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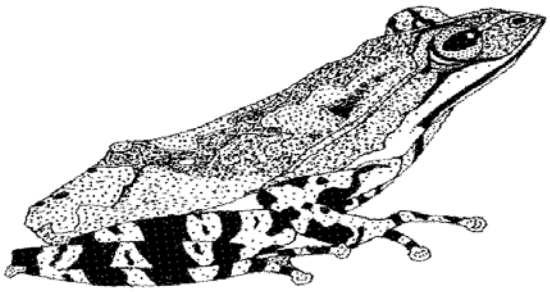

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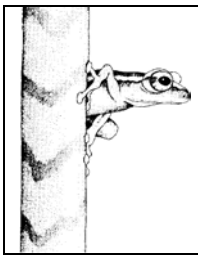


Amphibian Declines in Latin America: Workshops to Design a Monitoring Protocol and Database

By Karen Lips, Bruce Young, Jamie Reaser, Roberto Ibáñez, Antonio Salas

Scientists, primarily under the auspices of DAPTF, have convened numerous meetings over the last decade to evaluate the causes and consequences of amphibian population declines. The National Science Foundation hosted three such workshops in 1998 (1-3). Through these meetings and published research reports, herpetologists have clearly identified a set of probable factors for the loss of amphibians and demonstrated the scientific and political challenges to understanding ecological phenomena.

While there is evidence that amphibian populations are declining on every continent where they occur, the contributions to the study of the problem come primarily from scientists based in the United States, Europe, and Australia. Few efforts have been made to access the knowledge or build the capacity of herpetologists in the developing world to specifically address amphibian declines, despite recognition of this need. Latin America (LA), with its high diversity of amphibians and well-publicized declines, is a region clearly in need of attention. Many LA countries have the capacity to make significant contributions to the understanding of amphibian declines worldwide: LA has many highly-skilled herpetologists and strong national institutions with good museum collections, international donor agencies have built up a strong conservation infrastructure, and the proximity to the US has fostered much north-south scientific collaboration.

In November of 1999, we facilitated three 4-day, regional workshops on amphibian declines at the Colegio de la Frontera Sur, Chetumal, Mexico; the Smithsonian Tropical Research Institute, Panamá; and Pontificia Universidad Católica del Ecuador, Quito, Ecuador. DAPTF supported the activities, and was represented by four Working Group Chairs and a member of the board (Almendáriz, Ibáñez, Lips, Meyer, Salas). The workshops were organized by an International Committee that included representation of US and LA herpetologists, a wildlife epidemiologist, an international environmental NGO and the US Department of State.

Our intentions were to: 1) facilitate an exchange of information on the status of amphibians and the perceived causes and consequences of amphibian declines in LA; 2) encourage a coordinated research and monitoring approach to the issue throughout LA; 3) raise the profile of the issue in LA and 4) identify areas in which scientists and funding institutions outside of LA could assist Latin Americans in addressing the issue. Each workshop was a combination of scientific talks, facilitated discussions and drafting sessions. Local organizing committees selected the participants and set the agenda, and participants determined the desired outcomes of each workshop. In summary, 88 people from 13 countries, representing a variety of governmental, non-governmental and academic institutions participated in the workshops.

A major accomplishment was to provide a forum whereby researchers could discuss areas where coordinated, international research should be focused. Participants revised a draft monitoring manual that will serve as a common tool for newly established monitoring programs. Many researchers offered to share their data with DAPTF's worldwide database on amphibian population trends (4). The interchange also stimulated much discussion on how LA scientists will take the lead on future initiatives. In addition, the participants drafted a resolution calling for more support for amphibian conservation (see below).

Future communication will be enhanced by several websites that have sprung up and are linked to the DAPTF home page. A Spanish-language website associated with the workshop series (**www.lternet.edu/la**) will be the clearing house for most of the workshop products. During the final workshop, the Ecuadorian herpetologists decided that they already had so many on-going projects, data, and interested parties, that they needed a way to better coordinate their efforts. They created the second national network in LA (DAPTF-Peru, **www.telematic.edu.pe/users/awsalas/** is the first) with a listserver **jambato@mail.usfq.edu.ec** and website **www.puce.edu.ec/Zoologia/declinac.html** In addition, an existing English-language website describes a coordinated international amphibian monitoring program in the Mayan region of Belize, Guatemala, and southeastern Mexico **http://fwie.fw.vt.edu/mayamon/maya_home.html**

The three workshops were necessarily limited in breadth of geographic coverage and in the depth of coverage into causal factors. As such, they should be considered as only the first in a series of similar efforts. We encourage follow-up opportunities that cover a broader geographic area, and that promote hands-on experiences to build capacity and provide technical skills (e.g., statistical analysis, wildlife pathology and epidemiology, database management, genetic analyses, pathogen culturing) necessary for multidisciplinary research into the phenomena of declining amphibian populations. We would especially encourage and strongly support future

initiatives originating from within Latin American countries.

These workshop programs served the purpose of facilitating discussions among Latin Americans working on local cases of amphibian population declines, but they have also initiated discussion within the broader scientific community regarding the priorities, needs, and differences inherent in research in LA. It is our hope that workshop findings and products will advance understanding of the patterns and trends in amphibian declines worldwide, that conservation biologists will identify areas in which they can share their expertise with LA colleagues, and that funding agencies will consider the needs of LA herpetologists when setting priorities.

Acknowledgements

We thank The Nature Conservancy, National Science Foundation (DEB 9975495), and The Bay & Paul Foundation for funding the workshops, the International Long Term Ecological Research program for providing server space, and the three hosting institutions and organizing committees for their hard work in arranging the scientific program and the logistics.

Resolution of Chetumal

Taking into consideration:

That there is strong evidence showing that amphibian populations have declined worldwide, and

That these declines are the result of many factors, including but not limited to climatic change, habitat alteration, diseases, and toxins, and

That Latin America is a megadiverse region with high levels of endemism among amphibians, and

That in the last ten years we have witnessed the decline in abundance of many species in the region, and

That information about the status of amphibians in most Latin American countries is minimal or nonexistent, and

That amphibians are important components of ecosystems by being part of the food chain both as predators and as prey, especially in their control of insect populations that might otherwise become pests, and

That amphibians are excellent bioindicators that demonstrate the health of the ecosystems where they occur, and

That amphibians have important cultural, economic, social, scientific, and educational value for Latin America, and

That the need to conserve amphibians requires international coordination and optimization of resources, and

That there is a need to study populations both in sites where declines have been reported and where declines have not been reported, and

That more economic assistance is needed to support the study of declining amphibian populations,

We call attention to the need:

For inventories and monitoring of amphibians to understand their population dynamics and to understand the relationship between the health of these vertebrates and that of the environments where they live, and

For emergency programs of in situ and ex situ conservation, including the development of a germplasm bank of threatened species, and

For an international network to interchange information among all sectors of society, but especially communicators, educators, academics, business people, and decision makers, through bulletins, conferences, brochures, and scientific reports, and

For development plans, environmental plans, and especially management plans for protected areas that include amphibian monitoring as a tool for guiding decisions, and

For funding institutions to consider funding long-term monitoring studies, and

For restriction of natural habitat modification and promotion of restoration ecology programs.

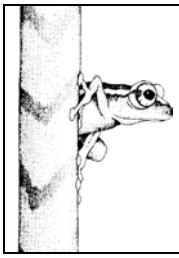
The signatories commit themselves to:

Develop monitoring studies to understand population dynamics and conservation status of amphibian species, and

Generate relevant and up-to-date information to use as a basis for decisions about natural resource use and sustainable development, and

Share information and experiences to facilitate the establishment of a network in Latin America.

Signed by the 88 workshop participants from 13 countries.



Declinación de los Anfibios en América Latina: Talleres para Diseñar un Protocolo de Monitoreo y Base de Datos

Por Karen Lips, Bruce Young, Jamie Reaser, Roberto Ibáñez, Antonio Salas

Los científicos, principalmente bajo los auspicios del DAPTF, han convocado numerosas reuniones durante la década pasada con el fin de evaluar las causas y consecuencias de las declinaciones en las poblaciones de anfibios. La National Science Foundation a patrocinado tres de estos talleres en 1998 (1-3). A través de los informes de estas reuniones y de las publicaciones de las investigaciones, los herpetólogos han identificado claramente un grupo de factores probables para la pérdida de anfibios y demostrado los desafíos científicos y políticos para comprender fenómenos ecológicos.

Mientras existe evidencia que las poblaciones de anfibios están disminuyendo en todos los continentes en donde éstos están presentes, las contribuciones al estudio del problema provienen principalmente de científicos establecidos en los Estados Unidos de América (EUA), Europa y Australia. Pocos esfuerzos se han realizado para tener acceso al conocimiento o a fortalecer la capacidad de los herpetólogos en los países en desarrollo para tratar específicamente las declinaciones de anfibios, a pesar de que esta necesidad es reconocida. América Latina (AL), con su gran diversidad de anfibios y declinaciones bien publicitadas, es una región que claramente requiere de atención. Muchos países de AL tienen la capacidad de hacer contribuciones significativas al conocimiento sobre las declinaciones de anfibios de alcance mundial. AL tiene muchos herpetólogos altamente capacitados e instituciones nacionales sólidas con buenas colecciones de museo, las agencias internacionales donantes han construido una fuerte infraestructura para la conservación, y la proximidad a los EUA ha permitido mucha colaboración norte-sur.

En noviembre de 1999, nosotros facilitamos tres talleres regionales de 4 días sobre las declinaciones en el Colegio de la Frontera Sur, Chetumal, México; el Smithsonian Tropical Research Institute, Panamá; y Pontificia Universidad Católica del Ecuador, Quito, Ecuador. DAPTF apoyó estas actividades, y fue representada por cuatro presidentes de grupos de trabajo y un miembro de la junta directiva (Almendáriz, Ibáñez, Lips, Meyer, Salas). Los talleres fueron organizados por un Comité Internacional que incluyó la representación de herpetólogos de los EUA y AL, un epidemiólogo de vida

silvestre, una ONG ambientalista internacional, y el Departamento de Estado de EUA.

Nuestra intención era: 1) facilitar un intercambio de información sobre el estado de los anfibios y las causas y consecuencias de las disminuciones de anfibios que se perciben en AL, 2) fomentar un acercamiento coordinado de investigación y monitoreo para este problema a lo largo de AL, 3) elevar el perfil del problema en AL, y 4) identificar las áreas en las cuales los científicos y instituciones donantes fuera de AL, pudiesen ayudar a los Latinoaméricanos a afrontar el problema. Cada taller fue una combinación de charlas científicas, discusiones facilitadas y sesiones para elaborar bosquejos. Los comités organizadores locales seleccionaron los participantes y fijaron la agenda, y los participantes determinaron los resultados deseados en cada taller. En total, 88 personas de 13 países participaron en los talleres, representando a una variedad de instituciones gubernamentales, no-gubernamentales y académicas.

El mayor logro fue proveer un foro, por medio del cual los investigadores pueden discutir sobre áreas donde la investigación coordinada e internacional puede ser enfocada. Los participantes revisaron un borrador de un manual para el monitoreo, el cual servirá como una herramienta común para los programas de monitoreo nuevos que se establezcan. Muchos investigadores ofrecieron compartir sus datos con la base de datos mundial de la DAPTF sobre las tendencias poblacionales de los anfibios (4). El intercambio, también, estimuló mucha discusión en como los científicos de AL podrían liderar iniciativas futuras. Además, los participantes elaboraron un borrador de una resolución que apela por un mayor apoyo a la conservación de los anfibios (ver abajo).

La comunicación futura será mejorada a través de varios sitios en la red que han brotado y que están encadenados a la página principal de la DAPTF. Un sitio de red en el idioma español asociado a la serie de talleres (**www.lternet.edu/la**) será el banco en donde se encontrará la mayoría de los productos del taller. Durante el taller final, los herpetólogos Ecuatorianos decidieron que ellos ya tenían muchos proyectos en marcha, datos y partes interesadas, de tal forma que ellos necesitaban de una manera como coordinar mejor sus esfuerzos. Ellos crearon la segunda red nacional en AL (DAPTF-Peru, **www.telematic.edu.pe/users/awsalas/** es la primera), con una lista de servidor **jambato@mail.usfq.edu.ec** y un sitio en la red **www.puce.edu.ec/Zoologia/declinac.html**

Adicionalmente, un sitio de red existente en idioma inglés describe un programa de monitoreo de anfibios internacional y coordinado en la región Maya de Belice, Guatemala y sudeste de México **http://fwie.fw.vt.edu/mayamon/maya_home.html**

Los tres talleres fueron necesariamente limitados en amplitud de cobertura geográfica y en la profundidad de cobertura sobre los factores causales; por lo que, estos talleres deben considerarse solamente como los primeros en una serie de esfuerzos similares. Nosotros alentamos a que se den oportunidades de seguimiento, que cubran un área geográfica más amplia, y que promuevan experiencias tendientes a fortalecer la capacidad y a proveer habilidades técnicas (por ejemplo, análisis estadísticos, patología y epidemiología de vida silvestre, manejo de bases de datos, análisis genéticos, cultivo de patógenos) necesarios para una investigación multidisciplinaria del fenómeno de las declinaciones de poblaciones de anfibios. Nosotros especialmente quisiéramos fomentar y apoyar fuertemente a las iniciativas futuras que se originan dentro de los países de América Latina.

Estos programas en forma de talleres sirvieron el propósito de facilitar discusiones entre Latinoaméricanos que trabajan en casos locales de disminuciones de poblaciones de anfibios; pero ellos también iniciaron discusiones entre la comunidad científica más amplia, acerca de las prioridades, necesidades y diferencias inherentes en la investigación en AL. Es nuestra esperanza que los resultados y productos de los talleres contribuyan al entendimiento de los patrones y tendencias de las declinaciones mundiales de anfibios, que los biólogos conservacionistas identifiquen áreas en las cuales ellos puedan compartir sus destrezas con colegas de AL, y que las agencias donantes consideren las necesidades de los herpetólogos de AL cuando establecen prioridades.

Agradecimientos

Agradecemos a The Nature Conservancy, National Science Foundation (DEB 9975495), y The Bay & Paul Foundation por financiar los talleres, al programa International Long Term Ecological Research por proveer espacio de servidor, y las tres instituciones anfitrionas y a los comités organizadores por su ardua trabajo en la preparación del programa científico y la logística.

Declaración de Chetumal

Tomando en consideración:

Que existe amplia evidencia mostrando que las poblaciones de anfibios han declinado mundialmente, y

Que estas disminuciones son el resultado de muchos factores, que incluyen pero no están limitados al cambio climático, modificación del hábitat, enfermedades y toxinas, y

Que Latinoamérica es una región megadiversa y con alto grado de endemismo en los anfibios, y

Que en los últimos diez años

hemos presenciado una disminución en la abundancia de muchas especies en la región, y

Que la información sobre la situación de los anfibios en la mayoría de los países de Latinoamérica es escasa o nula, y

Que los anfibios son componentes importantes de los ecosistemas por ser parte de la cadena trófica como depredadores y como presas, especialmente por su control en las poblaciones de insectos que de lo contrario podrían ser plagas, y

Que los anfibios son excelentes bioindicadores, que nos permiten conocer la calidad de los ecosistemas que los albergan, y

Que los anfibios tienen un importante valor cultural, económico, social, científico y educativo de los anfibios para Latinoamérica, y

Que la necesidad de conservar a los anfibios requiere de la coordinación internacional y la optimización de los recursos, y

Que existe una necesidad en estudiar las poblaciones tanto en sitios en donde se han registrado disminuciones, como en aquellos donde no se han registrado, y

Que se requiere más apoyo económico para el estudio del fenómeno de la declinación de los anfibios,

Hacemos un llamado a la necesidad de:

Inventarios y monitoreo de anfibios para conocer la dinámica de sus poblaciones y para entender mejor la relación entre la salud de estos vertebrados y la de los ambientes que habitan, y

Implementar programas de emergencia de conservación in situ y ex situ, incluyendo la formación de

bancos de tejidos, para las especies amenazadas, y

Crear una red internacional de intercambio de información entre todos los sectores de la sociedad, pero especialmente para comunicadores, educadores, académicos, empresarios y tomadores de decisiones, a través de boletines, conferencias, folletos e informes científicos, y

Incluir en los planes de desarrollo, planes de ordenamiento ambiental y, en especial, en los planes de manejo de las áreas protegidas, el monitoreo de los anfibios como herramienta recomendada para guiar la toma de decisiones, y

Apoyar estudios de monitoreo a largo plazo por las instituciones financieras, y

Restringir la modificación de hábitats naturales y promover programas de restauración ecológica.

Los signatarios nos comprometemos a:

Desarrollar estudios de monitoreo para conocer la dinámica poblacional y el estado de conservación de las especies de anfibios, y

Generar información relevante y actualizada que sea utilizada como una base en la toma de decisiones en el uso de los recursos naturales para el desarrollo sostenible, y

Compartir información y experiencias para facilitar el establecimiento de una red en Latinoamérica.

Firmado por los 88 participantes de 13 países.

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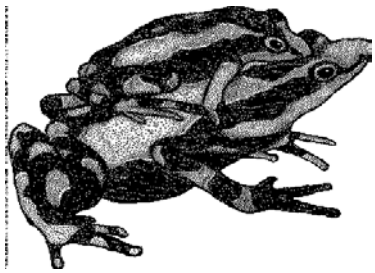

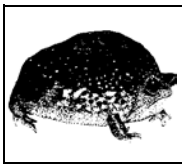

What is PARC and Why Should You Care?

From Whit Gibbons

Partners in Amphibian and Reptile Conservation (PARC) is a recently developed initiative designed to address conservation of reptiles and amphibians in North America. PARC is poised to find the solutions to the problems faced by herpetofauna. People who have an agenda that in some way involves snakes, frogs, turtles, salamanders, lizards, or crocodilians should find out about PARC.

The PARC Mission Statement puts it succinctly: To conserve amphibians, reptiles and their habitats as integral parts of our ecosystem and culture through proactive and coordinated public/private partnerships.

These beleaguered animals and their habitats may at last have people on their side, in North America and perhaps the whole world. Reptiles and amphibians have been steadily disappearing from much of the United States during the past few decades. Everyone is familiar with the amphibian problems, but the reptile plight is every bit as severe. One example is the southern hognose snake, a small harmless species that once lived from Mississippi to North Carolina. No specimens have been seen in Alabama or Mississippi for more than 18 years. Another is the eastern indigo snake, the last sighting of a native specimen being reported from Alabama more than 40 years ago. And, of course, an amphibian, the flatwoods salamander of the Southeast, is the most recent species to be added to the federal list of threatened species. And the list goes on and on, from California to Maine to Florida.

PARC could be the answer to helping maintain the herpetofaunal component of our country's natural heritage and recovering some of what we have almost lost. PARC's organizational meeting in Atlanta in early June was the first national gathering. Based on attendance, PARC is the most diverse group of individuals and organizations that have ever worked together to address the problems confronting reptiles and amphibians on a national and global scale.

Diversity has become a symbol of strength, health, and well-being in biological communities, and so it is with societies and organizations. The more than 200 individuals who attended the organizational meeting represented 170 organizations. Included among the participants were representatives of museums, nature centers, state wildlife departments, universities, federal agencies, conservation societies, research laboratories, the forest products industry, the pet trade, and environmental consultants and contractors. The attendance included participants from 33 states, Canada (British Columbia), Mexico City, and the District of Columbia. Many of the groups are unaccustomed to working together, but the time has come to put aside differences of opinion and to hear all sides. No one has an interest in eliminating more herpetofauna, but solutions for the conservation of wild populations vary among government agencies, conservation groups, and private industry. All sides must be listened to and all must be allowed to participate, because all can contribute to solving the problems. The diverse mix of people and organizations will not only be able to identify the problems confronting native herpetofauna but will also be able to implement solutions and provide the support needed to assure the effective conservation of native herpetofauna.

One consensus among the participants at the PARC meeting is that a key goal in developing a sustainable approach for conservation of reptiles and amphibians should be to familiarize the public with the

organisms and their habitats so that everyone develops an appreciation for herpetofauna. Public support of such an effort, with any group of fauna or flora, is a vital ingredient for a long-term solution.

Some people have asked: "Why should people care about reptiles and amphibians?" My first response is, ask the millions of people in the country who do care. For every person you can find who says he does not care about what happens to turtles, frogs, or salamanders, I can find ten or more who do care. Most people have just never been asked. In fact, a majority of U.S. citizens would be supportive of a nationwide conservation effort, not just for reptiles and amphibians, but for all wildlife.

Herpetofauna represent a major part of our natural heritage. If these animals are in trouble, we are in trouble. Reptiles and amphibians are sentinels of our environmental health. If they are declining and ultimately disappearing, we need to make amends. What happens to herpetofauna is a sign of what could happen to other wildlife and maybe even to us.

PARC is not looking for scapegoats but instead is looking for partnerships with people who want to do the right thing, who want to set the score right in the nation's conservation efforts towards herpetofauna, towards all reptiles and amphibians. My impression is that the PARC concept will be highly successful and lead this country and others onto the path of conservation of native wildlife. PARC has a vision of providing the remedies necessary to correct the environmental problems that confront this group of animals and their habitats. It may be the last chance we will have for us to assure that humans and herpetofauna can live harmoniously in today's world. Let us know if you want to participate!

What Can You Do To Help Reptiles And Amphibians?

1. Visit the PARC Web site, now located on **www.parcplace.org**. or communicate directly with PARC: **parc@srel.edu**
2. Determine how you might contribute to PARC's Priority Conservation Needs for Reptiles and Amphibians (see the PARC Web site)
3. Lend your support to efforts by nature centers, museums, or schools in your community that are involved in educational projects directed toward reptiles and amphibians
4. Get involved in the regional or technical working groups. For current listings of chairs, check out the PARC Web site.

How Is Parc Different?

Included among the characteristics of PARC that make it distinctive from all other groups with a focus on herpetofaunal conservation are the following:

-PARC includes reptiles under its purview as well as amphibians.

-PARC is habitat focused and is taking a strategic and cooperative approach to developing a broadly based conservation plan.

-PARC includes state agencies and the private sector, such as the timber industry, as well as specialists and non-specialists with an interest in herpetology.

-PARC will not only focus on endangered and threatened species but will also work toward the objective of "keeping common native species common."

The question continually arises about whether PARC is an international effort, and the answer is best given from a historical perspective. PARC was initially developed with a focus on the southeastern United States because the Southeast is the region with the country's highest herpetofaunal biodiversity and potentially greatest problems. As the PARC initiative became publicized in 1998, a national interest developed from numerous geographic regions, and then participants from Mexico and Canada became involved so that it quickly became North American. At the organizational meeting in Atlanta in June 1999, the attendees maintained PARC's focus on North American species but with an additional interest in international actions that affect species native to North America. An international working group that included individuals associated with the DAPTF and Conservation International was formed during the meeting. At the October meeting of PARC with the International Association of Fish and Wildlife Agencies, the PARC emphasis on international issues centered on species that are common to the United States, Mexico and Canada. The PARC international group was charged with developing a list of species of concern.

At this time, most of the PARC effort has been through the regional and topical working groups that are attempting to identify a variety of conservation issues that affect native North American species. PARC continues to be a grassroots organization with the success in various regions being dependent on the individuals and organizations involved. Commentaries and articles that address PARC's concepts continue to be placed on the PARC Web site.

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Threatened Amphibians of Cuba

By Ariel Rodríguez Gómez and Roberto Alonso

Cuba is an important biodiversity hotspot in a Caribbean context, inhabited by 31.4 % of the amphibian species of the region. Despite the rich amphibian fauna that the island hosts, little attention has been paid to the study of this group of 56 species with an astonishing 94.5% endemism.

The last Cuban CAMP (Conservation Action Management Plan) exercise was held at the Havana Zoological Garden in November 1999. Four amphibian species were proposed for different threat categories after considering data from the literature, museums, censuses and general field studies.

Eleutherodactylus symingtoni Schwartz, 1957.

Critically Endangered (CR). This endemic species is restricted to six isolated localities in western Cuba. It inhabits caves and rocky shelters in montane forests of Pinar del Rio and La Habana provinces. Its extent of occurrence is less than 100 Km^2 and its occupation area is minimal. Deforestation, cattle ranching, agriculture, the introduction of exotic species (rats, mongooses, feral cats, dogs and pigs) and cave alteration are the causes of the drastic reduction and disturbance of its habitat. At present only 250 animals may remain, with a probability of extinction that exceeds 50% in the next 20 years.

Eleutherodactylus iberia Estrada y Hedges, 1996.

Vulnerable (VU): This species is considered the smallest frog in the northern hemisphere. It is only known from two isolated populations in eastern Cuba, one on top of the Monte Iberia tableland and the other near Nibujón at sea level with a minimal occupation area and extent of occurrence (less than 100 Km2). The second locality has suffered great disturbance over the last 40 years due to human activities and agriculture. At present the main factors affecting this species are related to the fragmentation and loss of habitats, pesticides and the introduction of exotic species. Mining is perhaps the

most important future threat given the existence of great mineral deposits in the area and the increase of mining activity in the region.

Eleutherodactylus tetajulia Estrada y Hedges, 1996.
Vulnerable (VU): As in the preceding species, this frog has a minimal occupation range restricted only to the top of Monte Iberia tableland in eastern Cuba (less than 25 Km2). The principal factor affecting this species at present is the introduction of exotic species (rats, feral cats, dogs and pigs); future threats could also arise from mining in the area.

Bufo l. longinasus. Stejneger, 1905.
Vulnerable (VU): One of the four subspecies of *B. longinasus* is restricted to the foothills of Alturas de Pizarra and intermontane valleys in the vicinity of the Sierra de los Organos in Pinar del Río province. Factors like cattle, farming, water pollution and the introduction of exotics (rats, mongooses feral pigs and cats) are the main threats for this subspecies.

Another two amphibians previously included in the 1998 edition of the Cuban CAMP are *Bufo cataulaciceps* Schwartz, 1959 and *Eleutherodactylus cubanus* Barbour and Shreve, 1837 considered as Endangered (EN) and Critically Endangered (CR), respectively, due to habitat loss and anthropogenic activity (Díaz, 1998a,b).

Measures like population monitoring, habitat management and environmental education, together with the creation of a genetic bank were proposed as the main tasks for the preservation of these threatened amphibians. Funds should be requested for those activities from NGOs and other funding institutions.

Díaz, L.M. (1998a) Taxon Data Sheet for *Bufo cataulaciceps*. Pp. 109-115. In: Perez, E., Osa, E., Matamoros & Seal, U.S. (Eds.). *Conservation Breeding Specialists Group (SSC/IUCN). Report on Conservation Assessment Plan Workshop for Selected Cuban Species.* CBSG, Apple Valley, Minnesota, 55124 U.S.A.

Díaz, L.M. (1998b) Taxon Data Sheet for *Eleutherodactylus cubanus.* Pp. 117-123. In: Perez, E., Osa, E., Matamoros and Seal, U.S. (Eds.). *Conservation Breeding Specialists Group (SSC/IUCN). Report on Conservation Assessment Plan Workshop for Selected Cuban Species.* CBSG, Apple Valley, Minnesota, 55124 U.S.A.

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Population Declines Observed in a Majority of Species of Eastern North American Terrestrial Plethodontid Salamanders of the Genus *Plethodon*

By Richard Highton

During the 1950s through 1980s, University of Maryland field parties did intensive fieldwork on salamanders of the genus *Plethodon,* one of the largest genera of salamanders (46 spp.). During this period we never observed significant declines in the abundance of any salamander species at hundreds of sites in eastern North America where we returned repeatedly to collect samples for our studies (except at a site where there was habitat destruction). However, beginning in the late 1980s, we observed a decline in the numbers of salamanders at some sites, even in undisturbed habitats. During the 1990s, I revisited 127 sites where we had collected repeatedly in the pre-1990's and compared the number of *Plethodon* observed per collector with the mean found on earlier visits. Data are available for 250 populations of 38 species at 127 sites in 22 states in forested regions of eastern United States. In 139 of the 205 populations sampled, we found fewer than 50% of the mean observed in the pre-1990s, fewer than 10% in 50 populations and none were seen in 32 populations. Over all populations, the mean number observed in the 1990s was 46.1% of that found in the pre-1990s.

The mean number of salamanders found per person was lower in the 1990s than the mean of earlier visits in 180 of the 205 populations and was higher for only 25 populations, a statistically significant difference. Comparisons of first and last collections for the decade of 1970-1980 showed no significant difference. Indeed, in spite of intensive collecting at all sites during that period, the average number found at the end of the decade was higher than that collected on the first visit of the decade.

Destruction of habitat due to logging operations occurred at 16 sites (22 populations), and most of the populations at these localities are among those that appear to have declined. The cause(s) of the decline in the other populations of *Plethodon* remains unknown. It is urgent that studies should be initiated to try to discover the reasons for the serious declines in most species of *Plethodon,* an important component of American terrestrial ecosystems.

The data that are summarized above are to be published in the upcoming book "Status and Conservation of US Amphibians" [working title] edited by Michael Lannoo and sponsored by the DAPTF and PARC.

Contact: Richard Highton, Dept. of Zoology, 1200 Zoology-Psychology Bldg., University of Maryland, College Park, MD 20742-4415, USA.

Froglog Shorts

FROGLOG can now be accessed on line at a new url: **http://www2.open.ac.uk/biology/froglog/** *Please tell your friends and colleagues if you know they access Froglog in this way, many back issues are also posted.*

Lovers of frogs, fine art, and the environment can now purchase artworks online and, for the very first time, have all the royalties dedicated to the Declining Amphibian Populations Task Force.

"Artecology exists to help foster a deeper awareness and appreciation for Nature's diversity through artistic expression," says Lynda Roberts, director of this organization headquartered in SugarHouse, Utah, (US). "We are all connected to our environment and art deepens our connection to ourselves."

"Spirit of the Rainforest," Artecology's premiere artwork, is a handcrafted porcelain sculpture of two red-eyed treefrogs (*Agalychnis callidryas*) in their natural rainforest habitat. One of the most outrageously decorated frogs in the world, these creatures have become a symbol of the movement to save the world's rainforests. Made entirely in the USA, this masterpiece is accompanied by a digitally-recorded soundtrack of natural sounds from the rainforest.

You may visit and peruse the website at **www.artecology.org** and please don't forget to ***select DAPTF as your selected royalty dispersal*** from the pop-up menu when you order/donate.

More declining amphibian art by Kerry VanderMeer can be seen at: **http://www.hangart.com**

The new Working Group Chair for New Zealand is Phil Bishop, Dept. of Zoology, University of Otago, PO Box

56, Dunedin 9020, NEW ZEALAND **phil.bishop@stonebow.otago.ac.nz** He is currently working with Bruce Waldman on the New Zealand Frog Survey, promoting public awareness of frogs and encouraging the public to submit data.

Effects of roads on amphibian populations The thesis *Effects of roads on amphibian populations* is the result of a three year PhD study at the National Environmental Research Institute, Kalø, and the University of Copenhagen. It deals mainly with the effects of traffic and roads on amphibian populations. The spadefoot toad has been studied most intensively, but the work has included common and crested newt, common toad, common frog and moor frog as well. The work has resulted in three manuscripts which form the main part of the thesis: (1) Quantification of demographic parameters in a Danish metapopulation of spadefoot toads (*Pelobates fuscus* Laur.); (2) The effect of road kills on amphibian populations and (3) Simulating viability of a spadefoot toad (*P. fuscus*) metapopulation in a landscape fragmented by a road.

For further information, contact: Tove Hels **the@fsl.dk** *or the the thesis can be purchased from:* Tove Ørts Petersen, National Environmental Research Institute, Department of Landscape Ecology, Grenåvej 14, DK-8410 Rønde, DENMARK. **tpe@dmu.dk**

The document "Standardized field sampling methods for assessing headwater streams in Ohio" is now available in revised (1999) format as a Word perfect 6.0 document from: Dr. Robert D. Davic, Ohio Environmental Protection Agency, Division of Surface Water, 2110 East Aurora Road, Twinsburg, Ohio 44087, USA. Phone (330) 963-1132 **robert.davic@epa.state.oh.us** Dr. Davic would also appreciate reprints of papers covering documented declines of salamander populations. *Please also send copies of these to the DAPTF office for inclusion in the Declining Amphibian Database (dad).*

Hannah Toberman is a first year Biology-Geology student at Bristol University. Taking a look at the literature, she was shocked by the number of papers and articles outlining the global amphibian decline phenomenon. Thus, she is looking to offer practical help to discover the reasons behind such declines and schemes to prevent their continuation. If a research or conservation group is able to offer a work placement over the summer (July-September) in Britain or further afield, please contact: Hanna Toberman, Flat 8, University Hall, Shaplands, Off Parry's Lane, Stoke Bishop, Bristol, UK. **ht9311@bristol.ac.uk**

Jasper Michie is currently researching the impact upon amphibian populations of the effects of harvesting for food, as part of his final year at UEL (BSc Wildlife Conservation), in collaboraion with Fauna & Flora International. He hopes to assess the importance of consumption as a threat on a global scale, provide species case studies and highlight priority areas for further research. If you have any suggested references, sources of data or other assistance, please contact Jasper at 92 Epsom Lane South, Tadworth, Surrey, KT20 5TB, UK. **mic5663s@uel.ac.uk**

A workshop on the histology and histopathology of reptiles and amphibians was held 6-7 November, 1999 at Greendale Laboratories, UK. This provided tuition in the interpretation of pathological changes in reptiles and amphibians. Prof. John E. Cooper reports that the workshop went very well. *Details of further courses are available from:* Greendale Labs. Ltd., The Lansbury Estate, Knaphill, Woking, Surrey GU21 2EW, UK.

A memorial fund was established in order to perpetuate the work of the late Dr. Edward Elkan, who died in 1983. He was recognised internationally for his work on the pathology and diseases of reptiles and amphibians. His reference collection of papers, correspondence and histological sections is currently being reassembled and will soon be available for study by herpetologists. *Enquiries about the collection should be addressed to:* Prof. J.E. Cooper, Jersey Wildlife Preservation Trust, Trinity, Jersey, JE3 5BF, BRITISH CHANNEL ISLES. **ngagi@compuserve.com**

Tiger salamander receives emergency listing The US FWS has given some of the Santa Barbara County population of the California tiger salamander a 240 day emergency endangered listing. In the last 18 months alone, half of the remaining documented breeding sites and associated uplands were detroyed with more sites under imminent threat. The emergency listing came after the species was first recognized as a candidate in 1985 and almost 8 years after the listing petition in 1982.

Tracy Berridge of Croyde Toad Rescue, Devon, UK is one of 40 recipients of a Bristol Zoo Gardens Millennium Award for Conservation. This will help her to develop and expand her work with the Croyde population of European toads (*Bufo bufo*). The award was given for the rescue of migrating toads and for protection of their breeding site, a nationally important one, from development.

Declines and Disappearances of Australian Frogs (Campbell, A., Ed., 1999) is a document produced by the Australian Natural Heritage Trust and Environment Australia. It contains a plethora of information on declining amphibians in Australia, much of which is relevant to an international perspective. *To obtain a copy, contact:* Environment Australia, GPO Box 686, Canberra, ACT 2601, Australia, *or phone* 1800-803-772.

From Prof. Rick Speare: We have put on line an article that gives details on how to use histological sections of amphibian skin to diagnose infection with *Batrachochytrium dendrobatidis*, the amphibian chytrid fungus. Follow the link at the Amphibian Diseases Home Page: **http://www.jcu.edu.au/school/phtm/PHTM/frogs/ampdis.htm**. The article is an original one, available at the moment only on the WWW. We have made it available as a step in assisting others to gain the skills to diagnose chytridiomycosis. The article is Berger L, Speare R, Kent A. Diagnosis of chytridiomycosis in amphibians by histologic examination. URL: **http://www.jcu.edu.au/school/phtm/PHTM/frogs/histo/chhisto.htm**

At the Amphibian Diseases Home Page we have also added a link to a paper just published on line in *Emerging Infectious Diseases.* This is by Daszak *et al*. and reviews the evidence for *B. dendrobatidis* and ranaviruses playing a role in amphibian population declines. URL for this link to emerging Infectious Diseases can be accessed from the Amphibian Diseases Home Page or directly at: **http://www.cdc.gov/ncidod/EID/vol5no6/daszak.htm**

First announcement: 1st International Scientific Meeting on the Biology and Ecology of Alpine Amphibians and Reptiles, 1 - 3 September 2000. The DPPVN are pleased to invite you to the first scientific meeting on the Biology and Ecology of Alpine Amphibians and Reptiles. The meeting dates will be 1-3 September 2000, and the location will

be defined in the second announcement (probably by the end of April), which will be mailed only to those who respond to this announcement. The goals of the meeting are:

-to bring professional and amateur researchers together to exchange ideas and experiences on studies of alpine amphibians and reptiles,

-to promote amphibian and reptilian research in alpine regions and strengthen the collaboration between amphibian and reptilian specialists,

-to present results of new research on all aspects of the biology of amphibians and reptiles from alpine habitats, and

-to present new results of conservation actions focused on these organisms.

Language: The official language of the meeting will be English.

Abstracts: Abstracts of oral and poster presentations will be published. All abstracts should be submitted in English, and all participants will receive a booklet of abstracts at the start of the meeting. Abstracts should not exceed 250 words and should not contain tables and figures. Abstracts should be submitted by e-mail (see below) in Rich-Text Format (rtf) along with your preference for an oral or poster presentation.

Meeting fee: Ca. 60 EURO, which will include the program and abstracts, refreshments and a meeting excursion.

Excursions: There will be a meeting excursion arranged free of charge. For those who wish to stay longer, post-meeting excursions will also be offered.

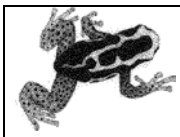
Registration: Those intending to participate are kindly asked to inform the organizing committee by **1st April 2000** including name, institution, address (including e-mail, fax) and the (general) title of the contribution and the abstract.

Travellers advice and information on accommodations (e.g. reservations, meals), which will probably be arranged by the organizers, will be sent in the second announcement.

Contact address of the organizing committee: DPPVN, Nusa Vogrin, Ptujska c. 91, SI-2327 Raèe, Slovenia
Fax: ++386 62 788 30 51
E-mail: **milan.vogrin@guest.arnes.si**

The second announcement will be distributed only to those who register.

DONATIONS We gratefully acknowledge receipt of the following donations from 1 October 1999 through 31 January 2000.
Organizations: The Audubon Institute, Desert Fishes Council, Central Florida Herpetological Society, Portal Publications, Ltd., Tulsa Zoo, TVE International, Ward's Natural Science Establishment, Inc., Wallis Foundation, Zoologischer Garten, Köln. **Individuals:** Breck Bartholomew, Gale Belinky, Bill Belzer, Matthew Brandley, Rebecca Christoffell, Charlotte Corkran, Jeffrey Corser, Andrew J. Crawford, Joseph K. Davidson, Evan C. Evans, Nadine Foley, Jerry Gampper, Carl Gans, Suzanne Gunderman, Benjamin C. Hammett, Judy Hancock, James Hanken, Deborah Hannen, James Harding, Dr. Kurt Henkel, Robert Hodge, Eugene Holmes, William Hopkins (in honor of the marriage of Bob & Lisa Persons), Fui Lian & Robert Inger, Jett, J. Eric Juterbock, Nancy Karraker, Linda LaClaire, Michael Long, Shirlene & Lewis Lowe (in honor of the marriage of Breck and Dayna Bartholomew), Ernst Meyer, John Murphy, Gary Nafis, Ray Pawley, Belinda J. Porter, Douglas Rossman, Rodolfo Ruibal, Owen Sexton, Albert Spencer, Christopher Summers, Deanna Swaney, Linda Torp, David & Marvalee Wake, Richard Wassersug, Julia Wilson.



Publications of Interest

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FROGLOG is the bi-monthy newsletter of the Declining Amphibian Populations Task Force.

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