

IRES AMPLIFIED: PROJECT SUMMARY

Ampullariid Model using Phylogenetics, Laboratory Inquiry and Field Investigations into Ecology and Distribution

This planning proposal requests \$20,000 in direct costs to allow seven established researchers and two undergraduate students to meet in Montevideo, Uruguay in early 2010 to:

1. Introduce all principal investigators and collaborators in person;
2. Provide an opportunity for participants to report their latest findings on Ampullariidae;
3. Permit interactive brainstorming sessions for research projects geared for students;
4. Identify available research facilities in both Uruguay (UR) and Brazil (BR);
5. Plan logistics, student activities and US partner and foreign host responsibilities;
6. Complete a Full IRES Proposal for submission 20 February 2010.

Model System & Intellectual Merit: Our model system, the family Ampullariidae, commonly called 'apple snails,' includes freshwater gastropods that possess unique adaptations for utilizing ephemeral habitats and several global invasive species. Our team blends expertise from museums, research universities and undergraduate institutions and integrates 3 sub disciplines of biology (phylogenetics, ecology and biogeography) to create research experiences for students. Our conceptual framework aims to quantify genetic variation in this understudied group, identify patterns of speciation and then hypothesize about range expansion implications. We address our last aim by developing an **AMPLIFIED** understanding of historical, current and potential distribution of ampullariids (particularly within in the genus *Pomacea*) that we gain by coupling phylogenetics with museum collections, manipulative experiments and field investigations.

Participants: This proposal creatively combines the phylogenetic and taxonomic expertise of **Drs. Rob Cowie** and **Ken Hayes** from the University of Hawaii and The Smithsonian Institute, respectively, with the ecological perspective and undergraduate mentoring experience of **Dr. Romi Burks** from Southwestern University (a small liberal arts college of 1300 students, 23% minority, primarily Hispanic). Cowie/Hayes and Burks will combine their already established and strong partnerships with Uruguayan limnologist, **Dr. Mariana Meerhoff**, and Brazilian malacologist, **Dr. Silvana Thiengo**, respectively. **Fabrizio Scarabino** and **Cristhian Clavijo**, curators at the Natural History Museum (Montevideo, Uruguay) will add their considerable biogeography expertise with mollusks. Extensive species overlap likely occurs in UR and BR possesses the overall greatest diversity of ampullariids. Funding of this planning grant would allow us to finalize logistics needed to recruit and mentor teams of six students that will later travel to UR and BR to collaborate with foreign partners (tentatively eight week visits during May to June, starting 2011 through 2013; dependent on seasonal needs of projects).

Broader Impacts include inclusion of undergraduates in research planning. Our full IRES proposal will include building museum collections, contributing to *The Encyclopedia of Life*, recruiting underrepresented groups (Pacific Islanders, HBCU students, Latinos) and developing key skills in students that will encourage and equip them to forge international partnerships in the future.