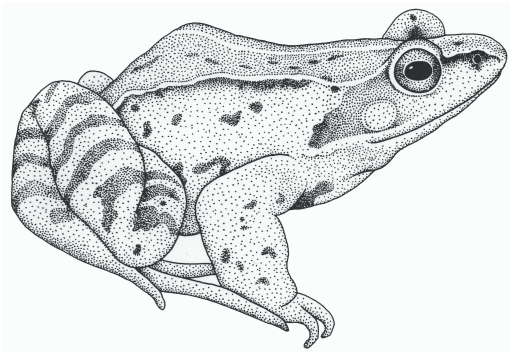
Rana arvalis by Tim Halliday

ISSN 1026-0269

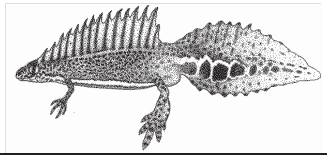


FROGLOG

Newsletter of the Declining Amphibian Populations Task Force

April 2003, Number 56.

Amphibian Mortality in a National Park in the North of Portugal



By Claudia Soares, António Alves de Matos, J. W. Arntzen, Miguel Carretero & Armando Loureiro
<csoares@mail.icav.up.pt>

The first documented case of mass mortality in newts in Portugal was described by Froufe *et al.* (1999). This event occurred in a protected and more or less pristine area in the mountains of the Peneda-Gerês national park in northern Portugal. A large number of marbled newts, *Triturus marmoratus*, were found dead at the shores of the ca. 0.5 ha Carris Lake that is located at an altitude of approximately 1500 m.

In order to determine the cause of the fatalities, we set up a program to monitor the populations of all locally breeding amphibian species. In 2001, larvae and adults of Bosca's newt (*T. boscai*) and the common midwife toad (*Alytes obstetricans*) were found diseased and dead (Soares *et al.* 2002). In 2002, adult Perez's frogs (*Rana perezi*) were also found to be ill, although not in as high a number as observed in *T. marmoratus* (n=42). Affected adults were lethargic and displayed cutaneous ulcers and tissue haemorrhages and those kept in captivity all died within days. Affected larvae showed tissue haemorrhages and oedemas. The highest mortality was observed in spring and summer.

We conducted light- and electron-microscopic examination of tissue samples taken from recently dead animals. This revealed the presence of iridovirus-like particles in the underlying cells (Alves de Matos *et al.* 2002) and constitutes the first reported case of an iridovirus-like virus in the genus *Triturus*. Microbial analysis of freshly collected liver tissue and fragments of cutaneous lesions showed the presence of the bacteria *Cedecea lapagei* and *Aeromonas hydrophila* in one individual. We consider the virus as the potential cause of the observed amphibian mortality and the bacterial infection as an opportunistic attack. The analysis of one sample of *T. marmoratus* for chytridiomycosis yielded a negative result (Jaime Bosch*, pers. comm.*).

We are uncertain as to the origin of the disease. We are aware, however, of the uncontrolled introduction of the exotic invasive fish, *Lepomis gibbosus*, which was first observed in the lake in 2001. *Lepomis gibbosus* may have carried one or more of the pathogens. Moreover, this fish is known to have a wide carnivorous diet (Scott & Corssman, 1979) and is a potential predator for amphibian larvae and small adult newts. We are now evaluating the possible involvement of the virus in the disease pathogenesis and aim to document the impact of the disease on the amphibian populations of Carris Lake.

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Froufe, E., Arntzen, J.W. & Loureiro, A. (1999) Dead newts in Peneda-Gerês. *Froglog* 33: 1.

Scott, W.B. & Corssman, E.J. (1979) Freshwater fishes of Canada. Canadian Government Publishing.

Soares, C., Alves de Matos, A.P., Loureiro, A. & Carretero, M. (2002) Episódios de Mortalidade nas populações de anfíbios na Lagoa dos Carris - Parque Nacional da Peneda-Gerês (PNPG), Portugal. *VII Congresso Luso-Espanhol de Herpetologia*, Évora, Portugal.

Ecology and Conservation of the Genus *Neurergus* in the Zagros Mountains, Western Iran

By Nasrullah Rastegar-Pouyani
(DAPTF Seed Grant Recipient)

The newts of the Zagros Mountains, especially the genus *Neurergus*, are extremely sensitive to environmental change because they live in marginal conditions. It is likely that the rate at which newt species are declining in abundance has been underestimated, and this potential problem needs immediate attention. It is also possible that effects from habitat destruction, pollution and drought affect the Zagros newts more than any other of our amphibians, both directly and indirectly.

My studies have revealed that the Zagros newts require relatively complex mosaic landscapes that include terrestrial elements for foraging, protection and hibernation, as well as aquatic habitats with good quality and a rich invertebrate food base. Connective habitats that enable migration between terrestrial and aquatic habitats are also important determinants of population size and abundance.

Three species of the genus *Neurergus* occur in the Zagros Mountains, northwestern and western Iran. Of these, *N. crocatus* occurs in northwestern Iran in Azerbaijan and Kurdistan provinces. *N. microspilotus* occurs in Kermanshah province, and *N. kaiseri* occurs in Lorestan province in the south-central regions of the Zagros range. The habitat of these newts is closely related to shallow, cool, clear mountain streams and nearby vegetation. In the breeding season, mating takes place close to the water; the females then enter the water and deposit their eggs. After a few weeks, the larvae are found in the water and it takes about 2 months for the larvae to complete metamorphosis

Based on my own observations, all 3 species of *Neurergus* are in great risk of population decline and are seriously threatened.

After receiving the DAPTF seed grant, field trips were conducted in the central Zagros Mountains in Kermanshah province, focusing on *N. microspilotus.* All available habitats (mountainous streams, ponds and deep valleys, at about 1350-2100 m elevation) were checked in order to ascertain the occurrence of this taxon. Occurrence was expected in most of the visited localities. The species, however, was absent in many of those localities and, if present in some, there were just a few specimens at each site. Climatic changes in the area were noted. Some of the small streams (serving as breeding sites) have dried out due to the severe drought of recent years. Populations previously occurring in these areas have been extirpated. Water contamination (either from human disposal, where the habitats are close to villages or small townships, or by chemical pollutants such as fertilizers, insecticides and herbicides) may also be having an effect on reproductive success and on various life stages.

The local people have been informed as to the destructive nature of their waste-disposal activities, and are co-operative, but lack a suitable alternative means of disposal. Local authorities have promised financial support to build a waste-disposal system and it is to be hoped that this is constructed soon.

The use of various chemical pollutants has also been discussed with the villagers and farmers who are using these chemicals to improve their agricultural efforts. Although it is difficult to prevent the use of "favourite" chemicals, some headway has been made in emphasizing minimal use of chemicals, and then only when absolutely necessary. It is hoped that, with more financial support, the project can be continued and expanded, involving more local people and authorities, and that this will lead to a cessation, or at least a reduction, in the decline of the highly threatened, endemic newts of the Zagros Mountains.

I wish to cordially thank the DAPTF for providing financial support for running this project. Hopefully, further DAPTF support will be forthcoming for a new proposed project on the *Batrachuperu*s of the Iranian Plateau.

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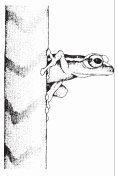
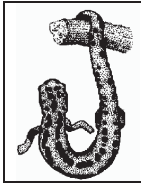


DAPTF Seed Grants 2003

We have just completed our allocation of DAPTF Seed Grants for 2003. This year, we received 63 applications from 32 countries, and we are funding 20 projects, an outlay of about $34,500. Our budget this year has been enhanced by a generous contribution from the U.S. Department of the Interior's Amphibian Research and Monitoring Initiative (ARMI), which is supporting five projects in North America.

In the period 1992 to 2003, the DAPTF has funded 135 projects through its Seed Grant programme, an outlay of $242,000; these projects are distributed across 37 different countries. This year, for the first time, we are funding projects in Guatemala, Nepal and Serbia.

Tim Halliday



Project SAVE

By David Wojnowski

Project SAVE (Saving Amphibian Vital Environments) is a supplemental environmental/conservation education curriculum and activity guide emphasizing salamanders and the effect of anthropogenic changes to the environment.

An ethnography case study of up to six but not less than three (6-12 total) science teachers from both Raleigh, North Carolina, United States and Xalapa, Veracruz, Mexico (as to the extent and in what ways teachers participating in this study assimilate new content knowledge and integrate new curriculum about anthropogenic changes to the environment and the effect on salamander diversity and abundance) will be conducted. Cultural differences and similarities in these academic processes will be compared between both groups.

A successful feasibility / reconnaissance trip to Xalapa, Veracruz, Mexico was performed 25 October 2002 – 3 November 2002. Sixteen participants were selected from a group of teachers invited by Rita Vázquez, Director, Project WET (Water Education for Teachers) Mexico. During the workshop an overview of Project SAVE, which I developed for my Masters degree in Science Education at NCSU, was presented as an example of the type of curriculum that I will develop for Project SAVE Mexico - Proyecto SALVA (Salva el Ambiente Vital de los Anfibios) that I will use to obtain my data for my Ph.D. dissertation.

During the spring of 2003, a Project SAVE workshop for up to six teachers from Wake County, NC will be offered. This three-day workshop will be held at the Highlands Biological Station, Highlands, NC. Participants for the North Carolina portion of the study will be selected from HS Earth / Environmental Science teachers who attend this workshop. Select teachers will be invited to participate. This workshop is sponsored by a grant from the North Carolina Herpetological Society.

In the fall of 2003 Rita Vázquez and I will facilitate a three day (6 hrs/day, total = 18 hrs.) teacher workshop in Xalapa to prepare teachers for the use of the new Proyecto SALVA curriculum, which I will develop during the months of December, 2002 through May, 2003. Curriculum activities will be focused on anthropogenic changes to the environment and the effects on salamander diversity and abundance with suggestions for conservation measures to protect the rare and threatened species of one of the most species-rich salamander areas in the world. Rita Vázquez has agreed to translate the curriculum into Spanish, making the finished product bilingual, and Paula Wynn will lend her expertise on the use of digital photography and documenting the workshop with digital video. If additional funding is procured, a team from Digital Storytelling (please go to: **http://www.digitalstorytelling.org/videovaultmoreinfo.htm** for examples) will accompany us to assist with the technology education instruction.

Participating teachers will also have the opportunity to visit four field

study sites where an elevational transect has been monitored by Dr. David B. Wake and Gabriela Parra Olea for salamander assemblages. Types of habitats and anthropogenic changes to habitats will be noted. Instruction on salamander identification and monitoring techniques will also be included. A follow-up trip to Xalapa, Veracruz will be done in the fall of 2004 to observe the teachers implementing the Proyecto SALVA curriculum with their students. Documentation of the workshop in the fall of 2003, and a subsequent trip in the fall of 2004, will be done with digital video, digital photography and audio recordings of teacher and student interviews.

During the implementation phase in the fall of 2004 teachers and students from North Carolina and Veracruz will correspond with one another, sharing what they have learned and the steps they will take to promote amphibian conservation to halt or reverse amphibian declines in their communities.

The workshop will take place at the Veracruz Ministry of Education in Xalapa, Veracruz, Mexico. Possible field trip sites will be: 1. Las Lajas microwave station, 2. between Cruz Blanca and Las Vigas, 3. between Las Vigas and La Joya and 4. near Cotepec in the State of Veracruz, Mexico. Species involved: *Pseudoeurycea melanomolga, P. naucampatepetl, P. leprosa, P. cephalica, P. lynchi, P. gigantean, Chiropterotriton chiropterus, C. lavae, Thorius munificus, T. minydemas, Thorius pennatulus, Parvimolge towsendi, Lineatriton lineolus, Bolitoglossa rufescens, B. platydactyla,* 2 other undescribed *Chiropterotriton* species and 1 other undescribed *Pseudoeurycea*.

In the next century one of the greatest challenges for educators will be to foster an ethic of stewardship in their students for ecosystems and the diversity of life they sustain. Salamanders are but one thread in the fabric of life on earth, but intricately woven. Project SAVE / Proyecto SALVA Curriculum and Activity Guides will be educational tools teachers can share with their students that will increase their knowledge and awareness of salamanders and the vital environments in need of new approaches to stewardship.

Contact: David Wojnowski, Stream Watch / NC Project WET Coordinator, NCDENR/Division of Water Resources, 1611 Mail Service Center Raleigh, NC 27699-1611, USA.
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Reports on DAPTF Seed Grants

From Tim Halliday <t.r.halliday@open.ac.uk>

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.

Michael Bank et al. (2002)
Effects of fire history, trophic dynamics and watershed complexity on mercury bioaccumulation and biomagnification in two-lined salamanders (*Eurycea bislineata*) from Acadia and Shenandoah National Parks.
michael.bank@umit.maine.edu

Alan Channing (2002)
Chytridiomycosis in Northern and Western Cape frog populations.
achanning@uwc.ac.za

Georg Dzukic et al. (2002)
Preservation of paedogenesis in alpine newt (*Triturus alpestris*, Caudata) populations from the high-altitude ecosystems of the central Balkans.
georg@ibiss.bg.ac.yu

David M. Green et al. (1997)
Incidences of developmental abnormalities and traumatic injuries among amphibians at Mont St. Hilaire, Quebec, in 1999.
david.m.green@mcgill.ca

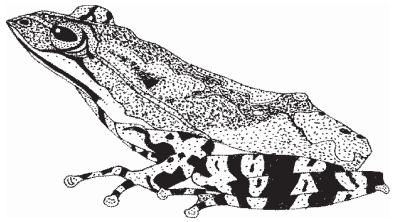
Kerry L Griffis-Kyle and Mark E. Ritchie (2001)
The effects of nonpoint source agricultural pollutants on the predator-prey interactions of an aquatic predatory amphibian
klgriffi@syr.edu
meritchi@syr.edu

Richard Griffiths et al. (2000)
The axolotls of Lake Xochimilco: the evolution of a conservation programme.
r.a.griffiths@ukc.ac.uk

Nasrullah Rastegar-Pouyani (2002)
Ecology and conservation of the genus *Neurergus* (Caudata: Salamandridae) in the Zagros Mountains, western Iran
nasrullah_r@hotmail.com

Daniele Seglie (2002)
Tylototriton verrucosus, an endangered species of India.
dseglie@libero.it

Geoffrey R. Smith and Jessica E. Rettig (2002)
Stressor effects on amphibian larval communities: integrated experiments on the effects of nitrate
smithg@denison.edu
rettig@denison.edu



Froglog Shorts

DONATIONS We gratefully acknowledge receipt of these donations, received prior to March 25, 2003. **Individuals:** Chris Banks, Aaron Bauer, Mary Brewster (in honour of Deborah Mae Broad), Charles C. Carpenter, Roger Downie, Philip Greenberg, Moira Hope, Robert Inger & Tan Fui Lian, Stephen P. Kaylor, Ewald Lapioli, John H. Larsen, Todd Lewis, James C. List, Paul E. Moler, William Parker, Debra Patla, Ryan McCue, Michael Sredl, Charles L. Thomas, David Wake, Richard Wassersug, Chris Wedeles, **Institutions:** The Nature Conservancy, Tucson Herpetological Society.

Sonoma County Tiger Salamanders Listed as Endangered
SACRAMENTO, California, March 18, 2003: The U.S. Fish and Wildlife Service (FWS) officially listed the Sonoma County population of the California tiger salamander as endangered under the Endangered Species Act (ESA). The action ends more than a year of legal wrangling over the listing of the species, which some in California believe does not merit federal protection. The Center for Biological Diversity (CBD) filed suit for the listing in January 2002 and the subsequent settlement mandated the U.S. Fish and Wildlife Service (FWS) list the species on an emergency basis on July 22, 2002, with a final listing mandated on or before March 19, 2003.

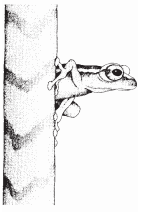
Los Bufónidos De Cuba: Siete especies de la familia Bufonidae (sapos) forman parte de la fauna de anfibios de Cuba, que cuenta con 58 especies descritas que incluye además una de la familia Hylidae, 49 de la familia Leptodactylidae y una especie introducida de la familia

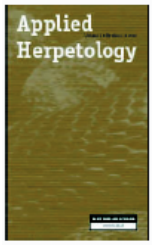
Ranidae. La fauna de anfibios del archipiélago cuenta con 95% de especies endémicas. Las siete especies de sapos forman parte de ese grupo. En este CD usted encontrará:

- Reseñas sistemáticas de cada especie.
- Mapas de distribución geográfica.
- Fotografías de las especies.
- La descripción de la voz y el sonido grabado.

La bibliografía más relevante sobre el tema. Puede conseguir ahora su CD, contáctenos a través de: **www.eleuthnet.com**, **solenodon @caribe.net** o llame al (787) 790 8654. Precio Regular: $9.99, especial para Estudiantes $7.99.

SPECIAL INTRODUCTORY SUBSCRIPTION OFFER for members of herpetological organizations (including DAPTF). Subscribe to the new journal ***Applied Herpetology*** for €66 or US $79. This new, international journal addresses research on amphibians and reptiles with a focus on biodiversity, conservation, environmental monitoring, farming, natural products development and wildlife management. A main objective of the journal is to enhance communication between academic scientists, researchers in industry, governmental bodies, international agencies and others involved in applied research involving herpetofauna. The introductory subscription price is valid until 1st October 2003. For further details, visit: **http://www.ahailey.f9.co.uk/applied herpetology/**





A new USGS website, made possible by the Amphibian Research and Monitoring Initiative (ARMI): *The ARMI National Atlas for Amphibian Distributions* can be found at: **www.pwrc.usgs.gov/armiatlas/**

Journal of Kansas Herpetology Back Issues Available Gratis Online The Journal of Kansas Herpetology is the official publication of KHS. Issued quarterly, the JKH publishes original manuscripts and notes of interest dealing with the biology of herpetofauna. The JKH also contains information and reports of Society activities. All interested persons are invited to submit items for publication. One year after they have been published, gratis back issues of the Journal of Kansas Herpetology are available for downloading as pdfs. The KHS is pleased to offer gratis back issues of a dues-based herpetological periodical for the first time in the history of our profession. Access the initial back issue (JKH 1 March 2002) at: **http://www.ku.edu/~khs/KHSbacklssues.html**

The International Society on Toxinology is holding its World Congress Meeting in Adelaide, South Australia from September 14th to 19th, 2003. This meeting will cover all aspects of toxinology including animal, plant and microbial toxins. The meeting will be of interest to all scientists and clinicians involved in toxinology. Further information can be obtained from **www.toxinology.net** under the heading IST 14th Congress.

CNAH Common & Scientific Names List Sixth Edition Scheduled The Center for North American Herpetology is pleased to announce that funding for the sixth edition of "Standard Common and Current Scientific Names for North American Amphibians, Turtles, Reptiles, and Crocodilians" by Joseph T. Collins and Travis W. Taggart has been secured. We anticipate that the sixth edition will appear in spring 2004. Copies of the current fifth edition, which appeared in 2002, will be exhausted by fall 2003. The new sixth edition is planned both because of the large number of taxonomic changes that have occurred since September 2002 and because of those that will occur in the next twelve months. Users of the CNAH list should continue to monitor the foundation's web site, in order to be kept abreast daily of the proposed taxonomic changes to the North American herpetofauna. This service is available for North America only on the CNAH web site. Individuals wishing to obtain a printed copy of the fifth edition should go to **http://www.cnah.org/announce.asp?id=20** and follow the instructions.

The online reprint request page of the Division of Amphibians and Reptiles at the Field Museum (Chicago) has been updated, and several new titles have been added. Please visit our site at: **http://www.fmnh.org/research_collections/zoology/aandr_reprints.htm** The newest version of our divisional newsletter, featuring information on new collections, loan policies, and other division news, is available at: **http://www.fmnh.org/temp/Herps_Newsletter_March_2003.pdf**

Copies of "The Amphibia of Sri Lanka: Recent Research", a special issue of *Lyriocephalus,* journal of the Amphibian and Reptile Research Association of Sri Lanka (Vol. 4, Nos. 1 & 2) are available for US $35, including surface postage, from: Anslem de Silva, 15/1 Dolosbage Road, Gampola (CP), Sri Lanka. Cheques should be made payable to "K.A.L. de Silva". Contact **kalds @sltnet.lk** for details.

***FROGLOG* BACK ISSUES** The DAPTF office has an accumulation of run-ons of *Froglog* back issues, dating back over several years, which are looking for a good home. If anyone would like copies for colleagues, or for teaching or publicity purposes, please contact John Wilkinson on **daptf@open.ac.uk** or at the address below. Requests will be dealt with on a first-come-first-served basis. Any copies remaining after this exercise will be sent for recycling.

TAILPIECE: *Froglog* readers may be familiar with the ferocity of male African bullfrogs during the breeding season. In captive situations, this may not be to their own advantage! Check out this story at: **http://www.dailytimes.com.pk/default.asp?page=story_11-3-2003_pg9_12**

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