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Review of *Amphibian Declines: The Conservation Status of United States Species* Edited by Michael Lanoo

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Since 1989, biologists and conservationists have become concerned about the worldwide decline of amphibians, especially frogs. What species are declining? Where? Why? What can we do about it? These questions, easy to ask but difficult to answer, are broadly addressed in this thick tome containing the contributions of 215 individuals, many of whom have spent years gathering information pertinent to their discussions. The book is divided into two major parts—"Conservation Essays" and "Species Accounts." In the former are essays on declines, causes, conservation, education, surveys, and monitoring. Each species account of an amphibian known from the United States has sections on historical versus current distribution and abundance, life history, and conservation.

Information is sufficient to classify the status of only 81% of the 91 native species of frogs and toads, and 61% of the 176 native species of salamanders in the United States. The major factors identified for declines are land use (conversion to cropland, urbanization, silviculture), introduction of exotic species (especially fishes and bullfrogs in western states), and chemical contamination, including acid precipitation, pesticides, herbicides, and mine water pollution. Interestingly, the insidious fungal infection, chytridiomycosis, which has decimated so many populations of frogs in the tropics, has been reported only from 15 species of frogs and one salamander, all in western states.

Among the two species of salamanders and 25 species of frogs and toads inhabiting the Great Plains, only eight frogs show evidence of decline. The cause for declines of four of these is the conversion of prairie to cropland. Bullfrogs and Strecker's chorus frogs are declining because of wetland drainage. Water pollution is negatively affecting tadpoles of the northern cricket frog, and heavy herbicide use apparently is the cause of decline in the Texas toad.

Conservation categories, such as threatened and endangered, have biological significance but also political and socioeconomic importance. Species accounts in this book reveal that few amphibians are listed in the federal regulations but that many are listed by states. In some instances the listing by states has little, if any, biological significance. For example, four species of salamanders that are widespread in the Ozark Highlands barely enter southeastern Kansas, a state that lists these species as threatened, a conservation category not applicable to the species as a whole.

This well-indexed book with more than 8,000 references is an extremely useful guide to the life histories, distributions, and population changes of amphibians in the United States. It is not a book for the layman. Perhaps some of the contributors will write a more "popular" volume on

Amphibian Declines: The Conservation Status of United States Species. Edited by Michael Lanoo. Berkeley: University of California Press, 2005. xxi + 1094 pp. Illustrations, photographs, tables, appendices, maps, figures, literature cited, index. \$95.00 cloth.

the plight of our frogs, toads, and salamanders. **William E. Duellman**, *Natural History Museum and Biodiversity Research Center, University of Kansas*.