

One SNRE Student Keeps Going and Going (and Going) for the Right Reasons

By Patrick Heck

First-year, SNRE Ph.D. student Joe Townsend has what many of his peers do not: a shelf of published work, international research experience and summer research already lined up in January.

Despite his enormous success as a student and researcher, Joe stays grounded. His passion for pursuing an understanding of the world around him keeps him focused on his research. Joe's graduate advisor, Dr. Max Nickerson describes Joe as having "that spark of curiosity. He looks beyond what is now and is willing to spend the effort to find information necessary for the future, especially in conserving habitats and populations, and stimulating others to see his vision and make a difference."



Quebrada Cataguana, a cloud forest stream at 1780 m elevation, Montaña de Yoro National Park, Honduras." *Photo / Joe Townsend*

With the help of a grant from the St. Louis Zoo, Joe will spend part of his summer in Nicaragua establishing a community-based, conservation research program in the Bosawas Biosphere Reserve. This project is an offshoot of his current work documenting the uncatalogued diversity in at-risk cloud forests in Honduras while involving local residents in the discovery and documentation process. In Bosawas, Joe will train indigenous Miskito workers to carry out conservation-based research independent of outside direction. The Miskito are traditional, subsistence farmers, and "are often excellent hunters and very knowledgeable about local biodiversity," Joe claims. Rather than having to rely on generating income from exploitation of their resources, the Miskito "parabiologists" will

receive a salary to conduct biological and species monitoring. "We will provide training as parabiologists and integrate them into our research team, giving them a hand in the success of the project and the conservation of their resources."



Joe Townsend in the Heather Wind Scrub habitat, Cerro Cusuco. Part of the bosque enano survey site sits at 2030 m elevation in Parque Nacional El Cusuco, Honduras. Photo / D. Pupius

Joe is also expanding his research to include the molecular evolution and phylogeography of reptiles and amphibians, within a framework of "systematics and conservation" of Latin American herpetofauna. "I am making connections between two fields that are only tangentially (at best) linked in most current research," explains Joe, "the key is presenting the systematic and other scientific knowledge in a form that is of maximum utility for conservation practitioners in the host country. The dissemination of my results for popular consumption as well as for the scientific community is a major goal of my research."

Joe's upcoming book, "A Guide to Amphibians and Reptiles of Cusuco National Park, Honduras," is an example of the "systematics and conservation" approach. This bilingual field guide will put scientific data in the hands of not only transnational research teams, but national and local residents and conservation practitioners as well... "When I took my first book (the English-only 'Amphibians and

Reptiles of the Honduran Mosquitia') down to my field sites, my local collaborators could do little more than look at the pictures. But this new field guide will have every page in both English and Spanish, so that Hondurans will be able to fully utilize the book for their own purposes. I hope it will be very helpful tool for Hondurans, and that it will encourage other gringo biologists working in Latin America to look for ways to disseminate their research in their host countries.

As a UF Master's student in Latin American Studies, Joe partnered with his early mentor, Miami-Dade College professor Dr. Larry David Wilson, to publish his first book, "The Amphibians and Reptiles of the Honduran Mosquitia." The book is the primary reference for the herpetofauna of the Mosquitia region, the largest remaining tract of mesic lowland forest in Central America. Their goal was to demonstrate the ecological value "that reptiles and amphibians have in maintaining healthy, functioning, natural ecosystems."

During fieldwork in Honduras in 2004 and 2005, his team was able to discover and describe a new species of snake, *Geophis nephodrymus*, along with cataloging dozens of other reptiles and amphibians. Joe explains, "the amphibians that live in these habitats are strong indicators of disturbance and contamination, and recent evidence points to highland amphibian faunas as an early casualty of global warming. Additionally most of the amphibian species in these habitats are internationally recognized as either critically endangered or endangered, due to both habitat degradation and the threat of chitrid fungus infection; a pathogen that is at least partially responsible for declines and extinctions of amphibian species and whose spread is apparently facilitated by global climate change."

Joe's first book was not his earliest achievement. Joe published his first peer reviewed article in *Caribbean Journal of Science*, in 2000. The article documented the introduction of Cuban tree frogs to Anguilla, Lesser Antilles. It was a clear demonstration of Joe's understanding of his newly found interest in herpetology and natural systems in Latin America. Five years later, Joe hasn't stopped.

"I have another half-dozen papers I am currently working on," jokes Joe, "I have a few that have been hanging around for the last two years. I love writing on my current research, but it's always great to have something to come back to when I'm finished." In January 2007, Joe published his forty-ninth peer reviewed paper to the awe of his professors and classmates.



A house in the Catajuana cloud forest. Photo / Joe Townsend

Joe is a true Gator, earning his Bachelor's and Master's degrees in Latin American Studies from the University of Florida. He took advantage of a National Science Foundation Research Experience for Undergraduates (REU) and quickly became an expert in the biology and conservation of amphibians and reptiles in Latin America. Later, he was awarded the Tropical Conservation and Development (TCD) Program (an affiliate program of SNRE) Fellowship and a Grinter Fellowship, prestigious awards for graduate students. In addition to being a well-published author and international researcher, Joe spends his time as a lab instructor teaching herpetology. Recently, Joe received the Howard Hughes Medical Institute

Science for Life Graduate Student Award, in recognition of his work mentoring undergraduates and including them in all aspects of his research, from fieldwork to the analysis and publishing of results. Joe also works as an assistant for the Florida Museum of Natural History.

Click on the links below to learn more about Joe's research.

[The Herpetofauna of the Rainforests of Honduras](#)

[*Oedipina elongata* in Honduras](#)

[An Addition to the Snake Fauna of Honduras](#)

[Joe's Thesis](#)



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