



# SESYNC Feedbacks

News from the National Socio-Environmental Synthesis Center

## RESEARCH NEWS | Postdoc Research Lands Cover of *Nature*

### Globalization Is Reweaving the Web of Life

SESYNC Postdoc **Evan Fricke** made the cover of **Nature** with his research showing how introduced species are reshaping plants' and animals' interactions in ecosystems worldwide.

Annapolis, MD - As introduced species spread around the world, the complex networks of interactions between plants and animals within ecosystems are becoming increasingly similar, a process likely to reinforce globalization's imprint on nature and increase risks of sweeping ecological disruption. The finding comes from a new study published this week in **Nature**, carried out by researchers at the University of Maryland's National Socio-Environmental Synthesis Center (SESYNC) and Center for Biodiversity Dynamics in a Changing World (BIOCHANGE) at Aarhus University. The researchers found that introduced species are reshaping mutualistic relationships between plants and animals at an accelerating pace, creating new ecological links between previously disconnected ecosystems.

### Losing Biodiversity's Portfolio Effect

Biodiversity is changing worldwide not only through the loss of species, but by species composition becoming more similar across different regions—a process called biotic homogenization. Just as diversification in an investment portfolio buffers it from downturns in certain sectors, diversity across ecosystems buffers natural systems from widespread collapse. The researchers found that homogenization affects mutualistic networks made up of plants and the animals that disperse their seeds. By compiling data from hundreds of sites around the world, they found that interactions involving a plant or animal that was an introduced species has increased seven-fold over the past 75 years. The resulting loss of the portfolio effect poses greater risk of sweeping disruption by broad-scale stressors such as climate change or disease outbreaks. [Read the full press release here.](#)



## The Dr. Richard Payne Graduate Fellowship

Deadline: October 2, 2020

Intended to recognize excellence in graduate students in the University of Maryland's College of Computer, Mathematical, and Natural Sciences (CMNS), this fellowship provides \$5,000 to support graduate-level research that directly links social and environmental sciences, with a particular focus on connecting climate and policy studies. It is offered in partnership with SESYNC, funded by a grant from the National Science Foundation to CMNS. Awardees will benefit from mentorship and interdisciplinary research learning opportunities over the course of the award via engagement with members of the SESYNC Leadership team and will have access to the Center's diverse and robust scientific community and calendar of events, including its virtual seminar series. **Apply by Oct. 2!**



## SESYNC SEMINARS | Free, Virtual Seminars Open to All

### Our Fall Seminar Series Continues!

Seminars are held every other Tuesday at 11 a.m. ET and are **free** to join and **open to the public**. Registration is required. See our upcoming seminars below. Full list [available here](#) and for [download](#).



October 6, 2020

### Dr. Devon Payne-Sturges, University of Maryland

"Making the Invisible Visible: Intervening on Cumulative Environmental Neurodevelopmental Risks Using a System Dynamics Approach"

Learn more and register [HERE](#).



October 20, 2020



### Dr. Rachel Mason, SESYNC

"Evidence, Causes, and Consequences of a Global Decline in Available Nitrogen"

### Dr. Rachel Zuercher, SESYNC

"Does Ocean Planning Deliver Socio-Ecological Benefits Relevant to the Sustainable Use of Ocean Ecosystems?"

Learn more and register [HERE](#).



## Dr. Olaf Jensen, University of Wisconsin

“Conservation at a Cost: U.S. Fisheries  
Management Under the Magnuson-Stevens Act”

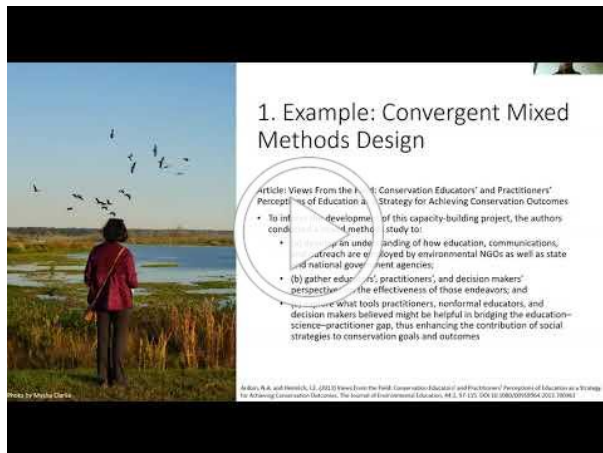
November 3, 2020

Learn more and register [HERE](#).

## IN CASE YOU MISSED IT | Previous Seminar Recordings Available

### The Human Dimensions of Natural Resource Management: What Is the Role of Mixed Methods Approaches?

Presented by Dr. Mysha Clarke, University of Florida. [Learn more.](#)



### Foundations for Sustainability: A Coherent Framework of Life-Environment Relations

Presented by Dr. Dan Fiscus, Research Alliance for Regenerative Economics, Dr. Brian Fath, Towson University. [Learn more.](#)

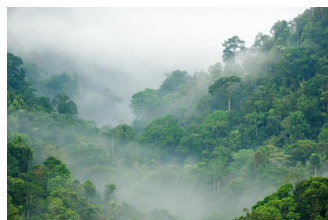


## NEWS CORNER | Other S-E Research News



### SESYNC Pursuit Has Scientists Sounding the Alarm on Plastic Pollution

New study in [Science](#) estimates that even with governments' and others' efforts to curb plastic pollution, annual plastic emissions may increase to 53 MT of plastic waste to oceans, lakes, and rivers by 2030. [Learn more.](#)



### SESYNC Researcher Working to Improve Tropical Forests' Resilience

SESYNC researcher and former postdoc **Xavier Benito** and his team are working on a new project to improve the resilience of tropical forests to human-climate pressures, using knowledge of the past to guide the future. [Learn more.](#)



### First Seminar Explains Mixed Methods Approach

In SESYNC's first virtual seminar this fall, Dr. Mysha Clarke explained how researchers can combine quantitative and qualitative social science research methods, also known as the mixed methods approach, to address complex S-E issues.

## YOUTUBE | Watch Our Data & Methods Series

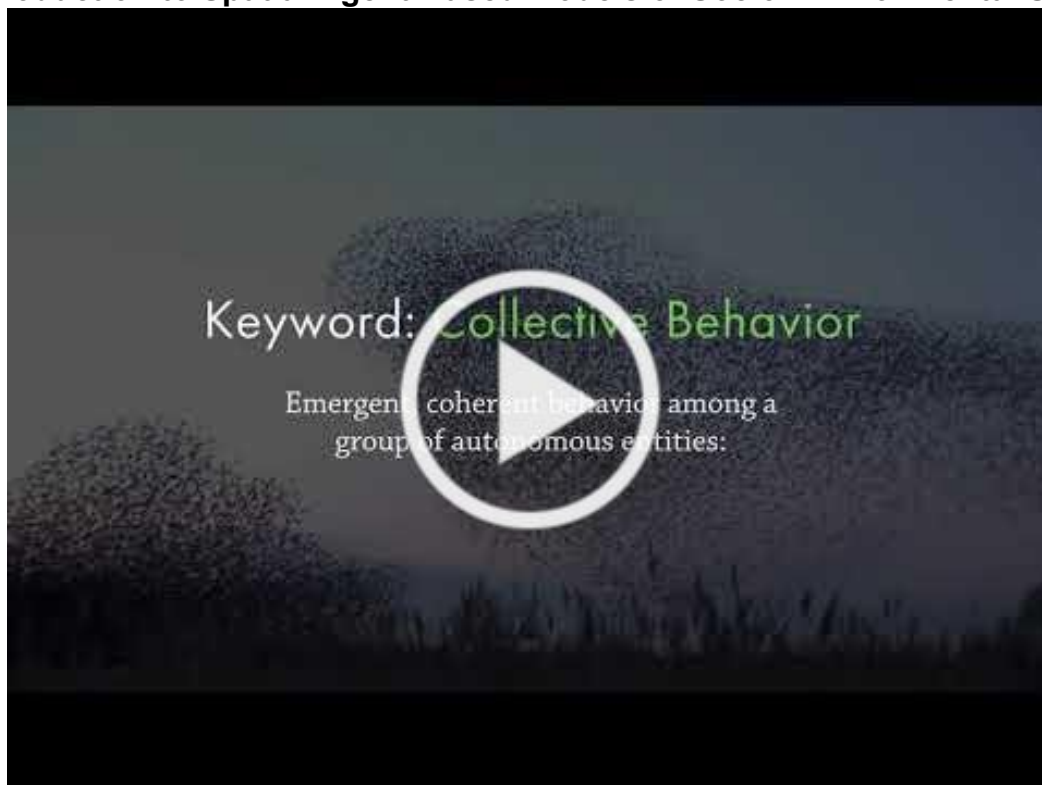
### New Agent-Based Modeling Tutorial

Check out our [newest tutorial video](#) on the basics of spatial agent-based models (ABMs) within the context of socio-environmental systems. In this video, Dr. Nicholas R. Magliocca, instructor of SESYNC's annual ABM short course, aims to explain:

1. What are ABMs?
2. Why are they a useful tool for studying socio-environmental systems?
3. What makes ABMs different from other modeling approaches in SES research?

Watch the video below and **join our 4,000+ subscribers** to be the first to know when new SESYNC videos are added to our [YouTube channel](#).

### An Introduction to Spatial Agent-Based Models of Socio-Environmental Systems



Keep in touch with us via social media by following us on [Twitter](#), [Facebook](#), and [LinkedIn](#).



## NEW PUBLICATIONS | SESYNC in the Journals

**"Adaptive Governance in North American Water Systems: A Legal Perspective on Resilience and Reconciliation."** Published in the book [Water Resilience](#) by Barbara Cosens and Lance Gunderson, as a result of the workshop [Adaptive Governance for Freshwater Socio-Ecological System Resilience: Theory, Practice, and Comparison between the US and Northern Europe](#).

**"Predicted growth in plastic waste exceeds efforts to mitigate plastic pollution ."** Published in [Science](#) by Stephanie B. Borrelle, Jeremy Ringma, Kara Lavender Law, Cole C. Monnahan, Laurent Lebreton, Alexis

McGivern, Erin Murphy, Jenna Jambeck, George H. Leonard, Michelle A. Hilleary, Marcus Eriksen, Hugh P. Possingham, Hannah De Frond, Leah R. Gerber, Beth Polidoro, Akbar Tahir, Miranda Bernard, Nicholas Mallos, Megan Barnes, and Chelsea M. Rochman. This paper resulted from the Pursuit, [Mitigating Oceanic Plastic Pollution: Modeling Inputs, Interventions and Future Scenarios to Direct Mitigation Strategies for Achieving Measurable Improvements to Marine Ecosystems](#).

**"Addressing knowledge gaps for transboundary environmental governance."** Published in *Global Environmental Change* by Anita Milman, Andrea K. Gerlak, Tamee Albrecht, Mark Colosimo, Ken Conca, Anoulak Kittikhoun, Péter Kovács, Richard Moy, Susanne Schmeier, Kelsey Wentling, William Werick, Ivan Zavadsky, and Jim Ziegler. This paper resulted from the Pursuit, [Actionable Science in Transboundary River Basins](#).

**"The effects of saltwater intrusion on germination success of standard and alternative crops."** Published in *Environmental and Experimental Botany* by SESYNC graduate research assistant Elizabeth de la Reguera and colleagues Jacquelyn Veatch, Keryn Gedan, Katherine L. Tully.

**"Accelerating homogenization of the global plant-frugivore meta-network."** Published in *Nature* by SESYNC postdoc Evan C. Fricke and colleague Jens-Christian Svenning.

**"Ecosystem-Based Management and Natural Capital Accounting."** Published in the book *Ecosystem-Based Management, Ecosystem Services and Aquatic Biodiversity* by Marc Russell, Charles Rhodes, George Van Houtven, Paramita Sinha, Katherine Warnell, and Matthew C. Harwell, as a result of the Pursuit, [Accounting for U.S. Ecosystem Services at National and Subnational Scales](#).

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