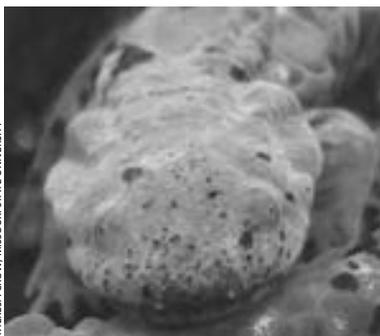


## CONSERVATION RESEARCH REPORTS

### Non-native Fishes Threatening Hellbenders in Missouri

The introduction of non-native fishes often results in the local extinction of native amphibians due to a lack of evolutionary history and resultant minimally-adapted antipredator behaviors toward the introduced fishes. Populations of Hellbenders (*Cryptobranchus alleganiensis*) in Missouri have declined considerably since the 1980s, coinciding with a rapid increase in non-native trout introductions for recreational angling. GALL (2008, Unpubl. M.S. Thesis, Missouri State University, Springfield) examined Hellbender and fish predator-prey interactions by: (1) examining the foraging behavior of predatory fishes in response to a Hellbender secretion; (2) comparing the number of secretion and control-soaked food pellets consumed by trout; and (3) comparing the response of larval Hellbenders to chemical stimuli from introduced (trout) and native fish predators. Brown Trout, Walleye, and large Banded Sculpins responded to Hellbender secretions with increased activity, whereas small Banded Sculpins responded by decreasing activity. In addition, Brown Trout ingested more Hellbender secretion-soaked food pellets than control pellets, whereas Rainbow Trout expelled secretion-soaked food pellets. Finally, larval Hellbenders exhibited weak fright behavior in response to chemical stimuli from nonnative trout relative to their responses to native predatory fish stimuli. These combinations of responses indicate that predation by non-



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*Ameiva undulata* (illustrated) and *Sceloporus utiformis* were the only two sampled species of lizards that were disturbance-sensitive. Both are terrestrial and forage in the leaf litter. Reduction of the litter may be responsible for the decline of these species in disturbed forests.

native fishes may be a plausible hypothesis for the decline of Hellbender populations in Missouri.

### Effects of Converting Dry Tropical Forest to Agricultural Mosaics

SUAZO-ORTUÑO ET AL. (2008, *Conservation Biology* 22: 362–374) explored the impact of forest conversion to agricultural mosaic on anuran, lizard, snake, and turtle assemblages in Neotropical dry forests. Over two years, the authors sampled six small watersheds on the western coast of Mexico, three conserved and three disturbed. The disturbed watersheds were characterized by a mosaic of pastures and cultivated fields (corn, beans, squash) intermingled with patches of different successional stages of dry forest. In each watershed, they conducted 11 diurnal and nocturnal time-constrained searches in ten randomly established plots. We considered vulnerability traits of species in relation to habitat modification. Eighteen anuran, 18 lizard, 23 snake, and three turtle species were recorded. Thirty-six species (58%) occurred in both forest conditions, and 14 (22%) and 12 species (19%) occurred only in the conserved and disturbed sites, respectively. Assemblages responded differently to disturbance. Species richness, diversity, and abundance of lizards were higher in disturbed forests. Anuran diversity and species richness were lower in disturbed forest, but abundance was sim-

ilar in both forest conditions. Diversity, richness, and abundance of turtles were lower in disturbed forest. The structure and composition of snake assemblages did not differ between forest conditions. Species were considered disturbance-sensitive if their abundance was significantly less in disturbed areas. Four anuran (22%), two lizard (11%), and three turtle (100%) species were sensitive to disturbance. No snake species was sensitive. The decline in abundance of disturbance-sensitive species was associated with the reduction of forest canopy cover, woody stem cover, roots, and litter-layer ground cover. Anuran species with small body size and direct embryonic development were especially sensitive to forest disturbance. An important goal for the conservation of herpetofauna should be the determination of species traits associated with extinction or persistence in agricultural mosaics.

### Reptilian Road Mortality in Illinois

Roads have numerous negative ecological effects on terrestrial fauna, and vehicular mortality can have significant demographic consequences for some species. SHEPARD ET AL. (2008, *Copeia* 2008: 350–359) studied road mortality of reptiles around Carlyle Lake, Clinton County, Illinois, USA, from April 2000 through November 2002, to assess the impact of vehicular traffic and identify