

## FOCUS ON CONSERVATION

# Teaching Module on Declining Amphibians Now Available as a Free Download

Now available, via the Network of Conservation Educators & Practitioners (NCEP; a program of The American Museum of Natural History), is an outreach teaching module reviewing all aspects of the global crisis of amphibian declines and extinctions. The module includes a thoroughly annotated and illustrated PowerPoint presentation, an overview Synthesis monograph with extensive literature citations, as well as proposed in-class teaching exercises and solutions. The module is aimed toward university-level students (e.g., Conservation Biology or Herpetology courses), but it is open-format, so it can be edited and customized for any particular need or audience. A sample panel appears below.

### The citation and link for the free download are:

Mendelson, J.R., III and R. Donnelly. 2011. The Crisis of Global Amphibian Declines: Causes, Consequences, and Solutions. Network for Conservation Educators and Practitioners, American Museum of Natural History, New York.

CD-ROM. System requirements: IBM PC or Mac compatible. Windows 98 or higher. Also available electronically at: (PowerPoint Teaching Tutorial, plus associated pedagogical materials) 97+ pp. (<http://research.amnh.org/biodiversity/ncep>).

The authors also are actively seeking K–12 and other educators to collaborate in the preparation of modules appropriate for non-university students and public audiences. For more information or copies of these materials, please contact Joe Mendelson ([jmendelson@zooatlanta.org](mailto:jmendelson@zooatlanta.org)).

## Land-Use Change

Amphibians respond, usually negatively, to all forms of altered habitats, including very subtle changes in leaf-litter layers, soil compaction, or hydrological parameters.

Some Examples for the USA:

- Arroyo Toads in California lose entire clutches of eggs because river flood control programs release scouring pulses of water just after toads have reproduced, destroying entire cohorts of eggs or larvae (Sweet and Sullivan 2005).
- Shenandoah Salamanders in Virginia are losing all of their tiny remnant habitat to alteration of forest canopy cover resulting from herbivory from introduced gypsy moths (Mitchell 2005).
- Valdina Farms Salamanders in Texas had their only known locality submerged briefly by a nearby dam project in the 1980s; exotic catfish invaded the site and no salamanders have been seen since (Chippindale 2005).



B. GRANTWICK

Arroyo Toad (*Anaxyrus californicus*)



C. BROWN, USGS

Shenandoah Salamander (*Plethodon shenandoah*)

### Notes:

Recall the importance of water and humidity to the survival and reproduction of amphibians. Even subtle changes in local vegetation, level or timing of water flow in a creek, or water temperatures can negatively impact amphibians. Realize that the “land-use change” may involve more than just alteration of vegetation (e.g., deforestation) or soils (e.g., plowing), but may be accompanied by chemicals (e.g., herbicides on a farm) or streetlights that make amphibians more visible to predators. A few amphibians appear to be very tolerant of habitat alterations around them and may persist even in environments as degraded as a vacant lot in a major city or a golf course.