

# 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. Beijing

**Wednesday, Nov. 3, 2021**



## Jonathan M. Chase

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J. M. Chase is a professor of biodiversity synthesis at the German Centre for Integrative Biodiversity Research (iDiv). Prior to starting this position in 2014, Chase was based in the United States, having received his bachelor degree in science at the University of Michigan and doctoral degree at the University of Chicago, and served as assistant, associate and full professor at Washington University in Saint Louis. He started his career doing simple ecological theory and experiments on the coexistence and biodiversity of pond critters, but soon ventured out into other kinds of ecosystems to search for generalities and contingencies. Since starting at iDiv, his empirical work has taken a turn towards larger scales and bigger data, but still based in theory and observation from local to regional scales (the metacommunity). He works with datasets ranging from community analyses in microbiomes to zooplankton in ephemeral salt pans in Austria to trees in Hawaii to global analyses of biodiversity change databases. And always with an obsession towards the roles of spatial and temporal scales in influencing our understanding of both pattern and process.

## Scale as a unifying tool for synthesizing biodiversity change

Some of the most important questions in biodiversity studies also remain the most controversial. Are species distributions structured by deterministic processes such as environmental filtering and species interactions, or do random processes reign supreme? Amidst a global extinction crisis, is local biodiversity also declining? How are productivity and diversity related? These and dozens of other questions have caused a considerable amount of strife in ecology over the decades. As a result, a primary goal is to find approaches, tools, data and perspectives that can synthesize these disparate views about how the world works into a broader and more cohesive, but necessarily more nuanced, perspective. In much of my research, I have used the concept of scale (mostly spatial, but also temporal, taxonomic, et cetera) as a fundamental mediator of biodiversity patterns and processes, and as such, as a way in which to synthesize seemingly disparate results. In this talk, I will discuss several vignettes illustrating how explicit consideration of scale can contextualize and help to resolve a number of important issues in biodiversity studies.



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