the larger purpose of ecology in the public welfare.

Debra Peters is the founding editor-in-chief of ESA's newest journal, *Ecosphere*, created in 2010 to offer a rapid path to publication for research reports from across the spectrum of ecological science, including interdisciplinary studies that may have had difficulty finding a home within the scope of the existing ESA family of journals. In her hands the online-only, open-access journal has claimed a successful niche in the ecological publications landscape, expanding to publish over 400 manuscripts in 2016.

Dr. Peters, an ecologist for the United States Department of Agriculture Agricultural Research Service's (USDA-ARS) Jornada Experimental Range and lead principal investigator for the Jornada Basin Long Term Ecological Research program in Las Cruces, New Mexico, has served on the editorial boards of ESA's journals *Ecological Applications, Ecology,* and *Ecological Monographs*. She chaired the Society's Rangeland Section, was a founding member and chair of the Southwest Chapter, and has served as member-at-large on the Governing Board. As program chair for the 98th Annual Meeting of the Society,

she inaugurated the wildly popular Ignite talks, which give speakers the opportunity to present conceptual talks that do not fit into the standard research presentation format.

Dr. Peters has greatly contributed to the broader research enterprise as senior advisor to the chief scientist at the USDA, and as a member of the National Ecological Observatory Network's (NEON) Board of Directors. She has provided this quite amazing array of services in support of the Society and her profession while maintaining an outstanding level of research productivity and scientific leadership in landscape-level, cross-scale ecosystem ecology. Many of her more than 100 research publications have been cited more than 100 times. Her fine record of research led to her election as a Fellow of ESA and the American Association for the Advancement of Science.

In all respects, Debra Peters exemplifies distinguished service to the ESA and to science.

Commitment to Human Diversity in Ecology Award: Gillian Bowser

ESA's Commitment to Human Diversity in Ecology Award recognizes long-standing contributions of an individual toward increasing the diversity of future ecologists through mentoring, teaching, or outreach.

Gillian Bowser, research scientist in Colorado State University's Natural Resource Ecology Laboratory, is honored for her joyful and successful recruitment and retention of under-represented students to the study of ecology, to public service in support of the natural world, and to empowerment of women and minorities worldwide.

W.S. Cooper Award: Andrew J. Trant, Wiebe Nijland, Kira M. Hoffman, Darcy L. Mathews, Duncan McLaren, Trisalyn A. Nelson, and Brian M. Starzomski

The Cooper Award honors the authors of an outstanding publication in the field of geobotany, physiographic ecology, plant succession, or the distribution of plants along environmental gradients. William S. Cooper was a pioneer of physiographic ecology and geobotany, with a particular interest in the influence of historical factors, such as glaciations and climate history, on the pattern of contemporary plant communities across landforms.

University of Waterloo, Ontario, Professor Andrew Trant and colleagues at the University of Victoria and the Hakai Institute in British Columbia revealed a previously unappreciated historical influence on forest productivity: long-term residence of First Nations people. Counter to a more familiar story of damage to ecosystems inflicted by people and their intensive use of resources, the activities of native people on the Central Coast of British Columbia enhanced the fertility of the soil around habitation sites, leading to greater productivity of the dominant tree species, the economically and culturally valuable western redcedar (*Thuja plicata* Donn ex D. Don).

Through a combination of airborne remote sensing and on-the-ground field work, the authors showed that forest height, width, canopy cover, and greenness increased on and near shell middens. They presented the first documentation of influence on forest productivity by the daily life activities of traditional human communities.

Trant, A. J. et al. 2016. Intertidal resource use over millennia enhances forest productivity. *Nature Communications* 7, Article number: 12491. https://doi.org/10.1038/ncomms12491

George Mercer Award: Jennifer Williams, Bruce Kendall, and Jonathan Levine

The Mercer Award recognizes an outstanding and recently published ecological research paper by young scientists.

Biological invasions, and migrations of native species in response to climate change, are pressing areas of interest in this time of global change. Fragmentation of the landscape by natural and human-made barriers slows the velocity of spread, but it is not known how patchy habitat quality might influence the potential for evolution to accelerate invasions.

Jennifer Williams, an assistant professor at the University of British Columbia, and colleagues implemented a creative experimental design using the model plant species *Arabidopsis thaliana* that allowed them to disentangle ecological and evolutionary dynamics during population expansion. Some plant populations were allowed to evolve, while others were continually reset to their original genetic composition. The authors convincingly demonstrate that rapid evolution can influence the speed at which populations spread, especially in fragmented landscapes.

Williams, J. L., B. E. Kendall, and J. M. Levine. 2016. Rapid evolution accelerates plant population spread in fragmented experimental landscapes. *Science* 353(6298), pp. 482–485. https://doi.org/10.1126/science.aaf6268

Sustainability Science Award: Jianguo Liu, Harold Mooney, Vanessa Hull, Steven J. Davis, Joanne Gaskell, Thomas Hertel, Jane Lubchenco, Karen C. Seto, Peter Gleick, Claire Kremen, and Shuxin Li

The Sustainability Science Award recognizes the authors of the scholarly work that makes the greatest contribution to the emerging science of ecosystem and regional sustainability through the integration of ecological and social sciences.

Sustainability challenges like air pollution, biodiversity loss, climate change, energy and food security, disease spread, species invasion, and water shortages and pollution are often studied, and managed, separately, although the problems they present are interconnected. Jianguo Liu and colleagues provide a framework for addressing global sustainability challenges from a coupled human and natural systems approach that incorporates both socioeconomic and environmental factors. They review several recent papers that have quantified at times conflicting efforts to provide ecosystem services, when these efforts are examined in a global perspective. The authors argue for the need to quantify spillover systems and feedbacks and to integrate analyses over multiple spatial and temporal scales. This will likely require the development of new analytical frameworks both to understand the social–ecological mechanisms involved and to inform management and policy decisions for global sustainability.

Liu, Jianguo (Jack), H. Mooney, V. Hull, S. J. Davis, J. Gaskell, T. Hertel, J. Lubchenco, K. C. Seto, P. Gleick, C. Kreman, and S. Li. 2015. Systems integration for global sustainability. *Science* 347(6225), https://doi.org/10.1126/science.1258832

Innovation in Sustainability Science Award: Ian Donohue, Helmut Hillebrand, José M. Montoya, Owen L. Petchey, Stuart L. Pimm, Mike S. Fowler, Kevin Healy, Andrew L. Jackson, Miguel Lurgi, Deirdre McClean, Nessa E. O'Connor, Eoin J. O'Gorman, and Qiang Yang

The Innovation in Sustainability Science Award recognizes the authors of a peer-reviewed paper published in the past five years exemplifying leading-edge work on solution pathways to sustainability challenges.

One of the biggest challenges facing development of effective policy to address sustainability issues is that the concepts and vocabulary used by scientists to define and promote sustainability rarely translate into effective policy, because they do not include measures of success. This challenge is particularly apparent in the concept of stability and resilience, terms that are frequently used in policy statements and have long been the subject of empirical and theoretical research in ecology, but for which there are no easily defined and quantified metrics.

Ian Donohue and colleagues argue that much of the fault for this disconnect lies with the academic community. They summarize and analyze a number of examples to support their claim that ecologists have taken a one-dimensional approach to quantifying stability and disturbance when these are actually multidimensional processes. They argue that this has led to confused communication of the nature of stability, which contributes to the lack of adoption of clear policies. They propose three areas where future research is needed and make clear recommendations for better integrating the multidimensional nature of stability into research, policy, and actions that should become a priority for all involved in sustainability science.

Donohue, I., H. Hillebrand, J. M. Montoya, O. L. Petchey, S. L. Pimm, M. S. Fowler, K. Healy, A. L. Jackson, M. Lurgi, D. McClean, N. E. O'Connor, E. J. O'Gorman, and Q. Yang. 2016. Navigating the complexity of ecological stability. *Ecology Letters* 19:1172–1185. https://doi.org/10.1111/ele.12648

Robert H. Whittaker Distinguished Ecologist Award: Petr Pyšek

The Whittaker Award recognizes an ecologist with an earned doctorate and an outstanding record of contributions in ecology who is not a U.S. citizen and who resides outside the United States.

Petr Pyšek, the chair of the Department of Invasion Ecology at the Academy of Sciences of the Czech Republic, is honored for his pioneering and insightful work in invasion ecology. Dr. Pyšek is editor-in-chief of *Preslia* (Journal of the Czech Botanical Society) and serves on the editorial boards of *Biological Invasions*, *Diversity and Distributions*, *Folia Geobotanica*, and *Perspectives on Plant Ecology, Evolution and Systematics*.

Forrest Shreve Student Research Fund: Daniel Winkler

The Shreve Award supplies $1,000–2,000 to support ecological research by graduate or undergraduate student members of ESA in the hot deserts of North America (Sonora, Mohave, Chihuahua, and Vizcaino).

Daniel Winkler, a Ph.D. student with Travis Huxman at University of California Irvine, studies the invasion of Sahara mustard (*Brassica tournefortii*) in the Mojave, Sonoran, and Chihuahuan deserts. His dissertation focuses on determining the source populations of Sahara mustard and whether plasticity in functional traits is allowing the species to spread. Funds from the Forrest Shreve Student Research Fund will be used to process samples for leaf stable isotopes and elemental stoichiometry, allowing for a comparison of functional traits indicative of local adaptation and the species' plasticity. Daniel was a National Park Service Young Leaders in Climate Change Fellow and a NSF EAPSI Research Fellow.