

FOR IMMEDIATE RELEASE: May 19, 2009

FY09-03

Media Contact: Catherine Crawley, 865-974-9350, ccrawley@nimbios.org

Ecologists Consider New Mathematical Method in Research

KNOXVILLE, Tenn. -- For years, ecologists have struggled to answer some fundamental questions in ecology using certain statistical tests. Trying to measure the distribution of a species over time or geographical space, for example, poses a challenge, as does studying food webs and pollinator networks or investigating how ecological communities are comprised.

Because at large scales such questions often cannot be answered by conducting an experiment, they are explored by making inferences from observational data, specifically binary matrices.

Ecologists turn to a statistical method called null model testing to examine binary matrices. Yet, the null model testing of binary matrices has proved problematic.

In May, a team of biologists, statisticians, and mathematicians will gather at a meeting at the National Institute for Mathematical and Biological Synthesis (NIMBIO) in Knoxville, Tenn. to tackle the statistical issue and work toward developing a mathematical solution.

“The idea of using a mathematical framework for developing optimal methods is new,” said Joshua Ladau, co-organizer of the NIMBioS Working Group and postdoctoral fellow at the Gladstone Institutes at the University of California San Francisco.

Ladau believes one of the chief problems of using null model tests is that they’ve been developed on the basis of intuition, which can lead to conflicting and unreliable results.

The goal of the NIMBioS working group is to develop an overarching mathematical framework that will guide the development and application of null model tests.

“We hope doing this work will help find answers to fundamental ecological questions,” Ladau said. “One of the roadblocks to finding those answers is the shortcomings of the current methodologies.”

Bringing researchers together from different disciplines will hopefully lead to new insights and in turn generate new ecological questions, Ladau said.

NIMBioS Working Groups are comprised of 10-15 invited participants and focus on specific questions related to mathematical biology. Each group typically meets two to three times over the course of two years at the Institute.

The National Institute for Mathematical and Biological Synthesis (NIMBioS) brings together researchers from around the world to collaborate across disciplinary boundaries to investigate solutions to basic and applied problems in the life sciences. NIMBioS is funded by the National Science Foundation in collaboration with the U.S. Department of Homeland Security and the U.S. Department of Agriculture, with additional support from The University of Tennessee, Knoxville.

#

Link to story here: <http://www.nimbios.org/>

For more information, contact Catherine Crawley at 865-974-9350 or ccrawley@nimbios.org