

# FROGLOG

IUCN/SSC Declining Amphibian Populations Task Force

August 1994 No 10

Please note that the Task Force Office has moved from EPA, Corvallis, Oregon, to the Department of Biology, The Open University, Walton Hall, Milton Keynes, MK7 6AA, United Kingdom.

## A Letter From The New DAPTF Chair

This is an exciting time to be involved with DAPTF. We have a world-wide network of amphibian researchers organized in effective Working Groups; we have a new Executive Director - Tim Halliday - and a new Coordinator - John Baker; we have a dedicated Board of Directors, which is willing to provide oversight to the Task Force. I appreciate the opportunity to serve as Chair of DAPTF and I look forward to working with everyone associated with DAPTF.

Bob Johnson has been extremely helpful with the transition from his tenure to mine. I wish to thank him personally and also on behalf of the entire DAPTF for his efforts as chair. Lorelei Saylor was a godsend to the DAPTF, particularly during the interim between Jim Vial's stepping down as Coordinator and moving the office to Milton Keynes, England. Lorelei opted to stay in Corvallis rather than continue with the Task Force. A most hearty THANK YOU, Lorelei, from all of us, and best wishes for the future.

Tim Halliday and I are working with the Board to develop specific plans for the Task Force in terms of direction, focus, and funding. We will

provide more specific information in the next issue of FROGLOG.

For those interested in a readable history surrounding the DAPTF, I strongly recommend *Tracking the Vanishing Frogs* by Kathryn Phillips (1994, St. Martin's Press, NY). The author does a splendid job in not only capturing and explaining the issues but also illustrating the human side of science and scientists.

Ron Heyer, Chair.

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## Report on the DAPTF Board Meeting

The Board met in Athens, Georgia, USA (31-7-94), during the HL-SSAR conference. The roles of FROGLOG, the Task Force Office and the DAPTF itself were reviewed:

**FROGLOG** It was felt that FROGLOG should continue to function as a platform for uninhibited, informal communication of issues related to declining amphibian populations.

**The Task Force Office** This will continue to oversee and support the membership and activities of the Regional Working Groups and Issue-Based Groups, liaise with the media and raise funds. The Office will also direct effort towards compilation of a comprehensive report on the current status of amphibians throughout the world, with the aim of highlighting the species most at risk, the geographic areas in need of most attention, and

the threats to the survival of amphibians in these areas.

### **New Issue-Based Working Groups**

The Board proposed the creation of two new issue-based Working Groups to deal with the effects of chemical contaminants and atmospheric/climatology on amphibians. The objectives of these Working Groups will be: to draw up a list of chemical contaminants or aspects of atmospheric/climate change that are likely to affect amphibian populations; to compile registers of researchers working in these respective fields, and the species on which they are working; to coordinate effort so that individuals conduct complementary research and avoid duplication of work; to provide bibliographies of key publications as a resource for anyone initiating work in these areas. In addition the Atmospheric/Climatology Working Group will test the hypothesis that amphibians are useful bioindicators of environmental change.

Chairs of these working Groups will be announced in FROGLOG as soon as they are appointed.

The Board also proposed that each Working Group should develop and implement at least one monitoring study in its region, using the protocols published by the Smithsonian Institution (*Measuring and Monitoring Biological Diversity: Standard Methods for Amphibians*, Heyer et al. 1994).

The current membership of the DAPTF Board of Directors (in addition to Ron Heyer) looks like this:

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Elke Zimmermann  
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Special SETAC  
Symposium  
Convened

The 14th Annual Meeting of the  
Society of Environmental Toxicology  
and Chemistry (SETAC), held on  
November 14-18th, 1993, in Houston,  
Texas, USA, added a new symposium  
this year, covering ecotoxicology of  
amphibians. The symposium was  
convened by Wes Birge, Doug Fort,  
Greg Linder and Al Westerman, who  
envisioned it as a means of bringing  
together research on amphibian  
biology, ecology and toxicology. As  
Greg Linder summarized, 'Land use  
patterns, as well as the loss of  
wetlands, have undoubtedly  
contributed to the decline in  
amphibian numbers. But, it is also  
apparent that interactions between  
contaminant effects and habitat  
quality may be associated with the  
regional and world-wide declines in  
frog and salamander populations.'

Copies of abstracts presented  
may be obtained from the Task Force  
Office.

South-East Asia  
Working Group  
Workshop

The Working Group for Southeast  
Asia will hold a workshop on  
monitoring frog populations in mid-  
January, 1995. The workshop will be  
held in Kinabalu Park, Sabah, East  
Malaysia. Participants are expected  
from Malaysia, Indonesia, Singapore,  
Thailand, Vietnam and the  
Philippines. The workshop will last for  
five days and will include field testing  
of methods. One of the expected  
products is preparation of proposals  
for funding work on amphibian  
populations in the home countries of  
the participants. A principal resource  
for the workshop will be the recent  
publication *Measuring and monitoring  
biological diversity: standard methods  
for amphibians* (eds. Heyer et al.,  
1994). The workshop, funded by a  
grant from the National Science  
Foundation (USA) is being organized  
by R.F. Inger and H.K. Voris, co-  
chairs of the Regional Working Group.

Robert F. Inger  
Dept. of Zoology, Field Museum of  
Natural History, Roosevelt Rd./Lake  
Shore Dr., Chicago, IL 60605, USA

Pathology  
Symposium  
Posted

The Fifth International Symposium on  
the Pathology of Reptiles and  
Amphibians will be held on March  
31st to April 2nd, 1995, in the  
Netherlands. This successful series  
of colloquia, initiated by Prof. G. Matz,  
intends to bring together recent  
developments on the pathological  
aspects (in the broadest sense) of  
reptiles and amphibians. Preliminary  
observations are welcomed. The  
Symposium will be held in the Dutch  
National Bird Park, 'Avifauna', at  
Alphen aan de Rijn. Registration fees  
until December 1994 are DM275  
(approximately US\$160). To register  
or obtain further information contact  
Prof. Dr. P. Zwart, Burg. v.d.  
Weijerstraat 16, 3981 EK BUUNIK,  
The Netherlands. Phone: 31-3405-  
61644. Fax: 31-3405-67262.

Western Ghats  
Habitat  
Fragmentation  
Study Funded

Drs. Ajith Kumar and Sivaganesan of  
Salim Ali Centre for Ornithology and  
Natural History, Coimbatore, India,  
have been awarded a grant of about  
US\$ 16,000 by the Ministry of the  
Environment and Forests,  
Government of India, to study the  
impact of habitat fragmentation on the  
endemic herpetofauna and small  
mammals of the rain forests of the  
Western Ghat mountain ranges in  
South India. These forests, rich in  
endemic amphibians, reptiles and  
small mammals, have been reduced  
to numerous highly fragmented small  
patches. This fragmentation is  
expected to lead to a rapid loss of  
endemic species, some immediately  
and others in the more distant future.  
The major objectives of the project  
are to assess the nature and extent of  
loss.

The study will be conducted in  
the Anamalai hills of the Western  
Ghats, where fragmentation of habitat  
has been extensive. Data on  
abundance and distribution will be  
collected from forest fragments of  
varying sizes and related to a number  
of habitat and environmental

parameters, as well as human impacts. Field studies were scheduled to commence in December 1993.

A major component of this project will be the use of GIS and remote sensing to model the dynamics of fragmentation, to assess the efficacy of existing protected area networks in conserving herpetofauna, and to suggest measures which would enhance the efficacy of these networks.

The researchers would greatly appreciate receiving reprints and reports of similar studies elsewhere, particularly those dealing with methodology (address: Salim Ali Centre for Ornithology and Natural History, Kalampalayam PO, Coimbatore 641-010, India).

### Marking Amphibians by Toe-clipping

Toe-clipping has long been the most widely used method for marking individual amphibians in population and behavioural studies. In Britain and some other European countries, the technique is increasingly being called into question, and herpetologists are looking for less invasive alternatives. For example, in many species, variation in colour patterns can be used to identify individuals, but this is not always a viable alternative.

There are two major problems with toe-clipping. Many people have objections to it on ethical grounds, and it is certainly true that herpetologists have to be very discrete about using the technique whenever their activities may be observed by non-biologists. The second concern is that it may be detrimental to the survival of amphibians; there is evidence that it decreases survival (Clarke, 1972) and that it causes tissue damage (Golay and Durrer, 1994). In certain countries it requires a licence and anyone doing it needs to be aware that it causes public disquiet, as in a recent very public scandal in Sweden. Of particular importance in the DAPTF context, it is sometimes impossible to obtain permission to toe-clip rare or endangered species: many herpetologists are now reluctant to do so anyway, because of the possibility that it may reduce survival.

There is no doubt that the value of many biological studies of

amphibians is vastly enhanced if individuals can be identified and we are frequently consulted as to how best this can be done. We would very much like to hear from anyone who has views on this issue. In particular, we would be interested in hearing about evidence that toe-clipping is or is not detrimental to amphibians, and about first-hand experience of non-invasive alternatives.

Tim Halliday (DAPTF Director)

Clarke, R.D. (1972) The effect of toe-clipping on survival in Fowler's toad (*Bufo woodhousei fowleri*). *Copeia* 1972 182-185.

Golay, N. and Durrer, H. Inflammation due to toe-clipping in natterjack toads (*Bufo calamita*). *Amphibia-Reptilia* 15 (1) 81-96 1994.

### Good News for the Majorcan Midwife Toad

A meeting of people involved in the Majorcan midwife toad (*Alytes muletensis*) recovery project took place in Majorca on April 18-20th. The purposes of the meeting were to review the progress of the recovery project to date and to discuss future directions for conservation and research. The meeting, coordinated by the Majorcan Conselleria d'Agricultura i Pesca, included representatives from zoos in Jersey, Stuttgart, Majorca, and Barcelona, and from the University of Kent and the Open University in Britain.

*A. muletensis* was discovered in remote gorges in the mountains of Majorca in 1980, and captive breeding programmes were initiated in Jersey in 1985 and in Stuttgart in 1986. Additional captive populations founded from Jersey's stock exist in five other European localities. Population estimates in the field range from 500 to 1500 breeding pairs. Extensive surveys of the mountainous habitat have identified 13 natural breeding populations, divided between six gorges and seven small pools located outside the gorges. The toads are known to have occupied a much wider distribution until about 2000 years ago, when predators and competitors were introduced to the island. The viperine snake (*Natrix maura*) and the green frog (*Rana perezi*) are considered to

be the most important introductions limiting the range of the toad.

Reintroductions of captive bred toads have been taking place since 1988. All animals are released at sites that do not already contain toad populations. Eight sites have been used to date. The first site was unsuccessful, probably due to the presence of too many predators. Subsequent introduction sites were screened more carefully, and three sites now support breeding populations. Males can be heard calling at the remaining four sites, which received metamorphs in 1992, and it is hoped that females will begin breeding there this year. Although the reintroduction project is still in its early stages, the results so far are extremely encouraging.

The expansion of the reintroduction project is limited by the scarcity of permanent bodies of water free from predators. Although all of the large naturally occurring populations occur in gorges, the lack of additional gorges suitable for reintroductions has forced a shift in the focus of the project away from gorges toward the small breeding sites located in the mountains above the gorges. Most of these sites are artificial water holes, built centuries ago for collecting rain water to support free-ranging sheep and goats. Plans are now underway to construct additional pools by lining natural rocky depressions with cement to render them capable of holding rain water. Some of these new sites will be stocked with captive-bred animals, others will be left empty as part of a research project aimed at identifying the capacity of this species to colonise new sites. One outcome of the meeting was that the Conselleria d'Agricultura i Pesca is committed to creating enough new sites to take 4,500 toads over the next three years, and the various zoos and institutions breeding the toad are committed to supplying the animals to meet this goal.

In addition to colonisation, future research projects will focus on population dynamics of the predators, and on genetic analyses of both the captive and wild toad populations. Annual surveys of tadpole numbers in every gorge and pond were begun in 1981 and will continue indefinitely. Although it is difficult to extrapolate the number of breeding adults from the larval counts, the surveys provide an index of the stability of the existing

populations and the growth of the new populations.

The Conselleria d'Agricultura i Pesca was recently awarded a LIFE grant of 700,000 ECUs. Under this scheme, the European Community and the Balearic government contribute equally toward financing the proposed project. Part of the money has been used to purchase property for the establishment of a reserve protecting an important toad population and other endemic flora and fauna. The remainder of the funds will be used to employ a Majorcan field biologist, Alvaro Román, who will create the new release sites and monitor the introduced populations.

The Majorcan midwife toad has proved to be an ideal species for a reintroduction project. It is easy to breed in captivity, and although the clutch size is small, only ten eggs, females produce multiple clutches per season; mortality of both tadpoles and adults is extremely low, and generation time is short. Captive populations increase in size very quickly, and it is hoped that the released populations will do the same. We are enormously pleased with the results of the project so far and regard the project as a model for anuran reintroductions.

Sarah Bush

Department of Biology, The Open University, Walton Hall, Milton Keynes.

#### Directory of Neotropical Herpetologists

*Directorio de Herpetologos Neotropicales* (1994) has been compiled by Jaime Péfaur as Volume I of the Proceedings of the II Latin-American Congress of Herpetologists. The volume comprises over 400 individual entries, including their research areas and taxa of interest. It is hoped that this volume will become a valuable tool, aiding communication among workers interested in Neotropical herpetofauna.

Copies are obtainable from Fundación Fauna Andina, Casilla Postal 25, La Hechicera, Mérida 5152, Venezuela, at a price of US\$10.00, including air mail delivery.

#### 1994 IUCN Red List

IUCN Red Data Books and Red Lists are internationally recognised publications highlighting species that are under higher extinction risk. *The 1994 IUCN Red List of Threatened Species*, (Edited by B Groombridge, ISBN 2-8317-0194-5, 1993) compiled by the World Conservation Monitoring Centre in association with the IUCN Species Survival Commission and BirdLife International, differs greatly from its predecessors. The size and layout have been redesigned to improve ease of use. Information on nomenclature, distribution and categorisation has been updated. Nearly 6000 species are now listed.

Information on the development of new IUCN categories of threat is also provided. Previous versions of these categories have now been numbered, to clarify the situation for those using the system: Version 1 - Mace & Lande 1991, Version 2 - Mace et al. 1992, Version 2.1 - IUCN 1993. Georgina Mace of the IUCN Species Survival Commission is working on the latest draft (Version 2.2) which is due to be published in *Species* (the SSC newsletter). However, this latest draft is subject to changes that may be made at an IUCN Council meeting in November 1994.

#### Checklist of Endangered Herpetofauna of Argentina

Claudio Bertonatti (Fundación Vida Silvestre Argentina, Defensa 245-51, 1065 Buenos Aires, Argentina) provides a preliminary checklist of endangered reptiles and amphibians of Argentina, drawing on published and unpublished information. On the basis of IUCN criteria, 41% of the 150 native amphibian species are threatened and 24% of the 220 reptiles.

Bertonatti, C. (1994). Lista propuesta de anfibios y reptiles amenazados de extinción. Cuadernos de Herpetología 8 (1) 164-171.

#### Publications of Interest

Berrill, M., Bertram, S., McGillivray, L., Kolohon, M. and Pauli, B. (1994). Effects of low concentrations of forest-use pesticides on frog embryos and tadpoles. *Environmental Toxicology and Chemistry* 13 (4) 657-664.

Blaustein, A.R., Hokit, D.G., O'Hara, R.K. & Holt, R.A. (1994). Pathogenic fungus contributes to amphibian losses in the Pacific-Northwest. *Biological Conservation* 67 (3) 251-254.

Blaustein, A.R., Wake, D.B. & Sousa, W.P. (1994). Amphibian Declines: judging stability, persistence, and susceptibility of populations to local and global extinctions. *Conservation Biology* 8 (1) 60-71.

Lannoo, MJ, Lang, K, Waltz, T, Phillips, GS. (1994). An altered amphibian assemblage: Dickinson County, Iowa, 70 Years after Frank Blanchard's Survey. *American Midland Naturalist* 131 (2). 311-319.

Mahaney, P.A. (1994). Effects of fresh-water petroleum contamination on amphibian hatching and metamorphosis. *Environmental Toxicology and chemistry*. 13 (2) 259-265.

Pounds, J.A. & Crump, M.L. (1994) Amphibian declines and climate disturbance: the case of the golden toad and the harlequin frog. *Conservation Biology* 8 (1) 72-85.

#### New DAPTF Working Group Chairs

##### **Madagascar/Seychelles**

Chris Raxworthy is to join Ron Nussbaum in co-chairing a new Working Group to cover the Madagascar/Seychelles region. Address: Museum of Zoology, Division of Herpetology, University of Michigan, Ann Arbor, MI, 48109-1079, USA.

Chris.Raxworthy@um.cc.umich.edu

##### **United States of America**

Michael Lannoo is the new Coordinator for the USA, which is a new position to deal with and

coordinate declining amphibian populations at the national level.  
Address: The Muncie Center for Medical Education, Indiana University School of Medicine, Ball State University, Muncie, IN 47306, USA  
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***United States Southern Plains***

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**FROGLOG**

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