CONSERVATION RESEARCH REPORTS

Conserving Hellbenders

Hellbenders (*Cryptobranchus alleganiensis*) are obligate aquatic salamanders that are in decline due to habitat loss and disease. Two subspecies have been described based on morphological characteristics: *C. a. alleganiensis* (eastern subspecies) and *C. a. bishopi* (Ozark Hellbender). Current conservation strategies include captive propagation for restorative releases even though information regarding the current levels of genetic variability and structure within populations is not sufficient to effectively plan for conservation of the genetic diversity of the species. To investigate patterns of population structure in the Hellbender, **Crowhurst et al.** (2011. *Conservation Genetics*, DOI: 10.1007/s10592-010-0170-0, published online 28 December 2010) genotyped 276 Hellbenders from eight Missouri River drainages, representing both subspecies. Their results showed low levels of within-drainage diversity but strong population structure among rivers, and three distinct genetic clusters. *F ST* values ranged from 0.00 to 0.61 and averaged 0.40. The results confirmed previous reports that *C. a. bishopi* and *C. a. alleganiensis* are genetically distinct, but also revealed an equidistant relationship between two groups within *C. a. bishopi* and all populations of *C. a. alleganiensis*. Current subspecies delineations do not accurately incorporate genetic structure, and for conservation purposes, these three groups should be considered evolutionarily significant units.

ADAM L. CRANE

Eastern Hellbenders (*Cryptobranchus alleganiensis alleganiensis*) are genetically distinct from two groups within what has been traditionally considered the Ozark Hellbender (*C. a. bishopi*). All three represent evolutionarily significant units that should be addressed separately by efforts to conserve them.

NATURAL HISTORY RESEARCH REPORTS

Hurricanes and Amphibian Communities in Coastal Wetlands

Isolated wetlands in the southeastern United States are dynamic habitats subject to fluctuating environmental conditions. Wetlands located near marine environments are subject to alterations in water chemistry due to storm surges during hurricanes. **Gunzburger et al.** (2010. *Wetlands Ecological Management* 18:651–663) evaluated the effect of storm surge overwash on wetland amphibian communities. They sampled 32 wetlands in northwestern Florida over a 45-month period to assess amphibian species richness and water chemistry. During this study, seven wetlands were overwashed by storm surge from Hurricane Dennis, which made landfall on 10 July 2005 in the Florida panhandle. Specific conductance across all wetlands was low pre-storm (<100 µS/cm), but increased post-storm at the overwashed wetlands (mean = 7,613 µS/cm). Increased specific conductance was strongly correlated with increases in chloride concentrations. Amphibian species richness showed no correlation with specific conductance. One month post-storm the authors observed slightly fewer species in overwashed compared with non-overwashed wetlands, but this trend did not continue in 2006. More species were detected across all wetlands pre-storm, but no difference was detected between overwashed and non-overwashed wetlands when considering all amphibian species or adult anurans and larval anurans separately. Amphibian species richness did not appear to be correlated with pH or the presence of fish, although the amphibian community composition differed between wetlands with and without fish. Results suggest that amphibian communities in wetlands in the southeastern United States adjacent to marine habitats are resistant to the effects of storm surge overwash.

SUZANNE L. COLLINS, CNAH

Newly employed imaging techniques revealed circumdiel activity and long periods of surface activity in Crawfish Frogs (*Lithobates areolatus*). Whether these activity patterns are unique to Crawfish Frogs is at this time unknown.

Site Fidelity and Extended Activity in Crawfish Frogs

Crawfish Frogs (*Lithobates areolatus*) base their nonbreeding activities in and around the entrances of crayfish burrows. This site preference allows monitoring of individuals using still and video imaging techniques. **Hoffman et al.** (2010. *BioScience* 60:829–834) used three camera types offering different continuities, scales, and resolutions of data to observe activity patterns and nonbreeding behaviors. The authors observed two behaviors not previously reported for amphibians: (1) Circumdiel activity patterns, and (2) long periods (days) of surface activity. Although these behavioral findings are at this time specific to Crawfish Frogs, they might not be unusual activity patterns for other frogs. The use of imaging techniques that take advantage of this species' dependence on burrows and use of burrow entrances facilitated the observation of these patterns for the first time.

SUZANNE L. COLLINS, CNAH

Species not detected post-storm from overwashed wetlands but present in non-overwashed wetlands were *Hyla squirella*, *Pseudacris ornata* (top), *Lithobates* (*Rana*) *catesbeianus*, *Lithobates* (*Rana*) *clamitans* (middle), and *Pseudobranchus striatus* (bottom). Two of these species, *L. clamitans* and *L. catesbeianus*, were also not detected at the overwashed wetlands prior to the storm.