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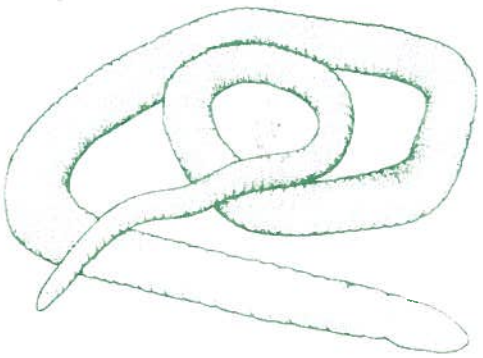

FROGLOG

Newsletter of the Declining Amphibian Populations Task Force

December 2000, Number 42.

A Short Note about the Status and Abundance of Caecilian Populations

By Daniel Hofer

As far as is known, many caecilians such as *Ichthyophis*, *Chthonerpeton*, *Schistometopum* etc. are able, up to a certain level, to adapt to changes in habitat and are found in cleared land that is used for crop plantations (paddy rice fields, coffee and tea plantations are good sites to find caecilians) as well as "natural" habitats. If strong insecticides are spread over the fields, however, caecilians die. Some species are even attracted to dumping places. *Chthonerpeton* and *Siphonops* have been found on sites where human waste was thrown. Similarly, *Typhlonectes* seem to have no high requirements on water quality.

There are few places where caecilians are common. They might not be rare, but as they dig deep into the soil they are rarely seen even when they are abundant. To see many, one has to be at the right place at the right time, usually some days after the start of the rainy season. A herpetologist living for some years in Malawi told me that even when searching well, outside the rainy season it is hopeless to try to find any caecilians. Once the rains come, however, they suddenly become very common for just a couple of weeks.

The only place caecilians seem to be easy to find is the São Tomé Islands off the coast of West Africa. Farmers there told me that a decline has been observed since heavy insecticides have been used. As there might be more financial help from the European Community to São Tomé, I am afraid insecticides will become more easily available there. At present, however, the caecilians there are still not endangered; hundreds can be found in just a couple of weeks in the less disturbed areas.

There is some discussion about the status of the aquatic species of *Typhlonectes* of South America. Many were, until recently, exported by fish dealers and sold in aquarium shops. Colombia and Venezuela have stopped the export of *Typhlonectes*, having become aware that they are not fish but amphibians. *Typhlonectes* are scavengers and benefit from local river-fishing. They eat the entrails of fishes cleaned by natives on the riverside. They are therefore especially abundant near fishing villages in Colombia and Guyana. In certain rivers there is a high density of *Typhlonectes* and they are widespread through the river systems of northern South America. There is probably still no need to restrict the export of *Typhlonectes spp.*

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A Malformed *Dendrobates tinctorius* from French Guiana

By David Massemin & Christian Marty

French Guiana is located on the northeast coast of South America, at a latitude between 2° and 6° North. Its climate is equatorial and neotropical rainforest covers more than 98% of the area (de Granville, 1988). One hundred and seven amphibian species are known from the country (Lescure & Marty, *in press*). The family Dendrobatidae is represented by 7 species, including *Dendrobates tinctorius*. The aim of this short note is to report the first finding in the wild of a malformed specimen of this species in French Guiana. There is no mention of such phenomena in South America and more particularly in neotropical rainforests (Jeffrey A. Jundt, Coordinator of the North American Reporting Center for Amphibian Malformations, *pers. comm.* to C.M.).

On the morning of November 20th 1999, at the beginning of the rainy season, one of us (D.M.) found one specimen of *Dendrobates tinctorius* alive with obvious anatomical malformations. The animal was located about 15 kilometers northwest of the city of Saint Georges de l'Oyapock, which is on the Brazilian border. The forest there is intact without any habitation or human activity except hunting. Before being captured, the frog was observed with more than ten other *Dendrobates tinctorius* that were of similar size. The specimen had a third hind limb that seemed not to be functional. The snout-vent length was 31.7 mm.

The frog was kept in captivity for a few weeks and was observed feeding during this period. Radiography revealed that the supernumerary leg was implanted on the right hip, just above the normal leg, at the level of the acetabulum area. This supplementary posterior member is as long as the other legs (35 mm). From the articulation between the tibiofibula and tarsus, there are two opposed feet that are free from the first phalanges. Those feet are opposed as are normal right and left feet. Their first toes are contiguous. On the supernumerary member, only the skeleton of the feet is divided. As yet, we have no clue as to the cause of this malformation.

Acknowledgments
Thanks to Michel Blanc who maintained the captive animal, to Dominique Frenay for the radiography and to Christiane Massemin who helped us to translate the note.

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References

de Granville J.-J. (1988) Phytogeographical characteristics of the Guianan Forests. *Taxon* **37(3):** 578-594.

Lescure J. & Marty C. (*in press*) *Atlas des Amphibiens de Guyane*. Patrimoines Naturels, M.N.H.N. / S.P.N., Paris.

Declinación de anfibios del Ecuador: información general y primer reporte de chytridiomycosis para Sudamérica

Por Santiago R. Ron y Andrés Merino

Ecuador es el tercer país en diversidad de anfibios en el mundo con un total de 415 especies descritas. Solo Brasil y Colombia tienen más especies que Ecuador. Sin embargo, si se considera el número de especies por unidad de superficie, Ecuador tiene 0.016 especies/km^2 lo cuál es tres veces la densidad de especies en Colombia y 21 veces la de Brasil (Coloma y Quiguango 2000).

Durante la última década se ha acumulado información que sugiere que una porción significativa de esta diversidad está amenazada. De acuerdo con estimaciones conservativas, las poblaciones de al menos 26 especies de anfibios del Ecuador han disminuido (Ron et al. 2000). Las razones para esta crisis de la biodiversidad no están claras. Las declinaciones han ocurrido en regiones que no presentan signos evidentes de destrucción del hábitat.

A pesar de que el número de especies que han disminuido en el Ecuador es alto, es poca la atención que ha recibido el tema de parte de la comunidad científica y la opinión pública en general. Esto se debe en gran parte a la falta de investigación. No hay una sola publicación científica específica sobre el tema a pesar de que el número de especies potencialmente afectadas es comparable al de países como Costa Rica o Panamá en dónde el problema ha recibido mucha atención (por ejemplo, Pounds y Crump 1994; Lips 1998; Lips 1999).

A partir de 1998 herpetólogos del museo de Zoología de la Universidad Católica del Ecuador iniciaron un programa de investigación para determinar el estado de las poblaciones de anfibios en varias localidades de los Andes. Adicionalmente se ha detectado agentes patógenos como la enfermedad micótica chytridiomycosis (Berger et al. 1998, 1999a). En este reporte se presenta información preliminar sobre la distribución geográfica y taxonómica de la chytridiomycosis en el Ecuador.

Se diagnosticó la chytridiomycosis mediante raspados de piel ventral y exámenes histológicos de secciones de piel teñidas con técnicas estándar de hematoxilina y eosina (Berger et al. 1999b). Se diagnóstico 52 individuos pertenecientes a 16 especies. Cinco especies fueron positivas para la chytridiomycosis: *Atelopus bomolochos, A. sp.* (aff. *ignescens*), *Gastrotheca pseustes, Hyla psarolaima*, y *Telmatobius niger*. El registro más temprano de la enfermedad es diciembre de 1980 (A. bomolochos) lo que indica que estaba presente en las poblaciones silvestres antes de que el problema de declinaciones en el Ecuador sea notado a finales de la década de los 80's (Coloma 1995; Stebbings y Cohen 1995; Coloma 1996; Lötters 1996; Coloma et al. 2000). Este es el registro más temprano de la enfermedad para América Latina y el primer reporte para Sudamérica. El registro más tardío para el Ecuador es diciembre de 1998 (*Gastrotheca pseustes*). Los especímenes infectados fueron colectados a lo largo de los Andes entre las provincias de Carchi al norte y Azuay al sur. La distancia máxima entre localidades positivas es 360 km, el rango altitudinal es 3100–4000m.

De las cinco especies positivas, *Atelopus bomolochos, Atelous sp.*, y *Telmatobius niger* pertenecen al grupo de especies que han declinado en el Ecuador. La información disponible sugiere que la chytridiomycosis ha sido uno de los factores causantes de la declinación de anfibios en el Ecuador. Una alta susceptibilidad a la enfermedad pudo haber sido mediada por otros factores (patrones climáticos anormales, contaminación, etc.)

Agradecimientos

L. Berger (Australian Animal Health Laboratory) ayudó en el diagnóstico de la chytridiomycosis. Los estudios de campo fueron financiados por el DAPTF (fondo de ayuda rápido), Lincoln Park Zoo (fondo Neotropical) y el instituto Earthwatch.

Amphibian declines in Ecuador: overview and first report of chytridiomycosis from South America

By Santiago R. Ron and Andrés Merino

Ecuador is ranked third in amphibian diversity worldwide with 415 described species. Only Brazil and Colombia have more species than Ecuador. However, if the number of species per area unit is considered, Ecuador has 0.016 species/km^2, which is three times the species density of Colombia and 21 times the density of Brazil (Coloma and Quiguango 2000).

During the last decade, evidence has appeared suggesting that a significant portion of that diversity is threatened. According to conservative estimates, the populations of at least 26 species of Ecuadorian frogs have declined (Ron et al. 2000). The reasons for this biodiversity crisis are not clear. The declines have taken place in regions without evident signs of habitat destruction.

Although the number of species that have declined in Ecuador is high, the problem has received little attention from the scientific community and public opinion. This is mostly because of the lack of scientific research. There is not a single scientific publication that specifically addresses this problem despite the fact that the number of possibly affected species is comparable to those of countries like Costa Rica or Panama where amphibian declines have received considerable attention from scientists (e.g. Pounds and Crump 1994; Lips 1998; Lips 1999) and the public.

Since 1998, researchers at the Museum of Zoology of Universidad Católica del Ecuador have begun a research program to determine the status of amphibian populations at several localities in the Andes. Detection of pathogenic agents such as the fungal disease chytridiomycosis (Berger et al. 1998, 1999a) has also been carried out. This report presents preliminary information about the geographic and taxonomic distribution of chytridiomycosis in Ecuador.

Diagnosis of chytridiomycosis was performed by examination of histological sections of amphibian skin stained with standard haematoxylin and eosin techniques (Berger et al. 1999b). Fifty-two individuals belonging to 16 species were examined. Five species were positive for chytridiomycosis: *Atelopus bomolochos, A. sp.* (aff. *ignescens*), *Gastrotheca pseustes, Hyla psarolaima* and *Telmatobius niger.*

Based on these specimens, the earliest record of the disease is December 1980 (*A. bomolochos*). This indicates that chytridiomycosis was present in Ecuadorian wild populations before declines were noted in the late 80's (Coloma 1995; Stebbings and Cohen 1995; Coloma 1996; Lötters 1996; Coloma et al. 2000). This is the earliest record of the disease for the neotropical region and the first report from South America. The latest record from Ecuador is December 1998 (*Gastrotheca pseustes*).

Infected specimens were collected throughout the Andes

between Provincia de Carchi to the north and Provincia del Azuay to the south. The longest airline distance between positive localities is 360 km; altitude range is 3100–4000m. *Atelopus bomolochos, A. sp.* (aff. *ignescens*) and *Telmatobius niger* are all species that have declined in Ecuador; none of them has been recorded in nature after 1994. The available information suggests that chytridiomycosis has been a factor involved in frog population declines throughout Ecuador. High susceptibility to the disease may have been mediated by other factors (e.g. abnormal climate patterns, pollution).

Acknowledgments
L. Berger (Australian Animal Health Laboratory) helped with the diagnosis of chytridiomycosis. Fieldwork was funded by the DAPTF (Rapid Response Fund), Lincoln Park Zoo (Neotropical Fund), and Earthwatch Institute.

Literature Cited

Berger, L., Speare, R., Daszak, R.,Green, D.E., Cunningham, A.A., Goggin, C.L., Slocombe, R., Ragan, M.A., Hyatt, A.D. McDonald, K.R., Hines, H.B., Lips, K.R., Marantelli, G. and Parkes, H. (1998) Chytridiomycosis causes amphibian mortality associated with population declines in the rainforests of Australia and Central America. *Proceedings of the National Academy of Sciences* **95:** 9031–9036.

Berger, L., Speare, R. and Hyatt, A. (1999a) Chytrid fungi and amphibian declines: overview, implications and future directions. In: *Declines and Disappearances of Australian Frogs.* A. Campbell (Ed.). Pp. 23–33. Environment Australia. Canberra-Australia.

Berger, L., Speare, R., and Kent, A.. (1999b) Diagnosis of chytridiomycosis in amphibians by histologic examination. [On line]. Amphibian Diseases Home Page, Australia. **http://www.jcu.edu.au/school/phtm/PHTM/frogs/histo/chhisto.htm** [Inquiry: 5 November 1999].

Coloma, L.A. (1995) Ecuadorian frogs of the Genus *Colostethus* (Anura: Dendrobatidae). *Miscellaneous publications of the Natural History Museum, University of Kansas* **No. 87.**

Coloma, L.A. (1996) Systematics, morphology, and relationships of *Atelopus* (Anura: Bufonidae). Pp. 47 *in* Program notes and abstracts of the 39th Annual Meeting of the Society for the Study of Amphibians and Reptiles, The University of Kansas, Lawrence, Kansas. U.S.A.

Coloma, L.A., Lötters, S. and Salas, A.W. (2000) Taxonomy of the *Atelopus ignescens* complex (Anura: Bufonidae): designation of a neotype of *Atelopus ignescens* and recognition of *Atelopus exiguus*. *Herpetologica* **56:** 303–324.

Coloma, L.A., and Quiguango, A. (2000) Anfibios de Ecuador: lista de especies y distribución altitudinal. [On line]. Ver. 1.2 (9 March 2000). Museo de Zoología, Pontificia Universidad Católica del Ecuador. Quito, Ecuador. **http://www.puce.edu.ec/Zoologia/anfecua.htm** [Inquiry: 21 August 2000].

Lips, K.R. (1998) Decline of a tropical montane amphibian fauna. Conservation Biology 12:106-117.

Lips, K.R. (1999) Mass mortality and population declines of anurans at an upland site in western Panama. Conservation Biology 13:117–125.

Lötters, S. (1996) The neotropical toad genus *Atelopus*, Checklist-Biology-Distribution. M. Vences and F. Glaw Verlags, Köln, Germany.

Pounds, J.A. and Crump, M.L. (1994) Amphibian declines and climate disturbance: the case of the golden toad and the harlequin frog. Conservation Biology 8:72–85.

Ron, S.R., Coloma, L.A., Merino, A., Guayasamín, J.M. and Bustamante, M. (2000) Información sobre declinaciones de anfibios en el Ecuador. [On line]. **http://www.puce.edu.ec/Zoologia/infodecl.html** [Inquiry: 21 August 2000].

Stebbins, R.C. and Cohen, N.W. (1995) *A Natural History of Amphibians.* Princeton University Press, Princeton, New Jersey.

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Scientific Meeting Raises Awareness of Amphibian Decline in Asia

By Vance Vredenburg, Yuezhao Wang and Gary Fellers

Asia is home to some of the most diverse amphibian fauna in the world, particularly with respect to anurans. While there have been many reports addressing the amphibian population decline issue from around the world, reports from Asia have been sparse. From July 16-20th, 2000, the first meeting of the China Working Group of the DAPTF was held at the 4th Asian Herpetological Conference in Chengdu, China. With the financial support of the Chendgu Institute of Biology, Chinese Academy of Sciences, the Working Group (Professor Yuezhao Wang, Chair) sponsored a symposium that included examples of amphibian decline studies from North America, Europe, Australia and China. Immediately following the symposium a workshop was held to provide an opportunity for those concerned with amphibian populations in China and neighboring countries to share information, ideas and concerns reflecting both scientific and conservation perspectives. Here we summarize the resolutions and proposed actions of the DAPTF China Working Group.

Are amphibian populations in China and surrounding areas declining?
Since so few published studies exist on amphibian population trends in Asia, we held an informal discussion to determine what observations/data actually existed.

Hong Kong
1. No apparent general decline: A recent survey (Lau & Dudgeon, 1999) reported 22 species of anurans and 1 species of salamander in the local Hong Kong area. Various anurans, particularly lowland species, have suffered a reduction in area of occupancy primarily due to habitat destruction, habitat degradation and change in land use. However, none of them were thought to be undergoing regional decline. The Hong Kong endemic frog, *Philautus romeri*, was affected by the construction of the new airport as one of the four islands that support this species was nearly completely destroyed. A conservation breeding and reintroduction program is underway (M. Lau *pers. comm.*)

Mainland China
1. Extinct species: *Cynops wolterstorffi* has not been found since 1984 and is thought to be extinct (Zhao, 1998). For more info., visit **http:\\www.AmphibiaWeb.org**
2. Harvesting: Large frogs are commonly harvested in China. Affected species include those of the genus *Paa*, large *Rana*, like *R. nigromaculata*, and even *Bufo gargarizans*. In the NE areas of China there is a long history of harvesting *R. chensienesis* and *R. amurensis* for medicinal purposes (Jinzhong Fu *pers. comm.*). There is also concern for several salamanders; *Tylototriton wenxianensis* is collected for medicinal purposes (Feng Xie, *pers. comm.*). *Andrias davidianus*, famous for its large body size, was once a common food item available in local markets, but protective status has halted legal trade in this species.

3. Disease: Dr. Jinzhong Fu (University of Guelph) reported the occurrence of sick and dying *Batrachuperus pinchonii* with white spots on the skin in Sichuan Province. A healthy population in 1999 was nearly gone when re-visited in 2000. Skin samples from the infected specimens are currently being examined in Australia in an attempt to identify a pathogen (Jinzhong Fu *pers. comm.*)

4. Habitat alteration: Dr. Yuezhao Wang (Chengdu Institute of Biology) reported that frogs living on the Tibetan plateau were diminishing (specifically *Rana chensinensis*). One of his study sites contained 5 lakes (~ 5 km^2 SA) in 1998. When he returned in 1999 one of the lakes had been drained for agricultural purposes and no frogs could be found. Other aquatic habitats, for unknown reasons, had dried unusually early in 2000. This may, however, be an isolated occurrence, as healthy populations are reported in other parts of the Tibetan region (Jinzhong Fu *pers. comm.*)

Thailand

1. Harvesting: Large microhylid frogs (*Kaloula*, *Glyphoglossus* and *Calluella* species) are extensively harvested in Thailand. This has occurred for decades, and while local populations can be severely impacted, none of the species involved is considered endangered (Peter Paul van Dijk, TRAFFIC Southeast Asia).

2. Up to the early 1990's, harvesting of a frog population previously known as *Rana blythi* (now undergoing taxonomic revision; Emerson and Ward, 1998) led to a population decline in an occasionally monitored stream. This population recovered noticeably when collecting ceased. Substantially higher numbers of frogs, of all age groups, were observed in 1996-1997 (Peter Paul van Dijk, TRAFFIC Southeast Asia).

DAPTF China proposed actions:

1. Solicitation of DAPTF Seed Grants: Groups and individuals within the region were encouraged to seek financial support for research projects by applying for grants through the DAPTF Seed Grants program. Special interest was expressed for supporting efforts to study diseased *Batrachuperus pinchonii* salamanders in Sichuan Province; the DAPTF China Group passed a motion to endorse this action.

2. To assemble other SE Asian subgroups into DAPTF Working Groups.

3. To endorse the IUCN effort to assess population status of described amphibians in the region (Simon Stuart, IUCN).

Resolutions adopted by the DAPTF China Group:

1. In protected areas, activities that have long-term impacts on amphibians should be halted immediately until the effects can be adequately studied (Motion by Michael Lau).

2. The DAPTF China Group recognizes that China has a lack of population monitoring data; this group strongly asserts that the government of the People's Republic of China should give higher priority to funding this type of research.

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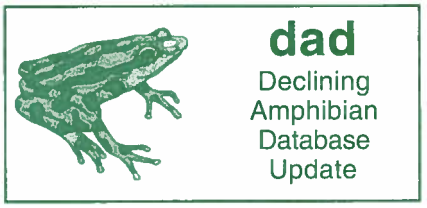
References:

Emerson, S.B. and Ward, R. (1998) Male secondary sexual characteristics, sexual selection, and molecular divergence in fanged ranid frogs of Southeast Asia. *Zoological Journal of the Linnean Society* **122:** 537-553.

Lau, M.W.N. and Dudgeon, D. (1999) Composition and distribution of Hong Kong amphibian fauna. *Memoirs of Hong Kong Natural History Society* **22:**1-79.

Zhao, E. (Ed.) (1998) *China Red Data Book of Endangered Animals.* Amphibia & Reptilia. Science Press, Beijing, China.



dad

Declining Amphibian Database Update

Many *Froglog* readers have contributed (and hopefully others will continue to) to **dad** (the Declining Amphibian Database) and during recent months it has been developed and improved with regards to what information it will contain and how users will be able to access it. Future contributors should note, therefore, that data are now being collected in the following format.

John W. Wilkinson, Editor.

SITE INFORMATION

Data verification: Source of information; all articles, reports or personal communications associated with this site.
Site: specific site and country
Longitude: In decimalized degrees
Latitude: In decimalized degrees
Altitude: In metres
Vegetation: Major vegetation type at site. Any number/combination of the following categories:

trf Tropical/subtropical rainforest
tfm Tropical/subtropical monsoon forest: forest that receives winter drought and summer rains.
tfc Tropical/subtropical montane or cloud forest
tgl Tropical/subtropical lowland grassland or scrub
tgm Tropical/subtropical montane grassland or scrub (including paramos)
twd Tropical/subtropical dry woodland
tds Tropical/subtropical desert or semidesert
tma Tropical/subtropical marsh or swamp
tag Tropical/subtropical agricultural land or plantations
f Temperate forest
fc Temperate coniferous forest
fcd Temperate coniferous and deciduous mixed forest
fd Temperate deciduous forest
fr Temperate rainforest
gs Temperate grassland or scrub (including chaparral and grassland prairies)
ds Temperate deserts or semideserts
ma Temperate marsh
mo Temperate montane/alpine
ag Temperate agricultural land or plantations
u Urban

Site characteristics: Details of habitat at site
Declines at site: Whether a decline has been recorded for one or more species; yes or no.
Declines began after: Date after which declines began.
Declines began or occurred before: Date before which declines began.
Number species declined: Number of species for which declines have been recorded
Number species not declined: Number of species with a normally fluctuating or increasing population.
Number species declines undetermined: Number of species for which there is insufficient information to assess population changes.
Suggested cause of decline: Potential causes of the observed decline
Originator: Individual supplying data to **dad**.
Comments: Additional information

SPECIES INFORMATION

Data verification: Source of information; all articles, reports or personal communications associated with this species at this site.
Site: Specific site and country
Family
Species
Egg-laying habitat: Any

number/combination of the following categories:

spa In permanent streams, all
sph In permanent high-gradient streams
spl In permanent low-gradient streams
sta In temporary streams, all
sth In temporary high-gradient streams
stl In temporary low-gradient streams
pp In permanent ponds
pt In temporary ponds
spab On bank permanent streams, all
sphb On bank permanent high-gradient streams
splb On bank permanent low-gradient streams
stab On bank temporary streams, all
sthb On bank temporary high-gradient streams
stlb On bank temporary low-gradient streams
stlb On bank temporary low-gradient streams
ppb On bank permanent ponds
ptb On bank temporary ponds
spav On vegetation above permanent streams, all
sphv On vegetation above permanent high-gradient streams
splv On vegetation above permanent low-gradient streams
stav On vegetation above temporary streams, all
sthv On vegetation above temporary high-gradient streams
stlv On vegetation above temporary low-gradient streams
ppv On vegetation above permanent ponds
ptv On vegetation above temporary ponds
gd On dry ground (including moist rock near water)
gdgs On dry ground in grass or scrub
gfl On temporarily flooded ground
gma Permanent marsh
gsub Subterranean (including under rocks and logs)
ll In leaf litter
fu Above ground in forest understory, general
fut On trunks or branches in forest understory
ful On leaves in forest understory
fup In phytotelmata in forest understory
fc In forest canopy, general
fct On trunks or branches in forest canopy
fcl On leaves in forest canopy
fcp In phytotelmata in forest canopy

N.B. 'Stream' refers to running water, 'pond' to still water. When forest layer is unknown, default to understory. When gradient unknown, use 'all'. Use either the phrase or abbreviation.

Reproductive mode: Follows the system of Duellman and Trueb (1986). Until now we are using the same system for salamanders (substituting larvae for tadpoles). If new categories are needed, these can be added.

A Eggs deposited in water
A1 Eggs and feeding tadpoles/larvae in ponds
A2 Eggs and feeding tadpoles/larvae in streams
A3 Eggs and early larval stages in water in natural or constructed basins; subsequent to flooding, feeding tadpoles in ponds or streams
A4 Eggs and feeding tadpoles in water in tree holes or aerial plants
A5 Eggs and nonfeeding tadpoles in water-filled depressions
A6 Eggs and nonfeeding tadpoles in water in tree holes or aerial plants
A7 Eggs deposited in stream and swallowed by female; eggs and tadpoles complete development in stomach
B Eggs in aquatic foam nest
B8 Eggs in foam nest in ponds, feeding tadpoles in ponds
B9 Eggs in foam nest in pools, feeding tadpoles in streams
C Eggs embedded in dorsum of aquatic female
C10 Eggs embedded in dorsum of aquatic female, feeding tadpoles in ponds
C11 Eggs embedded in dorsum of aquatic female, hatch into froglets
D Eggs on ground or in burrows (including within and under leaf litter)
D12 Eggs and early tadpoles in excavated nest; subsequent to flooding feeding tadpoles in ponds or streams
D13 Eggs on ground or rock above water or in depression or excavated nest; feeding tadpoles/larvae move to water
D13a Eggs on rock near water, semiterrestrial tadpoles live in water film on rock faces or splash zones
D14 Eggs on ground or in burrows, feeding tadpoles are carried to water by adult
D15 Eggs on ground or in burrows, nonfeeding tadpoles complete development in nest
D16 Eggs on ground or in burrows, nonfeeding tadpoles complete development on dorsum or in pouches of adult
D17 Eggs on ground or in burrows, hatch into froglets/miniature salamanders
E Eggs arboreal
E18 Eggs arboreal, tadpoles drop into ponds or streams
E19 Eggs arboreal, tadpoles drop into water-filled cavities in trees
E20 Eggs arboreal, hatch into froglets
F Eggs in terrestrial or arboreal foam nest
F21 Eggs in foam nest in burrow, subsequent to flooding, feeding tadpoles in ponds or streams
F22 Eggs in foam nest in burrow, nonfeeding tadpoles complete development in nest
F23 Eggs in arboreal foam nest, tadpoles drop into ponds or streams
G Eggs carried by adult
G24 Eggs carried on legs of male, feeding tadpoles in ponds
G25 Eggs carried in dorsal pouch of female, feeding tadpoles in ponds
G26 Eggs carried on dorsum or in dorsal pouch of female, nonfeeding tadpoles in bromeliads
G27 Eggs carried on dorsum or in dorsal pouch of female, hatch into froglets
H Ovoviviparous
I Viviparous
J Eggs hatch into froglets/miniature salamanders (egg deposition site unknown)

Activity period: The period when the species is normally active. Diurnal, crepuscular or nocturnal.

Methodology: Details of the study period and census techniques. This may be the same for most or all the species at one site.

Decline category:

A Species currently absent
B High level of decline
C Moderate level of decline
D Low level of decline
N Normal fluctuations
R Population increase
U Undetermined

These are subjective values but give a very general idea about the perceived severity of decline.

Detailed population data: Details of the reported decline/increase or general population abundance/density information.

First evidence of declines: Date when possibility of decline first became apparent.

Life stage affected: Life stage(s) apparently most affected by factors causing decline: one or more of adults, metamorphs, tadpoles/larvae, eggs.

Comments: Additional information. E.g. any information that has become available since publication; any evidence of population recovery (none has occurred unless otherwise stated).

Reference

Duellman, W.E & Trueb, L. (1986) *Biology of Amphibians.* McGraw-Hill, New York.

Froglog Shorts

DONATIONS We gratefully acknowledge receipt of the following donations received during September & October 2000. **Individuals:**

Joseph K. Davidson, Karine Diniz, J. Eric Juterbock, Allan Muth and Larry Powell. **Organizations:** American Airlines, Burgers Zoo, Cleveland Metroparks Zoo, Detroit Zoo, Rotterdam Zoo and Saint Louis Zoo.

Conservation News: News items from GREENLines, newsletter of The Endangered Species Coalition, and HerpDigest, compiled by Allen Salzberg

- There are high hopes that a proposal to designate an area of 5.4 million acres to protect the California red-legged frog (*Rana aurora*) will be approved soon.
- During development of the facilities for the Sydney Olympic Games, the location of the tennis facility was relocated to protect a population of green and golden bell frogs.
- IUCN's 2000 Red List of Threatened Species was launched on 28th September. 20% of amphibians assessed are listed as threatened. For more information, contact **alk@iucn.org**
- A new species of *Sooglossus* has been found at high altitude in the Seychelles.

A Nigerian Working Group has been formed under the Chair of Dr. Luca Luiselli. Further details will appear in a future *Froglog*. *Contact:* Luca M. Luiselli, Inst. of Env. Studies Demetra, via del Cochi 48/B, 00133 Rome, ITALY.
lucamlu@tin.it

DAPTF Archives Negotiations were successfully concluded this past year for the Smithsonian Archives to be the depository for DAPTF materials that should be permanently archived. A first deposit of 6 archive boxes has been delivered to the Smithsonian Archives covering Ron Heyer's period as Chair. There are no restrictions on these materials and they may be examined by anyone visiting the Smithsonian Archive facility. Anyone who has material that they think might be appropriate to deposit in the DAPTF archives is encouraged to contact Ron Heyer: **heyer.ron@nmnh.si.edu**

Field Museum Herpetological Collection Online The website for the retrieval of information on the approximately 265,000 specimens in the collection of the Division of Amphibians and Reptiles at the Field Museum can be queried at **http://www.fmnh.org/herps/** This new service was implemented as part of a grant from the National Science Foundation.

Declining Amphibian Populations in California and Nevada: Causes and Solutions -a workshop to be held in Sacramento, CA on Thursday, February 22nd 2001, sponsored by the DAPTF California & Nevada Working Group and held in conjunction with the annual meeting of the Wildlife Society (**www.tws-west.org**). Contact David Bradford (**bradford.david@epa.gov**) for more details.

Trainee Curator of Herpetology with the Museums of Malawi is seeking field experience with the aim of sharpening his research skills ahead of an MSc research project. Services may be rendered in exchange for food and travel expenses. If you can help, please contact: Lovemore Mazibuko, Museums of Malawi, PO Box 30360, Blantyre 3, Malawi.
Fax: (265) 632096
museums@malawi.net

The next Herpetofauna Workers Meeting is scheduled to be held at the School of Oriental and African Studies (SOAS), Russell Square, London on Saturday, February 3rd, 2001. The theme will be recording and monitoring. For further details call *Froglife* on (UK) 01986 - 873733.

An Important New Book *The Conservation Handbook*, by William J. Sutherland (Blackwell Science, Oxford) has just been published. This book aims to provide clear guidance on the implementation of conservation techniques, and covers methods for ecological research, monitoring, planning, education, habitat management and combining conservation with development. This book should be of especial interest to members of DAPTF Working Groups. It is available FREE to practising conservationists outside Western Europe, North America, Australia, New Zealand and Japan. If you are such a person, and would like a copy of this book, contact me, with a very brief explanation of why you need it: **t.r.halliday@open.ac.uk**
Tim Halliday

Publications of Interest

Adams, M.J. (2000) Pond permanence and the effects of exotic vertebrates on anurans. *Ecol. Applications* **10:** 559-568.

Blaustein, A.R., Chivers, D.P., Kats, L.B. & Kiesecker, J.M. (2000) Effects of ultraviolet radiation on locomotion and orientation in roughskin newts (*Taricha granulosa*). *Ethology* **106:** 227-234.

Bridges, C.M. & Semlitsch, R.D. (2000) Variation in pesticide tolerance of tadpoles among and within species of Ranidae and patterns of amphibian decline. *Conservation Biol.* **14:** 1490-1499.

Cogalniceanu, D., Aioanei, F. & Bogdan, M. (2000) *Amfibienii din România. Determinator.* Ars Docendi. ISBN: 973-99514-5-7.

Ehmann, H. (2000) Microbranding: a low impact permanent marking technique for small reptiles and frogs as an alternative to toe clipping. *ANZCCART News* **13:** 6-7.

McIntosh, B.A., Sedell, J.R., Thurow, R.F., Clarke, S.E. & Chandler, G.L. (2000) Historical changes in pool habitats in the Columbia River basin. *Ecological Applications* **10:** 1478-1496.

Mutschmann, F. (2000) "Amphibian declining" - Ein weltweites Problem aus der Sicht des Tierartes. *Der praktische Tierarzt* **81:** 12-17. ("Amphibian declining" - a worldwide problem from a veterinary point of view.)

Mutschmann, F., Berger, L., Zwart, P. & Gaedicke, C. (2000) Chytridiomykose bei Amphibien - erstmaliger Nachweis für Europa. *Berliner und Münchener Tierärztliche Wochenschrift* **113:** 380-383. (Chytridiomycosis on amphibians - first report in Europe.)

Reaser, J.K. (2000) Demographic analysis of the Columbia spotted frog (*Rana luteiventris*): a case study in spatiotemporal variation. *Can. J. Zool* **78:** 1158-1167.

Reed, K.D., Ruth, G.R., Meyer, J.A. & Shukla, S.K. (2000) *Chlamydia pneumoniae* infection in a breeding colony of African clawed frogs (*Xenopus tropicalis*). *Emerging Infectious Diseases* **6:**

Smith, M.A. (2000) Problems using an enzyme sensitive site assay for photorepair of exogenous DNA with cell-free extracts made from amphibian embryos. *Can. J. Zool.* **78:** 1869-1872.

Walsh, L.P., McCormick, C., Martin, C. & Stocco, D.M. (2000) Roundup inhibits steroidogenesis by disrupting steroidogenic acute regulatory (StAR) protein expression. *Envtl. Health Perspectives* **108:** 769-776.

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