

FROGLOG

Newsletter of the Declining Amphibian
Populations Task Force

December 2004, Number 66

New Funds available from the DAPTF

As announced in Froglog 65, the DAPTF, in partnership with the Global Amphibian Specialist Group (GASG), has been awarded a substantial grant by the Critical Ecosystem Partnership Fund (CEPF) to fund projects in eight 'biodiversity hotspots'. This project will run over three years and will support projects directed at the conservation of amphibians; in 2005 we will be funding projects in Mesoamerica, West Africa and the Chocó of Colombia and Ecuador. We invite proposals for projects in these three regions. Preference will be given to projects that seek to conserve 'red-listed' species, as listed in the Global Amphibian Assessment (GAA).

Grants will be available from \$1K up to \$10K. Projects seeking smaller grants should conform to the format of DAPTF Seed Grants, as set out in Froglog 65. Individuals seeking larger grants should develop their proposals in consultation with Tim Halliday (t.r.halliday@open.ac.uk) and Don Church (d.church@conservation.org).

Details of these and other biodiversity hotspots can be found under 'where we work' at the CEPF web site (www.cepf.net/xp/cepf). Results of the GAA can be found at www.globalamphibians.org.

Applications, which may be in Spanish, Portuguese or French, as well as English, should be sent to Tim Halliday by 1st March, 2005.

Tim Halliday & Don Church



U.S. Northern Cricket Frog Symposium

In the Midwestern United States, Blanchard's Cricket Frogs (*Acris crepitans blanchardi*) are declining along the northern and western borders of their distribution and constitute the only mysterious

amphibian decline in the region. To address this issue, 52 experts from the U.S. and Canada met at Indiana Dunes National Lakeshore on September 15th and 16th, 2003. Our meeting was sponsored by the DAPTF and by Partners in Amphibian and Reptile Conservation (PARC). Twenty four papers were given, punctuated by breakout groups, informal discussions, and a final wrap-up discussion. Several tangibles came from the meeting. First, we developed a program to document and map all known populations of cricket frogs. This is being coordinated by Walt Sadinski and Alisa Gallant (both USGS researchers). Secondly, several factors were implicated in cricket frog population declines, including habitat loss and alteration, pesticide contamination, acidified ecosystems, and disease. Further, we developed a hypothesis on how the biogeography of northern cricket frogs offers insight into the potential causes of the unusual pattern (northern and western extremes) of their declines. The genus *Acris* appears to have arisen in the SE United States and genetic evidence provided independently by Kaela Beauclerc and Tony Gamble show that *Acris crepitans blanchardi* underwent a recent and rapid expansion to the north and the west – into the areas now experiencing severe declines. Work by Jason Irwin shows that northern cricket frogs in these regions do not so much hibernate – unlike sympatric amphibian species they do not overwinter by burrowing, submerging, or by producing antifreeze – as they get by. Cricket frogs overwinter in shallow wet areas along the margins of wetlands, where a combination of physical and chemical factors keep temperatures above freezing; as long as it's wet, northern cricket frogs can withstand cold. Conversely, droughts appear to have a large impact on these populations, and the largest population extirpations have occurred during droughts in combination with severely cold winters. More so than other species of Midwestern amphibians, northern cricket frogs appear to be sensitive indicators of not

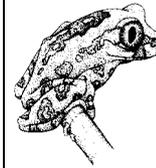
only environmental health, but also of climate change.

Contact: Michael Lannoo, U.S. DAPTF Coordinator, Muncie Center for Medical Education, Indiana University School of Medicine, MT 201, Ball State University Muncie, IN 47306, USA.

mlannoo@bsu.edu

Ralph Grundel, U.S. Geological Survey, 1100 N. Mineral Springs Road, Porter, IN 46304, USA.

Ralph_Grundel@usgs.gov



PRESS RELEASE: Sunburnt Frogs a Myth: Pond Scum offers Natural Sunscreen

TORONTO, June 30, 2004 -- Being green has become a little bit easier thanks to the research of York Biology
From Prof. Larry Licht

Licht, who has been studying the potential effects of ultraviolet radiation (UVB) on the biology of amphibians, says that, contrary to widespread belief and environmental reports, natural ambient UVB is unlikely to actually damage amphibians and plays little if any role in their global decline.

"This hypothesis of UVB killing amphibians has been widely circulated in the media," says Licht, who has been studying the ecology, evolution and behaviour of amphibians and reptiles for more than 35 years. "Although widely debated, this UVB hypothesis has become deeply entrenched in the public and scientific views of environmental alarmist scenarios. My research and published work, on the contrary, has shown that the UVB hypothesis has little merit."

Licht says that amphibians possess natural defences against damage from exposure to UVB. To date, his research has shown: 1) that amphibian eggs/embryos have melanin pigmentation which absorbs most UVB; 2) the jelly covering around eggs reduces the amount of UVB reaching embryos; 3) amphibians possess an enzyme which repairs DNA damaged

by UVB; and 4) amphibian eggs are normally deposited in water of lakes and ponds at depths of several centimetres and this water usually contains dissolved organic content (murky pond scum) which is very effective at absorbing UVB and reducing the amount that extends downward.

"Thus, except in the clearest of lake water, most UVB is attenuated within the first few centimetres of water and amphibians (frogs, toads, salamanders) normally lay eggs deeper than a few centimetres," explains Licht.

Licht's findings, "Shedding light on ultraviolet radiation and amphibian embryos", were published in *BioScience*, a leading North American journal that covers biological research. He maintains a Website on his research at <http://www.yorku.ca/lel>

For more information or to arrange an interview, media should contact: Ken Turriff, York University Media Relations, 416-736-2100, ext. 22086 kturriff@yorku.ca

Global Amphibian Assessment

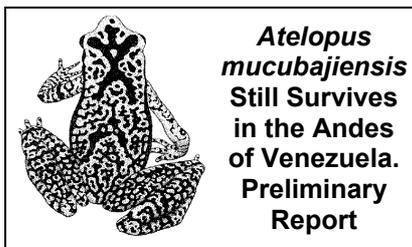
From Simon Stuart, Janice Chanson, Neil Cox and Bruce Young

After more than three years of work, the results of the Global Amphibian Assessment (GAA) were released on 14 October 2004, and can be found on www.globalamphibians.org. Nearly one-third (32.5%) of the world's amphibian species are threatened (IUCN Categories Critically Endangered (CR), Endangered (EN) and Vulnerable (VU)), representing 1,856 species. At least 34 amphibian species are known to be extinct, and an additional 134 amphibian species might possibly be extinct. Nine amphibian species are known to have died out since 1980, and up to 113 additional species might have disappeared over this time period. Salamanders and newts show significantly higher threat levels than amphibians as a whole, with 46% (234 species) of their species threatened or extinct, compared with 32.6% (1,653 species) for frogs and toads. For caecilians, only 2.3% (4 species) are threatened, but two-thirds (66%) of caecilians are so poorly known that they have been assessed as Data Deficient.

More than 520 scientists from over 60 countries contributed to the GAA, a joint project of IUCN – The World Conservation Union, Conservation International, and NatureServe. The results provide an

information baseline for monitoring future trends in amphibians worldwide, and will be used to design strategies to conserve the world's rapidly declining amphibian populations. The GAA team would like to thank all those who helped implement the GAA, especially the scientists who contributed data, and also to the DAPTF and others who assisted in numerous ways.

We welcome any information to update, correct and improve the GAA data. This can be sent to: iucn@conservation.org.



César L. Barrio-Amorós,
Fundación AndígenA
<http://www.andigena.org>
atelopus@andigena.org

The neotropical harlequin toads of the genus *Atelopus* range from southern Costa Rica to Bolivia, with its center of speciation in Colombia, Ecuador and Perú. Although it has a widespread distribution, it is locally threatened within patches of its range. Declines in *Atelopus* populations are prevalent in Venezuela, which contains ten species, such as the apparently extinct *A. carbonerensis* (Barrio-Amorós, *in progress*) and *A. tamaense*, which has not been recorded since its formal description.

In an attempt to understand the reasons behind population declines and offer solutions, the 'Proyecto *Atelopus*' [*Atelopus* Project], developed by the Fundación AndígenA, produced and distributed educational posters to local and rural schools, in areas where *A. carbonerensis* was once known or considered to have occurred. Posters were also distributed in areas where another yellow harlequin toad, *A. mucubajensis* occurred. Although almost its entire known habitat is protected by the Parque Nacional Sierra Nevada, Mérida state, the last living *A. mucubajensis* specimen was reported in November 1994, when a few tadpoles and a dead adult were observed (Löters 1996).

Atelopus mucubajensis is a species inhabiting the páramos and cloud forests of the Sierra Nevada (type locality, Mucubají, at 3100 m Venezuela). On 12th September 2004, a female *A. mucubajensis* was found under a rock close to a creek beside the main road of Barinas-Mérida, by a boy

who was searching for worms to use for fishing trout. Having seen one of the project posters in a restaurant in the Santo-Domingo area, he informed the owner, a friend of the author, who then contacted the 'Proyecto *Atelopus*'. The following morning, project staff met with the young boy to confirm his story and check whether the *A. mucubajensis* specimen was still alive.

The adult female appeared to be in good condition and was full of eggs. However, closer inspection revealed a round wound on the dorsal part of the head, and the skin appeared damaged on the dorsal and ventral areas. It is unclear if this damage was caused by a bacterial or fungal infection, as more detailed tests need to be conducted. Obviously, it is of enormous importance to know the type of infection, if this is indeed the case, in order to establish or eliminate it as a possible cause of toad population declines in this area. The specimen is currently being kept in a refrigerated terrarium, with night temperatures of 2-3 °C and day temperatures of 10-12 °C. *Drosophila* flies and small invertebrates from páramo moss have been offered, but feeding has yet to be observed.

The specimen was not found in its preferred páramo habitat (above 2800 m), but in cloud forest (at 2400 m). This area is in close proximity to the Santo Domingo River, which contains trout, and is close to a road used by thousands of tourists each year. A consequence of tourist activities (moving between various locations to take pictures, walk and fish trout), is that they might be acting as carriers of chytrids, viruses and other pathogens. An additional threat to *A. mucubajensis* in this area is posed by herbicide and pesticide run-off from nearby farmland. All of this might suggest that remaining viable populations, if they do still exist, continue to occur in poorer quality cloud forest habitat. This hypothesis is further supported by the absence of any *A. mucubajensis* records from numerous years of research in the páramo by several herpetologists from the University of the Andes, Mérida, and five years of investigation in the páramo of Mucubají by Carlos Rivero-Blanco, a Venezuelan herpetologist.

The MARN (Ministerio del Ambiente y de los Recursos Naturales /Ministry of Environment and Natural Resources) and INPARQUES (Instituto Nacional de Parques /National Institute of Parks) have been informed of this finding and will collaborate with AndígenA once sufficient funds have been obtained from national and international sources. It is recommended that pristine páramos and cloud forests close to the recent *A.*

mucubajiensis discovery be explored in order to ascertain whether there are surviving populations.

The full version of this report (in Spanish) with photographs can be found at <http://www.andigena.org>.

Acknowledgements

I am deeply indebted to Yacson, the boy who found and informed us of the *A. mucubajiensis* specimen and for his interest in nature and to Hermes Balza, the restaurant owner. I also wish to thank Denis Torres, president of Fundación AndígenA, who has always encouraged my investigations, and to the Cleveland Metropark Zoo and the Declining Amphibian Task Force (DAPTF) who helped fund the Atelopus project.

References

Lötters, S. (1996) The Neotropical Toad Genus *Atelopus*. Checklist, Biology and Distribution. Vences & Glaw Verlags GbR, Colonia, 143 pp.



**The Atelopus Initiative:
Conserving
Endangered
Tropical Andean
Amphibians**

**By Ariadne Angulo, Paul Salaman
and José Vicente Rodríguez**

Against the backdrop of the ongoing phenomenon of global declining amphibian populations, and given the pressing need to address these declines and implement appropriate conservation actions, the Global Amphibian Assessment (GAA) has recently been concluded for all of the world's regions (Stuart et al., 2004, www.globalamphibians.org).

One of the most alarming finds of the GAA is that the Tropical Andes, one of the world's biodiversity hotspots, are facing a severe extinction crisis. Of the region's 921 recognized highland species, 39% are IUCN-categorized as Globally Threatened and 24% as Data Deficient. It is this scenario that gives rise to the Atelopus Initiative.

The Atelopus Initiative is a multinational effort comprising the Tropical Andean nations of Bolivia, Colombia, Ecuador, Peru and Venezuela, together with other Latin American and UK scientists, to research and conserve endangered Tropical Andean amphibians and amphibian hotspots in the region.

The Atelopus Initiative is a first regional attempt at assessing the status of Tropical Andean amphibians and using this information to design a regional Amphibian Research and

Conservation Strategy. It is sponsored by the Darwin Initiative, a program of the United Kingdom Department for Environment, Food and Rural Affairs (DEFRA), and coordinated through Conservation International over the next three years, becoming thus a landmark step towards building the foundations of what we envisage will lead to permanent research and conservation efforts and collaborative alliances between institutions and scientists in the region.

The primary goal of the Atelopus Initiative is to address the amphibian extinction crisis in the Tropical Andean region through capacity building, training, research, and proposals of conservation priorities and strategies for the next decade. More specifically, the Initiative's objectives are:

- 1) To develop a long-term Regional Amphibian Research and Conservation Strategy, in order to prioritize activities and formulate effective and cost-efficient research and conservation actions
- 2) To increase institutional capacity, including the training of individuals and the development of taxonomic tools necessary to collect scientific data on the status of amphibians across the region
- 3) To forge an alliance of local, national and regional research and conservation institutions within the Tropical Andes, so as to combat the precipitous decline of amphibians and avoid imminent extinctions

In order to address these objectives, the Atelopus Initiative relies on collaborative efforts to target the common goal of amphibian research and conservation. We draw on the expertise of regional, other Latin American and UK scientists to undertake activities such as: the development of working documents, a standardized field protocol for the Tropical Andean region, identification field guides and research and conservation strategies, all of which will be adopted and implemented over the course of the Initiative; the determination of key amphibian areas; and to carry out training courses where standardized procedures in evaluating amphibians are imparted to graduate and postgraduate students as well as established researchers in the region.

Data collection is to be undertaken using those methods established and agreed upon by experts convened at our workshops, so that results across the region can be made comparable. The Initiative will give seed grants for a value of up to US\$ 1,000 to undergraduate and graduate students undertaking their thesis field work, or to researchers conducting other projects

on amphibian populations of the Tropical Andean region. Additional fund-raising efforts are undertaken to complement and enhance research and conservation endeavours already in place. Collected data will be compiled into a Darwin Tropical Andes Amphibian Database, and analysis of these data will be used in the elaboration of a 10-year Regional Amphibian Research and Conservation Strategy.

The Atelopus Initiative is an ambitious project, and in this context there are a number of important outputs projected over the course of the next three years:

- The production of 3-year and 10-year Regional Amphibian Research and Conservation Strategies
- The identification of 50 Key amphibian areas
- The production of a standardized amphibian inventory and monitoring protocols for the Tropical Andean region
- The undertaking of two training courses in standardized inventory and monitoring techniques agreed upon by participating specialists at the first Initiative's workshop
- The funding of undergraduate and postgraduate students through grants for thesis research
- Fieldwork focusing on amphibian inventories, monitoring, and conservation threat assessments
- The development of identification tools and guides for key groups of amphibians
- The creation of a Regional Database for Tropical Andean amphibians
- Species and site conservation and management action plans
- The publication of Darwin Initiative Reports I and II
- The publication of peer-reviewed journal articles
- The enhancement of amphibian collections in each host country

Some of these expected outputs have begun to be addressed through the Initiative's first workshop held at Villa de Leyva, Colombia, between 21 to 25 August, 2004. During this event, 35 participants from nine different countries (Bolivia, Colombia, Costa Rica, Ecuador, Germany, Panama, Peru, USA and Venezuela) worked towards establishing an open regional network of amphibian specialists (Red Regional de Observadores de Anfíbios–RROA, red_atelopus@yahoogroups.com), developing standardized field inventory and monitoring protocols for the region, establishing a three-year research and conservation strategy for the Tropical Andean region and producing a

preliminary database of key amphibian areas.

It is through these coordinated efforts and concerted research and conservation actions that we may be able to appropriately address the imminent extinction crisis being faced by Tropical Andean amphibians.

References

Stuart, S.N., Chanson, J.S., Cox, N.A., Young, B.E., Rodrigues, A.S.L., Fischman, D.L., and Waller, R.W. (2004) Status and trends of amphibian declines and extinctions worldwide. Scienceexpress report, URL: www.scienceexpress.org/14 October 2004/Page1 / 0.1126/science.1103538

For further information or to receive this report in Spanish please contact: a.angulo@conservation.org

Book Reviews

Mapping Amphibians

Before we can establish an accurate picture of the amphibian decline phenomenon, both locally and globally, we need to know what species exist in the world, and exactly where they are. The first of these gaps in our knowledge is being addressed by the description of new amphibian species, currently progressing at a very high rate, as frequent visitors to the AmphibiaWeb web site will be aware. The second is being addressed by national initiatives that seek to determine accurately the distribution of amphibians within specific countries and regions. The results of two such mapping projects have recently been published, in the form of amphibian atlases for southern Africa and for Poland.

The southern Africa frog atlas (Minter et al. 2004) maps the distribution of 115 species, 64 of them endemic, in South Africa, Lesotho and Swaziland, dividing the region up into 2008 grid cells, each 15 x 15 minutes of latitude/longitude. For much of the region, current distribution data can be compared with historical data. There is much more to this well-produced book than a set of maps. For each species, there is a detailed account covering identification, habitat, life history, conservation status, threats and recommended conservation action, as well as distribution. In addition, introductory chapters discuss general threats to amphibian diversity in southern Africa, and describe its biogeography. A table at the front of the book lists all the frog species and shows their current conservation status. Twenty species are listed as 'Threatened', covering the IUCN categories Critically Endangered (4 species), Endangered (8) and Vulnerable (8). The DAPTF is proud to have played

a very small part in funding this project, which, through the hard work of a dedicated group of people, has produced a book that provides a model for other regional groups around the world.

The Poland atlas (Glowacinski & Rafinski 2004) covers a considerably smaller area, but does so in more detail, being based on cells of 100km². This book too is attractively presented, and much of the text, including the most important information, is presented in English as well as Polish. Since Poland is but a small part of a larger continent, it is not possible to draw firm conclusions about the conservation status of the species covered and this book highlights the importance of the future publication of similar atlases for other countries in Europe.

Glowacinski, Z. & Rafinski, J. (Eds.) (2004) Atlas Plazów i Gadów Polski. Status - Rozmieszczenie - Ochrona (Atlas of the Amphibians and Reptiles of Poland. Status - Distribution - Conservation). Biblioteka Monitoringu Srodowiska.

Minter, L. R., Burger, M., Harrison, J. A., Braack, H. H., Bishop, P. J. & Kloepfer, D. (Eds.) (2004) Atlas and Red Data Book of the Frogs of South Africa, Lesotho and Swaziland. SI/MAB Biodiversity Program, Smithsonian Institution, Washington.

Tim Halliday



Froglog Shorts

Reports on DAPTF Seed Grants

Recipients of DAPTF Seed Grants are generally expected to publish the results of their projects in refereed journals, or as articles in *Froglog*. They are also required to send us reports, so that their results can be made available to DAPTF members. Below is a list of reports that we have received recently. Anyone wanting a copy of a report should contact the author in the first instance; we can supply copies if you cannot reach the author.

Stanley F. Fox et al. (2001) Status, distribution, and ecology of a threatened semi-aquatic frog (*Atelognathus patagonicus*) of north-western Patagonia, Argentina. foxstan@okstate.edu

Amphibian Conservation in Zoos

Kevin Zippel has put together a comprehensive account of amphibian conservation in zoos around the world. It is posted at the AmphibiaWeb web site: www.amphibiaweb.org/aw/declines/zoo/zoo.html

New Reports of Chytridiomycosis

News has reached us of three new locations where chytridiomycosis has been found in wild amphibians, Argentina, Italy and the UK. Further details will be published, in FROGLOG and at our web site, as they become available.

DONATIONS

We gratefully acknowledge receipt of these donations, received prior to September 30, 2004: John M. Meeks and James Hanken.

New Chair of the DAPTF Monitoring Protocols Working Group:

We have appointed Mark-Oliver (MO) Rödel as the Chair of the DAPTF's Monitoring Protocols Working Group. Based at the University of Würzburg in Germany, MO has been developing monitoring protocols for tropical frogs and two of his recent papers are available via the DAPTF web site. We would like to thank the retiring Chair of this Group, Richard Griffiths, for all his hard work.

roedel@biozentrum.uni-wuerzburg.de

New Working Group Chair in Poland:

A warm welcome to Maria Ogielska ogielska@biol.uni.wroc.pl

INSTRUCTIONS FOR AUTHORS

FROGLOG publishes a range of articles on amphibian decline issues. Submissions should normally be less than 1,000 words and follow the style of past FROGLOG issues (as should references). Due to space and formatting restrictions, please do not submit maps, figures or tables. Short news items and press releases are also acceptable. Please send submissions preferably by email to Jeanne McKay at the address below. Accepted submissions will be printed in order of receipt.



RANA and the US National Science Foundation grant DEB-0130273 helped support the publication of this issue.

FROGLOG is the bi-monthly newsletter of the Declining Amphibian Populations Task Force. Articles on any subject relevant to the understanding of amphibian declines should be sent to: Jeanne McKay, Editor, Department of Biological Sciences, The Open University, Walton Hall, Milton Keynes, MK7 6AA, U.K.

Tel: +44 (0) 1908 - 652274.

Fax: +44 (0) 1908 - 654167

E-mail: daptf@open.ac.uk

Funding for FROGLOG is underwritten by the Detroit Zoological Institute, P.O. Box 39, Royal Oak, MI 48068-0039, USA

