

Volume 14, Number 4

October 2004

ISSN 0268-0130

THE HERPETOLOGICAL JOURNAL

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Conservation Needs?**

*Proceedings of the Society for
Conservation Biology Symposium,
University of Kent, Canterbury
15 July 2002*

Published by the
BRITISH HERPETOLOGICAL SOCIETY

Indexed in
Current Contents

EDITORIAL

GLOBAL AMPHIBIAN DECLINES: IS CURRENT RESEARCH MEETING CONSERVATION NEEDS?

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How much research is needed to do effective amphibian conservation? Although most herpetologists would hold the view that sound biological research should lay the foundations for conservation action, in the real world this is frequently not the case. There are probably several reasons for this. First, the direction that conservation research takes is driven by several agendas, of which conservation needs is just one. Resolving a conservation problem may require long-term, repetitive, and sometimes arcane research of local rather than international importance. Such work may not be attractive to either funding agencies or scientists, who both require a quick return on their investments. Second, many of the personnel charged with implementing conservation action are not scientists. Such people may not have wide access to the relevant scientific literature, and if they do, they may lack the time or expertise to ponder on the relevance of the latest population model or genetic technique to their problems. Thirdly, conservation research – and conservation science – usually operate within the confines of traditional academic disciplines (e.g. zoology, ecology, genetics, evolutionary biology), whereas conservation problems are multifaceted. Consequently, elegant models to manage endangered species are doomed to fail in practice unless they embrace the legal, political, cultural and socioeconomic frameworks within which the threats to the species have arisen. Because of these issues, it is hardly surprising that most conservation management is rooted in traditional practices, personal experience and word-of-mouth communication rather than evidence-based approaches (Sutherland *et al.*, 2004). Equally, many conservation practitioners take a dim view of scientists and believe that they are not carrying out work that is relevant to their needs (Cummins & Griffiths, 2000). Such is the current wider perception of science, we know of at least one international conservation organization that has advertised the fact that it does not fund research as one of the selling points of its campaigns.

Concern over these issues led to the organization of this symposium on 15 July 2002 at the Society of Conservation Biology meeting in Canterbury. It is particularly appropriate that this symposium was held at the same location as the First World Congress of Herpetology some 13 years on, as it was this seminal meeting that precipitated the increasing interest in declining amphibians. Although there have been several

subsequent symposia on various topics associated with the amphibian decline phenomenon, most of these have been hosted within herpetological meetings. We hoped that the SCB symposium would raise the profile of amphibian declines within the wider conservation community, and encourage feedback and debate on research-related issues. Given the constraints of time-slots within a wider programme, our choice of speakers and topics was, perhaps, not broad enough to encompass all of the complex problems that amphibians are facing. Rather ambitiously, however, we approached researchers who we considered to be leading workers in their fields, and were delighted when they all accepted our invitation to attend and contribute. All of the speakers subsequently agreed to papers based on their presented work being submitted to this special issue of the *Herpetological Journal*. We are grateful to all the contributors for their patience during the review process, and also to the various referees who reviewed the submitted manuscripts.

Fundamental to all amphibian conservation are sound data on population status. Benedikt Schmidt's paper challenges the value of many of the widely used methods based on simple counts of animals, and makes a plea for better methods of population assessment that account for detection probabilities. This raises the whole issue of how much data are needed to arrive at regional conservation assessments. Jean-Marc Hero and Clare Morrisson review the status of – and threats to – Australian frogs and further highlight some of the problems involved. With many species of amphibians breeding in patchily distributed ponds, metapopulation theory has provided a very convenient framework for examining how such populations function and persist. Indeed, Per Sjögren-Gulve's pioneering work on the pool frogs of Sweden remains one of the benchmark studies in metapopulation ecology. Building on this earlier work, Telgström and Sjögren-Gulve compare the genetic differentiation both within and between pool frog populations in northern Europe, and discuss how such data can be used to assign conservation value to different populations. Of all the topics currently being pursued within amphibian decline research, emerging infectious diseases is one that is being closely followed by conservation scientists and practitioners alike. Two papers by Jim Collins and colleagues, and Peter Daszak and colleagues, deal with the twin spectres of chytridiomycosis and ranaviruses respectively, and

highlight the importance of collaborative research in these areas. All conservation research and action operates within limits imposed by political boundaries. Unfortunately the problems facing amphibian populations transcend such boundaries, and variable research effort in different parts of a species' range can sometimes appear to frustrate wider conservation efforts. Jim Foster and Trevor Beebee describe how conservation policy has been translated into research and action for amphibians within the UK. The wider impact that such local conservation initiatives can have may be limited, however, and there are important aspects of the amphibian decline phenomenon for which the answer to the question posed in our title must be 'no'. The priorities for action on global factors that are negatively affecting amphibians – such as climate change and elevated UV-B – lie within the social and political arena, rather than within conservation biology or herpetology.

We therefore admit that this symposium did not provide an unequivocal answer to the question that it posed. Amphibian decline research is often long-haul, and for

many of the issues discussed only time will tell how effective the research has been in informing conservation management. However, we hope that the symposium – and indeed these proceedings – may provide a refocus of research directions. If so, it may help us all wrestle with the dilemma posed by McCoy (1994): 'Do ecologists wear their conservationist hats and muster their expertise in defence of life, or do they wear their scientist hats and muster their expertise in defence of truth?'

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Contributors to the symposium (left to right): Richard Griffiths, Tim Halliday, Benedikt Schmidt, Peter Daszak, Jim Collins, Jean-Marc Hero, Jim Foster, Per Sjögren-Gulve