Microhyla heymonsi by Robin Moore

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NEWS FROM THE ASG

The ASG recently published the eagerly anticipated Amphibian Conservation Action Plan (ACAP), which can be downloaded for free from *www.amphibians.org.* The ACAP is the outcome of the Amphibian Conservation Summit that was convened in Washington, DC in September 2005 and represents an ambitious five-year plan to halt amphibian declines and extinctions globally. The ACAP focuses around eleven themes pertinent to amphibian conservation and has an associated budget of USD 400 million. This is the amount estimated it will cost to stem the extinction of amphibians around the world over the next five-year period.

The ACAP was recently launched at the meeting of the Convention on Biological Diversities Subsidiary Body for Technical and Technological Advice (SBSTTA 12) in Paris in early July. A side event was organized at this meeting to raise the profile of amphibian conservation and promote it's incorporation into the Convention of Biological Diversity. Members of the ASG Secretariat, Robin Moore and Don Church, travelled to Paris to deliver a presentation that provided an overview of the amphibian crisis and the actions that will be required to tackle it. This was followed by lively and thought-provoking questions and discussion session. The event was very well attended by government, NGOs and Industry representatives. Another side event is planned for SBSTTA 13 in Rome in February 2008, where Invasive Species will be a major area of focus.

Mitigating development impacts on great crested newts in the UK: conservation or cosmetic surgery?

By Richard Griffiths and Brett Lewis, The Durrell Institute of Conservation and Ecology (DICE)

The United Kingdom is a relatively small and heavily developed country, with no large wildernesses comparable to those found in larger continents. This means that conservation relies on accommodating the needs of protected species within a landscape that is increasingly impacted by agriculture and development. As a member of the European Union, the UK is obliged to protect species that are protected under European legal instruments to which it is a signatory. The great crested newt (*Triturus cristatus*) is one such species, but provides some significant challenges to those charged with implementing legislation, policy and conservation.

Because of its declining status within Europe, the great crested newt and its habitat receives full protection under the Bern Convention, to which the UK is a signatory. However, within the UK this species is widespread and, in some parts of the country, abundant. This means that the species frequently comes into conflict with commercial development. When this occurs, the developer is legally obliged to minimise the effects of the development on the great crested newt population, and to carry out actions to compensate for any impact. In practical terms, this usually means carrying out a population assessment; alterations to the timing of development; habitat management, enhancement and creation (e.g. pond creation); and minimising the risk of animals being killed by development activities using exclusion fencing around the development site. If necessary, newts are collected from the development site and translocated to an area where habitat has been retained or enhanced. Collectively, these actions are referred to as 'mitigation', and are usually undertaken on behalf of the developer by a professional ecological consultant. As our knowledge of great crested newt ecology and conservation has increased over the years, guidelines for carrying out such mitigations have become more comprehensive and specific (English Nature, 2001). However, the end result is that there is usually much less newt habitat left than there was to start with (Edgar et al., 2004). Consequently there remains ongoing concern about the effectiveness of current mitigation actions in conserving viable populations of great crested newts across the country. Are such actions merely cosmetic, in that they just allow newt habitats to be damaged while remaining within the law, or are there real long term benefits to newt populations? We have attempted to address this question by carrying out follow-up population assessments at 13 sites containing great crested newts that were subject to development mitigation actions before 2002.

The scale and nature of the developments at the study sites varied considerably, as did the mitigation actions carried out. Equally, at most of the sites it was not possibly to make reliable comparisons pre- and post-development because of the variability in the quality of data obtained before the development took place. We therefore compared our population assessments with those obtained at a larger sample of great crested newt sites within the wider countryside that had not been subject to development (i.e. a 'control' group). The preliminary data provide both positive and negative points about the impact of mitigation. Great crested newts were present at all of the 13 sites surveyed. However, they were not present in all of the 31 ponds surveyed at the sites, some of which had been created or managed specifically for the newts. A combination of two standardised scoring systems (Griffiths *et al*., 1996; English Nature, 2001) revealed that four sites contained 'small' populations, four sites contained 'small to medium' populations, four sites contained 'medium' populations and just one site contained a 'medium to large' population. Most of the sites surveyed contained good aquatic habitat for great crested newts, and the terrestrial habitat in the immediate vicinity of the breeding sites was also good in most cases. Nevertheless, as a result of the development activities all of the sites were now located on small fragments of land with poor connectivity to other breeding sites and the wider countryside. The overall pattern then, is one of increased concentration of great crested newts into smaller parcels of good aquatic and terrestrial habitat surrounded by development. Whereas our data show that populations can persist in such habitat fragments for a few years, it remains to be seen whether habitat creation and enhancement within such small pockets can compensate for the ongoing fragmentation and loss of habitat within the wider landscape.

The results of this study have led to further recommendations about how current mitigation practice can be revised and improved. One significant issue is the difficulty in assessing the 'success' of a mitigation when population assessments have been carried out using different methods that do not account for variation in the detectability of newts. Tightening up of survey and monitoring protocols may lead to much better data that will allow more reliable comparisons of pre- and post-development surveys. Equally, more attention may need to be given to ensuring better connectivity between mitigation sites and those in the wider countryside. With applications for licences to carry out mitigations for great crested newts now running at over 100 per year, great crested newt conservation has become a growth industry within the UK and there is a proliferation of ecological consultancies – with variable degrees of expertise and experience – performing such work. With large-scale mitigations costing several hundred thousand pounds, there is an urgent need to assess the ecological return on such investments. For example, instead of channelling resources into maintaining existing populations on tiny habitat fragments adjacent to developments, would it be better to 'write off' such sites and use the funds to create networks of ponds and associated habitat within the wider countryside? Perhaps it would, but this would be difficult to do so within the framework of current legislation.

A further issue concerns the implications of mitigation actions for disease transmission in amphibians. Chytridiomycosis is now known to be present in the UK (Garner et al., 2005). If the disease starts spreading, the potential for further anthropogenic transmission of the disease by ecological consultants carrying out mitigation work across the country is high. Rigorous hygiene protocols therefore need to be followed, as already recommended for fieldworkers in other countries (e.g. NSW National Parks and Wildlife Service, 2001). These might add to the developer's bill.

Even some conservationists argue that the effort and resources channelled into great crested newt conservation in the UK could be better spent on more deserving species and habitats. On the other hand, the current relatively high level of protection given to the species means that that there is at least an opportunity to maintain viable populations of great crested newts right across the country. This may ensure that the great crested newt does not follow the fate of other species that have been allowed to decline to a handful of surviving populations before action is taken. Equally, the costs of mitigation are invariably borne by the developers. Consequently, the great crested newt has probably done more to instil the notion of 'environmental cost' into the mindsets of developers than any other protected amphibian or reptile. So developers need to ensure that the true environmental cost of their actions is incorporated into their budgets. But for mitigation actions to be truly effective, we need to ensure that they meet the ecological – as well as the legislative – requirements for the protection of the species. When this happens we really will be able to say that mitigation actions are doing conservation and not just cosmetic surgery.

Acknowledgements. We are indebted to English Nature for funding the survey work and to Jim Foster for comments on the text.

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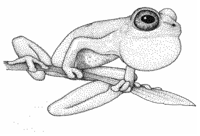

A Midlatitude report of *Batrachochytrium dendrobatidis* In Ecuador

By Carolina Proaño-Bolaños, Andrés Merino-Viteri, Paula Peña-Loyola and David Salazar-V.

In Ecuador, there are 456 amphibian species formally described (Coloma, 2005–2007). According to the IUCN Red List, 32% of them are threatened with extinction. One of the most affected genera in Ecuador is *Atelopus*, in which 91% of species are categorized as either extinct or critically endangered (IUCN, 2004). Its conservation status is alarming, considering that 84% of the 19 described species are endemic to Ecuador (Coloma, 2005–2006; La Marca *et al*., 2005) and that there are at least 12 species yet undescribed (L. A. Coloma, pers. comm.)

Chytridiomycosis may have been one of the causal agents of *Atelopus* population declines. Previous analyses of museum specimens have revealed the presence of the pathogen *Batrachochytrium dendrobatidis* (*Bd*), the causal agent of chytridiomycosis, in 10 species (of five genera) of Ecuadorian amphibians, including four species of *Atelopus* (Ron & Merino, 2000). These results are consistent with the hypothesis that chytridiomycosis is one of the threats to *Atelopus* (Ron *et al*., 2003).

Herein, we report *Bd* in an undescribed species of *Atelopus* from a population located in southeast Ecuador at 1100 masl. Previous records of *Bd* in Ecuador were only at high altitude sites, at 3100–4000 masl (Merino-Viteri, 2001).

Four specimens (QCAZ 31351, 31352, 31353, 31082) were analyzed by skin scraped microscopy. On these samples, morphology of *Bd* sporangia was detected. In addition, *Bd* was isolated from one dying adult (QCAZ 31352), following the protocol by Longcore *et al.* (1999). *Bd* diagnosis was confirmed by PCR in QCAZ 31352 and 31082 (M. Levy, pers. comm.). The four specimens were collected between August 27 and November 21, 2005. Two of them were found dead and one was sacrificed and fixed in the field. QCAZ 31352 was maintained alive and died after nine days in the laboratory.

The four specimens and 22 additional unanalyzed adults (19 males and 3 females) were observed in the field showing clinical signs associated with chytridiomycosis during a demographic and behavioral study from November 2004 through December 2005. Clinical signs registered were inappetence, lethargy, and hind legs loosely held to the body (Berger *et al*., 1999; Mazzoni *et al*., 2003). Unreported signs, in four dying individuals, were front and hind legs extremely extended laterally, elevation of one extremity above the substrate during long periods, a high rate of repositioning orientation without apparent external stimuli, and establishment of activity and rest areas near the stream. We suspect that all of them were infected by *Bd*.

In a survey carried out in April 2006, we found a prevalence of *Bd* infection of 30.8%. Twenty-six *Atelopus* sp. specimens were analyzed by PCR and eight samples were positive (M. Levy, pers. comm.). Out of eight positive specimens, one was found dead in the stream, two were found exhibiting abnormal positions, and five were apparently healthy.

The clinical signs observed in the field, the detection of the chytrid fungus in the skin of twelve specimens, and the prevalence of infection observed on April 2006 support the conclusion that chytridiomycosis is severely affecting this population. However, rates of prevalence and incidence of the infection and disease within a year and between years, as well as their impact in the population dynamics need to be established to accurately determine the real impact of the disease in this population.

This new report of *Bd* in a wild population of *Atelopus* sp. and the previous reports in four additional *Atelopus* species in Ecuador are consistent with the hypothesis of a causal link between chytridiomycosis and population declines in this genus.

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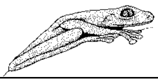

Froglog Shorts

A special welcome to our new ASG Working Group Chairs and co-Chairs in the following areas:

Rafael De Sa & Jose Langone – Uruguay

Martha Motte – Paraguay

Masafumi Matsui – Japan

Mike Lannoo & Geoff Hammerson – USA

David Green – Canada

Raoul Bain – Mainland SE Asia

Jeet Sukumaran – Malaysia

Leong Tzi Ming – Singapore

We would also like to welcome the following Deputy Chairs for Mainland SE Asia:

Guinevere O.U. Wogan – Myanmar

Bryan L. Stuart – Laos & Cambodia

Truong, Nguyen Quang - Cambodia

Reports and papers from previous DAPTF Seed Grants

Recipients of Seed Grants from the former DAPTF are generally expected to publish the results of their projects in refereed journals, or as articles in *Froglog*. They are also required to send reports, so that their results can be made available to a wider audience. Below is a list of reports that have been received recently. Anyone wanting a copy of a report should contact the author in the first instance; if you cannot reach the author, contact Tim Halliday: *t.r.halliday@open.ac.uk.*

W. Chris Funk, Esther M. Cole, Diego Almeida-Reinoso, Martín R. Bustamante. (2006) Population Monitoring of Terrestrial Frogs, Stream Frogs, and Caecilians at Yanayacu Biological Station, Ecuador, in Amazonian Cloud Forest. (Interim Report) (*w_c_funk@yahoo.com*)

The following papers report work supported by DAPTF Seed Grants:

Crocker, J. B., Bank, M. S., Loftin, C. S. & Jung Brown, R. E. (2007) Influence of observers and stream flow on northern two-lined salamander (*Eurycea bislineata bislineata*) relative abundance estimates in Acadia and Shenandoah National Parks, USA. *J. Herpetol:* **41;** 325-329. (Grants to Michael Bank *et al.*, 2002, Cynthia Loftin & Michael Bank 2003, both funded by ARMI) (*jeff.crocker@unb.ca*)

Major enigmatic decline among plethodontids

Bruce Means and Joe Travis have documented another unexplained extirpation of the Southern Dusky Salamander (*Desmognathus auriculatus*) and a decline in a ravine-inhabiting population of an unnamed species that they refer to as *Desmognathus* cf. *conanti*. Ken Dodd first revealed a disappearance of the Southern Dusky Salamander from Devil's Millhopper in central Florida (Dodd, C.K., Jr. 1998. *Desmognathus auriculatus* at Devil's Millhopper State Geological Site, Alachua County, Florida. *Florida Scientist:* **61** (1)**;** 38-45) and they now show that the disappearance of this species is more widespread. The complete disappearance of the Southern Dusky Salamander from around two hundred ravines in which it was the commonest salamander is truly a puzzle, and invites speculation that some disease pathogen is at work. To date, widespread enigmatic declines among plethodontid salamanders have not been reported.

Means, D. B. & Travis, J. (2007) Declines in ravine-inhabiting dusky salamanders of the southeastern US coastal plain. *Southeastern Naturalist:* **6;** 83-96. (*means@bio.fsu.edu*)

Tim Halliday

Instructions for Authors

FROGLOG publishes a range of articles on any research, discoveries or conservation news relating to the amphibian decline phenomenon. We encourage authors describing original research to first make submissions to a refereed journal and then, if appropriate, to publish a synopsis in Froglog. Submissions should be in English, normally no more than 1000 words and follow the style of past FROGLOG issues (as should references). Due to space and formatting restrictions, please do not submit images, maps, figures or tables. Short news items and press releases are also acceptable. Please submit potential contributions to Jeanne McKay at the address below. Accepted submissions will be printed in order of receipt.

FROGLOG is the bi-monthly newsletter of the Amphibian Specialist Group (ASG). Articles on any subject relevant to the understanding of amphibian conservation, research and / or assessments should be sent to: Jeanne McKay, Editor, The Durrell Institute for Conservation and Ecology (DICE), The University of Kent, Marlowe Building, Canterbury, Kent, CT2 7NR, United Kingdom

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