SESYNC Feedbacks

News from the National Socio-Environmental Synthesis Center

COVID-19 | SESYNC Postdoc Explains Basics of Disease Modeling

Understanding COVID-19 Means Understanding Disease Modeling

As the coronavirus continues to ravage much of the world, government leaders, scientific agencies, and healthcare providers often say that they're using disease models to inform their decisions and courses of action for fighting the virus. But, what are disease models? How are they developed? And what can they tell us?

AN INTRODUCTION TO DISEASE MODELING

Lauren White, PhD
National Socio-Environmental Synthesis Center
April 14, 2020

@sesync @LAWhite_Ecology

SESYNC postdoc Lauren White tries to answer these questions in the presentation above with a brief overview of disease models. Here, she explains the methodology behind infectious disease modeling and how scientists can use it to predict things like the rate of disease spread and the number of individuals who might become infected. In this talk, she aims to help us increase our understanding of disease modeling, so we can better understand the true potential impacts of COVID-19. Watch it **here**.

REMINDER | Virtual Support Available for SESYNC Teams

Personalized Support for SESYNC Teams

Team Science Support:
Need advice on designing efficient and effective virtual meetings? Having issues maintaining team engagement and momentum? Unsure how to facilitate certain team dynamics without the benefit of face-to-face interaction? Unclear how to integrate ideas or results into a broader synthesis narrative? We're here to help with the support service: **teamhelp@sesync.org**! Contact us with team science questions or issues directly related to your SESYNC-supported work, and we will happily connect you with one of our experts on staff.

Expanded Access to Computational Support:
Are you having issues with cleaning or harmonizing your data? Got data analysis problems? We're here to help! Contact **cyberhelp@sesync.org** with your data science questions, or visit **cyberhelp.sesync.org** to view our frequently asked questions, quick-start pages describing how to use SESYNC resources, and full-length lessons on topics including text mining, creating maps, and agent-based modeling. We are available to help via email, or we can schedule a Zoom meeting to discuss your data science problems in depth.

Learn more.

AVAILABLE OPPORTUNITY | Accepting Applications Now

Short Course
Introduction to Social and Ecological Network Analysis Short Course 2020
Dates: July 13-17, 2020
Deadline: June 2, 2020 11:00 p.m. ET

This **online** 5-day short course introduces the theory and practice of social and ecological network analysis.The course starts with an introduction to networks and then covers a variety of established and novel

techniques used to analyze social and ecological networks, particularly statistical inference methods. The course also includes hands-on coding demonstrations in the R programming language. **Learn more**.

Special Issue of *Current Opinion in Environmental Sustainability* Highlights Work of SESYNC Foundation, "Advancing the Science of Knowledge Use: Mechanisms, Applications, and Gaps"

Too often, a gap exists between research findings and their application to real-world problems. Recognizing the need to bridge this gap, particularly as it relates to knowledge about climate change and sustainability, participants of a SESYNC Foundation recently examined the drivers and mechanisms of "actionable" science and other forms of knowledge. Their efforts resulted in a series of 10 papers published in a special issue of *Current Opinion in Environmental Sustainability*, which is intended to jump-start a new community of engaged scholarship on the topic.

Researchers from the Aspen Global Change Institute, University of Michigan, Stanford University, the University of Miami, and numerous other institutions looked at different approaches across the social sciences to understand what "actionable knowledge" is and how scientific organizations can increase their output of actionable science to inform sustainability actions. **Read more**.

STAY CONNECTED | Follow Us on Social Media

Staying connected is more important than ever right now. Don't forget to follow our social media to keep in touch and stay up to date on everything related to SESYNC!

SESYNC @sesync · May 7

Our 5-day online short course this July will provide participants with a foundational understanding of social and ecological networks and various established and novel techniques for analyzing them. Learn more: sesync.us/9fgh3

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HIGHLIGHTED ARTICLES & PROGRAMS | From SESYNC Postdocs

Climate Change to Cause Abrupt Species Loss This Century

A recent *Nature* paper, led by former SESYNC postdoc **Christopher Trisos**, reveals that the disruption of biodiversity from climate change on land and in the oceans could be as soon as 2030. In addition, a high percentage of species may be exposed to potentially dangerous climate conditions simultaneously. A *New York Times* article also recently featured this research, which Trisos began while at SESYNC. **Learn more**.

New Call to Examine Old Narratives

In a recent *PLOS One* paper, current SESYNC postdoc **Lauren White** and former SESYNC postdoc **Lee Mordechai** examined the impacts of the Justinianic Plague with mathematical modeling. From the modeling, they found that it was unlikely that any transmission route of the plague would have had both the mortality rate and duration described in the primary sources. **Learn more**.

Infectious Historians Spread Knowledge on Pandemics

Along with former SESYNC postdoc **Lee Mordechai**, postdoc **Merle Eisenberg** has started the *Infectious Historians* podcast to connect experts on historical pandemics with a broad public audience. Topics so far include: plagues across history; the Justinianic Plague; the Black Death; and modern effects of coronavirus (including a discussion on environmental justice with fellow postdoc **Fushcia Hoover**). **Learn more**.

NEW PUBLICATIONS | SESYNC in the Journals

"Sustainability of agricultural basin development under uncertain future climate and economic conditions: A socio-hydrological analysis." Published in *Ecological Economics* by M. Roobavannan, J. Kandasamy, S. Pande, S. Vigneswaran, and M. Sivapalan, as part of the Pursuit, Towards Socio-Hydrologic Synthesis: Modeling the Co-Evolutionary Dynamics of Coupled Human, Water, & Ecological Systems.

"Advancing understanding of natural resource governance: a post-Ostrom research agenda" Published in *Current Opinion in Environmental Sustainability* by G.S. Cumming, G. Epstein, J.M. Anderies, C.I. Apetrei, J.Baggio, Ö. Bodin, S. Chawla, H.S. Clements, M. Cox, L. Egli, G.G. Gurney, M. Lubell, N. Magliocca, T.H. Morrison, B. Müller, R. Seppelt, M. Schlüter, H. Unnikrishnan, S. Villamayor-Tomas, and C.M. Weible. This article resulted from the Pursuit, Testing and Extending Ostrom's Frameworks: Quantitative Synthesis and Modeling of Social-Ecological Dynamics.

"A conservation criminology-based desk assessment of vulture poisoning in the Great Limpopo Transfrontier Conservation Area." Published in *Global Ecology and Conservation* by Meredith L. Gore, Annette Hübshle, André J. Botha, Brent M. Coverdale, Rebecca Garbett, Reginal M. Harrell, Sonja Krueger, Jennifer M. Mullinax, Lars J. Olson, Mary Ann Ottinger, Hanneline Smit Robinson, L. Jen Shaffer, Lindy J. Thompson, Linda van den Heever, and William Bowerman. This article resulted from the Pursuit, Saving Africa's Vultures.

"Global agricultural economic water scarcity." Published in *Science Advances* by former SESYNC postdoc Jampel Dell'Angelo and former SESYNC fellow Paolo D'Odorico with colleagues Lorenzo Rosa, Davide Danilo Chiarelli, and Maria Cristina Rulli.

"Learning to be an interdisciplinary researcher: incorporating training about dispositional and epistemological differences into graduate student environmental science teams." Published in *Journal of Environmental Studies and Science* by David C. Gosselin, Kate Thompson, Deana Pennington, and Shirley Vincentas, as part of the Pursuit, Understanding, Teaching, and Employing Model-Based Reasoning in Socio-Environmental Synthesis (EMBeRS).

"Modeling the Justinianic Plague: Comparing hypothesized transmission route." Published in *PLOS One* by SESYNC postdocs Lauren White and Lee Mordechai.

"Knowledge coproduction improves understanding of environmental change in the Ethiopian highlands." Published in *Ecology and Society* by Cara Steger, Girma Nigussie, Michael Alonzo, Bikila Warkineh, Jamon Van Den Hoek, Mekbib Fekadu, Paul H. Evangelista, and Julia A. Klein. This article resulted from the Pursuit, Expanding Access to Data-intensive Remote Sensing Algorithms through Collaboration with the Socio-Environmental Science Research Community.

"A Systematic Review of Coastal Vulnerability Mapping." Published in *Sustainability* by Anamaria Bukvic, Guillaume Rohat, Alex Apotsos, and Alex de Sherbinin, as a result of the Pursuit, Meta-Analysis of Climate Change Vulnerability Mapping Studies.

"Expanding use of archaeology in climate change response by changing its social environment." Published in *Proceedings of the National Academy of Sciences of the United States of America* by Marcy Rockman and Carrie Hritz.

"Editorial Overview: The Science of Actionable Knowledge." Published in *Current Opinion in Environmental Sustainability* by James C. Arnott, Katharine J. Mach, and Gabrielle Wong-Parodi, as as part of the Foundation, Advancing the Science of Knowledge Use Mechanisms, Applications, and Gaps .

"Modeling Alternative Collaborative Governance Network Designs: An Agent-Based Model of Water Governance in the Lake Champlain Basin, Vermont." Published in *Journal of Public Administration Research and Theory* by Patrick Bitterman and Christopher J Koliba, as part of the Pursuit, Risk Perception in Provision of Aquatic Ecosystem Services.

"Testing ecosystem accounting in the United States: A case study for the Southeast." Published in *Ecosystem Services* by Katherine J.D. Warnell, Marc Russell, Charles Rhodes, Kenneth J. Bagstad, Lydia P. Olander, David J. Nowak, Rajendra Poudel, Pierre D. Glynn, Julie L. Hass, Satoshi Hirabayashi, Jane Carter Ingram, John Matuszak, Kirsten L.L. Oleson, Stephen M. Posner, and Ferdinando Villa. This article resulted from the Pursuit, Accounting for U.S. Ecosystem Services at National and Subnational Scales .

"The projected timing of abrupt ecological disruption from climate change." Published in *Nature* by former SESYNC postdoc Christopher H. Trisos and colleagues Cory Merow, and Alex L. Pigot.

"The worldwide impact of urbanisation on avian functional diversity." Published in *Ecology Letters* by former SESYNC postdoc Christopher Trisos and colleagues Daniel Sol, Christopher Trisos, Cesc Múrria, Alienor Jeliazkov, Cesar González-Lagos, Alex L. Pigot, Carlo Ricotta, Christopher M. Swan, Joseph A. Tobias, and Sandrine Pavoine.

"A Framework for Teaching Socio-Environmental Problem Solving." Published in *Environmental Education* by Cynthia A. Wei, Michael L. Deaton, Teresa J. Shume, Ramiro Berardo, and William R. Burnside, as part of the Short Course Teaching Socio-Environmental Synthesis with Case Studies: Moving Toward Best Practices.

"Diatom Diversity and Biogeography Across Tropical South America." Published in *Neotropical Diversification: Patterns and Processes* by SESYNC postdoc Xavier Benito and colleague Sherilyn C. Fritz.

"Private-sector conservation under the US Endangered Species Act: a return-on-investment perspective." Published in *Frontiers in Ecology and the Environment*, by Rebecca Epanchin-Niell and James Boyd, as part of the Pursuit, Advancing Behavioral Models of Private Land Stewardship to Improve Environmental Policy.

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