



cordially invites you to an

Interdisciplinary Seminar

with

NIMBioS Postdoctoral Fellows Invited Distinguished Visitor

Dr. Peter Chesson

on

“Diversity maintenance: New concepts and theory for communities as multiple-scale entities”

Tuesday, March 8, 2016

3:30-5 p.m.

Reception & refreshments at 3 p.m.

Hallam Auditorium, Room 206
1122 Volunteer Boulevard



Peter Chesson is a Professor of Ecology and Evolutionary Biology at the University of Arizona and is Editor of *Theoretical Population Biology*. He currently also maintains a visiting professorship at National Chung Hsing University, Taiwan. He studies community ecology theory, empirical plant community ecology, and plant structure and function. His theoretical work has emphasized theory for community dynamics and species coexistence in spatially and temporally varying environments. His more recent work has focused on multitrophic diversity maintenance theory, nonstationary environments, and multiscale diversity maintenance theory. He has also worked on theory for biological invasions and the evolution of species coexistence mechanisms.

Abstract: Current approaches to community assembly, species coexistence, and the maintenance of biodiversity focus on the coexistence of species on small areas of habitat, which are assumed to support self-sustaining biological communities. The local communities on these areas are assumed to be assembled from the regional set of species according to local environmental conditions and interactions between species. However, local communities are not natural ecological entities in most cases, but are defined more by convenience for study. In general, local communities are affected by immigration on ecological time scales, and so do not satisfy the requirements for most theories of coexistence and diversity maintenance. For any given unit of space on a given scale, scale transition theory reveals how much diversity can be explained by processes taking place within that unit of space compared with contributions from other spatial units or other scales. I use scale transition theory to show how the joint contributions of multiple mechanisms of coexistence can be studied. These mechanisms include point mechanisms, such as resource partitioning, spatial mechanisms such as the spatial storage effect and fitness-density covariance, and temporal mechanisms such as the temporal storage effect. This multi-scale community theory removes the artificial distinction between the local community and the species pool. Instead, it shows how the species pool and the local community are mutually dependent, with scale-dependent properties. The measures of mechanism strength from scale transition theory can be operationalized for field and experimental studies, and provide rigorous approaches to the study of coexistence in natural communities as multiple scale entities.



The seminar will be live streamed. Visit
<http://www.nimbios.org/videos/livestream>.
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