

Amphibian Decline on the Colorado Plateau

The Cooperative Park Studies Unit at Northern Arizona University (CPSU/NAU) is collecting information to help address the question of amphibian decline on the Colorado Plateau. CPSU biologists are conducting inventory and assessment of reptile and amphibian communities at Montezuma Castle National Monument (MOCA) and a survey of leopard frogs in Glen Canyon NRA (GLCA). They are compiling these data in conjunction with information previously obtained by the CPSU on historical occurrence of these species in other Colorado Plateau national parks and monuments.

The CPSU survey of the herpetofaunal community at MOCA began in December 1992, and is part of the NPS Natural Resources Protection and Preservation Program. So far, three amphibian species have been found; two appear to have stable breeding populations: Woodhouse's toad (*Bufo woodhousei*) and Canyon treefrog (*Hyla arenicolor*). The third species is the non-native bullfrog (*Rana catesbeiana*). The impact of these introduced predators on the local amphibian community is not yet known.

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Nine additional amphibian species have occurred in the Verde Valley historically or have ranges that include MOCA but have not yet been found. Of these, (the tiger salamander, Southwestern toad, Great Plains toad, red-spotted toad, Sonoran Desert toad, Southern Spadefoot, possibly Northern leopard frog, Lowland leopard frog, and the Chiricahua leopard frog), the Chiricahua frog and the tiger salamander are listed by Arizona as threatened species and the Northern leopard frog is a candidate species for listing.

The CPSU also is conducting a leopard frog survey in GLCA along the Colorado River corridor below Glen Canyon dam. Leopard frogs first were found in this area in 1992 by GLCA Resource Management Division and CPSU/NAU staff. In a follow-up survey in early June 1993, biologists from these units found an isolated but stable breeding population of Northern leopard frogs, located in a natural spring and run-off area not contiguous with the Colorado River under existing water flow regimens from the dam. The water in the breeding pools is warmer than that of the adjacent river, and no predatory fish were found. These factors undoubtedly have allowed this leopard frog population to remain healthy despite dramatic changes in temperature and flow of the Colorado River. No satellite populations of dispersed leopard frogs have been found to date, but an additional survey will be conducted later this year.

The CPSU will continue efforts to gather information on amphibian populations on the Colorado Plateau, including analysis of existing information in park inventory and monitoring databases, and coordination with other agencies, including the two regional working groups of the IUCN/SSC's Declining Amphibian Populations Task Force.

CPSU biologists will continue the Montezuma Castle inventory and monitoring program until 1995; will conduct additional surveys for leopard frogs in the Grand Canyon area; and will be compiling information on the historical distribution of regional amphibian species. The CPSU welcomes any information about amphibian populations on the Colorado Plateau and in return will provide information and assistance for implementation of I&M programs to interested managers.

Erika Nowak,
Biological Technician-Herpetology
CPSU/NAU, P.O. Box 5614
Northern Arizona University
Flagstaff, AZ 86011