

FROGLOG

Newsletter of the Declining Amphibian
Populations Task Force

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Crisis Less Severe
for the Po Valley
Spadefoot,
*Pelobates fuscus
insubricus*

By Vincenzo Ferri,
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Among Italy's endemic anurans, the Po Valley spadefoot *Pelobates fuscus insubricus* is today the most localized and the one with the lowest number of known populations. It is consequently regarded as an endangered species by the I.U.C.N., as well as being awarded priority status by EEC Habitat Directive 92/43. The species is recorded only at some 15 locations in the Po Valley, and in the two regions of Piedmont (breeding at three sites in 2000) and Lombardy (breeding at four sites in 2000) (<http://utenti.tripod.it/bufo2000/index.html>).

In Piedmont, WWF Italy has implemented conservation measures since 1989 involving identification of new populations and breeding sites, together with demands for the extension of the area of the Ticino Valley Natural Park, and for areas where *Pelobates fuscus insubricus* is present to be designated Important Sites at Community level. From 1988 the "Pelobates" Center at Spinea (Province of Venice), run by the Milano branch of WWF Italy, has hosted a project for breeding Po Valley spadefoots in semi-natural conditions, with a view to release into the wild. In April the captive population began breeding, allowing the start of an experimental reintroduction scheme, conducted in partnership with the Museum of Natural History in Udine, in an area in the region of Friuli (Bosco della Man di Ferro – San Vito al Tagliamento).

In 1998, the Region of Lombardy began a three-year scheme, coordinated by the University of Pavia's Biology Department, for the

conservation and creation of new populations of *Pelobates fuscus insubricus* in a number of riparian nature parks in Lombardy. In 1999 the Societas Herpetologica Italica designated the principal Lombard sites, Somma Lombardo (Prov. of Varese) and Torricella del Pizzo (Prov. of Cremona), and the Piedmontese site of Cameri (Prov. of Novara) as areas of national herpetological interest (A.R.E.N. in Italian), joining with competent local authorities in laying down guidelines for land use compatible with maximum protection for the habitat of reptiles and amphibians.

From 1998 to 2000, WWF Italy promoted and implemented a LIFE Natura Project "Urgent actions for conservation of *Pelobates fuscus insubricus*") aimed at monitoring sites where the species occurred in Piedmont, restoring wetlands at sites where its presence was confirmed, expanding breeding-centers and working out an *Action Plan* for conservation of the taxon.

In 2000, the Ticino Valley Natural Park (www.parcodeltino.pn.n.it) introduced a new scheme for protection of the species in the area under its control, which obtained approval and funding from the EU and from the Region of Piedmont: "Pelobates Project in the Piedmont Ticino Valley Natural Park". The area covered by the Project represents the principal site for the Po Valley spadefoot and also the area with the highest number of populations (or meta-populations) and individuals (probably over 50%). Since 1985 the main breeding sites of this area have been rice paddies and their irrigation canals. Agricultural policy has reduced rice-growing by more than 80% over the past 15 years, causing a drastic contraction in the habitat of these rare amphibians.

Furthermore, the reduction of aquatic habitats has caused concentration of both amphibians and predators in the few remaining rice

paddies, reducing even further the spadefoots' breeding success. The importance of these populations is fundamental for the future of the species. Population reinforcement and reintroduction projects active in other well known Po Valley sites and the constitution and maintenance of breeding centers, such as those of WWF Italy, are based on the eggs, tadpoles or breeding adults which come from the Ticino Valley Natural Park. For these reasons, the main objective of the "Spadefoot Project" is to stop the reduction in number of ideal aquatic areas for the breeding of *Pelobates fuscus insubricus*.

In order to achieve this goal, significant parts of well-known aquatic and terrestrial focal areas have been purchased, and negotiations are underway with landowners to lease other important areas for periods of several years and to make new wet zones. The acquired areas will be managed to obtain the best reproductive success. If necessary, the pressure from predators in other available wet zones will be reduced. The Ticino Valley Natural Park will support landowners opting for ecological cultivation. New methodology for soil preparation will be experimented with by local farmers to obtain maximum agricultural yields, while maintaining breeding success at the same time. The Regional Agency for Environmental Protection of Novara will permit water monitoring work, while the water supplies required for anuran breeding success will be sourced by the digging of a well and improvements to the water retention of old reservoirs. Installation of drift fence systems and tunnels under road surfaces, together with the closure of country lanes during breeding migration, will increase the survival rate of breeding adults.

Population monitoring, especially as regards breeding phenology and results, will allow the other objectives of the project to be secured: the possibility to move

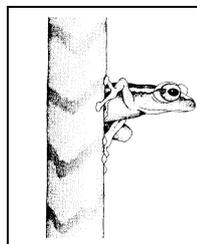
annual quotas of tadpoles, without risk, to neighboring ponds, so as to establish new nuclei and increase the area of occupation of *Pelobates fuscus insubricus* in the Ticino Valley Natural Park.

Collaboration between WWF Italy and the "Pelobates Project" will act to improve the habitat and breeding structures situated in the Oasi WWF Bellinzago Baraggia center, so as to optimize tadpole production. The health security of these operations and future reintroduction schemes will be supported by bloodless analyses made at the Experimental Laboratory of Lombardy and the Emilia Romagna Institute of Animal Prophylaxis (in Brescia).

Outreach programs and initiatives, such as informative lectures, will be held in primary schools in order to sensitize public opinion and contribute to public awareness of the results obtained. Posters of the amphibian species of the Ticino Valley Natural Park in Piedmont will be distributed, particularly in the territories involved.

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<http://utenti.tripod.it/bufo2000/index.html>



Effects of Habitat Disturbance on a Frog Community in a Mexican Tropical Dry Forest

By Ileri Suazo-Ortuño

Dry tropical forest in México once covered from 6 to 14% of the total area of the country at altitudes from sea level up to 1500 m, mainly along the Pacific coastal plains and coastal slopes of the Sierra Madre Oriental and Sierra Madre Occidental, the basins of the Balsas and Papaloapan rivers, the Tehuantepec Isthmus and the Yucatán Peninsula. Dry forest has been reduced to a small fraction (about 27% of its original cover remains as intact forest, Trejo & Dirzo, 2000) due mainly to forest conversion for agricultural activities and livestock grazing. In México, a total of 18 amphibian species have been recorded in this type of forest, eight are endemic to Mexico and two are restricted to this habitat (Flores-Villela

& Gerez, 1994). Although grazing, fire, logging, and other human disturbances alter abundance and diversity of amphibians in a wide variety of habitats (Ash, 1988; Hecnar & M'Closkey, 1996; Green, 1997) there is a paucity of information regarding the response of amphibians to habitat modification by human activities in tropical dry forests. In this report I present the preliminary results of a long-term study on the responses of the frog community to human disturbances in the Chamela-Cuixmala Biosphere Reserve in the state of Jalisco, México. The landscape of the study area represents a mosaic of vegetation with different degrees of disturbance and regeneration stages.

I selected six small watersheds as sampling units: three used for grazing activities near the reserve and three in pristine forest areas (located within the reserve). In each watershed ten 100 m x 10 m transects were randomly positioned along the main axis of the watershed from the edge of the stream to the watershed crest. Five diurnal and five nocturnal surveys in each transect were carried out for a year (August 2000 - August 2001). Frogs encountered during the surveys were counted and identified. Before release, frogs were marked by toe clipping and individuals that were recaptured were counted only once.

During the surveys a total of 142 anurans were recorded, representing 10 species in the disturbed sites and 18 species in the pristine forest. Eight species (*Hyla smithi*, *H. smaragdina*, *Eleutherodactylus mexicanus*, *E. modestus*, *E. hobartsmithi*, *Leptodactylus melanonotus*, *Gastrophryne usta* and *Hypopachus variolosus*) were exclusively recorded in the pristine forest sites. Anuran species found on both disturbed and pristine sites were *Phrynohyas venulosa*, *Bufo marmoratus*, *B. mazatlanensis*, *B. marinus*, *Eleutherodactylus nitidus*, *Rana forreri*, *Tripidon spatulatus*, *Pachymedusa dacnicolor*, *Pterohyla fodiens* and *Smilisca baudinii*. The most common species observed in both habitats was *Bufo marmoratus*, representing 29% of captures.

Although these results are preliminary, it is evident that habitat modification by human activities in the area has resulted in impoverishment of the anuran populations.



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Amphibian Monitoring in Africa (Côte d'Ivoire, Kenya) and Asia (Borneo)

From the Global Amphibian Diversity Analysis Group (GADAG)

It is now a well known fact that amphibian populations all over the world face serious declines, even in pristine habitats. The reasons for these declines are unclear and remain part of an ongoing scientific controversy. They originate from such diverse causes as habitat destruction, environmental pollution, global climate change, increased UV-radiation and fungal diseases. In many cases it is almost impossible to distinguish between local and global reasons for observed population declines or mass mortalities.

Despite many ongoing research programs on these topics, comparison between different study sites still remains difficult because of the lack of standardized procedures in data collection. Furthermore we are lacking information for large regions of the world where it is unknown if amphibian populations are in decline or not. This especially concerns the whole African continent. Funded by the German Ministry of Education and

Research we decided to establish a working group, the Global Amphibian Diversity Analysis Group (GADAG), based at the Universities of Mainz and Würzburg, Germany. Our main aim is to setup a standardized monitoring program on amphibian populations in different regions of the world, to provide us with further insight into distinguishing local from global causes in amphibian declines. Furthermore, we will be able to gather data on amphibian populations in regions where no data about possible amphibian declines have been available so far.

To achieve our goal we are working on different geographical scales (local, regional, continental and global) simultaneously. Right now we are working in Côte d'Ivoire (MOR, since 1992) and Kenya (SL, since 2001), as well as in Borneo (JK, MV, since 2001). Further study sites are planned to be established in Ghana, Madagascar and Guyana in forthcoming years.

Based on our experiences with an amphibian monitoring program already running over several years in Côte d'Ivoire, West Africa (MOR), we run standardized monitoring programs in different habitats, both pristine and disturbed, with the main emphasis on rainforest habitats. At these sites we study community composition and population phenology. Additionally, we will choose target species in all our study sites that show similar ecological niches for a long-term monitoring program. These ecotypes should theoretically face similar environmental influences and therefore react similarly to global causes like climatic change or increased UV-radiation. Both population data and genetic variability of these species will be investigated.

On the local and regional scale we compare community composition and changes in diversity patterns along vegetational, climatological and disturbance gradients. To put our work on as broad a basis as possible, we are highly interested to cooperate with all individuals and working groups that already run or plan to set up similar programs all over the world. More details about the people involved in our working group, our recent research programs, and other information on GADAG can be checked at our home page: <http://www.gadag.org>.

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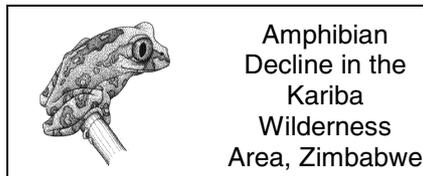
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From Peter Taylor

I lived and worked in the Kariba Dam area during the early 1960s, at which time the dam wall had just been completed. The waters of the Zambezi river were starting to fill the Kariba Dam basin and Operation Noah was in full swing.

As world attention was being focused on the rescue of mammals stranded by the rapidly rising water, I was busily collecting herpetological specimens for what was then the National Museums of Southern Rhodesia. It was a unique situation, enabling me to make extensive collections with a minimum of effort. I also collected from undisturbed sites away from the rising water. As I was resident in the area, I obtained a pretty good picture of the amphibian faunal makeup.

I left Kariba in 1963 and didn't return again until 1998. Although no longer resident in the area, my work takes me there on a regular basis throughout the year for several days and nights at a time. In the years between 1963 and 1998, a period of 35 years, there appears to have been a definite decline in amphibians both in terms of species diversity and numbers in general.

During my recent visits, after and during good rainfall, I have visited some of my previous collecting sites with surprisingly little seen in the way of frogs and toads. Road kills after rain are negligible compared with the past, despite considerably increased road use.

The Kariba Wilderness Area is an apparently pristine, unspoilt piece of wild Africa, so why the decline? The possible answer came to me when I visited the person with whom I do business in Kariba and was greeted by his dogs. In 1963 it was impossible

to keep dogs at Kariba because of the disease trypanosomiasis (sleeping sickness) which is carried by tsetse fly (there were also human fatalities from this disease at the time). There are now no tsetse flies at Kariba hence it is possible to keep dogs in the area. Over the years, as part of the eradication of the tsetse fly programme, the area has been sprayed with insecticides including Dieldrin and DDT as a tsetse fly control measure. I would suggest this may be the reason for the apparent decline in amphibians in the Kariba Dam area, and probably elsewhere in the Zambezi Valley.

These observations are only anecdotal and not backed by any hard data, but I can think of no other reason for this phenomenon.

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Conservation News {Items from *HerpDigest* (www.herpdigest.org) & *GREENlines* (www.stopextinction.org)}

- The last known population of the Mississippi gopher Frog (*Rana areolata*), numbering about 100 animals, has been given full legal protection.

- A state-protected reserve has been set up for the giant salamander (*Andrias davidianus*) on Mount Qinling, northwest China. The 1 km² reserve contains 47 giant salamanders, of which 40 have been rescued from elsewhere.

ASX Frog Focus CD Launched The ASX Frog Focus CD-ROM was launched at Taronga Zoo, Sydney on 21 September 2001. The CD is a curriculum-based education resource intended to educate school students and communities about Australian frogs and frog conservation. It was sponsored by the Australian Stock Exchange and is a partnership between zoos, parks, aquaria and Education Departments across Australia. With the support of the ASX, copies of the CD have been distributed free to every school in Australia – approximately 11,000. The CD complements the ASX Frog Focus website, (www.asxfrogfocus.com), which has a further range of valuable features, including Froggy Bulletin Board, Frogs in your Garden (developing frog-friendly habitats) and Register your School (as an ASX Frog Focus School. For further information on the CD, contact: Melissa de Britt, National ASX Frog Focus Coordinator, Education Service, Taronga Zoo, PO Box 20, Mosman, NSW 2088, AUSTRALIA. Tel: ++ 61-2-9978-4553

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The Urban Amphibian Bunkers site (http://home.eol.ca/~donbar/bio/salamander/Sal_Hab1.htm) is about designing amphibian/reptile, shelter and self feeding stations that will offer protection and encourage population growth. A discussion page has been posted to aid in the sharing

of ideas on these key wildlife issues. The site focuses on Jefferson or mole salamanders in a local forest but as many of the elements are common to other species, these discussions should be of interest to most and the more input the better. Your comments are welcomed.

KOREAN SPEAKERS! Visit a Korean version of the DAPTF website at: http://web.reed.edu/academic/departments/biology/korea_daptf/index.html Many congratulations to Bob Kaplan (Chair, DAPTF Korea) for getting that off the ground!

The International Congress on Biodiversity Conservation and Management will take place in Vouziers (Champagne-Ardenne, France) 4th-7th July 2002. For more information, contact **Alain Pagano: alain.pagano@sciences.univ-angers.fr**

The Second Symposium on Current Research on Herpetofauna of the Sonoran Desert will take place April 5-7, 2002 at Four Points by Sheraton, Tucson University Plaza, 1900 East Speedway Boulevard, Tucson, Arizona 85719, USA. Please go to the website at <http://tucsonherpsociety.org/crhd.html> for registration information and call for papers.

The populations of *Rana catesbeiana* in Venezuela, reported in *Froglog* 47, are apparently rapidly increasing in number, affecting endemic species such as *Hyla meridensis*. If you can advise on an effective control methodology, please contact Cesar Luis Barrio Amoros: cesarlba@yahoo.com

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