



# FROGLOG

Newsletter of the Declining Amphibian  
Populations Task Force

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## The DAPTF in Africa

From Tim Halliday, DAPTF  
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Africa presents a particular challenge for the DAPTF, because of its enormous size, its high amphibian biodiversity and the chronic shortage of active amphibian researchers working there. Two meetings, recently held at Watamu, Kenya, provided an opportunity to review our current state of knowledge ('ignorance' is perhaps a more appropriate word) and to assess the scale of the challenge that Africa presents to us. The first, convened by Simon Stuart and Neil Cox of Conservation International (CI), was a regional workshop of the Global Amphibian Assessment (GAA), an ambitious project that seeks to assign IUCN categories to all of the world's amphibians. The second, organised by Bob Drewes (USA), Kim Howell (Tanzania) and Damiris Rotich (Kenya), was the latest meeting of the African Amphibian Working Group (AAWG).

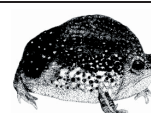
To date, only about 20% of amphibians have been assessed under the IUCN Red List criteria; the objective of the GAA is to assess all the world's amphibian species. The GAA, which is hosted at CI's Center for Applied Biodiversity Science, represents a test of methodology that will ultimately be used for all taxa, and the objective is to complete the task by the end of 2002. Prior to the workshop, Alan Channing (University of the Western Cape, South Africa) had prepared a preliminary assessment of 634 amphibian species. During the workshop, this number increased slightly, and it is clear that all attempts to document and assess Africa's amphibian fauna are bedeviled by taxonomic problems; there were many discussions concerning the validity of many genera and species. It also became very clear

that there are vast areas of ignorance concerning African amphibians; there are many parts of Africa where, for obvious reasons, the necessary exploration work has not and cannot now be carried out. Currently, the individual species assessments are being considered by a number of experts and we hope to report on the outcome of this and other GAA workshops in future issues of *Froglog*.

The AAWG meeting consisted of several talks covering the taxonomy, distribution, ecology, behaviour and conservation of African amphibians. Of particular interest to the DAPTF were reports of a number of long-term monitoring initiatives. Two of these, in Ivory Coast and Kenya, are being run by GADAG ([www.gadag.org](http://www.gadag.org)); they involve a standardized transect method at multiple sites that include both fragmented and non-fragmented habitats. Together with long-term monitoring programmes set up at two localities in South Africa, in the Western Cape and Northern Transvaal, these projects could provide the basis for a continent-wide monitoring programme.

A highlight of the AAWG meeting was a report, by Ché Weldon of a study of chytridiomycosis in *Xenopus* in South Africa, reported elsewhere in this *Froglog*.

The DAPTF has 7 Regional Working Groups in Africa: Ivory Coast, Madagascar, Nigeria, Southern Africa, Tanzania, Uganda and Zambia. As a result of the Watamu meetings, we are in the process of setting up two new groups, in Kenya and Malawi. Since 1995, the DAPTF has awarded 11 Seed Grants to projects in Africa, in Guinea, Ivory Coast, Madagascar, Nigeria, South Africa (6) and Uganda. It is clear that there is much more that the DAPTF could and should be doing in Africa and we are currently exploring ways in which we can work with others to attract the necessary funding. I would very much like to hear from anyone who can contribute to this effort.



## Chytridiomycosis Survey in South Africa

By Ché Weldon, DAPTF Seed Grant  
Holder

The first record of chytridiomycosis from South Africa in the African Clawed Frog, *Xenopus laevis* (Speare, 2000) provided the initiative to conduct a risk assessment in the country to determine the occurrence of chytridiomycosis, its geographical distribution and the species of amphibians infected. As *X. laevis* are still being exported in large numbers from South Africa for scientific research in many countries, we regard *Xenopus* as a high-risk species for the dissemination of chytridiomycosis. This puts amphibians both nationally and internationally at risk of acquiring chytridiomycosis through transmission via *X. laevis*.

A study was launched to determine the extent of occurrence of the amphibian chytrid in *X. laevis* in the Western Cape Province of South Africa. Numerous populations have been surveyed on a quarter degree grid scale. Tissue samples were collected and histologically examined at Potchefstroom University. In addition we are investigating the extent to which chytrid-infected frogs are being exported while developing mechanisms, in close collaboration with nature conservation authorities, to prevent the dissemination of chytridiomycosis. Archived specimens of *Xenopus* and stream breeding and high-altitude anuran species are also being examined to determine whether and when the chytrid was introduced to South Africa and neighbouring countries.

The survey has confirmed the presence of chytridiomycosis in the Western Cape. Preliminary results indicate that the chytrid is present in *X. laevis* throughout most of the surveyed region. The infected frogs do not show any of the behavioural

or clinical symptoms usually associated with the disease, nor has any evidence been found of chytridiomycosis causing population declines in this species. Examination of archived specimens indicates that the chytrid was not introduced in recent years but has been present for more than two decades in central South Africa. No pattern of dissemination can so far be derived from spatial distribution and date of occurrence of positive records.

To better understand the epidemiology and distribution of chytridiomycosis we intend to expand our efforts from the sub-continent to include the greater African continent. We invite any working group or individuals who might be interested to cooperate with our initiative to contact us.

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<http://www.jcu.edu.au/school/phtm/PHTM/frogs/chyglob.htm>

Amphibian Faunal Diversity and Conservation Status in The Niger Delta Basin (Southern Nigeria): An Update

By Godfrey C. Akani & Luca Luiselli,  
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During the dry and rainy seasons of 2001, the DAPTF working group for Nigeria, based at the Rivers State University of Science and Technology, Port Harcourt, embarked on vigorous investigations of the diversity and conservation status of amphibians in four delineated zones of the Niger Delta. The zones, which include a wide variety of habitats, namely, seasonal and permanent rain forest swamps, ponds, streams, derived savannah, roadside ditches, culverts, etc., are around Port Harcourt and Omoku in Rivers State, Yenagoa in Bayelsa State, and Sapele in Delta State.

Throughout the period of the survey, no caecilian species was observed. However, specimens of caecilians were observed (and some are also currently stored in the Museum of Natural History at Butatong, Nigeria) inside the territory of the Cross River National Park, in the extreme southeast of the country. The finds were all anurans of the

families Bufonidae, Pipidae, Ranidae, Rhacophoridae and Hyperoliidae. The bufonids were represented by only two species (*Bufo regularis* and *B. maculatus*), that were observed mainly during the wet season, as they seemed to aestivate during the peak of the dry season. They are common also in altered habitats, although most readily observed in relatively humid microhabitats: crevices, under logs, stones, culverts and shaded leaf litter etc.

All species of amphibians were more frequently sighted in the rainy months (May to October) when virtually all species go to the nearest fresh water to breed. There appeared to be a selection of breeding sites according to the chemico-physical properties of the water. Toads breed in shallow turbid roadside ditches and gutters, while the rare goliath frog breeds in deep, turbid ponds (> 1m) inside the rainforest. The only species of the Pipidae observed in the study areas, *Xenopus tropicalis*, appeared to be found mainly in the slightly acid, brown swamp water in all the zones. *Xenopus mulleri*, recorded in Ibadan (western Nigeria) by Schiötz (1967) was not found in the Niger Delta. Some Ranidae, e.g., belonging to the genera *Ptychadena*, *Aubria*, *Hoplobatrachus* and *Phrynobatrachus*, are locally abundant, although in most cases restricted to deep, transparent, algae-rich water (particularly at the littoral zones fringed by hydrophytes and floating meadows) and wet grasses. Hyperoliid tree-frogs appeared generally rare, although locally common in small rainforest patches, often very wet and with closed canopy. The most common species appeared to be, apart from *Bufo* and *Ptychadena* spp., *Hoplobatrachus occipitalis*, *Aubria subsigillata*, *Phrynobatrachus* cf. *auritus*, *Hylarana albolabris*, *Hyperolius* cf. *concolor*, *Afraxalus dorsalis* and the rhacophorid *Chiromantis rufescens*.

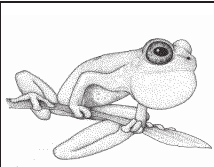
The present investigation identified a series of factors threatening amphibians in the Niger Delta: (i) Incessant spillage due to burst oil pipelines and pipeline vandalism causes measurable and considerable petroleum hydrocarbons in amphibian breeding sites, leading to the mass death of eggs and tadpoles. (ii) Amphibian breeding sites close to human settlements (always expanding due to the year-by-year growth of the human population in southern Nigeria) are frequently sprayed with both pesticides and petroleum hydrocarbons (e.g. kerosene and crude oil), in a bid to destroy

mosquitoes, the vector of malaria. In the process, non-targeted amphibians are killed. (iii) The reclamation of the Niger Delta wetlands for housing and road projects, oil-prospecting and other land use is extensive, with devastating consequences in terms of habitat alteration and fragmentation. (iv) Direct predation pressure by humans was also noted to be high on the amphibian fauna of the Niger Delta. Pipidae and Ranidae species are all edible, and *Xenopus tropicalis* in particular constitutes a significant proportion of landings from swamp-water fishing (as they are easily caught in basket traps with non-return valves). Species of both families are also popular and reliable baits for capturing big fishes, and so are massively used by fishermen. It was also observed that toads, although not edible, are an indispensable component of recipes in some traditional medicines ("ju-ju" practices). Consequently, they were often found displayed for sale, in dried forms, on the fetish market stalks of Port Harcourt, Omoku, Yenagoa and Sapele zones. (v) Areas in the vicinity of flow-stations, where gas is flared on a daily basis, experience obvious elevated temperatures. Evaporation rates in these localities are therefore high, leading to the drying out of amphibian habitats (e.g. in secondary forest litters etc.). (vi) Deforestation and bush-burning that occurs in the Niger Delta constitutes another far-reaching threat to amphibian survival.

In view of the foregoing results, we suggest that declining amphibian populations in the Niger Delta (such as *Conraua* species and several species of tree frogs) can be protected in the following ways:

- Accelerated amphibian breeding programmes in freshwater swamps
- Public enlightenment, using radio jingles, T.V. etc, to highlight the need for amphibian conservation
- Enacting laws that will effectively protect amphibian breeding sites; such laws must spell out some stringent penalties (heavy fines) for any offender caught washing petroleum hydrocarbon or its derivatives into freshwater bodies.

We are jointly working with scientists from the University of Uyo (Prof. R. King and Mr. E.A. Eniang) and from the University of Abraka (Dr. J. Lea) to continue our surveys for amphibians, and to examine experimentally the effects of the various environmental stressors on a few target populations of anurans (e.g. accumulations of heavy metals in frog tissues in areas subjected to strong oil industry pressure).



## Amphibian Research in Myanmar

### From Guin Wogan & George Zug

Myanmar opened to biological investigations by foreign researchers in 1994. The Conservation Research Center of the Smithsonian's National Zoological Park established a collaborative research program with the Myanmar Nature and Wildlife Division in that year. The initial emphasis was on Eld's deer ecology at the Chatthin Wildlife Sanctuary (95°44.26' N, 23°34.46' E) in the north-central Myanmar dry zone. In July 1997, George Zug established a year around inventory and monitoring program with the staff at Chatthin. One aspect of this collaboration was a weekly frog census adjacent to the sanctuary headquarters. This program continued through December 2000. In November 1997, Joseph Slowinski visited Myanmar in pursuit of his Asian elapid studies. Impressed by the herpetological research opportunities and by an invitation and encouragement from U Uga (then director of the Myanmar Nature and Wildlife Conservation Division) to initiate an all-country herpetofaunal survey, Slowinski, with Zug, obtained NSF funding for such a survey. Formally, the all-country survey began in November 1999 with a team composed of four Burmese wildlife division rangers and a photographer. The first two years of survey focused on the central dry zone from Mandalay southward to Yangon, the Ayeyardady River delta, and the Rakhine and Bago Mountains. Beginning in March 2002, the team began surveys in the northern portions of Kachin State and Sagaing District. Survey activities centered in wildlife sanctuaries and forest reserves, but not exclusively so. To date, the joint Wildlife Division, CAS-SI Herpetofaunal Survey has obtained vouchers of about 50 species of frogs, one salamander, and two caecilians. Of these, we believe that over a dozen species are new to science. It is likely, furthermore, that some of the putatively widespread South Asian species, e.g., *Rana "limnocharis,"* *R. rugulosa*, (likely representing Myanmar endemics), will be split into distinct species. Studies of the Myanmar specimens have only just begun. Guin Wogan is concentrating on the ranids and currently analyzing variation in the *Rana limnocharis* complex and

*Occidozyga*, Jeff Wilkinson the *Chirixalus*, G. Zug recently completed a morphometric study of *R. (Hoplobatrachus) rugulosa* and has begun a study of central dry zone *Microhyla*, and Mark Wilkinson is studying the *Ichthyophis*.

Our studies are not designed to assess population fluctuations. They suggest, however, healthy frog populations. Many of the areas which we surveyed border or encompass non-mechanical and non-chemical agriculture (predominately rice production). In these areas, frog abundance is high, especially when assessed by the number of calling males during a species' primary breeding season. As elsewhere in South Asia, natural habitats, particularly forests, are being logged at an increasing pace so it is probable that forest frog species are declining in abundance and occurrence where the habitat, through logging, loses its canopy, dries, and becomes bamboo thickets and weedy scrub. In flatlands, much of the logged area is converted to rice agriculture. In these circumstances, some frog species (e.g. *R. limnocharis*, *Microhyla ornata*) appear to have benefited, with increased abundance. This observation, however, is a totally subjective one. Logging and other human activities greatly increase the silt load in the streams and rivers with obvious consequences for local amphibians. We recognize the need to perform thorough surveys of agricultural areas and habitats in and around towns and cities to assess the local abundance of the human-tolerant frog species. At this time, though, our and the wildlife team's efforts are to sample less disturbed habitats to assess the species that will likely disappear with major habitat modification. The biological research infrastructure is nearly nonexistent in Myanmar, and civil conditions potentially make night fieldwork for local scientists difficult.

For a list of Myanmar frog species, please visit our website: [www.calacademy.org/research/herpetology/myanmar/index.html](http://www.calacademy.org/research/herpetology/myanmar/index.html)

This site has a checklist of the herpetofauna of Myanmar and images of various Myanmar anurans. The checklist is now about a year old and will be updated this summer.

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George Zug, Division of Amphibians and Reptiles, National Museum of

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### South Asian Amphibian CAMP

A Conservation Assessment and Management Plan (CAMP) workshop was organised in 1997 to assess all Indian amphibians (205 species then) and another was held in 1998 to assess all Sri Lankan amphibians (54 species then). After 5 years, as promised, we are organising a follow-up CAMP workshop for Indian and Sri Lankan amphibians and also for other countries in South Asia. This time the CAMP workshop is conducted jointly with the Global Amphibian Assessment (GAA) developed by Conservation International and the Global Amphibian Specialist Group (SSC, IUCN). The mandate of the 5-day workshop, to be held from 1-5 July 2002 in Coimbatore, Tamil Nadu, India, will be to assess the status of all South Asian Amphibians according to the 2001 IUCN Red List Criteria.

This CAMP will be immediately preceded (24-28 June) by a **hands-on training workshop** on amphibian field techniques, identification and taxonomy to be held at the College of Forestry, Kerala Agricultural University, Vellanikkara Campus, Thrissur, Kerala.

If you would like further details on attendance at either workshop, please write to the DAPTF Co-chair for South Asia, Sanjay Molur:

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### Froglog Shorts

**DONATIONS** We gratefully acknowledge receipt of these donations, received 21 March – 31 May 2002. **Individuals:** David Cannatella, Norm Damm, Joseph Griggs, Erik Kiviat, Mary Kostalos, Frankie Locke, William Parker, Trevor Persons.

**The new web site** address for the Kansas Herpetological Society is: <http://www.ku.edu/~khs/>

**WORKSHOP:** Conservation and Management of Amphibians, 15 & 16 August 2002. Sponsored by U.S.D.A. Forest Service North Central Research Station. *For more information, contact the instructor:* Dr. Raymond D. Semlitsch, Professor, Division of Biological Sciences, 212 Tucker Hall, University of Missouri, Columbia, MO 65211, USA. Tel: 573-884-6396

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**New web pages** on standard methods for monitoring tropical amphibians



can be found at:  
[http://www.biozentrum.uni-wuerzburg.de/zoo3/MO\\_Roedel/Standard%20Methods%20web-Dateien/standard\\_methods\\_for\\_monitoring\\_.htm](http://www.biozentrum.uni-wuerzburg.de/zoo3/MO_Roedel/Standard%20Methods%20web-Dateien/standard_methods_for_monitoring_.htm)



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