

**Final Report**  
**Submitted by NIMBioS Sabbatical Visitor: Brian Beckage**  
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I was a sabbatical fellow at the National Institute for Mathematical and Biological Synthesis (NIMBioS) from January 2010 until August 2010. The title of my sabbatical project was “*Using models to investigate patterns, process, and climate change in savannas.*”

I report on the general results of my sabbatical activities at NIMBioS including progress on manuscripts, and collaborative relationships, and other synthetic activities.

I worked on five new manuscripts while at NIMBioS:

Beckage, B., L. Gross, W. Platt, W. Godsoe, and D. Simberloff. Individual variation and weak neutrality as determinants of forest diversity. *New Phytologist*. In review.

Beckage, B., W. Platt, L. Gross, and M. Slocum. A conceptual model of climate-fire-vegetation dynamics. In revision.

Beckage, B., L. Gross, and W. Platt. Grass feedbacks on fire stabilize savannas. In review.

Beckage, B., and L. Gross. Chaos and computational irreducibility: The limits to prediction in ecological systems. In review.

Beckage, B., W. Godsoe, L. Gross, W. Platt, and D. Simberloff. 2010. Individual variation slows competitive exclusion. *Science (E-Letter)*, [www.sciencemag.org/cgi/eletters/327/5969/1129](http://www.sciencemag.org/cgi/eletters/327/5969/1129).

I worked collaboratively with members of NIMBioS and UT as well as short-term visitors. These collaborators included Scott Duke-Sylvester (University of Louisiana Lafayette), Chris Ellingwood (University of Vermont), William Godsoe (NIMBioS), Louis Gross (NIMBioS), William Platt (Louisiana State University), and Daniel Simberloff (University of Tennessee).

As a result of my interactions at NIMBioS, Lou Gross and I developed and submitted a symposium proposal (*Theory and Dynamics of Savanna Systems*) for the 2010 Ecological Society of America meeting in Austin, Texas.