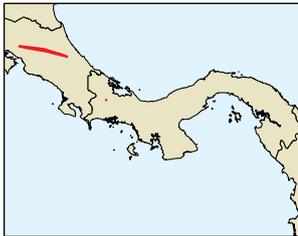


EN *Ecnomiohyla fimbrimembra* (Taylor, 1948)

Endangered B1ab(iii)
Order, Family: Anura, Hylidae
Country Distribution: Costa Rica, Panama
Current Population Trend: Decreasing



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Geographic Range This species occurs on the slopes of the Cordillera de Tilarán, Cordillera Central, and Cordillera de Talamanca of Costa Rica and western Panama, from 750-1,900m asl (Savage 2002). It almost certainly occurs more widely than has been mapped, and is also probably found between known sites.

Population Because this is a high-canopy species, it is overlooked, and it is therefore hard to assess its population status.

Habitat and Ecology This is a nocturnal canopy species associated with primary humid premontane and lower montane forest. Breeding, egg deposition and larval development take place within tree-holes.

Major Threats The main threat is general habitat loss as a result of deforestation due primarily to the clearing of land for livestock ranching.

Conservation Measures The species has been recorded from Parque Internacional La Amistad, Panama, and in more than three protected areas within Costa Rica.

Notes on taxonomy: This species was previously included in the genus *Hyla* but has recently been moved to the new genus *Ecnomiohyla* (Faivovich *et al.* 2005).

Bibliography: Duellman, W.E. (2001), Faivovich, J. *et al.* (2005), Hayes, M.P., Pounds, J.A. and Robinson, D.C. (1986), Ibanez, D.R. *et al.* (1991), Ibáñez, R. *et al.* (2000), Savage, J.M. (1981), Savage, J.M. (2002), Young, B. *et al.* (1999)

Data Providers: Frank Solís, Roberto Ibáñez, Gerardo Chaves, Jay Savage, César Jaramillo, Querube Fuenmayor

VU *Ecnomiohyla miliaria* (Cope, 1886)

Vulnerable B1ab(iii)
Order, Family: Anura, Hylidae
Country Distribution: Costa Rica, Nicaragua, Panama
Current Population Trend: Decreasing



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Geographic Range This species is known from humid lowlands and premontane slopes from south-eastern Nicaragua to south-eastern Costa Rica on the Atlantic versant (20-900m asl), and on the Pacific versant in humid premontane areas of south-western Costa Rica and western and central Panama, at 1,000-1,330m asl (Savage 2002). It is expected to have a wider distribution than is currently known.

Population There is no information on the population status of this rarely seen, high-canopy species.

Habitat and Ecology This is a nocturnal canopy species of primary humid lowland and montane forest. Eggs are deposited in tree holes, which is also where the larvae develop.

Major Threats The major threat is loss of primary forest habitat due to agricultural expansion, logging, and human settlement.

Conservation Measures The species has been recorded from several protected areas in both Panama and Costa Rica. Further surveys are required to fully determine the range of this species.

Notes on taxonomy: This species was previously included in the genus *Hyla* but has recently been moved to the new genus *Ecnomiohyla* (Faivovich *et al.* 2005). We follow Duellman (2001) and Savage (2002) in assigning records from Colombia and Ecuador to *Ecnomiohyla phantasmagoria*.

Bibliography: Duellman, W.E. (1970), Duellman, W.E. (2001), Faivovich, J. *et al.* (2005), Ibáñez, R. *et al.* (2000), McCranie, J.R., Townsend, J.H. and Wilson, L.D. (2003), Pounds, J.A. *et al.* (1997), Savage, J.M. (2002), Wilson, L.D., McCranie, J.R. and Williams, K.L. (1985), Young, B. *et al.* (1999)

Data Providers: Frank Solís, Roberto Ibáñez, Gerardo Chaves, Jay Savage, César Jaramillo, Querube Fuenmayor

EN *Ecnomiohyla minera* (Wilson, McCranie and Williams, 1985)

Endangered B1ab(iii)
Order, Family: Anura, Hylidae
Country Distribution: Guatemala
Current Population Trend: Decreasing



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Geographic Range This species is known from two disjunct populations, in the Municipio de Purulhá, in the department of Baja Verapaz, and the Sierra de Santa Cruz, Izabal Department, both in Guatemala, at 700-1,830m asl. It has been reported, but not collected, from the Reserva de la Biosfera Sierra de las Minas (this locality is not mapped here).

Population It has always been rare, and has not been seen since 1994, although there have been no recent searches specifically targeting this species.

Habitat and Ecology It occurs in the vegetation of pristine cloud forest, and is assumed to breed in tree cavities or bromeliads.

Major Threats The main threat to this species is habitat loss, primarily due to agriculture, logging, and expanding ornamental plant farms.

Conservation Measures It occurs close to Biotopo del Quetzal, and possibly occurs in the Reserva de la Biosfera Sierra de las Minas. The cloud forest habitat of this species is in need of further protection.

Notes on taxonomy: This species was previously included in the genus *Hyla* but has recently been moved to the new genus *Ecnomiohyla* (Faivovich *et al.* 2005).

Bibliography: Campbell, J.A. (1998), Faivovich, J. *et al.* (2005), Lee, J.C. (1996), Wilson, L.D., McCranie, J.R. and Williams, K.L. (1985)

Data Providers: Manuel Acevedo, Bruce Young

EN *Ecnomiohyla phantasmagoria* (Dunn, 1943)

Endangered B1ab(iii)
Order, Family: Anura, Hylidae
Country Distribution: Colombia, Ecuador
Current Population Trend: Decreasing



Geographic Range This species is known only from two localities nearly 1,000km apart from each other: Río Cauca, near the border of Antioquia and Bolívar Departments in north-western Colombia; and extreme north-western Esmeraldas Province, in Ecuador, at 500m. It is likely to occur between these two localities.

Population It appears to be an extremely rare species, though this might be an artefact of it being a canopy species that is very hard to detect.

Habitat and Ecology It is an inhabitant of the canopy of rainforest, and probably breeds in tree holes.

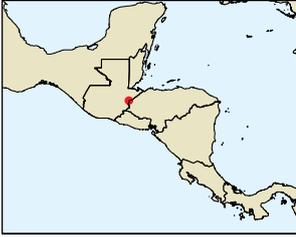
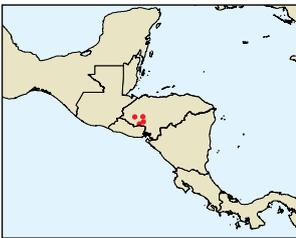
Major Threats The major threats are likely to be deforestation for agricultural development, planting of illegal crops, logging, and human settlement, and pollution resulting from the spraying of illegal crops. Both localities from which it has been recorded are seriously threatened, with the only known site in Colombia particularly threatened by the expansion of livestock farming.

Conservation Measures It is not known from any protected areas, and habitat protection is urgently required. Further survey work is necessary to determine the current population status of this species and the limits of its range.

Notes on taxonomy: This species was previously included in the genus *Hyla* but has recently been moved to the new genus *Ecnomiohyla* (Faivovich *et al.* 2005). We follow Duellman (2001) and Savage (2002) in considering this as a species distinct from *Ecnomiohyla miliaria*.

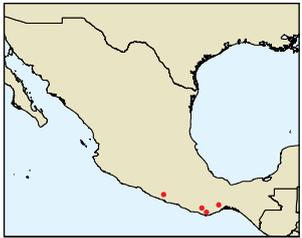
Bibliography: Duellman, W.E. (2001), Faivovich, J. *et al.* (2005), Rueda-Almonacid, J.V. (1999), Savage, J.M. (2002)

Data Providers: Karl-Heinz Jungfer, Juan Manuel Renjifo

CR *Ennomihyla salvaje* (Wilson, McCranie and Williams, 1985)**Critically Endangered B1ab(iii)****Order, Family:** Anura, Hylidae**Country Distribution:** Guatemala, Honduras**Current Population Trend:** Decreasing© Amphibians of Middle America, 2001
Society for the Study of Amphibians and Reptiles**Geographic Range** This species is known from Cerro del Mono near Le Union in eastern Guatemala close to the border with Honduras; and nearby at Quebrada Grande, Department de Copan, in extreme western Honduras. Its altitudinal range is 1,370-1,450m asl.**Population** This is a poorly known species. Only two adult specimens have been collected from Honduras and one juvenile specimen from Guatemala. It is extremely rare and is probably in decline. Recent visits to the Honduran site have failed to find the species.**Habitat and Ecology** It inhabits lower montane wet forest, where it breeds in tree cavities.**Major Threats** The primary threat to the species is severe deforestation, due to coffee cultivation and livestock grazing. The only known site in Honduras is highly disturbed, but the habitat is in better condition at the Guatemalan site.**Conservation Measures** It is not known from any protected areas, although it is on edge of the Parque Nacional Cerro Azul in Honduras. Maintenance and/or protection of the species' remaining intact habitat is recommended.**Notes on taxonomy:** This species was previously included in the genus *Hyla* but has recently been moved to the new genus *Ennomihyla* (Faivovich *et al.* 2005).**Bibliography:** Campbell, J.A. (2001), Duellman, W.E. (2001), Faivovich, J. *et al.* (2005), McCranie, J.R. and Wilson, L.D. (2002b), Wilson, L.D., McCranie, J.R. and Williams, K.L. (1985)**Data Providers:** Gustavo Cruz, Larry David Wilson, Randy McCranie, Manuel Acevedo**CR** *Ennomihyla valancifer* (Firschein and Smith, 1956)**Critically Endangered B2ab(iii)****Order, Family:** Anura, Hylidae**Country Distribution:** Mexico**Current Population Trend:** Decreasing© Amphibians of Middle America, 2001
Society for the Study of Amphibians and Reptiles**Geographic Range** This species is found in the Sierra de Los Tuxtlas at Volcán San Martín, southern Veracruz, Mexico. It is known from 500-1,180m asl. There is also one specimen from Toledo District in Belize that has been assigned to this species, but further taxonomic work is required to confirm the identity of this population, which probably belongs to another species.**Population** This is a rare species, and it is known from only two specimens collected at the type locality.**Habitat and Ecology** This species inhabits tropical rainforest on the slopes of Volcán San Martín. It is probably a stream-breeding species.**Major Threats** Disturbance and transformation of the original forest habitat, primarily due to agricultural development, is a major threat to this species in its range (outside Reserva de la Biósfera Los Tuxtlas).**Conservation Measures** The range of the species includes Reserva de la Biósfera Los Tuxtlas, which is quite well managed. However, protection and restoration of the Volcán San Martín and surrounding areas is urgently required to ensure the species' persistence. This species is protected by Mexican law under the "Special Protection" category (Pr).**Notes on taxonomy:** This species was previously included in the genus *Hyla* but has recently been moved to the new genus *Ennomihyla* (Faivovich *et al.* 2005).**Bibliography:** Duellman, W.E. (2001), Faivovich, J. *et al.* (2005), Lee, J.C. (2000)**Data Providers:** Julian Lee, Oscar Flores-Villela**EN** *Exerodonta catracha* (Porrás and Wilson, 1987)**Endangered B1ab(iii)+2ab(iii)****Order, Family:** Anura, Hylidae**Country Distribution:** Honduras**Current Population Trend:** Decreasing© Amphibians of Middle America, 2001
Society for the Study of Amphibians and Reptiles**Geographic Range** This species occurs in the Sierra de Opalaca and the Sierra de Montecillos, Montana de La Sierra, in south-west Honduras, at 1,800-2,160m asl.**Population** It is considered moderately common.**Habitat and Ecology** It lives in arboreal bromeliads in lower montane moist forest, and breeds in ponds.**Major Threats** The main threat to the species is deforestation primarily due to agricultural expansion (involving both crops and livestock), logging, and human settlement.**Conservation Measures** The range of this species includes the Reserva de la Biósfera Sierra de Montecillos. Expanded protection of the montane forests of Honduras is necessary.**Notes on taxonomy:** This species was previously included in the genus *Hyla* but has recently been moved to the resurrected genus *Exerodonta* (Faivovich *et al.* 2005).**Bibliography:** Faivovich, J. *et al.* (2005), McCranie, J.R. and Wilson, L.D. (2002b), McCranie, J.R., Wilson, L.D. and Williams, K.L. (1993b), Porrás, L. and Wilson, L.D. (1987)**Data Providers:** Gustavo Cruz, Larry David Wilson, Franklin Casteñeda**EN** *Exerodonta chimalapa* (Mendelson and Campbell, 1994)**Endangered B1ab(iii)****Order, Family:** Anura, Hylidae**Country Distribution:** Mexico**Current Population Trend:** Decreasing

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**Geographic Range** This species is known only from the Chimalapas region that includes the Sierra Atravesada in south-eastern Oaxaca and adjacent Chiapas, Mexico, at 850-1500m asl.**Population** It is known to be common.**Habitat and Ecology** This stream-breeding amphibian inhabits low or moderate altitude streams in cloud forest or dry pine-oak forest, and takes refuge in bromeliads.**Major Threats** The main threat is deforestation resulting from logging, and the subsequent dessication of forest streams.**Conservation Measures** It does not occur in any protected areas; as with many other montane cloud and pine-oak forest patches in Mexico, there is an urgent need for the protection of the forest remnants in the Chimalapas region.**Notes on taxonomy:** This species was previously within the genus *Hyla* but has recently been moved to the resurrected genus *Exerodonta* (Faivovich *et al.* 2005).**Bibliography:** Duellman, W.E. (2001), Faivovich, J. *et al.* (2005), Mendelson III, J.R. and Campbell, J.A. (1994)**Data Providers:** Antonio Muñoz Alonso, Luis Canseco-Márquez

VU *Exerodonta juanitae* (Snyder, 1972)**Vulnerable B1ab(iii)****Order, Family:** Anura, Hylidae**Country Distribution:** Mexico**Current Population Trend:** Decreasing

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Geographic Range This species is known from two disjunct populations: one in San Vicente de Benitez, in the Sierra Madre del Sur, Guerrero, and the other in San Gabriel Mixtepec, Oaxaca, also in the Sierra Madre del Sur, south-western Mexico. It is found at elevations of 750-1,080m asl in Guerrero, and at elevations of 580-1,530m asl in Oaxaca. It might occur more widely.

Population This species is not common. Recent surveys suggest that it has undergone a decline in numbers.

Habitat and Ecology This species only inhabits montane forest at moderate elevations. It breeds in temporary streams.

Major Threats The destruction and degradation of the original forest cover (mainly due to logging) in Guerrero, is the major threat to this species, and most of the localities where the species occurs have been severely impacted by human activities. Recently documented declines might be due to chytridiomycosis.

Conservation Measures The range of this species is not within any protected areas, and there is a need for improved habitat protection at sites where this species is known to occur. The Government of Mexico considers it "Threatened" (Amenazada). Close population monitoring is required, especially given the potential threat of chytridiomycosis.

Notes on taxonomy: This species was previously included in the genus *Hyla* but has recently been moved to the resurrected genus *Exerodonta* (Faivovich *et al.* 2005).

Bibliography: Duellman, W.E. (2001), Faivovich, J. *et al.* (2005), Lips, K.R. *et al.* (2004)

Data Providers: Georgina Santos-Barrera, Luis Canseco-Márquez

VU *Exerodonta melanomma* (Taylor, 1940)**Vulnerable B1ab(iii)****Order, Family:** Anura, Hylidae**Country Distribution:** Mexico**Current Population Trend:** Decreasing

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Society for the Study of Amphibians and Reptiles



Geographic Range This species is found only on the Pacific slopes of the Sierra Madre del Sur in Guerrero and Oaxaca, Mexico. It probably occurs more widely, especially in intervening areas between currently known sites. It occurs at elevations of 900 and 2,000m asl.

Population This is a common species.

Habitat and Ecology It inhabits cloud forest and pine-oak forest, and is almost exclusively found in forest streams and the surrounding vegetation. Animals seek refuge in bromeliads during the dry season. Breeding takes place in streams.

Major Threats The major threat is habitat loss and disturbance due to expanding agriculture (crops and livestock), logging, and human settlement. Tadpoles have been found in southern Mexico with loss of keratinized mouthparts, which suggests that chytridiomycosis might be a threat.

Conservation Measures The range of this species does not include any protected areas, and there is a need for improved protection, and/or restoration, of pine-oak forests at sites where this species is known to occur. Close population monitoring is required, especially given the potential threat of chytridiomycosis. It is protected by Mexican law under the "Special Protection" category (Pr).

Notes on taxonomy: This species was previously included in the genus *Hyla* but has recently been moved to the resurrected genus *Exerodonta* (Faivovich *et al.* 2005).

Bibliography: Campbell, J.A. and Duellman, W.E. (2000), Duellman, W.E. (2001), Faivovich, J. *et al.* (2005), Lips, K.R. *et al.* (2004)

Data Providers: Georgina Santos-Barrera, Luis Canseco-Márquez

CR *Exerodonta perkinsi* (Campbell and Brodie, 1992)**Critically Endangered B1ab(iii,v)****Order, Family:** Anura, Hylidae**Country Distribution:** Guatemala**Current Population Trend:** Decreasing

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Geographic Range This species is known only from the type locality (approximately 15° 53'N; 91° 16'W) on the northern slope of the Sierra de Cuchumatanes, Guatemala, at 1,050-1,080m asl.

Population It is rare and declining. Only 20 specimens have been collected and it is becoming harder to find.

Habitat and Ecology It inhabits subtropical rainforest, breeding in temporary pools and slow-flowing streams, and also in the axils of elephant-ear plants. It can survive in heavily degraded habitats, providing that the habitat is not opened up too much.

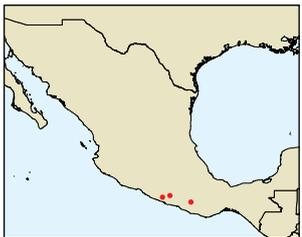
Major Threats The major threat is habitat loss due to human settlement (returning refugees), which is associated with expanding small-scale agriculture and wood collection. Chytridiomycosis also cannot be ruled out as a cause of the observed decline.

Conservation Measures The species is not known to occur in any protected areas, and protection of its remaining intact habitat is recommended. Survey work is required to determine the current population status of this species.

Notes on taxonomy: This species was previously included in the genus *Hyla* but has recently been moved to the resurrected genus *Exerodonta* (Faivovich *et al.* 2005).

Bibliography: Campbell, J.A. (2001), Campbell, J.A. and Brodie, E.D., Jr. (1992), Duellman, W.E. (2001), Faivovich, J. *et al.* (2005)

Data Providers: Manuel Acevedo, Eric Smith

VU *Exerodonta pinorum* (Taylor, 1937)**Vulnerable B1ab(iii,v)****Order, Family:** Anura, Hylidae**Country Distribution:** Mexico**Current Population Trend:** Decreasing

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Society for the Study of Amphibians and Reptiles



Geographic Range This species is known from the Pacific slopes of the Sierra Madre del Sur, in central Guerrero, and central and south-western Oaxaca, Mexico. It probably occurs at more localities than have been mapped within its general range.

Population This is a rare species, and it appears to have undergone declines.

Habitat and Ecology It occurs in cloud and pine-oak forests at 700-1,070m asl and is commonly found in shallow water or on low vegetation along mountain streams. It breeds in streams.

Major Threats The high rate of habitat disturbance, due to agricultural activities within forested areas in Mexico, and specifically in Oaxaca and Guerrero, is the main threat to this species. Recent declines might also be due to chytridiomycosis.

Conservation Measures The range of this species does not include any protected areas, and improved protection of the forests of south-western Oaxaca and the central highlands of Guerrero is urgently needed. Close population monitoring is required, especially given the potential threat of chytridiomycosis. This species is protected by Mexican law under the "Special Protection" category (Pr).

Notes on taxonomy: This species was previously included in the genus *Hyla* but has recently been moved to the resurrected genus *Exerodonta* (Faivovich *et al.* 2005).

Bibliography: Campbell, J.A. and Brodie, E.D., Jr. (1992), Duellman, W.E. (2001), Faivovich, J. *et al.* (2005), Lips, K.R. *et al.* (2004)

Data Providers: Georgina Santos-Barrera, Luis Canseco-Márquez

VU *Exerodonta xera* (Mendelson and Campbell, 1994)

Vulnerable B1ab(iii)
Order, Family: Anura, Hylidae
Country Distribution: Mexico
Current Population Trend: Decreasing



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Geographic Range This species is known from south-western Zapotitlán de las Salinas, central Puebla, and northern Oaxaca, Mexico. It might occur more widely than is currently known. It occurs at about 1,500m asl.

Population It is a common species.

Habitat and Ecology This stream-breeding amphibian inhabits temporal streams with rocks and arid scrub vegetation that provide suitable microhabitats. It seeks refuge in bromeliads during the dry season.

Major Threats The major threat is the ongoing disturbance and loss of the species' arid tropical scrub habitat due to infrastructure development, partly due to the construction of tourist facilities.

Conservation Measures The range of this species includes Reserva de la Biósfera del Valle de Tehuacán-Cuicatlán.

Notes on taxonomy: This species was previously included in the genus *Hyla* but has recently been moved to the resurrected genus *Exerodonta* (Faivovich *et al.* 2005).

Bibliography: Canseco-Márquez, L., Gutiérrez-Mayén, G. and Mendelson, J.R. III (2003), Duellman, W.E. (2001), Faivovich, J. *et al.* (2005)

Data Providers: Georgina Santos-Barrera, Luis Canseco-Márquez

CR *Hyla bocourti* Mocquard, 1899

Critically Endangered A2ace
Order, Family: Anura, Hylidae
Country Distribution: Guatemala
Current Population Trend: Decreasing

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Society for the Study of Amphibians and Reptiles

Geographic Range This species is found in the highlands of Alta and Baja Verapaz, Guatemala, at 1,300-1,536m asl.

Population Campbell and Lawson (1992) report that the species can be abundant during the early part of the rainy season. Numerous recent visits to the range of this species have failed to turn up any individuals, suggesting a serious decline.

Habitat and Ecology It has been found in open, grassy meadows when they become flooded during the early part of the rainy season. It has also been found beneath sheaths of banana plants and in a bromeliad. This species appears to tolerate some level of habitat disturbance. Breeding takes place in temporary pools.

Major Threats A major threat to this species is the ornamental plants industry, which requires heavy use of pesticides and fungicides because the cut flowers and ferns exported to first world countries have to be completely free of insects or blemishes. In areas with many of these ornamental plant farms, the streams are typically heavily contaminated. Another cause of the observed declines, which have taken place even in suitable habitat, could be chytridiomycosis.

Conservation Measures This species probably occurs in the Biotopo del Quetzal. Surveys are needed to determine the population status of this species, and the reasons for the observed decline. It is also necessary to ensure that ornamental plant farms adhere to protocols to ensure the safe and proper disposal of pesticides.

Bibliography: Campbell, J.A. and Lawson, D.P. (1992), Duellman, W.E. (2001), Mendelson III, J.R. *et al.* (2004)

Data Providers: Manuel Acevedo, Bruce Young

CR *Hyla chlorostea* Reynolds and Foster, 1992

Critically Endangered B1ab(iii)+2ab(iii)
Order, Family: Anura, Hylidae
Country Distribution: Bolivia
Current Population Trend: Decreasing



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Geographic Range This species occurs on the oriental slope of the Andes, and is known only from the type locality: "Parjacti, 83.2km by road north-eastern Cochabamba, on road to Villa Tunari, Chapare Province, Department of Cochabamba, Bolivia, elevation approximately 2,044m" (Reynolds and Foster 1992).

Population The population status of this species is not known, and it might be extinct. The areas surrounding the type locality have been well surveyed in recent years, but the species has not been recorded again since its original collection in the 1970s.

Habitat and Ecology It is an arboreal forest species, reported in the Yungas forest (Reynolds and Foster 1992; De la Riva *et al.* 2000). There is no information on breeding, though it is likely to be a larval developer in water, like other species of the genus.

Major Threats The quality of the species' habitat continues to decline due to agriculture, logging, and infrastructure development for human settlement.

Conservation Measures The species is not known from any protected areas. This species is a priority for urgent survey work in order to determine whether or not it is still extant.

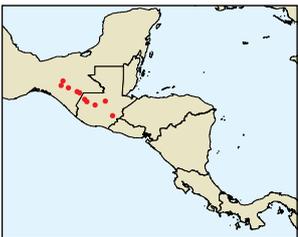
Notes on taxonomy: This species is considered incerta sedis, and is presently left in the genus *Hyla* pending resolution (Faivovich *et al.* 2005). De la Riva *et al.* (2000) registered a slight doubt as to the taxonomic validity of the species.

Bibliography: De la Riva, I. *et al.* (2000), Duellman, W.E., De la Riva, I. and Wild, E. (1997), Faivovich, J. *et al.* (2005), Reynolds, R. and Foster, M. (1992)

Data Providers: Claudia Cortez, Steffen Reichle, Ignacio De la Riva, Jörn Köhler

VU *Hyla walkeri* Stuart, 1954

Vulnerable B1ab(iii)
Order, Family: Anura, Hylidae
Country Distribution: Guatemala, Mexico
Current Population Trend: Decreasing



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Geographic Range This species occurs in the highlands of central Chiapas, Mexico, south-west to the Sierra de los Cuchumatanes, Guatemala. In Guatemala, it occurs on the central Plateaus and in the south-east (1,450-2,340m asl). It probably occurs more widely than current records suggest.

Population It is uncommon in Guatemala and has not been seen since 1995. Extensive recent surveys in the last few years indicate that this species is nearing extirpation in this country. It is still abundant in Chiapas.

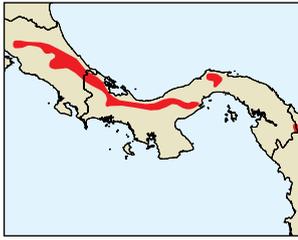
Habitat and Ecology It occurs in pine-oak and pine-fir forests and high grasslands. Breeding takes place in temporary ponds.

Major Threats Loss of habitat due to agriculture, logging, and human settlement is the major threat.

Conservation Measures It occurs in the Parque Nacional Lagunas de Montebello in Mexico, but is not recorded from any protected areas in Guatemala.

Bibliography: Stuart, L.C. (1954)

Data Providers: Georgina Santos-Barrera, Luis Canseco-Márquez, Manuel Acevedo, Antonio Muñoz Alonso

EN *Hylomantis lemur* (Boulenger, 1882)**Endangered A2ae****Order, Family:** Anura, Hylidae**Country Distribution:** Colombia, Costa Rica, Panama**Current Population Trend:** Decreasing

Geographic Range This species occurs in Costa Rica and Panama, and marginally in Colombia. It occurs predominantly on the Atlantic versant from the vicinity of Tilán, Guanacaste Province, Costa Rica, to western Panama; the disjunct Pacific slope records are from north-western Costa Rica and south-western, central, and extreme eastern Panama in the Darien area, where it extends marginally across the border into Colombia. In



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Costa Rica the species is now only known with certainty from three sites: Fila Asuncion, 15km south-west of Limón (an abandoned farm); in a forested area near Parque Nacional Barbilla near Siquirres (where one female has been found); and from Guayacán (in Limón Province). The first of these three sites is the only site known to have a large breeding population. All other previously known Costa Rican populations of this species have disappeared including those in Monteverde, San Ramon, Braulio Carrillo, and Tapanti. Its altitudinal range is 440-1,600m asl.

Population It was once considered to be a reasonably common species in Costa Rica, but most populations have recently disappeared. The species is still considered to be reasonably common in lower elevation parts of Panama (where, for example, there are recent records from Palmarazo), but a decline has been recorded in the Reserva Forestal Fortuna, Chiriquí, and there are no records from this site since 1999. There is no recent population information from Colombia.

Habitat and Ecology It is a nocturnal treefrog associated with sloping areas in humid lowland and montane primary forest, and is not found in degraded habitats. The eggs are usually deposited on leaf surfaces and the larvae are washed off or fall into water below the site of oviposition.

Major Threats The massive declines noted in this species are probably due to chytridiomycosis. However, general habitat loss remains a threat, and this is especially the case in Costa Rica where deforestation by squatters threatens Fila Asunción, one of the three known remaining populations.

Conservation Measures Within Costa Rica, the former range included several national parks and other protected areas; there may be a remaining population within Parque Nacional Barbilla but surveys are needed to confirm this. The species is known to be present within at least six Panamanian protected areas, but it is not known from any protected areas in Colombia. A successful captive breeding program began in 2001 at the Atlanta Botanical Garden, which has since transferred individuals to other zoos to continue these captive breeding efforts.

Notes on taxonomy: This species was previously within the genus *Phyllomedusa* but has recently been moved to the genus *Hylomantis* (Faivovich *et al.* 2005).

Bibliography: Cannatella, D.C. (1980), Duellman, W.E. (2001), Faivovich, J. *et al.* (2005), Ibáñez, R. *et al.* (2000), Jungfer, K.-H. and Weygoldt, P. (1994), Myers, C.W. and Duellman, W.E. (1982), Pounds, J.A. *et al.* (1997), Ruiz-Carranza, P.M., Ardila-Robayo, M.C. and Lynch, J.D. (1996), Savage, J.M. (2002), Young, B. *et al.* (1999), Zippel, K. (2005)

Data Providers: Frank Solís, Roberto Ibáñez, Jay Savage, César Jaramillo, Querube Fuenmayor, Brian Kubicki, Alan Pounds, Gerardo Chaves, Karl-Heinz Jungfer

EN *Hyloscirtus charazani* (Vellard, 1970)**Endangered B1ab(iii)****Order, Family:** Anura, Hylidae**Country Distribution:** Bolivia**Current Population Trend:** Decreasing

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Geographic Range This species is found on the eastern slopes of the Andes, and is known from the type locality in Charazani and the nearby Pomasani River, Huasawaico, Saavradra Province, in the department of La Paz (Aparicio 1999), Bolivia. There is an additional record from near Waleke, in Bautista Savedra Province, Charazani Canton. The elevation range is 2,700-3,200m asl.

Population It is abundant at the type locality.

Habitat and Ecology It is an aquatic and terrestrial species, inhabiting streams in the inter-Andean valleys (De la Riva *et al.* 2000). It is a stream breeder, and the larva is morphologically indistinguishable from larvae of *Hyloscirtus armatus sensu lato*, exhibiting stream adaptation through a robust body with strong tail musculature, enlarged oral disc, increased number of labial tooth rows, and complete marginal papillae (Lötters *et al.* 2005).

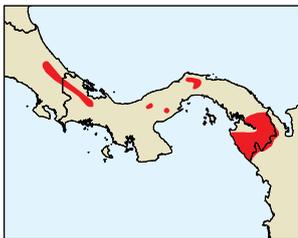
Major Threats The major threat to this species is water pollution: the only known population occurs in a stream used by the local communities living nearby (S. Reichle pers. comm.).

Conservation Measures The Área Natural de Manejo Integrado Nacional Apolobamba probably protects the population, although the type locality is in a community land-use zone of the reserve. Broad-scale actions are necessary to deal with the threat of water pollution.

Notes on taxonomy: This species was previously included in the genus *Hyla* but has recently been moved to the resurrected genus *Hyloscirtus* (Faivovich *et al.* 2005). It was rediscovered by J. Aparicio and S. Reichle in 1997 at the type locality.

Bibliography: Aparicio, J. (1999), De la Riva, I. *et al.* (2000), Duellman, W.E., De la Riva, I. and Wild, E. (1997), Faivovich, J. *et al.* (2005), Köhler, J. (2000a), Lötters, S. *et al.* (2005), Vellard, J. (1970)

Data Providers: Claudia Cortez, Steffen Reichle, Ignacio De la Riva, Jörn Köhler

EN *Hyloscirtus colymba* (Dunn, 1931)**Endangered A2ace****Order, Family:** Anura, Hylidae**Country Distribution:** Costa Rica, Panama**Current Population Trend:** Decreasing

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Geographic Range This species is known from the Atlantic slopes of south-eastern Costa Rica to central Panama, from sea level to 1,116m asl, and also from the Pacific slopes of eastern Panama (Savage 2002).

Population Little is known about the population size or abundance of this species. It has disappeared from the Reserva Forestal Fortuna, Chiriquí, Panama, but is still present at El Cope in Panama.

Habitat and Ecology It inhabits cloud forest or humid lowland and montane forest, where they have been found along streams. The species breeds in swift streams; eggs are deposited under rocks, and larvae cling to rocks by means of an oral disk (Savage 2002).

Major Threats The decline in the Reserva Forestal Fortuna, Panama, is probably due to chytridiomycosis, and this is likely to be the most serious threat to the species. It is probably also impacted by the destruction of natural forests for the planting of crops, smallholder livestock ranching, and logging.

Conservation Measures It is known from several protected areas in Panama, and a single park in Costa Rica (Parque Internacional La Amistad). In view of the risk of chytridiomycosis, the status of this species should be closely monitored, and ex-situ populations should be established.

Notes on taxonomy: This species was previously within the genus *Hyla* but has recently been moved to the resurrected genus *Hyloscirtus* (Faivovich *et al.* 2005).

Bibliography: Duellman, W.E. (2001), Faivovich, J. *et al.* (2005), Ibáñez, R. *et al.* (2000), Lips, K.R. (1999), Savage, J.M. (2002), Young, B. *et al.* (1999)

Data Providers: Frank Solís, Roberto Ibáñez, Gerardo Chaves, Jay Savage, César Jaramillo, Querube Fuenmayor

EN *Hyloscirtus denticulentus* (Duellman, 1972)

Endangered B1ab(iii)
Order, Family: Anura, Hylidae
Country Distribution: Colombia
Current Population Trend: Decreasing



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Geographic Range This species occurs on the western slope of the Cordillera Oriental, in Boyacá and Santander Departments, Colombia, at 1,630-2,400m asl.

Population It is known to be common, although there has been no survey work for this species since 1987.

Habitat and Ecology It lives in streams in cloud forests, and also in secondary forest. The eggs are laid on vegetation, and the larvae develop in water.

Major Threats Habitat loss due to agriculture and cattle ranching, and predation by introduced trout, represent the major threats to this species.

Conservation Measures It occurs in one protected area, the Santuario de Fauna y Flora Guanentá Alto Río Fonce, where work has been under way by The Nature Conservancy in conjunction with Fundación Natura and other partners to support the expansion of the existing reserve, as well as the creation of a new public protected area.

Notes on taxonomy: This species was previously included in the genus *Hyla* but has recently been moved to the resurrected genus *Hyloscirtus* (Faivovich *et al.* 2005). Ruiz-Carranza, Ardila-Robayo and Lynch (1996) noted that one of the paratypes of this species is referable to *Hyloscirtus palmeri*.

Bibliography: Duellman, W.E. (1972), Faivovich, J. *et al.* (2005), Ruiz-Carranza, P.M. and Lynch, J.D. (1982), Ruiz-Carranza, P.M., Ardila-Robayo, M.C. and Lynch, J.D. (1996)

Data Providers: María Cristina Ardila-Robayo, Jose Vicente Rueda

VU *Hyloscirtus lindae* (Duellman and Altig, 1978)

Vulnerable B1ab(iii)
Order, Family: Anura, Hylidae
Country Distribution: Colombia, Ecuador
Current Population Trend: Decreasing



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Geographic Range This species occurs on the Amazonian slopes of the Andes in southern Colombia (in Caqueta and Putumayo Departments) and Ecuador (south to Morona Province). It ranges from 2,000-2,500m asl.

Population It is a common species.

Habitat and Ecology It lives in upper humid montane forest, and it also survives in pastureland and other altered habitats. However, although it is adaptable, it probably cannot tolerate extremely severe habitat clearance, leading to a very open landscape. It is associated with creeks and breeds in streams.

Major Threats The major threats are habitat loss from agricultural development, planting of illegal crops, logging, and human settlement, and pollution resulting from the spraying of illegal crops. The species has a narrow altitudinal range, and lives in habitats where catastrophic extinctions have occurred in other frog species with stream-dwelling tadpoles, probably due to chytridiomycosis.

Conservation Measures It occurs in several protected areas in Ecuador, including Parque Nacional Llanganates and Parque Nacional Sangay, but is apparently not recorded from any in Colombia. There is a need for close population monitoring of this species, given the potential threat of chytridiomycosis.

Notes on taxonomy: This species was previously included in the genus *Hyla* but has recently been moved to the resurrected genus *Hyloscirtus* (Faivovich *et al.* 2005).

Bibliography: Duellman, W.E. and Altig, R. (1978), Duellman, W.E. and Hillis, D.M. (1990), Faivovich, J. *et al.* (2005), Ruiz-Carranza, P.M. and Lynch, J.D. (1982), Ruiz-Carranza, P.M., Ardila-Robayo, M.C. and Lynch, J.D. (1996)

Data Providers: Diego Almeida, Wilmar Bolívar, Luis A. Coloma, Santiago Ron

EN *Hyloscirtus lynchi* (Ruiz-Carranza and Ardila-Robayo, 1991)

Endangered B1ab(iii)
Order, Family: Anura, Hylidae
Country Distribution: Colombia
Current Population Trend: Decreasing



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Geographic Range This species occurs on the western slope of the Cordillera Oriental in the department of Santander, Colombia, at 2,540-2,700m asl. It may be more widely distributed than existing records indicate.

Population It is known to be common, although there has been no survey work for this species since 1998.

Habitat and Ecology It lives in streams in cloud forest, but only in old growth forest. The eggs are laid on vegetation, and the tadpoles larvae in streams.

Major Threats Habitat loss due to agriculture and cattle ranching, and predation by introduced trout, are the major threats to this species.

Conservation Measures It does not occur in any protected areas, and there is an urgent need for expanded protection of remaining forest habitats in the Colombian Andes.

Notes on taxonomy: This species was previously within the genus *Hyla* but has recently been moved to the resurrected genus *Hyloscirtus* (Faivovich *et al.* 2005).

Bibliography: Faivovich, J. *et al.* (2005), Ruiz-Carranza, P.M. and Ardila-Robayo, M.C. (1991), Ruiz-Carranza, P.M., Ardila-Robayo, M.C. and Lynch, J.D. (1996)

Data Providers: María Cristina Ardila-Robayo, Jose Vicente Rueda

EN *Hyloscirtus pantostictus* (Duellman and Berger, 1982)

Endangered B2ab(iii)
Order, Family: Anura, Hylidae
Country Distribution: Colombia, Ecuador
Current Population Trend: Decreasing



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Geographic Range This species is known only from the Nudo de Pasto area on the eastern slopes of the Andes in southern Colombia and northern Ecuador. In Ecuador, it has been recorded only in the extreme north-eastern páramos around Santa Barbara on the Cordillera Oriental on the border with Colombia. It has been recorded at about 1,950-2,700m asl.

Population It is a rare species.

Habitat and Ecology A cloud forest species, it has also been found in partially cleared forest, where frogs were found at night on branches of trees above a stream. However, its adaptability to disturbed habitats is not well known. It breeds in streams.

Major Threats The major threats are likely to be deforestation due to agricultural development, planting of illegal crops, logging, and human settlement, and pollution resulting from the spraying of illegal crops. All known localities in Ecuador are subject to severe human disturbance. The species lives in montane habitats where catastrophic declines have affected other frogs with stream-dwelling larvae, probably as a result of chytridiomycosis.

Conservation Measures It is not known from any protected areas, and there is an urgent need to expand the protected area coverage in the Colombian Andes. Research is needed to determine the current population status of this species and to ascertain whether chytrid poses a threat.

Notes on taxonomy: This species was previously within the genus *Hyla* but has recently been moved to the resurrected genus *Hyloscirtus* (Faivovich *et al.* 2005).

Bibliography: Duellman, W.E. and Berger, T.J. (1982), Duellman, W.E. and Hillis, D.M. (1990), Faivovich, J. *et al.* (2005), Ruiz-Carranza, P.M. and Lynch, J.D. (1982), Ruiz-Carranza, P.M., Ardila-Robayo, M.C. and Lynch, J.D. (1996)

Data Providers: Wilmar Bolívar, Luis A. Coloma, Santiago Ron, Diego Cisneros-Heredia

EN *Hyloscirtus piceigularis* (Ruíz-Carranza and Lynch, 1982)**Endangered B1ab(iii)****Order, Family:** Anura, Hylidae**Country Distribution:** Colombia**Current Population Trend:** Decreasing

Geographic Range This species occurs on the western flank of the Cordillera Oriental in the departments of Cundinamarca and Santander, Colombia, at 1,750-2,000m asl.

Population It was common in Virolin in 1987; however, there has been no survey work for the species since.

Habitat and Ecology It lives in streams in old growth cloud forest. It lays its eggs on vegetation, and the larvae develop in the water.

Major Threats Habitat loss due to agriculture and cattle ranching, and predation by introduced trout, are the major threats to this species.

Conservation Measures It occurs in the Santuario de Fauna y Flora Guanentá Alto Río Fonce. Continued and strengthened management of this reserve, and expanded protection of cloud forest elsewhere in the range of this species is needed.

Notes on taxonomy: This species was previously included in the genus *Hyla*, but has recently been moved to the resurrected genus *Hyloscirtus* (Faivovich *et al.* 2005).

Bibliography: Faivovich, J. *et al.* (2005), Ruiz-Carranza, P.M. and Lynch, J.D. (1982), Ruiz-Carranza, P.M., Ardila-Robayo, M.C. and Lynch, J.D. (1996)

Data Providers: María Cristina Ardila-Robayo, Jose Vicente Rueda

VU *Hyloscirtus platydactylus* (Boulenger, 1905)**Vulnerable A2ace; B1ab(iii,v)****Order, Family:** Anura, Hylidae**Country Distribution:** Colombia, Venezuela**Current Population Trend:** Decreasing

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Geographic Range This Andean species occurs in the Cordillera de Merida in the states of Barinas, Merida and Tachira, and from Sierra de Perijá in Zulia State, Venezuela, at 1,600-3,000m asl. It is also known from the eastern slopes of Cordillera Oriental in Colombia in the department of Norte de Santander, at 1,050m asl. Records from Sierra del Turimiquire in Sucre and Monagas states are in error.

Population Formerly an abundant species, there are few recent records, in part due to lack of survey efforts in its range. However, some populations, such as those north of the city of Mérida on Monte Zerpa, Venezuela, have experienced declines in suitable habitat (E. La Marca pers. obs.). However, in 2001 it was reportedly found without difficulty in Venezuela in brooks of cloud forest (Barrio Amorós 2001).

Habitat and Ecology It lives in cloud forests, and is able to tolerate minor habitat disturbance. It is usually found along streams, where it breeds.

Major Threats The main threat is deforestation, especially the conversion of cloud forests to pasture lands. However, declines that have taken place in suitable habitat suggest another threatening process might be operating, possibly chytridiomycosis.

Conservation Measures It occurs in the Sierra Nevada and Sierra de la Culata National Parks in Venezuela, and probably also occurs in other protected areas. Close population monitoring of this species is required, particularly if chytrid is shown to be a genuine threat.

Notes on taxonomy: This species was previously included in the genus *Hyla* but has recently been moved to the resurrected genus *Hyloscirtus* (Faivovich *et al.* 2005). It is possibly confused with *Hyloscirtus bogotensis*.

Bibliography: Barrio Amorós, C.L. (2001), Barrio Amorós, C.L. (2004), Duellman, W.E. (1972), Faivovich, J. *et al.* (2005), La Marca, E. (1985b), La Marca, E. (1992), La Marca, E. (1994c), La Marca, E. (1995b), La Marca, E. (1997), Péfaur, J.E. and Rivero, J.A. (2000), Ruiz-Carranza, P.M. and Lynch, J.D. (1982), Ruiz-Carranza, P.M., Ardila-Robayo, M.C. and Lynch, J.D. (1996), Vial, J.L. and Saylor, L. (1993)

Data Providers: Enrique La Marca, Juan Elias Garcia-Pérez

EN *Hyloscirtus psarolaimus* (Duellman and Hillis, 1990)**Endangered B1ab(iii)****Order, Family:** Anura, Hylidae**Country Distribution:** Colombia, Ecuador**Current Population Trend:** Decreasing

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Geographic Range This Andean species from Colombia and Ecuador occurs on the Amazonian slopes of the Cordillera Oriental from Putumayo Department in southern Colombia south to Morona Province in southern Ecuador. It lives at elevations of 1,950-2,660m asl.

Population There is very little information, since there are only a few records of this species.

Habitat and Ecology It is a species of cloud forest. Specimens have been found on stems and branches of bushes near, or over, streams at night. There is no information on its adaptability to secondary habitats. It presumably breeds in streams.

Major Threats The major threats are likely to be deforestation due to agricultural development, the planting of illegal crops, logging, and human settlement, and pollution resulting from the spraying of illegal crops. The species also lives in montane habitats where catastrophic declines have affected other frogs with stream-dwelling larvae, probably as a result of chytridiomycosis.

Conservation Measures In Ecuador, its geographic range overlaps with the Reserva Ecológica Cayambe-Coca, the Reserva Ecológica Antisana, Parque Nacional Llanganates, and Parque Nacional Sangay. It is not known from any protected areas in Colombia. Further research is necessary to determine the current population status of this species in the wild, and whether chytrid poses a threat.

Notes on taxonomy: This species was previously included in the genus *Hyla* but has recently been moved to the resurrected genus *Hyloscirtus* (Faivovich *et al.* 2005).

Bibliography: Duellman, W.E. and Altig, R. (1978), Duellman, W.E. and Hillis, D.M. (1990), Faivovich, J. *et al.* (2005), Ruiz-Carranza, P.M. and Ardila-Robayo, M.C. (1991), Ruiz-Carranza, P.M., Ardila-Robayo, M.C. and Lynch, J.D. (1996)

Data Providers: Wilmar Bolívar, Luis A. Coloma, Santiago Ron

CR *Hyloscirtus ptychodactylus* (Duellman and Hillis, 1990)**Critically Endangered B2ab(iii)****Order, Family:** Anura, Hylidae**Country Distribution:** Ecuador**Current Population Trend:** Decreasing

Geographic Range This species is only known from Pilaló at 2,320m in Cotopaxi Province, and nearby areas in Ecuador.

Population Recent efforts to locate the species at the type locality were unsuccessful, but more surveys are needed before it can be concluded whether or not this species has declined in suitable habitats.

Habitat and Ecology It has been found only in disturbed cloud forest, where adults have been found by day. There is no information on its ability to survive in heavily degraded habitats. Breeding takes place in streams.

Major Threats At the type locality, patches of forest have been cleared for agriculture and livestock farming, possibly posing a serious threat to the survival of the species. The species lives in habitats where catastrophic extinctions have affected other frogs with stream-dwelling tadpoles, probably as a result of chytridiomycosis.

Conservation Measures This species is not known from any

protected areas, and its remaining intact habitat is in urgent need of protection. Survey work is urgently required to determine the current population status of the species.

Notes on taxonomy: This species was previously included in the genus *Hyla* but has recently been moved to the resurrected genus *Hyloscirtus* (Faivovich *et al.* 2005).

Bibliography: Duellman, W.E. and Hillis, D.M. (1990), Faivovich, J. *et al.* (2005)

Data Providers: Luis A. Coloma, Santiago Ron

EN *Hyloscirtus simmonsii* (Duellman, 1989)

Endangered B1ab(iii)
Order, Family: Anura, Hylidae
Country Distribution: Colombia
Current Population Trend: Decreasing



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Geographic Range This species is known from Antioquia to Valle del Cauca Departments, on the western flank of the Cordillera Occidental, in Colombia, from 1,100-2,000m asl.

Population It is a common species.

Habitat and Ecology It is found on low vegetation alongside streams in primary forest and secondary forest. It can tolerate some habitat destruction as long as vegetation remains alongside the stream. Eggs are laid on the top of leaves above the stream and when hatched the larvae drop into the stream below where they then develop further.

Major Threats The major threat to this species is habitat loss and degradation due to smallholder farming and subsistence logging, and water pollution from the spraying of illegal crops.

Conservation Measures The range of the species includes several protected areas. Taxonomic research is needed to determine whether or not this represents a complex of species.

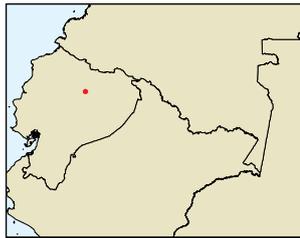
Notes on taxonomy: This species was previously included in the genus *Hyla* but has recently been moved to the resurrected genus *Hyloscirtus* (Faivovich *et al.* 2005). This form might represent a species complex.

Bibliography: Duellman, W.E. (1989b), Faivovich, J. *et al.* (2005), Ruiz-Carranza, P.M., Ardila-Robayo, M.C. and Lynch, J.D. (1996)

Data Providers: Fernando Castro, John Lynch

EN *Hyloscirtus staufferorum* (Duellman and Coloma, 1993)

Endangered B1ab(iii)
Order, Family: Anura, Hylidae
Country Distribution: Ecuador
Current Population Trend: Decreasing



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Geographic Range This species is known only from two localities in Napo Province, Ecuador: Volcán Sumaco, and the Cordillera de Guacamayos. It probably occurs a little more widely. Its altitudinal range is 2,040-2,500m asl.

Population There is no information on the population status of this species.

Habitat and Ecology It lives in very humid, low cloud forest, and breeds in streams. There is no information on its adaptability to secondary habitats.

Major Threats The main threat is forest clearance due to agriculture, livestock farming, and wood extraction. It lives in montane habitats where catastrophic declines have affected other frogs with stream-dwelling larvae, probably as a result of chytridiomycosis.

Conservation Measures The geographic range of this species overlaps with Parque Nacional Sumaco. Continued and strengthened management of this reserve, and expanded protection of cloud forest elsewhere in the range of this species, are needed. Further survey work is necessary to determine its current population status, and whether chytrid poses a threat.

Notes on taxonomy: This species was previously included in the genus *Hyla* but has recently been moved to the resurrected genus *Hyloscirtus* (Faivovich *et al.* 2005).

Bibliography: Duellman, W.E. and Coloma, L.A. (1993), Faivovich, J. *et al.* (2005)

Data Providers: Luis A. Coloma, Santiago Ron

VU *Hyloscirtus torrenticola* (Duellman and Altig, 1978)

Vulnerable B1ab(iii)
Order, Family: Anura, Hylidae
Country Distribution: Colombia, Ecuador
Current Population Trend: Decreasing



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Geographic Range This species occurs on the eastern slopes of the Andes in Ecuador (two localities: La Barquilla and El Reventador in Sucumbios Province and Napo Province) and Colombia (eastern slopes of the Cordillera Oriental in the departments of Cauqueta and Putumayo). It might be more widespread than records suggest. Its altitudinal range is 740-1,700m asl.

Population It is a moderately common species.

Habitat and Ecology It inhabits cloud forests, as well as secondary forest. It is a stream-breeding species, particularly associated with creeks, streams and swampy areas in forest, especially with vegetation overhanging streams.

Major Threats The major threats are habitat loss from agricultural development, planting of illegal crops, logging, and human settlement, and pollution resulting from the spraying of illegal crops. The species lives in habitats where catastrophic extinctions have affected other frogs with stream-dwelling tadpoles, probably due to chytridiomycosis.

Conservation Measures It might be found in the Reserva Ecológica Cayambe-Coca in Ecuador, and might also occur on Parque Nacional Natural Alto Fragua-Indi Wasi in Colombia. There is a need for close population monitoring of this species, given the potential threat of chytridiomycosis.

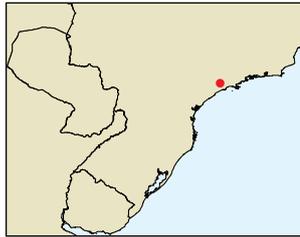
Notes on taxonomy: This species was previously included in the genus *Hyla* but has recently been moved to the resurrected genus *Hyloscirtus* (Faivovich *et al.* 2005).

Bibliography: Duellman, W.E. and Altig, R. (1978), Duellman, W.E. and Hillis, D.M. (1987), Faivovich, J. *et al.* (2005), Ruiz-Carranza, P.M. and Lynch, J.D. (1982), Ruiz-Carranza, P.M., Ardila-Robayo, M.C. and Lynch, J.D. (1996)

Data Providers: Mario Yáñez-Muñoz, Wilmar Bolívar, Luis A. Coloma, Santiago Ron, Juan Manuel Renjifo

CR *Hypsiboas cymbalum* (Bokermann, 1963)

Critically Endangered B1ab(iii)+2ab(iii)
Order, Family: Anura, Hylidae
Country Distribution: Brazil
Current Population Trend: Decreasing



Geographic Range This species is known from the type locality, Campo Grande da Serra, and nearby Nova Manchester in São Paulo, in the state of São Paulo, Brazil. The type locality is between 600 and 800m asl.

Population This species is only known from a few specimens, and recent surveys in the area have not recorded it.

Habitat and Ecology Specimens were found on shrubs by the side of a brook at the type locality. There is no information on breeding habits, but reproduction might take place in streams.

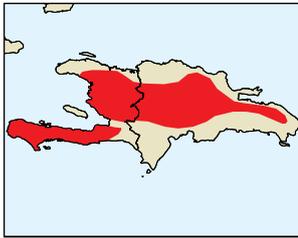
Major Threats Habitat loss due to infrastructure development has destroyed the species' habitat at the type locality. Chytridiomycosis also cannot be ruled out as a threat.

Conservation Measures This species does not occur within a protected area, and protection of any remaining habitat for the species is urgently needed. Further survey work is required to determine the biology and population status of this species, and whether or not it still survives at, or outside the vicinity of, the type locality.

Notes on taxonomy: This species was previously included in the genus *Hyla* but has recently been moved to the resurrected genus *Hypsiboas* (Faivovich *et al.* 2005).

Bibliography: Bokermann, W.C.A. (1963), Faivovich, J. *et al.* (2005), Garcia, P.C.A., Vinciprova, G. and Haddad, C.F.B. (2003), Lutz, B. (1973a)

Data Providers: Paulo Garcia, Miguel Trefaut Rodrigues

VU *Hypsiboas heilprini* (Noble, 1923)**Vulnerable B2ab(iii)****Order, Family:** Anura, Hylidae**Country Distribution:** Dominican Republic, Haiti**Current Population Trend:** Decreasing

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Geographic Range This species occurs throughout much of Hispaniola, from sea level up to 1,856m asl, although populations are extremely fragmented.

Population This species is believed to have undergone a decline in recent years, and during the course of recent surveys in Haiti was found to be absent from a number of streams (B. Hedges pers. comm.). In the Cordillera Central of the Dominican Republic, it appears to persist in appropriate habitat at many localities (based on field observations from 1998-2000; M. Hernandez pers. comm.).

Habitat and Ecology It is a stream-breeding amphibian found only in fast-flowing mountain streams in mesic broadleaf forests. Males call from rocks or low vegetation near and in water.

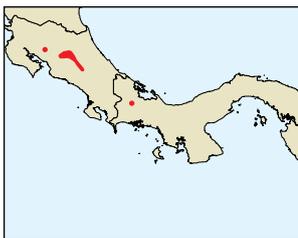
Major Threats Due to the fact that it is a mountain stream-dweller, it is more sensitive to habitat destruction than many other species. In Haiti, severe degradation of streams has already significantly altered its breeding habitat. Mining is a threat in some areas in the Dominican Republic as is infrastructure development.

Conservation Measures It is known from several protected areas, including Reserva Científica Natural de Valle Nuevo, although most are in need of improved management.

Notes on taxonomy: This species was previously included in the genus *Hyla* but has recently been moved to the resurrected genus *Hypsiboas* (Faivovich *et al.* 2005). The populations on the Tiburon Peninsula probably represent an undescribed species (R. Thomas pers. comm.).

Bibliography: Faivovich, J. *et al.* (2005), Hedges, S.B. (1993), Hedges, S.B. (1999), Hedges, S.B. (2001), Henderson, R.W. and Powell, R. (1999), Henderson, R.W. and Powell, R. (2001), Schwartz, A. and Henderson, R.W. (1991)

Data Providers: Blair Hedges, Sixto Inchaustegui, Marcelino Hernandez, Robert Powell

CR *Isthmohyla angustilineata* (Taylor, 1952)**Critically Endangered A2ae****Order, Family:** Anura, Hylidae**Country Distribution:** Costa Rica, Panama**Current Population Trend:** Decreasing

© Kenji Nishida



Population This is generally an uncommon species. The population is decreasing, but threats to the species remain unknown. In Costa Rica, the species has disappeared from Cerro Chompipe and Tapanti. It declined drastically in Monteverde, but a few individuals still hung on at least until the late 1990s, and the particular site where they were found has not been visited since; there is a chance that it still survives at Monteverde. In Panama there is a scarcity of information on its distribution and abundance, though it appears to have declined, and the most recent record is from Parque Internacional La Amistad, in Chiriquí Province, in 1991.

Habitat and Ecology It is a nocturnal treefrog of humid lower montane rainforest. Breeding usually takes place in small puddles and water-filled depressions. Males call from leaves and twigs above the forest floor. Tadpoles are benthic (Savage 2002).

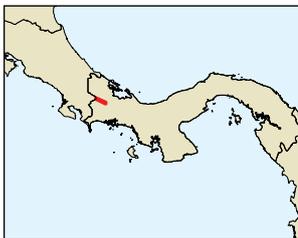
Major Threats The reasons for the population decline of this species are not known with certainty, though it is likely to be due to chytridiomycosis, perhaps in association with climate change.

Conservation Measures The current known range of this species falls entirely within protected areas (Parque Internacional La Amistad, Panama, and at least three protected areas in Costa Rica). Further survey work is required to determine the population status and trends of this species. In view of the threat of chytridiomycosis, *ex-situ* populations might need to be established.

Notes on taxonomy: This species was previously included in the genus *Hyla* but has recently been moved to the new genus *Isthmohyla* (Faivovich *et al.* 2005).

Bibliography: Arosemena, F.A. and Ibanez, D.R. (1991), Arosemena, F.A. and Ibanez, D.R. (1991), Duellman, W.E. (2001), Faivovich, J. *et al.* (2005), Ibáñez, R. *et al.* (2000), Pounds, J.A. *et al.* (1997), Savage, J.M. (2002), Young, B. *et al.* (1999)

Data Providers: Frank Solís, Roberto Ibáñez, Alan Pounds, Federico Bolaños, Gerardo Chaves

CR *Isthmohyla calypsa* (Lips, 1996)**Critically Endangered A2ace****Order, Family:** Anura, Hylidae**Country Distribution:** Costa Rica, Panama**Current Population Trend:** Decreasing

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Geographic Range This species is known from the southern Cordillera de Talamanca, on Cerro Pando on the Pacific slope in Costa Rica and Atlantic versant in Panama, and on the Pacific slope in south-western Panama, from 1,810-1,920m asl (Savage 2002).

Population Extensive monitoring has shown that this species has disappeared from its former range. It was formerly locally common in Tablas, Costa Rica, but has disappeared from all known sites since the early 1990s. There is no information on the population size or abundance of this species in Panama, though this population has probably also declined seriously.

Habitat and Ecology It is found along torrential stream courses in primary humid lower montane forest throughout the year. Males are strongly territorial, with small home ranges. Eggs (clutches of 10-36) are deposited on leaf surfaces of low vegetation above streams; hatching tadpoles fall or are washed by rain into the stream below (Savage 2002).

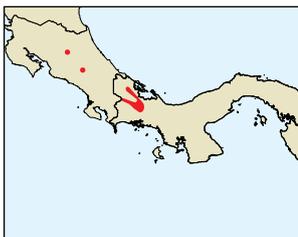
Major Threats The observed population decline is likely to be due to chytridiomycosis, since it has taken place within pristine habitats. Habitat loss as a result of smallholder livestock farming is also a threat.

Conservation Measures This species has been recorded in Parque Internacional La Amistad and might occur in Parque Nacional Volcán Barú. Further survey work is required to determine the population status and trends of this species. In view of the threat of chytridiomycosis, *ex-situ* populations might need to be established.

Notes on taxonomy: This species was previously included in the genus *Hyla* but has recently been moved to the new genus *Isthmohyla* (Faivovich *et al.* 2005).

Bibliography: Duellman, W.E. (2001), Faivovich, J. *et al.* (2005), Ibáñez, R. *et al.* (2000), Lips, K.R. (1996), Lips, K.R. (1998), Savage, J.M. (2002), Young, B. *et al.* (1999)

Data Providers: Federico Bolaños, Gerardo Chaves, Frank Solís, Roberto Ibáñez, Jay Savage, César Jaramillo, Querube Fuenmayor

CR *Isthmohyla debilis* (Taylor, 1952)**Critically Endangered A2ace****Order, Family:** Anura, Hylidae**Country Distribution:** Costa Rica, Panama**Current Population Trend:** Decreasing

© Ignacio De La Riva



(at 1,200-1,400m asl) (Savage 2002).

Population It is now a rare species (Savage 2002). The Costa Rican population has declined dramatically, and it might now be extinct in this country. A dramatic decline was documented in the Reserva Forestal Fortuna, Chiriquí, in Panama, and the most recent record from this country is from the Bosque Protector Palo Seco, on the highlands of Bocas del Toro, in 1998.

Habitat and Ecology An arboreal species of the lower reaches of cloud forest. It is associated with low dense vegetation overhanging small montane streams (less than 1m above the water). Tadpoles develop in these streams, adhering to rocks (Savage 2002).

Major Threats The decline in Costa Rica and in the Reserva Forestal Fortuna, Panama, is probably due to chytridiomycosis, and this is likely to be the most serious threat to the species. It is probably also impacted by habitat loss as a result of agriculture, logging, and human settlement.

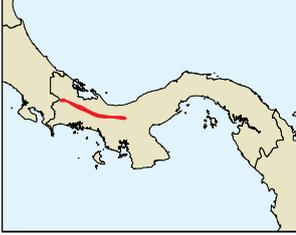
Conservation Measures This species has been recorded from three protected areas in Panama, and two in Costa Rica. Further survey work is required to determine the population status of this species. In view of the threat of chytridiomycosis, *ex-situ* populations might need to be established.

Notes on taxonomy: This species was previously included in the genus *Hyla* but has recently been moved to the new genus *Isthmohyla* (Faivovich *et al.* 2005).

Bibliography: Duellman, W.E. (1970), Duellman, W.E. (2001), Faivovich, J. *et al.* (2005), Hofer, U. and Bersier, L.-F. (2001), Ibáñez, R. *et al.* (2000), Lips, K.R. (1999), Savage, J.M. (2002), Young, B. *et al.* (1999)

Data Providers: Frank Solís, Roberto Ibáñez, Gerardo Chaves, Jay Savage, César Jaramillo, Querube Fuenmayor

Geographic Range This species is known from the Atlantic slopes of the Cordillera Central and the Cordillera de Talamanca in Costa Rica and western Panama (at 910-1,450m asl) and the Pacific slope of south-western Panama

CR *Isthmohyla graceae* (Myers and Duellman, 1982)**Critically Endangered A2ace****Order, Family:** Anura, Hylidae**Country Distribution:** Panama**Current Population Trend:** Decreasing

© Karl-Heinz Jungfer



Geographic Range This species is endemic to the western Cordillera Central of Panama at elevations of 1,120-1,650m asl on both sides of the continental divide in the western part of the Serranía de Tabasará and on the Pacific slopes of the eastern part of the Cordillera de Talamanca.

Population The population of this species has declined seriously. It is not certain that any populations now survive, and the species could be extinct.

Habitat and Ecology It is an arboreal species that inhabits humid montane forest, small ponds, puddles, and low-gradient streams. Breeding occurs in these aquatic habitats.

Major Threats Infection by the chytrid pathogen was recorded by Lipps (1999) at the Reserva Forestal Fortuna, in Chiriquí, and this is probably the most serious threat to the species. It is probably also impacted by habitat loss caused by the destruction of natural forests.

Conservation Measures It is recorded as having been present in a number of protected areas including: Parque Nacional Santa Fe, Parque Internacional La Amistad, and the Reserva Forestal Fortuna. This species is an urgent priority for survey work, in order to determine whether or not this species still survives in the wild. In view of the threat of chytridiomycosis, surviving individuals might need to form the basis for the establishment of an *ex-situ* population.

Notes on taxonomy: This species was previously included in the genus *Hyla* but has recently been moved to the new genus *Isthmohyla* (Faivovich *et al.* 2005).

Bibliography: Duellman, W.E. (2001), Faivovich, J. *et al.* (2005), Ibáñez, R. *et al.* (2000), Lips, K.R. (1999), Myers, C.W. and Duellman, W.E. (1982), Young, B. *et al.* (1999)

Data Providers: Frank Solís, Roberto Ibáñez, César Jaramillo, Querube Fuenmayor, Karen Lips

CR *Isthmohyla insolita* (McCranie, Wilson and Williams, 1993)**Critically Endangered B1ab(iii)+2ab(iii)****Order, Family:** Anura, Hylidae**Country Distribution:** Honduras**Current Population Trend:** Decreasing© Mark Faivovich, 2001
Society for the Study of Amphibians and Reptiles

Geographic Range This species is found in the extreme west of the Sierra Nombre de Dios, La Fortuna village, between the Departamentos of Yoro and Atlantica, north-central Honduras. The type locality is at 1,550m asl.

Population This species is moderately common within its very restricted range.

Habitat and Ecology This species is found on the ground and on low vegetation along streams, in lower montane wet forest. It lays its eggs in patches of moss in trees overhanging streams; when the eggs hatch the tadpoles fall in to the stream.

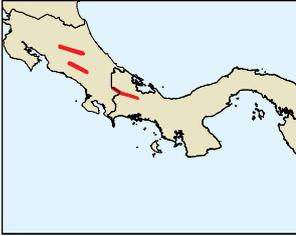
Major Threats The major threat to this species is habitat loss due to agriculture and logging. This frog is very dependent on pristine habitat as it depends on sufficient humidity for moss for breeding in the trees.

Conservation Measures The range of this species is known to be within Texiguat Wildlife Refuge. Maintenance of existing tracts of remaining habitat is an important conservation measure for this species.

Notes on taxonomy: This species was previously included in the genus *Hyla* but has recently been moved to the new genus *Isthmohyla* (Faivovich *et al.* 2005).

Bibliography: Faivovich, J. *et al.* (2005), McCranie, J.R. and Wilson, L.D. (2002b), McCranie, J.R., Wilson, L.D. and Williams, K.L. (1993c), Wilson, L.D., McCranie, J.R. and Williams, K.L. (1994)

Data Providers: Gustavo Cruz, Larry David Wilson, Franklin Casteñeda

EN *Isthmohyla picadoi* (Dunn, 1937)**Endangered B1ab(iii)****Order, Family:** Anura, Hylidae**Country Distribution:** Costa Rica, Panama**Current Population Trend:** Decreasing

© Eric Lindquist



Geographic Range This species is known from three disjunct populations in the Cordillera Central and the Cordillera de Talamanca of Costa Rica and western Panama, from 1,920-2,770m asl (Savage 2002).

Population The available evidence suggests that the Costa Rican populations are stable, and it is common at some sites in Panama. The species is difficult to observe and is mostly recorded by its call.

Habitat and Ecology It inhabits the canopy of humid upper montane forest, and is associated with the bromeliad flora of this habitat. The larvae develop in bromeliad pools, and hence this is a phytotelmic species.

Major Threats The major threat is forest loss due to agricultural expansion, logging for timber, and human settlement.

Conservation Measures It has been recorded from several protected areas, including: Parque Nacional Volcán Barú, Costa Rica; Parque Internacional La Amistad, Panama; and the Reserva Forestal Fortuna, Panama.

Notes on taxonomy: This species was previously within the genus *Hyla* but has recently been moved to the new genus *Isthmohyla* (Faivovich *et al.* 2005).

Bibliography: Duellman, W.E. (2001), Faivovich, J. *et al.* (2005), Ibáñez, R. *et al.* (2000), Lips, K.R. (1998), Savage, J.M. (2002), Young, B. *et al.* (1999)

Data Providers: Frank Solís, Roberto Ibáñez, Gerardo Chaves, Jay Savage, César Jaramillo, Querube Fuenmayor

VU *Isthmohyla pictipes* (Cope, 1875)**Vulnerable B1ab(iii,v)****Order, Family:** Anura, Hylidae**Country Distribution:** Costa Rica**Current Population Trend:** Decreasing

© Karl-Heinz Jungfer



Geographic Range This species occurs in the mountains of the Cordillera Central and Talamanca in Costa Rica, at 1,930-2,800m asl. It might occur slightly more widely.

Population Recent searches in Cerro Chompipe, a known historical locality that has not suffered much habitat modification, have not found this species, although it continues to be seen at Cerro de la Muerte and several other localities within its range.

Habitat and Ecology A nocturnal stream-breeding treefrog occurring in fast-flowing streams in lower montane and montane rainforests. Males call from rocks in streams and along stream margins, and sometimes from low vegetation near streams. Tadpoles typically are found adhering to large rocks in cold mountain streams (Savage 2002).

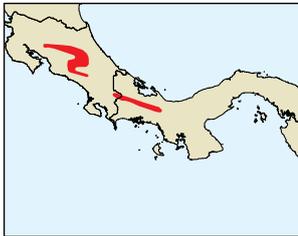
Major Threats Major threats include habitat destruction, pollution, and climate change. The decline witnessed at Cerro Chompipe could be due to chytridiomycosis.

Conservation Measures Much of the species' range is included within national parks, including Parque Internacional La Amistad. There is a need for close population monitoring of this species, given the potential threat of chytridiomycosis.

Notes on taxonomy: This species was previously included in the genus *Hyla* but has recently been moved to the new genus *Isthmohyla* (Faivovich *et al.* 2005).

Bibliography: Duellman, W.E. (2001), Faivovich, J. *et al.* (2005), Savage, J.M. (2002), Savage, J.M. and Wake, M.H. (2001)

Data Providers: Federico Bolaños, Gerardo Chaves, Jay Savage

CR *Isthmohyla rivularis* (Taylor, 1952)**Critically Endangered A2ace****Order, Family:** Anura, Hylidae**Country Distribution:** Costa Rica, Panama**Current Population Trend:** Decreasing

© Andrew Gray



Geographic Range This species occurs on the slopes of the cordilleras (Tilarán, Central and Talamanca) of Costa Rica and adjacent western Panama, from 1,210-2,040m asl (Savage 2002).

Population In Costa Rica, it has disappeared from Monteverde, Tapantí, and Las Tablas where it once was common. It was last seen in 1993 at Las Tablas and had disappeared from Monteverde by 1989. There have been no other recent records from Costa Rica of this formerly common frog. In Panama, there are records from the Bajo Mono highlands of Chiriquí in 1982, and from Las Tablas in the early 1990s, but it had disappeared from the latter site by 1996. There might not be any subsequent records, indicating a decline and possible disappearance in this country, too.

Habitat and Ecology This species occurs along or in clear streams in lower and premontane rainforest. Males call at night from riparian bushes and herbaceous vegetation at the margin of or overhanging fast-moving mountain streams. Amplexus and egg deposition have not been observed in this species; tadpoles have been collected from streams.

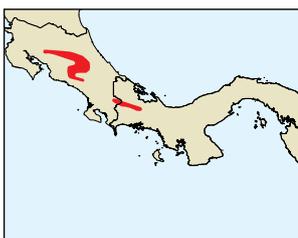
Major Threats The overall decline in this species is probably taking place as a result of infection of populations with the chytrid pathogen. Within Panama, it is threatened by general habitat loss through agriculture and selective logging.

Conservation Measures The species has been recorded from a number of protected areas in both Costa Rica and Panama. Further research is urgently needed into the population status of this species. Given the threat of chytridiomycosis, recommended conservation measures likely should include the establishment of a captive-breeding programme.

Notes on taxonomy: This species was previously included in the genus *Hyla* but has recently been moved to the new genus *Isthmohyla* (Faivovich *et al.* 2005).

Bibliography: Duellman, W.E. (1970), Duellman, W.E. (2001), Faivovich, J. *et al.* (2005), Ibáñez, R. *et al.* (2000), Lips, K.R. (1998), Myers, C.W. and Duellman, W.E. (1982), Pounds, J.A. *et al.* (1997), Savage, J.M. (2002), Young, B. *et al.* (1999)

Data Providers: Frank Solís, Roberto Ibáñez, Alan Pounds, Federico Bolaños, Gerardo Chaves, Karen Lips

CR *Isthmohyla tica* (Starrett, 1966)**Critically Endangered A2ace****Order, Family:** Anura, Hylidae**Country Distribution:** Costa Rica, Panama**Current Population Trend:** Decreasing

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Geographic Range This species occurs in the lowest portion of the humid lower montane zone in the Cordillera de Tilarán, Cordillera Central, and Cordillera de Talamanca of Costa Rica and western Panama, from 1,100-1,650m asl (Savage 2002).

Population In Costa Rica, it has disappeared from Monteverde, Tapantí, and Las Tablas where it once was common. In Panama, there were records from the Cerro Horqueta highlands of Chiriquí in 1982. It used to be seen regularly at the Reserva Forestal Fortuna, Chiriquí, in Panama, but its population collapsed in January 1997, and it has not been seen there since. This is possibly the last record from Panama, and it seems that it might have disappeared from this country as well.

Habitat and Ecology It is a nocturnal treefrog occurring in humid premontane and lower montane rainforest areas. Males usually call from vegetation overhanging the fastest-flowing stretches of streams, 1-3m above the water. Amplexus and oviposition are unknown for this species. Eggs are deposited under rocks in streams, and the tadpoles attach themselves to rocks by means of the large oral funnel (Savage 2002).

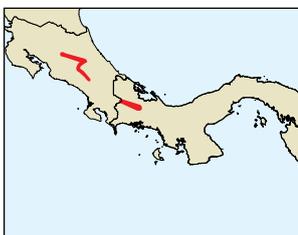
Major Threats The observed population decline has taken place in pristine habitats, and might be due to chytridiomycosis, and perhaps also the effects of climate change. It is generally also affected by habitat loss as a result of logging.

Conservation Measures This species has been recorded from a number of protected areas in Costa Rica. Further research is urgently needed into the ecology and population status of this frog; in view of the possible threat of chytridiomycosis, *ex-situ* populations might need to be established.

Notes on taxonomy: This species was previously included in the genus *Hyla* but has recently been moved to the new genus *Isthmohyla* (Faivovich *et al.* 2005).

Bibliography: Duellman, W.E. (2001), Faivovich, J. *et al.* (2005), Ibáñez, R. *et al.* (2000), Myers, C.W. and Duellman, W.E. (1982), Pounds, J.A. *et al.* (1997), Savage, J.M. (2002), Young, B. *et al.* (1999)

Data Providers: Frank Solís, Roberto Ibáñez, Alan Pounds, Federico Bolaños, Gerardo Chaves, Jay Savage, César Jaramillo, Querube Fuenmayor

VU *Isthmohyla zeteki* (Gauge, 1929)**Vulnerable B1ab(iii)****Order, Family:** Anura, Hylidae**Country Distribution:** Costa Rica, Panama**Current Population Trend:** Decreasing

© Robert Puschendorf



Geographic Range This species can be found in humid premontane areas or marginally in the lower montane zone of the Cordillera Central and Cordillera de Talamanca of Costa Rica and western Panama, from 1,200-1,804m asl (Savage 2002).

Population The available evidence suggests that Costa Rican populations are stable in suitable habitat, and have not exhibited the declines noted in many other montane species.

Habitat and Ecology It inhabits bromeliads in humid montane forest. Breeding and larval development takes place in the bromeliads (phytotelmic species), with eggs laid on the outside leaves above the waterline in the bromeliad cups (Savage 2002).

Major Threats The threats to this species are not well known, but likely include general habitat loss as a result of logging, human settlement, and some agricultural activities.

Conservation Measures This species is known from a number of protected areas, including Parque Nacional Braulio Carrillo.

Notes on taxonomy: This species was previously included in the genus *Hyla* but has recently been moved to the new genus *Isthmohyla* (Faivovich *et al.* 2005).

Bibliography: Duellman, W.E. (2001), Dunn, E.R. (1937), Faivovich, J. *et al.* (2005), Ibáñez, R. *et al.* (2000), Savage, J.M. (2002), Young, B. *et al.* (1999)

Data Providers: Frank Solís, Roberto Ibáñez, Gerardo Chaves, Jay Savage, César Jaramillo, Querube Fuenmayor

VU *Litoria andiirmalin* McDonald, 1997**Vulnerable D2****Order, Family:** Anura, Hylidae**Country Distribution:** Australia**Current Population Trend:** Stable

© Stephen Richards



Geographic Range This species is known only from four streams in boulder fields in northern Queensland, Australia, above 60m asl.

Population There is no information on the population status of this species, but it is believed to be stable.

Habitat and Ecology This species is found associated with rocky streams with large granite boulders and granite bedrock in rainforest and mesophyll vine forest with Melaleuca emergents. It is often seen sitting on rocks, vines and twigs adjacent to cascades and riffles. It shelters under rocks and vegetation. It breeds in summer with the onset of the wet season. Males can be heard calling in late November.

Major Threats There are no known major threats.

Conservation Measures All populations are found within Cape Melville National Park. There is a need for close population monitoring of this species given its restricted range.

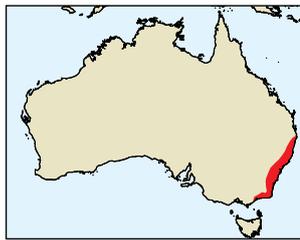
Bibliography: McDonald, K.R. (1997)

Data Providers: Jean-Marc Hero, Keith McDonald, Ross Alford, Michael Cunningham, Richard Retallick

CAPE MELVILLE TREEFROG

VU *Litoria aurea* (Lesson, 1830)

Vulnerable A2ace
Order, Family: Anura, Hylidae
Country Distribution: Australia, New Caledonia (Introduced), New Zealand (Introduced)
Current Population Trend: Decreasing



Geographic Range This Australian species has been recorded along the south-east coast from East Gippsland in Victoria, north to approximately Byron Bay in north-east New South Wales (Gillespie 1996; White and Pyke 1996). Most records are from elevations below 100m asl. North of Sydney, there were a few high-elevation records of the species and almost all records were east of the Great Divide (the only discrepant records are from Armidale and Ebor) (White and Pyke 1996). On the Southern Tablelands, the species does not appear to occur above 800m asl (Osborne, Littlejohn and Thomson 1996) and in Victoria the species does not appear to occur above about 670m asl (Gillespie 1996). Populations occur on two offshore islands in New South Wales, Bowen Island in Jervis Bay (Osborne and McElhinney 1996) and Broughton Island north of Port Stephens (New South Wales NPWS Atlas 1998). It remains unknown whether or not these populations are relictual or the result of assisted translocation (Mahony 1999). It has been introduced to New Zealand and is widespread across northern North Island, and pet traders have moved it between the North and South Islands. It is also introduced to New Caledonia and New Hebrides (Tyler 1979).

Population This species was formerly considered to be common throughout its range (Tyler 1992). Since about 1960, declines in the distribution and abundance of the species have been observed to the extent that it may now be regarded as rare (White and Pyke 1996). In New South Wales, the species has disappeared completely from all highland areas above 250m asl and coastal populations have been reduced in number and are more isolated from other populations (White and Pyke 1996). Osborne, Littlejohn and Thomson (1996) observed that the species had declined in the Australian Capital Territory and had not been recorded from the Southern Tablelands since 1980. Declines in abundance have been observed in New South Wales and the Australian Capital Territory (White and Pyke 1996; Osborne, Littlejohn and Thomson 1996; Lewis and Goldingay 1999; Goldingay and Lewis 1999), although no similar decline in distribution and abundance in Victoria is so far apparent (Gillespie 1996). Recent censuses of populations throughout the distribution of the species indicate that many are small, with most estimates being less than 20 adults (White and Pyke 1996). In New Zealand, where the species has been introduced, there are many thousands of individuals, but local declines have been observed with chytridiomycosis and introduced *Gambusia* fish being implicated.

Habitat and Ecology The natural habitat requirements of the species have proved difficult to define because it has been associated with almost every type of water body except fast-flowing streams (Pyke and White 1996). There also appears to be some confusion over whether or not forested habitats are utilized by the species (Lemckert 1996; Gillespie 1996). Pyke and White (1996) examined sites where *L. aurea* is known to have been present, and compared

the habitat at sites where breeding was identified with that at locations where breeding was not identified, in New South Wales. Sites which supported breeding populations were found to contain waterbodies which are still, shallow, ephemeral, unpolluted, with aquatic plants and generally free of *Gambusia* and other predatory fish (but not always); adjacent terrestrial habitats consisted of grassy areas and vegetation no higher than woodlands, and a range of diurnal shelter sites. Breeding occurred in a significantly higher proportion of sites with ephemeral ponds rather than sites with fluctuating or permanent ponds, and where predatory fish were absent. Mahony (1999) commented on the limitations of the study and suggested that the results do not necessarily identify the requirements of the species prior to declines. It is worthy to note that the use of ephemeral breeding sites was not a feature associated with members of the bell frog group in earlier habitat descriptions (Mahony 1999). Pyke and White (1996) suggest that the habitat requirements of *L. aurea* in New South Wales and Victoria differ. In New South Wales the species occupies disturbed habitats and breeding largely occurs in ephemeral ponds (Pyke and White 1996). However, in Victoria it occupies habitats with little human disturbance and commonly breeds in permanent ponds as well as ephemeral ponds (Pyke and White 1996). Goldingay (1996) argued that this is because most natural habitats are degraded or lost in New South Wales. In Victoria the species is predominantly found on the coastal plains and low foothills of the hinterland where it has been recorded in a range of lentic and terrestrial habitats (Gillespie 1996). Breeding has been documented from dams in both forested and cleared areas, swamps in farmland, gravel pits, billabongs, marshes, coastal lagoon wetlands, wet swale herb lands and isolated stream-side pools (Gillespie 1996). These habitats are mostly permanent, but include some ephemeral waterbodies (Gillespie 1996). All habitats are characterized by stationary water (Gillespie 1996). Virtually all isolated waterbodies are free of native fish species and typically have dense emergent vegetation (Gillespie 1996). It can be found in a variety of terrestrial habitats including lowland forest, banksia woodland, wet heath land, riparian scrub complex, riparian shrubland, riparian forest, damp forest, shrubby dry forest and cleared pastoral lands (Gillespie 1996). It is seasonally active and has been observed from September to early May (Daly 1995). Males call between September and March. Spawn is laid amongst aquatic vegetation and has been observed in December, January and February (Daly 1995). Counts of eight egg masses ranged from 2,463-11,682 eggs (van de Mortel and Goldingay 1998). Eggs hatch within three days and metamorphosis can take from 2-11 months (Daly 1995); however, six weeks appears to be an average duration for the field (R. Goldingay pers. comm.).

Major Threats The cause(s) of the apparent declines observed in populations of all taxa within the *L. aurea* complex are unclear (Gillespie, Osborne and McElhinney 1995). Investigations of disappearances among the group have primarily focused on *L. aurea* and *L. castanea* and two major directions in research have been pursued: the role of increased ultraviolet radiation; and the impact of the introduced fish, *Gambusia* (Mahony 1999). It is also possible that disease, such as a viral infection or chytrid fungus, might have contributed to the decline of this species (W. Osborne pers. comm.). Chytrid fungus was detected in this species in Hoskinstown and Homebush Bay in Sydney, New South Wales.

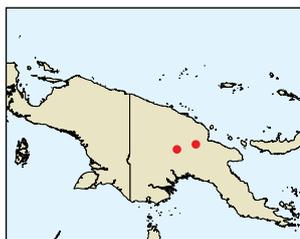
Conservation Measures There has been a lot of research into threats to the species and movement towards a conservation strategy. Its range includes several protected areas. As an introduced species in New Zealand it has the potential to spread chytridiomycosis to areas inhabited by native frogs. There is a cooperative program between Taronga Zoo and a range of NSW agencies and NGO's, involving breeding and release at a number of sites close to Sydney. This program is currently under review.

Bibliography: Bell, B.D. (1982a), Bell, B.D. (1982b), Courtice, G.P. and Grigg, G.C. (1975), Daly, G. (1995), Gill, B.J., Whitaker, A.H. (1996), Gillespie, G.R. (1996), Gillespie, G.R. and Hero, J.M. (1999), Gillespie, G.R., Osborne, W.S. and McElhinney, N.A. (1995), Goldingay, R. and Lewis, B. (1999), Goldingay, R.L. (1996), Hero, J.-M., Littlejohn, M. and Marantelli, G. (1991), Lemckert, F. (1996), Lewis, B. and Goldingay, R. (1999), Mahony, M. (1999), Morgan, L.A. and Buttermar, W.A. (1996), Murphy, M.J. (1995), NSW National Parks and Wildlife Service (1998), Osborne, W.S. and McElhinney, N.A. (1996), Osborne, W.S., Littlejohn, M.J. and Thomson, S.A. (1996), Pyke, G.H. et al. (2002), Pyke, G.H. and White, A.W. (1996), Tyler, M.J. (1979), Tyler, M.J. (1992), Tyler, M.J. (1997), van de Mortel, T.F. and Buttermar, W.A. (1996), van de Mortel, T.F. and Goldingay, R. (1996), Webb, C.E. and Joss, J. (1997)

Data Providers: Jean-Marc Hero, Graeme Gillespie, Harold Cogger, Frank Lemckert, Peter Robertson

VU *Litoria becki* (Loveridge, 1945)

Vulnerable D2
Order, Family: Anura, Hylidae
Country Distribution: Papua New Guinea
Current Population Trend: Unknown



Geographic Range This species is currently known only from Mount Wilhelm in the central mountains of Papua New Guinea, but it might have a broader distribution at high altitudes in New Guinea. Another population might survive on Mount Giluwe and perhaps also on Mount Hagen. It has been recorded from above 3,000m asl, and so the amount of habitat available within its potential range is probably limited.

Population There is no recent information available on the population status of this species. There are specimens in a collection in Papua New Guinea from the 1970s and 1980s that might represent this species.

Habitat and Ecology There are no specific data available, but it is probably found in montane rainforest. It presumably breeds in torrential high-altitude streams.

Major Threats There is no information on threats to this species, but it is known from an area where there is very little human impact. A potential future threat is the spread of chytridiomycosis, which has been implicated in the declines of high-altitude, torrent-dwelling treefrogs in Australia.

Conservation Measures There is no information from any protected areas. There is a need for further survey work to better determine the distribution and population status of this species in the high mountains of central Papua New Guinea.

Notes on taxonomy: This species is part of a taxonomically poorly defined group of frogs (R. Zweifel pers. comm.).

Bibliography: Tyler, M.J. (1968)

Data Providers: Stephen Richards, Fred Parker

CR *Litoria booroolongensis* (Moore, 1961)

Critically Endangered B2ab(i,ii,iii,iv,v)
Order, Family: Anura, Hylidae
Country Distribution: Australia
Current Population Trend: Decreasing



Geographic Range This Australian endemic ranges from the Queensland border south down the Great Dividing Range almost to the Victorian border. It has not been recorded from the Northern Tablelands during the past 15 years despite extensive surveys. The only extant population in Northern New South Wales is near Tamworth. The area of

occupancy of this species is only approximately 10km² and is severely fragmented. It has been recorded between 200 and 1,000m asl.

Population There have been very few records of the species in the past five years and the species is believed to have undergone massive declines over its entire range.

Habitat and Ecology This is a highland species associated with western-flowing rocky streams on the slopes and tablelands of the Great Dividing Range. Streams are slow-flowing and bordered by grassy vegetation. Males begin calling in August from rocks in or near the water. It is most active at night but also often found in daylight on rocks on the waters edge.

Major Threats The widespread disappearance of this species across most of its range is probably due to chytridiomycosis. In addition, introduced fish occur in many streams where the species has been recorded, which exert predatory pressure upon tadpoles of this species. Land clearing, forest grazing and timber harvesting have occurred adjacent to or in the headwaters of catchments in which the species has been recorded. Flow modification and weed invasion (particularly by willows) has also occurred along many streams where the species occurs.

Conservation Measures Development of a management plan is under way, but much further research and survey work is needed as is protection and rehabilitation of remaining habitat. The range of the species includes several protected areas, and it is given protection where it occurs in state forests. Given the probable threat of chytridiomycosis, recommended conservation measures will probably need to include the establishment of a captive-breeding programme.

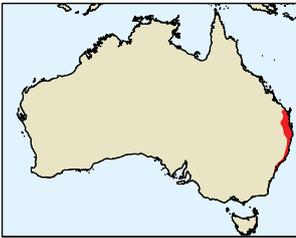
Bibliography: Barker, J., Grigg, G. and Tyler, M. (1995), Gillespie, G. and Hines, H.B. (1999), Moore, J.A. (1961)

Data Providers: Jean-Marc Hero, Graeme Gillespie, Frank Lemckert, Peter Robertson, Murray Littlejohn

GREEN AND GOLDEN BELL FROG**BOOROOLONG FROG**

EN *Litoria brevipalmata* Tyler, Martin and Watson, 1972

Endangered B2ab(iii,iv,v)
Order, Family: Anura, Hylidae
Country Distribution: Australia
Current Population Trend: Decreasing



© Marion Anstis

Geographic Range This Australian endemic occurs from Cordalba State Forest in south-east Queensland south to Ourimbah, approximately 100km north of Sydney in New South Wales. The Darkes Forest records are erroneous. They have been recorded from sea level up to at least 150m asl, and possibly a little higher. The area of occupancy is thought to be less than 500km².

Population It has decreased at Ourimbah on the central coast of New South Wales, but elsewhere there have been no reports of declines or disappearances. It is still found throughout the Ourimbah Valley. Additional populations have been found in Queensland as a result of increased surveying. It is listed as rare in Queensland and New South Wales.

Habitat and Ecology It inhabits the leaf-litter and low vegetation of forests and prefers wetter forest types in the southern half of its range, but extends also into open and drier forests in north-east New South Wales and south-east Queensland (Lemckert *et al.* 2006). It breeds after heavy rains anywhere from September to May (spring to autumn in the southern hemisphere), preferring larger temporary pools, and flooded areas for breeding (Lemckert and Slatyer 2002). Eggs (about 500-600) are laid in loose clumps among waterweed. The larvae are free swimming.

Major Threats Recently, the development of an extensive highway system and rapidly expanding coastal lowland development has increased threats to this species. Several populations have been directly affected by road construction and fragmentation by roads and housing is probably significantly restricting movements between populations.

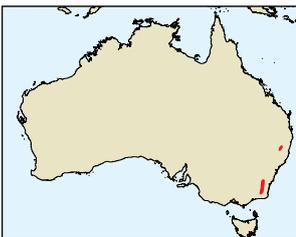
Conservation Measures Protection of breeding sites in state forests, national parks and other conservation parks and reserves is in place. However, a management plan for the conservation of this species is needed.

Bibliography: Anstis, M. (1994), Barker, J., Grigg, G. and Tyler, M. (1995), Hines, H., Mahony, M. and McDonald, K. (1999), Lemckert, F. *et al.* (2006), Lemckert, F.L. and Slatyer, C. (2002), Natrass, A.E.O. and Ingram, G.J. (1993)

Data Providers: Jean-Marc Hero, Harry Hines, Ed Meyer, Frank Lemckert, David Newell, John Clarke

GREEN-THIGGED FROG**CR** *Litoria castanea* Steindachner, 1867

Critically Endangered D
Order, Family: Anura, Hylidae
Country Distribution: Australia
Current Population Trend: Unknown



© John Wombey

Geographic Range Some uncertainty surrounds the taxonomic status of the northern (*L. flavipunctata* of Courtice and Grigg 1975) and southern populations of *Litoria castanea*. Thomson *et al.* (1996) suggest that the northern and southern populations represent one species consisting of two disjunctive isolates separated by a distance of about 500km (see also map in Osborne, Littlejohn and Thomson 1996). The northern population was known from a relatively restricted distribution centred around the town of Guyra on the New England Tableland at altitudes between 1,000 and 1,500m asl (White and Ehmann 1997a; Mahony 1999). It occupied the headwaters of the west flowing Booroolong Creek and to a lesser extent those of the east flowing Anne River and Sarah River (Heatwole *et al.* 1995). Near Armidale, the species has been recorded from Commissioners Waters, a tributary of the east flowing Gara River (Heatwole *et al.* 1995). There are 13 known sites in the region (most above 1,000m asl) all of which have been verified by examination of museum specimens or photographs (Mahony 1999). The southern population has a restricted distribution between Canberra and Bombala on the Southern Tablelands at altitudes between 700 and 800m asl (Mahony 1999). The southern population was broadly sympatric with *L. aurea* in the north of its range and with *L. raniformis* in the south-west of the region (Mahony 1999).

Population There are no verified records of the northern population after 1975 (White and Ehmann 1997a) and the last specimen to be placed in the museum was collected in 1973 (Australian Museum Register in Mahony 1999). The southern tablelands population suffered an extensive decline, with no confirmed records since 1980 (Osborne, Littlejohn and Thomson 1996; Mahony 1999). It is not yet considered extinct because of the lack of surveys of potential habitat, especially in areas between the northern and southern populations.

Habitat and Ecology *Litoria castanea* occupies similar habitat to *L. aurea* and *L. raniformis* which includes permanent ponds, swamps, lagoons, farm dams and the still backwaters of rivers usually with tall reeds present (Courtice and Grigg 1975; White and Ehmann 1997a, b). The species was also found in ponds or slow moving streams with overhanging grassy banks in the absence of reed beds (Courtice and Grigg 1975). *Litoria castanea* was found to over-winter in the hollow centres of rotting logs and in the earth surrounding the roots of uprooted trees (Courtice and Grigg 1975), and in the base of sedge tussocks (Humphries 1979). Little is known about the biology of this species; however, it is likely to be similar to that of *L. aurea* and *L. raniformis* (Gillespie, Osborne and McElhinney 1995). Individuals reach sexual maturity at three years and live for six years.

Major Threats The cause(s) of the apparent declines observed in populations of all taxa within the *L. aurea* complex are unclear (Gillespie, Osborne and McElhinney 1995), although chytridiomycosis must be strongly suspected. Investigations of disappearances among the group have primarily focused on *L. aurea* and *L. castanea* and two major directions in research have been pursued: the role of increased ultraviolet radiation; and the impact of the introduced fish, *Gambusia*, which is native to southern and eastern USA (Mahony 1999). However, it is likely that disease, such as chytrid fungus or a viral infection, contributed to the decline of this species (W. Osborne pers. comm.).

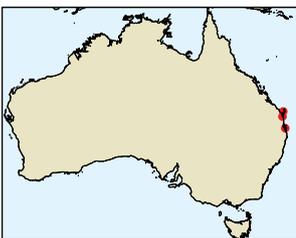
Conservation Measures Further survey work is required to determine whether or not this species still survives, particularly in the southern tablelands, and in areas of suitable habitat between the northern and southern populations. Research into possible causes of this species' disappearance and the decline of similar species (*L. aurea* and *L. raniformis*) is urgently needed.

Bibliography: Barker, J., Grigg, G. and Tyler, M. (1995), Courtice, G.P. and Grigg, G.C. (1975), Gillespie, G.R. and Hero, J.M. (1999), Gillespie, G.R., Osborne, W.S. and McElhinney, N.A. (1995), Goldingay, R. and Lewis, B. (1999), Heatwole, H. *et al.* (1995), Humphries, R. (1979), Mahony, M. (1999), Morgan, L.A. and Buttermer, W.A. (1996), Osborne, W.S., Littlejohn, M.J. and Thomson, S.A. (1996), Thompson, S.A. *et al.* (1996), Tyler, M.J. (1997), van de Mortel, T.F. and Buttermer, W.A. (1996), Webb, C.E. and Joss, J. (1997), White, A.W. and Ehmann, H. (1997a), White, A.W. and Ehmann, H. (1997b)

Data Providers: Jean-Marc Hero, Harry Hines, Frank Lemckert, Peter Robertson

YELLOW-SPOTTED TREEFROG**EN** *Litoria cooloolensis* Liem, 1974

Endangered B1ab(iii)
Order, Family: Anura, Hylidae
Country Distribution: Australia
Current Population Trend: Decreasing



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Geographic Range This Australian endemic is known from south-eastern Queensland in Cooloola (or Great Sandy) National Park on Fraser Island, and North Stradbroke Island.

Population It occurs in large numbers on Fraser Island.

Habitat and Ecology The species is found in sandy coastal and island freshwater lakes and wallum creeks, where it has a preference for dense reed beds. It is a spring and summer breeder, with males calling from reeds or trees around freshwater lakes. Eggs are deposited on submerged vegetation; larvae are free-swimming.

Major Threats High human visitation to the freshwater lakes important for breeding is a major threat, as is the trampling of reed beds and the pollution of water. Water extraction for sand mining and domestic use has had significant impacts on populations on North Stradbroke Island through habitat loss, deterioration in water quality and alterations in hydrology. More significantly, this species has virtually disappeared from Brown Lake on North Stradbroke Island following the introduction of predatory *Gambusia* fish there in 2003. However, overall these threats are relatively localized.

Conservation Measures Most of the population is protected in the Cooloola or Great Sandy National Park. Fraser Island was inscribed into the list of UNESCO World Heritage Areas in 1992. Measures need to be taken to prevent the spread of *Gambusia* within its range, and to control the impacts of tourism.

Notes on taxonomy: Genetic, vocalization and morphological differences between the populations on Cooloola and Fraser Island and those on North Stradbroke Island indicate that the latter might represent a distinct species or subspecies (James 2000; E. Meyer unpubl.).

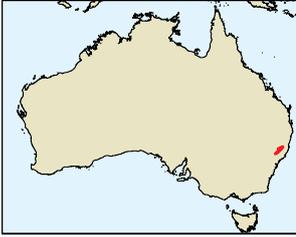
Bibliography: Barker, J., Grigg, G. and Tyler, M. (1995), Hines, H., Mahony, M. and McDonald, K. (1999), James, C.H. (1998), Liem, D.S. (1974a)

Data Providers: Harry Hines, Ed Meyer, Jean-Marc Hero, David Newell, John Clarke

COOLOOLA TREEFROG

VU *Litoria daviesae* Mahony, Knowles, Foster and Donnellan, 2001

Vulnerable B1ab(iii)
Order, Family: Anura, Hylidae
Country Distribution: Australia
Current Population Trend: Decreasing



© Ross Knowles

Geographic Range This species is known from 14 different locations in a narrow band on the eastern edge of the tablelands and the great escarpment of the Great Dividing Range, within central-eastern to lower north-eastern New South Wales, Australia. It is only found above 400m asl.

Population It is not abundant, and has generally been recorded as small populations.

Habitat and Ecology This species is associated with areas of unpolluted, upland streams in heath land or dry open forest on the tablelands, or wet sclerophyll and rainforest vegetation on the edge of the escarpment and in deeper gullies. The adults do not occur away from upland stream habitats. Nothing is known about habitat use of this species outside the breeding season. The larvae develop in the streams.

Major Threats This species has a small geographic range and has suffered habitat loss and fragmentation through clearance for agriculture. Many of the streams within the species' range have been stocked with exotic fishes (carp, trout, mosquito fish) that are likely to be predators of the tadpoles. The impact of forestry practices at many sites where the species is known to occur requires assessment.

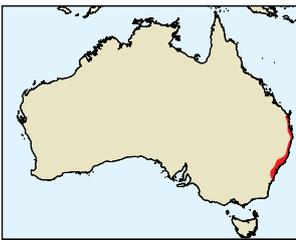
Conservation Measures It is known from a number of protected areas.

Bibliography: Mahony, M. *et al.* (2001)

Data Providers: Jean-Marc Hero, Michael Mahony

VU *Litoria freycineti* Tschudi, 1838

Vulnerable B2ab(ii,iii,iv,v)
Order, Family: Anura, Hylidae
Country Distribution: Australia
Current Population Trend: Decreasing



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FREYCINET'S FROG

Geographic Range This Australian endemic occurs from Fraser Island in Queensland, south to Jervis Bay in mid-eastern New South Wales.

Population There is no information on population status.

Habitat and Ecology This species occupies a variety of habitats, but is most commonly seen in the vicinity of temporary coastal swamps (wallum). These areas typically have low nutrient soils and heath, sedge land, Melaleuca swamp or Banksia woodland vegetation. It is mostly a nocturnal species, and is a spring and summer breeder. Eggs are demersal and laid in shallow water, and the larvae are free-swimming.

Major Threats Clearing of habitat for agriculture, pine plantations, housing and other infrastructure is a threat; they occur in an area with the highest rate of human population growth in Australia. Other threats include habitat degradation through alterations in hydrology and increased nutrient loads, invading weeds, and inappropriate fire regimes.

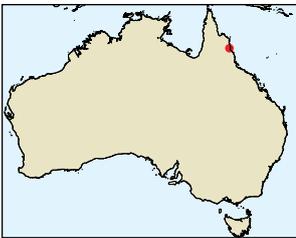
Conservation Measures The range of the species includes several protected areas, including Fraser Island National Park.

Bibliography: Barker, J., Grigg, G. and Tyler, M. (1995), Hines, H., Mahony, M. and McDonald, K. (1999), Moore, J.A. (1961)

Data Providers: Harry Hines, Jean-Marc Hero, Ed Meyer, David Newell

CR *Litoria lorica* Davies and McDonald, 1979

Critically Endangered D
Order, Family: Anura, Hylidae
Country Distribution: Australia
Current Population Trend: Decreasing



Geographic Range This species was first located in 1976 and later described by Davies and McDonald (1979). It is known from four localities-Alexandra Creek (TR165); Hilda Creek (near Thornton Peak, Cape Tribulation National Park); Roaring Meg Cascades (via Mount Sorrow TR165); and Bluff Creek (Mossman Gorge Daintree National Park), north-east Queensland (Hero and Fickling 1994; M. Cunningham pers. comm.).

Population It was once moderately common in suitable habitat, but it has undergone a dramatic decline. Despite recent efforts to locate the species, it has not been seen since 1991 (Ingram and McDonald 1993; Hero *et al.* 1998, 2002), and it might now be extinct. However, few searches for the species have been undertaken at historical sites (J.-M. Hero and M. Cunningham pers. comm.).

Habitat and Ecology This species is known to be a rainforest specialist endemic to the Wet Tropics Bioregion (Williams and Hero 1998, 2001). As a stream-dwelling/stream-breeding species (Hero and Fickling 1994) it prefers fast-flowing streams in upland rainfor-

est between 640 and 1,000m asl (McDonald 1992), although it might be present at lower altitudes (M. Cunningham pers. comm.). It has been found on granite boulders in notophyll vine forest in the splash zone near turbulent fast flowing water (Davies and McDonald 1979). There is no information on breeding season, timing of reproduction, or

egg deposition sites. The tadpoles of the species have not been described but are thought to be torrent-adapted and similar to that of a sympatric species, *Litoria nannotis* (Davies and McDonald 1979). Unpigmented eggs (M. Cunningham unpubl.) are presumably laid in water under rocks in the stream.

Major Threats The reason(s) for the decline of this species are unknown, although chytridiomycosis must be strongly suspected. The habitat of the species in the Wet Tropics has been protected since 1988; therefore, habitat destruction is no longer a threat (McDonald and Alford 1999). Current research is examining the possibility that disease, such as a viral and infection or chytrid fungus, might have contributed to the decline of this species (Berger, Speare and Hyatt 1999). Feral pigs have been suggested as a potential cause of riparian habitat damage and adult frog mortality (Richards, McDonald and Alford 1993). However, feral pigs are unlikely to have a direct impact due to the close association of this species with rocky cascades in streams (M. Cunningham pers. comm.).

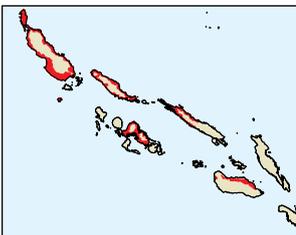
Conservation Measures The habitat of the species in the Wet Tropics has been protected within protected areas since 1988. This species is a priority for immediate survey work to determine whether or not it still survives at the localities from which it has previously been recorded. Research is also needed into the possible reasons for the decline of the species. Given the possible threat of chytridiomycosis, surviving individuals might need to form the basis for the establishment of an *ex-situ* population.

Bibliography: Barker, J., Grigg, G. and Tyler, M. (1995), Berger, L., Speare, R. and Hyatt, A. (1999), Davies, M. and McDonald, K.R. (1979), Hero, J.-M. *et al.* (1998), Hero, J.-M. *et al.* (2002), Hero, J.-M. and Fickling, S. (1994), Ingram, G.J. and McDonald, K.R. (1993), McDonald, K. and Alford, R. (1999), McDonald, K.R. (1992), Richards, S.J., McDonald, K.R. and Alford, R.A. (1993), Williams, S.E. and Hero, J.-M. (1998), Williams, S.E. and Hero, J.-M. (2001)

Data Providers: Jean-Marc Hero, Michael Cunningham, Ross Alford, Keith McDonald

ARMoured FROG**VU** *Litoria lutea* (Boulenger, 1887)

Vulnerable B1ab(iii)
Order, Family: Anura, Hylidae
Country Distribution: Papua New Guinea, Solomon Islands
Current Population Trend: Decreasing



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Geographic Range This is a poorly known species occurring in the north-western islands of the Solomons archipelago, from Isabel and New Georgia in the south, to Buka (in Papua New Guinea) in the north. Recent studies (S. Richards, unpubl.) suggest that this species is more widespread in the Solomon Islands than previously documented. It is a lowland species that probably occurs only up to about 50m asl.

Population There is no information on population status, but it most likely occurs at low densities.

Habitat and Ecology This species is arboreal, and found in tropical rainforest. It possibly breeds in swamps in forests. In Bougainville it has been observed laying eggs on the vertical surface of trees above water-filled tree holes; the tadpoles then fall into the water.

Major Threats The major threat to this species is habitat loss due to logging.

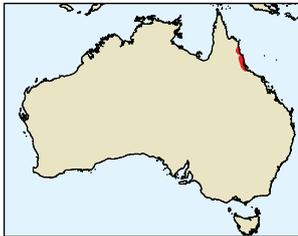
Conservation Measures It is not recorded from any protected areas, so there is a need for improved habitat protection at the lowland sites where this species is known to occur. The distribution of this species requires further documentation.

Bibliography: Brown, W.C. (1952), Tyler, M.J. (1968)

Data Providers: Stephen Richards, Fred Parker

EN *Litoria nannotis* (Andersson, 1916)**Endangered A2ae**

Order, Family: Anura, Hylidae
Country Distribution: Australia
Current Population Trend: Stable



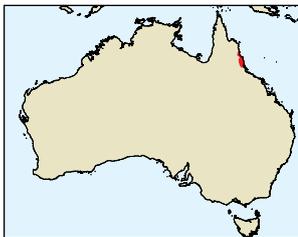
© Jodi Rowley

Geographic Range This species is endemic to the Wet Tropics Bioregion in north Queensland, from Paluma to Cooktown (Hero and Fickling 1994; Williams and Hero 1998, 2001) at altitudes between 180 and 1,300m asl (McDonald 1992). It includes three deeply divergent mitochondrial DNA lineages, distributed from Paluma to Tully River, Tully River to Lamb Range, and Mount Lewis to Big Tableland (Schneider, Cunningham and Moritz 1998).

Population This species was first noted to have declined in 1990 (Richards, McDonald and Alford 1993), since it had apparently disappeared from most upland sites south of the Daintree River. The species occurred at all lowland sites, and at upland sites north of the Daintree River during summer surveys in 1991-1992. In 1994 it was sighted at several locations above 600m asl on Mount Father Clancy. Lowland populations surveyed in Tully Gorge appeared to be relatively stable between 1995 and 1998 (J.-M. Hero pers. comm.). At the southern end of its range it was last observed in Mount Spec State Forest in 1991 (Richards, McDonald and Alford 1993); however, adults occurred at a lower elevation site in a different creek system (Crystal Creek Stone Bridge, 300m asl) from January 1994 to September 1995 (J.-M. Hero pers. comm.). This species is currently known to have stable populations at lowland sites (Hero et al. 1998; McDonald and Alford 1999).

CR *Litoria nyakalensis* Liem, 1974**Critically Endangered D**

Order, Family: Anura, Hylidae
Country Distribution: Australia
Current Population Trend: Decreasing



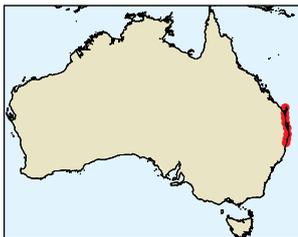
© Stephen Richards

Geographic Range This species, an Australian endemic, formerly occurred across two thirds of the Wet Tropics from Douglas Creek near Cardwell to Alexandra Creek, Thornton Peak north-east Queensland (Hero and Fickling 1994) at altitudes between 380 and 1,020m asl (McDonald 1992).

Population It was once moderately common in suitable habitat, but it has undergone a catastrophic decline. Adults were last recorded in April 1990, and tadpoles and metamorphs were last recorded in November 1990 on the Carbine Tableland (Richards, McDonald and Alford 1993). However, this species had apparently disappeared from sites on the Atherton Tableland much earlier (Richards, McDonald and Alford 1993). It was recorded from various sites on the Atherton Tableland prior to 1973 (Liem 1974b), but was not encountered in Danbulla State Forest during 1989-1992 or at any Atherton Tableland site during surveys conducted between 1991 and 1992 (Richards, McDonald and Alford 1993). No information is available on population structure or genetic variation (M. Cunningham pers. comm.). The

VU *Litoria olongburensis* Liem and Ingram, 1977**Vulnerable B1ab(ii,iii,iv)+2ab(ii,iii,iv)**

Order, Family: Anura, Hylidae
Country Distribution: Australia
Current Population Trend: Decreasing



© Marion Anstis

Geographic Range This species is distributed from Lake Woongeel, Fraser Island, south to near Woolgoolga including Bribie, Moreton and Stradbroke Island, south-east Queensland, Australia (Hines, Mahony and McDonald 1999).

Population There is no information on population size, structure or dynamics (Hines, Mahony and McDonald 1999). The species exhibits genetic structuring on a north-south gradient (James 1996). Populations in northern New South Wales, North Stradbroke Island, Moreton Island and Cooloola-Fraser are each genetically different and significantly divergent from each other, and should be considered demographically independent due to their insular nature (James 1996).

Habitat and Ecology This species inhabits coastal sand plains and dunes of "the wallum" (Hines, Mahony and McDonald 1999). Vegetation types typical of these environments include heath land, Melaleuca swamp, sedge land and Banksia woodland (Hines, Mahony and McDonald 1999). It is associated with low pH waters characteristic of wallum

TORRENT TREEFROG

Habitat and Ecology *Litoria nannotis* is a habitat specialist, restricted to rocky stream habitats in rainforest or wet sclerophyll forest where there is fast-flowing water, waterfalls and cascades (Liem 1974b; McDonald 1992). It is a stream dwelling and breeding species (Hodgkison and Hero 2001), but, unlike most stream-breeding frog species that live in the adjacent forest and use the stream habitat for breeding, the stream is the primary habitat for both male and females throughout the year (Hodgkison and Hero 2001, 2002). On several occasions the adults and juveniles were noted to form small aggregations (4-6 individuals) amongst large boulders behind waterfalls (Liem 1974b; J.-M. Hero pers. obs.). Gravid females and males with nuptial pads are encountered all year round (Martin and McDonald 1995). Unpigmented eggs numbering 136-216 (1.98-3.4mm in diameter) are laid in gelatinous egg masses under rocks in water (Liem 1974b; Hero and Fickling 1996). Liem (1974b) described the larva and noted that it is one of the few species of frog known to exhibit larval adaptations to torrent environments of Australia, such as a streamlined body shape, large suctorial mouthparts and a muscular tail. Richards (1992) also provided information on the larvae of the *L. nannotis* group.

Major Threats The reason(s) for the decline are unknown. Richards, McDonald and Alford (1993) reject drought, floods, habitat destruction or pollution by pesticides, inorganic ions or heavy metals. The habitat of the species in the Wet Tropics has been protected since 1988, and habitat destruction is no longer a major threat (McDonald and Alford 1999). Research is examining the possibility that disease, such as a viral infection or chytrid fungus, may have contributed to the decline of this species (Berger, Speare and Hyatt 1999). Feral pigs are a potential cause of riparian habitat damage and adult frog mortality (Richards, McDonald and Alford 1993). The activity of feral pigs has been recorded to have increased over the period 1989-1992 in an area previously inhabited by *L. nannotis* (Richards, McDonald and Alford 1993). However, there has been very little research into the impact of feral pigs on native frog populations (Richards, McDonald and Alford 1993).

Conservation Measures There is a need for continued and strengthened protection of habitat in the Wet Tropics, including an improved management plan that involves dealing with the threat posed by feral pigs. Further research into the reasons for the decline of this species in pristine habitat is necessary.

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Data Providers: Jean-Marc Hero, Richard Retailick

MOUNTAIN MISTFROG

species might now be extinct.

Habitat and Ecology This species is a rainforest specialist, endemic to the Wet Tropics Bioregion (Williams and Hero 1998, 2001) found in upland rainforest and wet sclerophyll forest along fast-flowing streams where there is white water from riffles and cascades (Liem 1974b; McDonald 1992). It is usually found perched on rocks or overhanging vegetation adjacent to the water (Liem 1974b). Little is known about the life history of this species. Mating calls have been heard from October to March (Liem 1974b). From 86-90 large unpigmented eggs (1.9-2.5mm diameter) are laid under rocks in riffles (Richards 1993a; Hero and Fickling 1996). Richards (1992) described the tadpole and noted that it is one of the few species of tadpole known to exhibit adaptations to torrent environments of Australia, including a streamlined body shape, large suctorial mouthparts and muscular tail. Tadpoles commonly overwinter in upland streams, although those hatching in early summer can metamorphose before the next autumn (Richards 1992).

Major Threats The reason(s) for the decline of this species are unknown, although chytridiomycosis must be strongly suspected. Richards, McDonald and Alford (1993) reject drought, floods, habitat destruction, or pollution by pesticides, inorganic ions or heavy metals. The habitat of the species in the Wet Tropics has been protected since 1988; therefore, habitat destruction is no longer a threat (McDonald and Alford 1999). Current research is examining the possibility that disease, such as a viral infection or chytrid fungus, might have contributed to the decline of this species (Berger, Speare and Hyatt 1999). Feral pigs are a potential cause of riparian habitat damage and adult frog mortality (Richards, McDonald and Alford 1993). The activity of feral pigs has been recorded to have increased over the period 1989-1992 in an area previously inhabited by this species (Richards, McDonald and Alford 1993).

Conservation Measures The habitat of the species in the Wet Tropics has been protected since 1988. This species is a priority for immediate survey work to determine whether or not it still survives at the localities from which it has previously been recorded. Research is also needed into the possible reasons for the decline of the species. Given the possible threat of chytridiomycosis or some other disease, surviving individuals might need to form the basis for the establishment of an *ex-situ* population.

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Data Providers: Jean-Marc Hero, Michael Cunningham, Ross Alford, Keith McDonald, Richard Retailick

OLONGBURRA FROG

environments, usually found in sedge swamps, and less commonly in coastal lakes and creek environs (Liem and Ingram 1977; James 1996; Ehmman 1997). During wet periods these swamps are heavily inundated and the species can be found clinging to emergent vegetation (grasses, reeds and Bungwall Fern; E. Meyers pers. comm.). During dry periods individuals may be found at the base of sedges, grass clumps and/or Bungwall Fern in the same swamps (E. Meyer pers. comm.). Ingram and Corben (1975) termed this species an 'acid' frog as it is confined to sandy heaths and their acidic water. Non-breeding habitat is not known. Limited information is available on the breeding biology of the species. Ehmman (1997) recorded males calling in spring, summer and early autumn at night and by day when swamps were rising or ample water was available. It mainly breeds following heavy rain in perched swamps, amidst sedges, grasses and/or Bungwall Fern (*Blechnum indicum*) in still water 0.5-1.5m deep (E. Meyer pers. comm.). The wallum waters in which the species breeds are typically heavily tanin-stained, highly acidic and generally dilute (E. Meyer pers. comm.). Eggs are attached to grasses and sedges and larvae are nektonic in form and dwell amongst reeds and grasses in water 0.5-1.5m deep (E. Meyer pers. comm.). Fish are largely absent from habitat occupied by the species (E. Meyer pers. comm.).

Major Threats Populations appear to be relatively stable in protected habitat; however, this species is at risk from continuing loss of habitat through clearing for agriculture, pine plantations, housing and infrastructure such as canal development, drainage projects and transport corridors (Ingram and McDonald 1993; Hines, Mahony and McDonald 1999). Melaleuca forest and heathland are particularly threatened and have been extensively cleared since 1974 (Catterall and Kingston 1993) suggesting an extensive loss of habitat. Other threats include habitat degradation through changes in hydrological regimes, increased nutrients or sediments, weed invasion, inappropriate fire management, competition from invading frog species and predation from introduced fish (Hines, Mahony and McDonald 1999). Weed invasion is a potentially threatening process (Hines, Mahony and McDonald 1999). Competition from invading frog species and predation from introduced fish (i.e. *Gambusia holbrooki*) have been identified as potentially threatening processes (Ehmman 1997; Hines, Mahony and McDonald 1999) but further research is required.

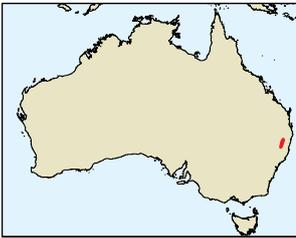
Conservation Measures The range of the species includes several protected areas.

Bibliography: Catterall, C.P. and Kingston, M. (1993), Ehmman, H. (1997a), Hines, H., Mahony, M. and McDonald, K. (1999), Ingram, G.J. and Corben, C.J. (1975), Ingram, G.J. and McDonald, K.R. (1993), James, C. (1996), Liem, D.S. and Ingram, G.J. (1977), Tyler, M.J. (1997)

Data Providers: Harry Hines, David Newell, Ed Meyer, Jean-Marc Hero, John Clarke

CR *Litoria piperata* Tyler and Davies, 1985

Critically Endangered D
Order, Family: Anura, Hylidae
Country Distribution: Australia
Current Population Trend: Unknown



Geographic Range This Australian endemic was formerly known from five streams draining the east of the Northern Tablelands, from 800-1,120m asl, from Gibraltar Range to Armidale, northern New South Wales (Tyler and Davies 1985a). The distribution map does not include northern populations that might belong to this species (see additional information under Notes on Taxonomy).

Population Despite searches of the historic localities and other streams with similar habitat within the region (Mahony 1997), the species has not been seen since 1973. If the northern populations do not belong to this species (see Notes on Taxonomy), then it is possible that it is extinct.

Habitat and Ecology This species is known to occupy open forest and wet sclerophyll forest (Heatwole *et al.* 1995). Little is known about the breeding biology of this species. However, morphological similarity to *Litoria pearsoniana* and *L. phyllochroa* suggests that ecological similarities are likely (Gillespie and Hines 1999).

Major Threats The causes of the apparent declines are unknown. However, most of the historic sites and other streams in the region have undergone substantial alteration and suffered significant habitat disturbance through clearance of vegetation, grazing and timber harvesting (H.B. Hines pers. comm.). Introduced predatory fish species (Eastern Gambusia *Gambusia holbrooki* and salmonids) occur in streams formerly occupied by the species and might have displaced frog populations by predation upon larvae (Gillespie and

Hines 1999). Given the vulnerability of other members of the *L. citropa* group to trout predation, these fish are likely to have had a significant impact on populations of this species. In addition, chytridiomycosis cannot be ruled out as a cause of the decline.

Conservation Measures It is recognized as Endangered in Queensland and New South Wales, and therefore protected by state legislation. Its range includes Gara River Nature Reserve and Mount Mitchell State Forest. This species is a priority for immediate further survey work to determine whether or not it might possibly still survive at the localities from which it has previously been recorded, and both taxonomic and survey work is required to determine the status of the possible northern populations. Research is also needed into the possible reasons for the decline of the species. Given the possible threat of chytridiomycosis or some other disease, surviving individuals might need to form the basis for the establishment of an *ex-situ* population.

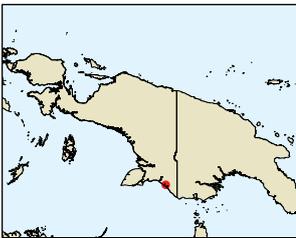
Notes on taxonomy: This assessment is based only on the sites from which the species was described by Tyler and Davies (1985a), i.e., between Armidale and Glen Innes. However, in 1992 surveys outside the known range on the Northern Tablelands located populations of frogs which closely resemble this species (NSW NPWS 1994). While the external morphology of the population closely resembles *L. piperata*, the mating call is very similar to *L. pearsoniana* (M. Mahony pers. comm. in Tyler 1997). It is possible that this species represents morphologically distinct outlying populations of *L. pearsoniana*. Considerable confusion exists over the systematics of the *Litoria barringtonensis*, *L. pearsoniana*, *L. phyllochroa*, and *L. piperata* complex. Studies of the genetic variation in populations of this complex revealed that the currently recognized species boundaries are in need of major review (Donnellan *et al.* 1999). Further genetic and morphometric studies are required to resolve the systematics of these northern populations.

Bibliography: Barker, J., Grigg, G. and Tyler, M. (1995), Donnellan, S.C. *et al.* (1999), Gillespie, G. and Hines, H.B. (1999), Heatwole, H. *et al.* (1995), Mahony, M., Knowles, R. and Patterson, L. (1997b), Tyler, M.J. (1997), Tyler, M.J. and Davies, M. (1985a)

Data Providers: Jean-Marc Hero, Harry Hines, Frank Lemckert

VU *Litoria quadrilineata* Tyler and Parker, 1974

Vulnerable D2
Order, Family: Anura, Hylidae
Country Distribution: Indonesia
Current Population Trend: Unknown



Geographic Range This species is known only from the type locality, Merauke, in southern Papua, Indonesia, and there have been very few records since it was first discovered in the late 1960s. It occurs close to sea level.

Population There is no information on the population status of this species.

Habitat and Ecology It has only been found in a grassy, swampy area in the town of Merauke, where it breeds. It presumably occurs elsewhere, but its broader habitat requirements are not yet known, and surveys have not been successful in locating it.

Major Threats There is no information on major threats, but given that it occurs close to sea level it might be susceptible to habitat loss due to development in coastal areas. It has been found once in the pet trade in Jakarta.

Conservation Measures It is not known from any protected areas. This species requires close population monitoring, given

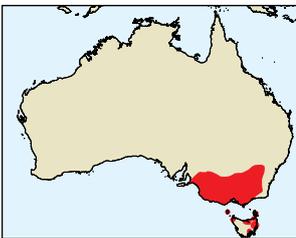
that it currently is known only from a single locality; further survey work is needed to determine whether or not it might occur more widely.

Bibliography: Tyler, M.J. and Parker, F. (1974)

Data Providers: Stephen Richards, Fred Parker, Djoko Iskandar

EN *Litoria raniformis* (Keferstein, 1867)

Endangered A2ae
Order, Family: Anura, Hylidae
Country Distribution: Australia, New Zealand (Introduced)
Current Population Trend: Decreasing



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Geographic Range This species was formerly distributed across a large area of south-east Australia, including Tasmania, from 0-1,300m asl (Osborne, Littlejohn and Thomson 1996). In New South Wales and the Australia Capital Territory its range was centred on the Murray and Murrumbidgee River valleys and their tributaries. It occurred throughout the Southern Tablelands and was also recorded on the Central Tablelands as far north as Bathurst (Ehmann and White 1997). It was widespread across Victoria, absent only from the west desert regions and the east alpine regions (Littlejohn 1963, 1982; Hero, Littlejohn and Marantelli 1991). In South Australia the species is known to occur along the lower Murray River valley, the lower south-east to near Keith, and a small introduced population, in the Adelaide Hills (Tyler 1978). In Tasmania, the species occurred broadly across the north and east of the island and on the Bass Strait Island (Brook 1979), and in pockets in the south of the state. This species has also been introduced to New Zealand, where it is widespread across North and South Islands and on Great Barrier and Stewart Islands.

Population It was once a common species, but serious declines have occurred in sections of the range (Mahony 1999). Ehmann and White (1997) noted that in New South Wales the species had disappeared from sites in the central and southern highlands. It is currently widespread throughout the Murray River valley but has disappeared from a number of sites along the Murrumbidgee River (Mahony 1999) and there are no recent records from the Monaro District near the Victorian border (G. Gillespie pers. comm.). It persists in isolated populations in the greater Melbourne area, and isolated populations are known from a few sites in central Victoria and Gippsland. A similar decline has been noted in Tasmania, and it is now almost absent from the midlands of Tasmania. In New Zealand, where the species is introduced, there are many thousands, although local declines due to chytridiomycosis and/or introduced *Gambusia* fish have been observed.

Habitat and Ecology This species is usually found in association with dams, ponds and marshes, either amongst sedges and other semi-aquatic vegetation, or sheltering under logs and rocks up to 1300m asl (Gillespie, Osborne and McElhinney 1995). It appears to be associated with permanent waterbodies though it is unclear whether, like *Litoria aurea*, the species also utilizes ephemeral pools (Mahony 1999). It occurs both in woodland and areas of improved pasture (Gillespie, Osborne and McElhinney 1995). Little is known about the biology of this species; however, it is likely to be similar to that of *L. aurea* (Gillespie, Osborne and McElhinney 1995). Males call from August to April (Hero, Littlejohn and Marantelli 1991). The species breeds in permanent ponds or swamps, usually with extensive areas of sedges and rushes from which adults call (Gillespie, Osborne and McElhinney 1995). About 1,700 eggs are laid in a loose clump (Hero, Littlejohn and Marantelli 1991, Hero and Warrell unpubl.). The larvae are free swimming and develop over summer and autumn (Gillespie, Osborne and McElhinney 1995). Metamorphosis takes place between late summer and autumn, although larvae may overwinter and metamorphose the following season (Gillespie, Osborne and McElhinney 1995).

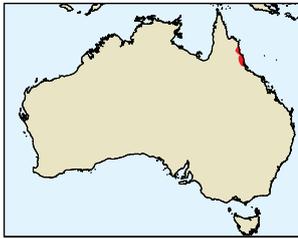
Major Threats The cause(s) of the apparent declines observed in populations of all taxa within the *L. aurea* complex are unclear (Gillespie, Osborne and McElhinney 1995). Investigations of disappearances among the group have primarily focused on *L. aurea* and *L. castanea* and two major directions in research have been pursued: the role of increased ultraviolet radiation; and the impact of the introduced fish, *Gambusia* (Mahony 1999). As for *L. aurea*, *L. raniformis* has disappeared from sites where *Gambusia* is present (Mahony 1999; W. Osborne pers. comm.). The dates of introduction of *Gambusia* to many regions are not well documented and this lack of information has hampered research into declines (Mahony 1999). Introduced *Gambusia* fish are also a threat to the introduced populations in New Zealand. It is also possible that disease, such as a viral infection or chytrid fungus, may have contributed to the decline of some species (W. Osborne pers. comm.). Chytrid fungus was detected in this species in Mount Compass, South Australia, but was first identified in New Zealand from populations of this species in Christchurch. The drainage of wetlands in Tasmania is a particular threat.

Conservation Measures This species is protected by state legislation. As an introduced species in New Zealand it has the potential to spread chytrid to areas inhabited by native frogs. Its range includes several protected areas. In Tasmanian legislation the species is listed as "Vulnerable". Werribee Open Range Zoo is supporting ongoing field monitoring of a naturally occurring population, in conjunction with the Victorian Department of Sustainability and Environment. Melbourne Zoo also maintains a breeding population in captivity.

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Data Providers: Jean-Marc Hero, Graeme Gillespie, Frank Lemckert, Murray Littlejohn, Peter Robertson, Raymond Brereton, Peter Brown

SOUTHERN BELL FROG

EN *Litoria rheocola* Liem, 1974**Endangered A2ae****Order, Family:** Anura, Hylidae**Country Distribution:** Australia**Current Population Trend:** Decreasing

© Stephen Richards

Geographic Range This species is endemic to the Wet Tropics Bioregion (Williams and Hero 1998, 2001) and occurs from Broadwater Creek National Park to Amos Bay, north Queensland, at altitudes between sea level and 1,180m asl (McDonald 1992). Three genetic lineages of *Litoria rheocola* have been identified, based on mitochondrial DNA, distributed from Kirrama Range to Palmerston National Park; Bartle Frere to Harris Peak; and from Mt Lewis to Big Tableland (Schneider, Cunningham and Moritz 1998). Each of these lineages carries substantial genetic variability (Schneider, Cunningham and Moritz 1998).

Population This species was first noted to have declined in 1989 (Richards, McDonald and Alford 1993). In 1990 several sites were sampled between the Kirrama Range and Cooktown. *L. rheocola* was common at all foothill and lowland sites and was recorded at some upland sites in the Kirrama Range in April and on the Carbine Tableland in January of that year (Richards, McDonald and Alford 1993). It was abundant in Danbulla State Forest (at 700m asl) in September 1982, but was not recorded there during monitoring between 1989 and 1992 (Richards, McDonald and Alford 1993). It has since disappeared from most upland sites south of the Daintree River (Richards, McDonald and Alford 1993). Richards, McDonald and Alford (1993) reported only two adults at Bobbin Falls on the Atherton Tableland, although the species has been found regularly in that area between 1998 and February 2000 (R. Retallick pers. comm.) and 2001-2002 (K.R. McDonald pers. comm.). At O'Keefe Creek, Big Tableland, this species has occasionally reappeared near a 400m asl site, but has not established resident populations and is absent at another monitoring site at 600m asl (McDonald and Alford 1999). Adults and larvae remained common at upland sites north of the Daintree River (Richards, McDonald and Alford 1993) but disappeared in 1993 (M. Cunningham pers. comm.). Interestingly, the lowland populations still exist (McDonald and Alford 1999).

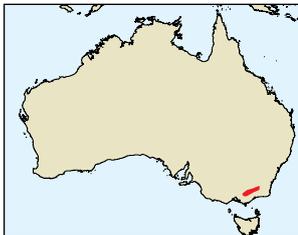
Habitat and Ecology This is a rainforest specialist, restricted to fast-flowing rocky creeks and streams in rainforest as well as wet sclerophyll forest (Liem 1974b; McDonald 1992). Within these streams they are often found in the slower more open sections, away from waterfalls (Hodgkison and Hero 2002). Individuals can be found on rocks, logs and vegetation in or adjacent to streams (Hero and Fickling 1994). There are differences in habitat use between males and females of the species. Females and juveniles use streamside vegetation more frequently than males. In contrast, males display strong fidelity to the rocky stream environment. Calling males and gravid females have been observed throughout the year (Liem 1974b). Breeding has been observed in most months, except during cold winter nights, and seems to reach a peak between November and March (Liem 1974b; Dennis and Trenerry 1984). Males call from rocks or boulders in creeks or from vegetation overhanging water along streams and creeks (Liem 1974b). The males also appear to display inter-male spacing, with males rarely found within 1m of each other, which is possibly a territorial response to low availability of females (Hodgkison and Hero 2002). A number (46-63) of unpigmented eggs (2.4-2.6mm in diameter) are laid in compact gelatinous clumps under rocks in water (Liem 1974b; Hero and Fickling 1996). Larvae can be found in fast-flowing sections of streams and adjacent pools in highly oxygenated water, clinging to rocks and other substrates (Liem 1974b; Hero and Fickling 1994). Liem (1974b) described the larvae of this species as torrent dwelling, having flattened bodies, large suctorial mouthparts and muscular tails. Richards (1992) and Hero and Fickling (1994) also provided detailed information on the larvae of this species.

Major Threats The reason(s) for the decline of this species are unknown. Richards, McDonald and Alford (1993) reject drought, floods, habitat destruction or pollution by pesticides, inorganic ions or heavy metals. The habitat of the species in the Wet Tropics has been protected since 1988; therefore, habitat destruction is no longer a threat (McDonald and Alford 1999). Current research is examining the possibility that disease, such as a viral infection or chytrid fungus, may have contributed to the decline of this species (Berger, Speare and Hyatt 1999). In recent experiments involving the translocation of larvae and adult frogs to sites previously occupied by the species, a clear pattern was evident in the disease results, and nearly all of the animals found dead showed signs of chytridiomycosis (Retallick 1999, 2000, 2001). It is unknown as to whether this disease was solely responsible for the disappearance of *L. rheocola* at these sites. Feral pigs are a potential cause of riparian habitat damage and adult frog mortality (Richards, McDonald and Alford 1993). The activity of feral pigs has been recorded to have increased over the period 1989-1992 in an area previously inhabited by *L. rheocola* (Richards, McDonald and Alford 1993). However, there has been very little research into the impact of feral pigs on native frog populations (Richards, McDonald and Alford 1993).

Conservation Measures Listed as endangered in Queensland, and therefore protected by state legislation. The habitat of the species in the Wet Tropics has been protected since 1988. A recovery plan is in place.

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Data Providers: Jean-Marc Hero, Ross Alford, Michael Cunningham, Keith McDonald, Richard Retallick

CR *Litoria spenceri* Dubois, 1984**Critically Endangered B2ab(ii,iii,iv,v)****Order, Family:** Anura, Hylidae**Country Distribution:** Australia**Current Population Trend:** Decreasing

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Geographic Range This species, an Australian endemic, is restricted predominantly to the western fall of the Great Divide, from Lake Eildon in the Central Highlands of Victoria to Mount Kosciuszko in New South Wales, at altitudes of 200-1,100m asl (Gillespie and Hollis 1996; Victorian Wildlife Atlas unpublished data). The area of occupancy of this species is believed to be less than 5km².

Population Despite extensive systematic surveys throughout eastern Victoria and southern New South Wales (Watson *et al.* 1991; Gillespie 1992; Gillespie and Hollis 1996; Hunter and Gillespie 1999) this species has only ever been found in 19 streams, and has always been considered rare (Watson *et al.* 1991). The species is now believed to be extinct in four of these streams, and has declined substantially in distribution and abundance along most others (Gillespie and Hollis 1996). The remaining streams comprise 12 discrete isolated populations (Gillespie and Hollis 1996; Hunter and Gillespie 1999). Two populations are known to have died out over the past five years. Monitoring has been conducted at eight populations since 1994 and has recently been expanded to include 15 streams (G. Gillespie pers. comm.). With the exception of the historic site on Buffalo Creek, Mount Buffalo National Park, monitoring of sites where it is extinct ceased in 1998 (G. Gillespie pers. comm.). Most extant adult populations have remained relatively stable since 1993; however, a population at Bogong Creek, Mount Kosciuszko National Park suffered a precipitous decline in 1996 (Gillespie 1997). It is at a higher elevation than other populations and was the only high-density population known prior to the decline (Gillespie and Hollis 1996). Gillespie and Hines (1999) estimate the largest population to contain approximately 1,000-1,500 adults in the Upper Goulburn River with the sizes of all other populations comprising less than 1,000 adults.

Habitat and Ecology This species is associated with a range of vegetation communities from montane forest at high altitudes to wet and dry forest at moderate to low altitudes, respectively (Gillespie and Hollis 1996). The extent of riparian forest at known localities ranges from virtually non-existent, with scattered riparian tree or shrub spe-

cies, to a dense canopy of *Leptospermum* spp. shading the stream (Gillespie and Hollis 1996). The species is found almost exclusively in association with rock habitats along streams and occurs along sections of streams with steep banks, invariably in steeply dissected country or gorges with numerous rapids and waterfalls (Gillespie and Hollis 1996). *L. spenceri* is restricted to riffle and cascade stream sections with exposed rock banks, resulting in a highly patchy distribution along most streams (Gillespie and Hollis 1996). Adults and juveniles most likely remain in the vicinity of the stream, rarely venturing far from riparian zone (Gillespie 1997). Frogs have been seen basking on rocks mid-stream (Ehmann, Ehmann and Ehmann 1993). Adults have been found between September and May, and calling males have been heard in October, November and early December (Hero 1990, 1991; Watson *et al.* 1991; Gillespie 1993) and February (G. Gillespie, in Hero, Watson and Gillespie 1995). Clutches consist of 200-1,000 eggs (Gillespie 1997). Oviposition sites are in narrow spaces beneath large river stones within the stream and eggs are hidden as they adhere to the underside of the rock (Gillespie 2001b). The seasonal distribution of size classes of frogs and breeding activity (Watson *et al.* 1991; Gillespie 1993) suggest that eggs are laid in late spring/early summer and tadpoles reach metamorphosis in late summer/autumn (Hero, Watson and Gillespie 1995). Hero, Watson and Gillespie (1995) described the tadpole. At lower altitudes, sexual maturity is reached 18 months and 3.5 years after metamorphosis by males and females, respectively (Gillespie 2001a). At higher altitudes, sexual maturity is reached at least 3.5 and 4.5 years by males and females, respectively (Gillespie 1997).

Major Threats Declines occurred in the 1970s and early 1980s (Watson *et al.* 1991). Gillespie and Hollis (1996) suggest that, based upon the known demography of the species, this species probably suffered population declines over a wider area earlier in the 20th century, and possibly late in the 19th century. Human disturbances to streams, such as gold dredging, forest roads and recreational pressures are correlated with the general pattern of decline of this species (Gillespie and Hollis 1996). Trout species (Rainbow Trout *Oncorhynchus mykiss* and Brown Trout *Salmo trutta*) occur throughout the geographic range and are able to exert significant predation pressure on larvae (Gillespie 2001a). Trout are believed to be a major cause of population declines of this species (Gillespie 2001a). Several moribund frogs have been located from four populations (Gillespie and Hines 1999) and recently identified as being infected with the chytrid fungus (Berger *et al.* 1998; Gillespie and Hines 1999). However, the role of the fungus in the population dynamics of this species remains to be resolved (Gillespie and Hines 1999).

Conservation Measures The range of the species is within a few protected areas. It is listed as Endangered in Australian legislation. A monitoring programme for this species has been established, but further research is required to determine the reasons for the observed declines. Given the possible threat of chytridiomycosis, the establishment of a captive-breeding programme might be required, while *in situ* conservation measures should include control of invasive trout species at least within protected areas.

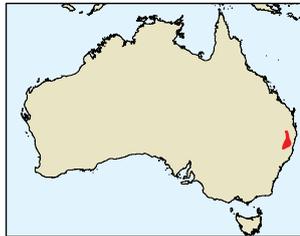
Bibliography: Barker, J., Grigg, G. and Tyler, M. (1995), Berger, L. *et al.* (1998), Ehmann, H., Ehmann, J. and Ehmann, N. (1993), Gillespie, G. and Hines, H.B. (1999), Gillespie, G.R. and Hollis, G.J. (1996), Gillespie, G.R. (1992), Gillespie, G.R. (1993), Gillespie, G.R. (1997), Gillespie, G.R. (2001a), Gillespie, G.R. (2001b), Gillespie, G.R. (2002), Gillespie, G.R. and Hero, J.M. (1999), Hero, J.-M. (1990), Hero, J.-M. (1991), Hero, J.-M., Littlejohn, M. and Marantelli, G. (1991), Hero, J.-M., Watson, G. and Gillespie, G. (1995), Hunter, D. and Gillespie, G.R. (1999), Tyler, M.J. (1997), Watson, G.F. *et al.* (1991)

Data Providers: Jean-Marc Hero, Graeme Gillespie, Peter Robertson, Murray Littlejohn, Frank Lemckert

COMMON MIST FROG**SPOTTED TREEFROG**

VU *Litoria subglandulosa* Tyler and Anstis, 1983

Vulnerable B1ab(i,ii,iii)+2ab(i,ii,iii)
Order, Family: Anura, Hylidae
Country Distribution: Australia
Current Population Trend: Decreasing



© Marion Anstis

GLANDULAR FROG

Geographic Range This Australian endemic occurs on the eastern escarpment of the Great Dividing Range from "The Flags" near Walcha, New South Wales, in the south, to Girraween National Park, Queensland, in the north (Mahoney *et al.* 2001). It occurs at altitudes above 600m, and possibly up to 1,400m asl.

Population It appears that this species underwent historical declines. However, most populations were discovered from 1990 onwards and so little historical basis exists for assessing the level of these declines. Noticeable declines have been recorded in three populations on the coast of northern New South Wales. It is now absent from some sites, but the status of populations at other sites is not well known.

Habitat and Ecology The species lives near slow-flowing and small streams in dry and wet sclerophyll forest, rainforest, montane forest and heath land. It is also found in semi-cleared grazing lands. It breeds in spring and tadpoles have tentacles around their mouths (rather than a horny beak).

Major Threats The removal of riparian vegetation, especially by grazing and timber harvesting, is a major threat. Pollution of streams by agricultural and domestic by-products is a threat to this riparian species. Trout have also been released into streams that support small populations of the frog.

Conservation Measures The range of the species includes several protected areas.

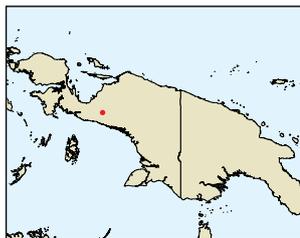
Notes on taxonomy: *Litoria daviesae*, a newly described species, was recently separated from *L. subglandulosa* by Mahony *et al.* (2001).

Bibliography: Barker, J., Grigg, G. and Tyler, M. (1995), Gillespie, G. and Hines, H.B. (1999), Mahony, M. *et al.* (2001)

Data Providers: Jean-Marc Hero, Harry Hines, John Clarke, Peter Robertson

VU *Litoria wisselensis* (Tyler, 1968)

Vulnerable D2
Order, Family: Anura, Hylidae
Country Distribution: Indonesia
Current Population Trend: Unknown



Geographic Range This species is known only from several lakes in the Enarotali area of Papua, Indonesia, at about 1,700m asl.

Population It has been found to be very common within a small area, and is very well represented in museum collections.

Habitat and Ecology It lives on the rocky shorelines of the lakes.

Major Threats No threats are known at present. However, since it occurs in an area subject to heavy tourist activity, it might be susceptible to disturbance and degradation of its habitat.

Conservation Measures It is not known from any protected areas. The species requires close population monitoring given that it is known only from around the Enarotali area. Further survey work is necessary to establish whether or not the species occurs in habitats away from the lake shores.

Bibliography: Tyler, M.J. (1968)

Data Providers: Stephen Richards, Hellen Kurniati

CR *Megastomatohyla mixe* (Duellman, 1965)

Critically Endangered B1ab(iii)+2ab(iii)
Order, Family: Anura, Hylidae
Country Distribution: Mexico
Current Population Trend: Decreasing



Geographic Range This species is known only from Vista Hermosa town, Sierra de Juárez, north-central Oaxaca, Mexico, at 1,800m asl.

Population This is a rare species.

Habitat and Ecology It inhabits cloud forest, and occurs in mountain streams and rocky habitats.

Major Threats The major threat is the loss of original, intact cloud forest due to smallholder agricultural activities and logging.

Conservation Measures The range of this species does not include any protected areas, and the protection of remaining forested habitat in the Sierra de Juárez is urgent. This species is protected by Mexican law under the "Special Protection" category (Pr).

Notes on taxonomy: This species was previously included in the genus *Hyla* but has recently been moved to the new genus *Megastomatohyla* (Faivovich *et al.* 2005).

Bibliography: Duellman, W.E. (1965), Duellman, W.E. (2001), Faivovich, J. *et al.* (2005)

Data Providers: Georgina Santos-Barrera, Luis Canseco-Márquez

EN *Megastomatohyla mixomaculata* (Taylor, 1950)

Endangered B1ab(iii)
Order, Family: Anura, Hylidae
Country Distribution: Mexico
Current Population Trend: Decreasing



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Geographic Range This species is known only from the Coscomatepec region in central Veracruz, Mexico, at altitudes of 900-1,500m asl.

Population It is a rare species.

Habitat and Ecology It is highly associated with epiphytic plants in cloud forest, but breeds in temporary streams.

Major Threats The major threat is habitat loss due to the conversion of original forest cover to agricultural land, especially coffee plantations.

Conservation Measures The range of this species is not within any protected area, and protection and restoration of cloud forest remnants is extremely urgent. Survey work is necessary to establish its current population status. It is listed as "Threatened" (Amenazada) by the Mexican government.

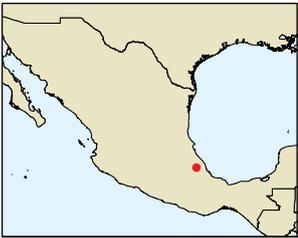
Notes on taxonomy: This species was previously included in the genus *Hyla* but has recently been moved to the new genus *Megastomatohyla* (Faivovich *et al.* 2005).

Bibliography: Duellman, W.E. (2001), Faivovich, J. *et al.* (2005)

Data Providers: Georgina Santos-Barrera, Luis Canseco-Márquez

EN *Megastomatohyla nubicola* (Duellman, 1964)

Endangered B1ab(iii)
Order, Family: Anura, Hylidae
Country Distribution: Mexico
Current Population Trend: Decreasing



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Geographic Range This species is known only from central Veracruz, Mexico, in the Huatusco region, at around 1,325m asl, although it might occur a little more widely.

Population It is a rare species.

Habitat and Ecology It inhabits cloud forest and breeds in streams.

Major Threats The main threat is the transformation of cloud forest fragments to coffee plantations.

Conservation Measures It does not occur within any protected areas, and its cloud forest habitat is in urgent need of protection. This species is listed as "Threatened" (Amenazada) by the Mexican government.

Notes on taxonomy: This species was previously included in the genus *Hyla* but has recently been moved to the new genus *Megastomatohyla* (Faivovich *et al.* 2005).

Bibliography: Duellman, W.E. (2001), Faivovich, J. *et al.* (2005)

Data Providers: Georgina Santos-Barrera, Luis Canseco-Márquez

CR *Megastomatohyla pellita* (Duellman, 1968)

Critically Endangered A2ace
Order, Family: Anura, Hylidae
Country Distribution: Mexico
Current Population Trend: Decreasing



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Geographic Range This species occurs in the Sierra Madre del Sur in southern Oaxaca, north to about San Gabriel Mixtepec and Jalatengo, Mexico, at between 1,200 and 1,700m asl.

Population This has always been a rare species, but it appears to have gone into serious decline, and has not been recorded since the 1960s. Recent surveys to locate it have been unsuccessful, and it might now be extinct.

Habitat and Ecology This species inhabits cloud forest. It generally dwells on low vegetation along streams, and breeds in permanent streams.

Major Threats The destruction and degradation of its cloud forest habitat is a major threat to this species, and there is high pressure from infrastructure development for human settlements, and other anthropogenic activities in this region. However, this species has also disappeared in suitable habitat, probably due to chytridiomycosis.

Conservation Measures This species is not known to occur in any protected areas. There is a need for further survey work in areas of suitable habitat in order to determine whether or not this species still survives in its natural range, and to evaluate the present condition of the forested areas north to San Gabriel Mixtepec. The protection of remaining intact habitat within this area is recommended.

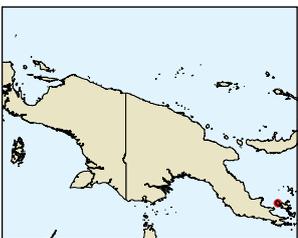
Notes on taxonomy: This species was previously included in the genus *Hyla* but has recently been moved to the new genus *Megastomatohyla* (Faivovich *et al.* 2005).

Bibliography: Duellman, W.E. (2001), Faivovich, J. *et al.* (2005), Lips, K.R. *et al.* (2004)

Data Providers: Georgina Santos-Barrera, Luis Canseco-Márquez

VU *Nyctimystes avocalis* Zweifel, 1958

Vulnerable D2
Order, Family: Anura, Hylidae
Country Distribution: Papua New Guinea
Current Population Trend: Unknown



Geographic Range This species is known only from the type locality on the east slope of Goodenough Island, in the D'Entrecasteaux Islands, Papua New Guinea, at about 900m asl.

Population The current population status is unknown. It has been recorded on Goodenough Island at least once since it was first described, but has not been found on neighbouring islands.

Habitat and Ecology It inhabits small streams in forest. As with other species in the genus, this species presumably lays large eggs in torrential, clear and rocky streams and the tadpoles presumably have large suckers.

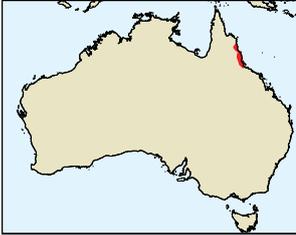
Major Threats The habitat on Goodenough Island is heavily impacted by gardening and fires, as well as expanding human populations, up to 300m asl, but is still intact at higher altitudes.

Conservation Measures It is not known from any protected areas. There is a need for close population monitoring of this species, given declines that have taken place in torrent-dwelling hylids in Australia

and particularly given its small range. Further survey work is also necessary to better understand the distribution (including its possible occurrence on other islands and on the mainland of New Guinea), habitat requirements, and population status of this species.

Bibliography: Zweifel, R.G. (1958)

Data Providers: Stephen Richards, Allen Allison

EN *Nyctimystes dayi* (Günther, 1897)**Endangered A2ac****Order, Family:** Anura, Hylidae**Country Distribution:** Australia**Current Population Trend:** Decreasing

© Stephen Richards

Geographic Range This species is endemic to the Wet Tropics Bioregion (Williams and Hero 1998, 2001) from Paluma to Cooktown, north Queensland, at altitudes between sea level and 1,200m asl (McDonald 1992). The species includes two divergent genetic lineages separated by Barron Creek—the diversity within each lineage is very low (M. Cunningham pers. comm.).

Population *Nyctimystes dayi* has disappeared from upland sites throughout the Wet Tropics and was last recorded from Mount Spec State Forest in 1990 and the Kirrama Range in 1989 (Richards, McDonald and Alford 1993; M. Cunningham pers. comm.). Richards, McDonald and Alford (1993) noted that the species was still common at most foothill and lowland sites and recorded adults and larvae from upland sites north of the Daintree River. These populations subsequently disappeared in 1992 and 1993 (M. Cunningham pers. comm.). At one monitoring site at O'Keefe Creek, Big Tableland, this species has occasionally reappeared near a site at an altitude of 400m asl, but it has not established resident populations and is absent from a monitoring site at 680m asl (McDonald and Alford 1999). Interestingly, the lowland and foothill populations still exist (McDonald and Alford 1999).

Habitat and Ecology This species is a rainforest specialist (Czechura, Ingram and Liem 1987). In montane areas the species prefers fast-flowing rocky streams although they also frequent slower watercourses where ample vegetation exists along the margins (Czechura, Ingram and Liem 1987). At low elevations, it favours rock soaks, narrow ephemeral streams and rock outcrops in larger watercourses (Czechura, Ingram and Liem 1987). It may also be found on rocks, boulders and vegetation in or adjacent to streams (Czechura, Ingram and Liem 1987). *N. dayi* is a spring and summer breeder (Davies and Richards 1990) with peak breeding activity from October to April (Hero and Fickling

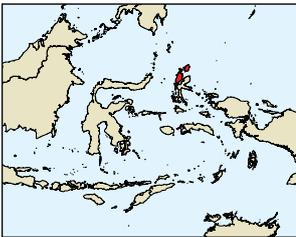
1997; Hodgkinson and Hero 2002). Davies and Richards (1990) provide a detailed description of the developmental biology of the species. Males call at night from rocks and low foliage along rapidly flowing stretches of creek. The competition for females may necessitate territorial behaviour in males, as they have never been found calling in a group or within 1m of another male (Hodgkinson and Hero 2002). Amplexus is axillary and eggs are laid in a cohesive clump under rocks in rapidly flowing water (Czechura, Ingram and Liem 1987). One clutch collected contained 107 unpigmented eggs (egg diameter 2.3–2.6mm, capsule diameter 3.3–3.5mm, n=5) (Davies and Richards 1990). Larvae can be found on or under rocks in fast-flowing sections of stream and show adaptations to living in torrents, such as large suctorial mouthparts and muscular tails (Davies and Richards 1990; Fickling and Hero 1994). After hatching they aggregate under a rock until their digestive tracts are fully formed (Davies and Richards 1990). After several days they begin to graze on benthic algae and may drift downstream. Larvae from eggs laid in early summer complete development in 3–4 months, while those eggs laid in late summer may overwinter and metamorphose the following summer (Davies and Richards 1990).

Major Threats The reason(s) for the decline of the species are largely unknown. Although in the past habitat destruction may have been a factor, clearing or logging has not taken place in the Wet Tropics World Heritage Area, where the species occurs, since 1988 (McDonald and Alford 1999). Richards, McDonald and Alford (1993) first noted a decline of the species in pristine rainforest habitats in 1989. Richards, McDonald and Alford (1993) reject drought, floods, habitat destruction or changes in water quality (pH, conductivity, temperature, dissolved oxygen and metal ions) as the primary causes of the decline. However, in a study by Hodgkinson and Hero (2002) cold temperatures were found to reduce the activity of *N. dayi* and it was suggested that prolonged exposure to cold, dry conditions (particularly at high altitudes) may inhibit the breeding and survival of the frogs and influence recruitment in local populations. Current research is examining the possibility that disease, possibly a virus or chytrid fungus, may have contributed to the decline of this species (Berger, Speare and Hyatt 1999; McDonald and Alford 1999). Chytrid fungus was detected in this species in Tully, Queensland. Feral pigs are a potential cause of riparian habitat damage and adult frog mortality (Richards, McDonald and Alford 1993). The activity of feral pigs has been recorded to have increased over the period 1989–1992 in an area previously inhabited by *N. dayi* (Richards, McDonald and Alford 1993). However, there has been very little research into the impact of feral pigs on native frog populations (Richards, McDonald and Alford 1993).

Conservation Measures The range of the species includes several protected areas. Although a recovery plan is in place for this species, further research into the cause of the decline of this species is necessary.

Bibliography: Berger, L., Speare, R. and Hyatt, A. (1999), Czechura, G.V., Ingram, G.J. and Liem, D.S. (1987), Davies, M. and Richards, S.J. (1990), Hero, J.-M. and Fickling, S. (1994), Hodgkinson, S.C. and Hero, J.-M. (2002), Hodgkinson, S.C. and Hero, J.-M. (2003), McDonald, K. and Alford, R. (1999), McDonald, K.R. (1992), Richards, S.J., McDonald, K.R. and Alford, R.A. (1993), Tyler, M.J. (1997), Williams, S.E. and Hero, J.-M. (1998), Williams, S.E. and Hero, J.-M. (2001)

Data Providers: Jean-Marc Hero, Ross Alford, Michael Cunningham, Keith McDonald, Richard Retallick

VU *Nyctimystes rueppelli* (Boettger, 1895)**Vulnerable B1ab(iii)****Order, Family:** Anura, Hylidae**Country Distribution:** Indonesia**Current Population Trend:** Decreasing

Geographic Range This species is known only from several locations on Halmahera and Morotai Islands, in the Maluku Islands, Indonesia. Its elevational range is not known, but the highest point within its range is 1,200m asl.

Population The species was last collected on Halmahera Island in 1989.

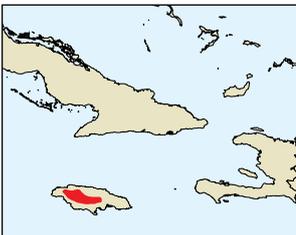
Habitat and Ecology There is no reliable information available, but it probably occurs in streams in tropical rainforest. As with other species in the genus, it presumably lays large eggs in torrential, clear and rocky streams and the tadpoles have large suckers.

Major Threats The major threat to this species is habitat loss, following the widespread logging that has taken place on Halmahera Island in the past few years.

Conservation Measures There are no protected areas within its range. Improved habitat protection is required at sites at which this species is known to occur. There is also a need for further survey work to determine the current population status of this species.

Bibliography: Zweifel, R.G. (1958)

Data Providers: Stephen Richards, David Price

EN *Osteopilus crucialis* (Harlan, 1826)**Endangered B1ab(iii)****Order, Family:** Anura, Hylidae**Country Distribution:** Jamaica**Current Population Trend:** Decreasing

Geographic Range This species is endemic to central Jamaica. It formerly occurred on the south-western coast, at an altitudinal range of sea level to 1,200m asl.

Population There has been a decline in its abundance, and this species is now rarely encountered or heard calling, except in pockets of suitable habitat.

Habitat and Ecology This species is found in mesic broadleaf woods and forests on tree trunks and in bromeliads; it requires large dead trees. Males call from hollows in branches and bromeliads, and eggs are laid in bromeliads. It is not found in significantly altered habitats but can be found in regenerating forests.

Major Threats It is threatened by habitat degradation and deforestation due to agriculture, human settlements, development for tourist activities, and logging.

Conservation Measures It occurs in several forest reserves, but these do not guarantee the species' long-term protection, and

increased management of these, and improved habitat protection, are necessary.

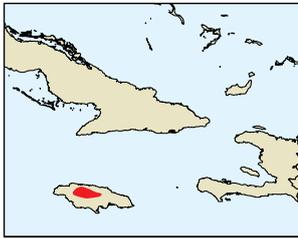
Bibliography: Garrick, L.D., Sutton, R.L. and Lang, J.W. (1985), Hedges, S.B. (1993), Hedges, S.B. (1999), Hedges, S.B. (2001), Henderson, R.W. and Powell, R. (1999), Henderson, R.W. and Powell, R. (2001), Schwartz, A. and Henderson, R.W. (1991)

Data Providers: Blair Hedges, Susan Koenig, Byron Wilson

AUSTRALIAN LACE-LID**JAMAICAN SNORING FROG**

EN *Osteopilus marianae* (Dunn, 1926)

Endangered B1ab(iii)
Order, Family: Anura, Hylidae
Country Distribution: Jamaica
Current Population Trend: Decreasing



Geographic Range This species has a restricted and fragmented range in central Jamaica, where it has been recorded from 120-880m asl.
Population This species appears to be less common than *Osteopilus wilderi*.

Habitat and Ecology It is found in bromeliads in pine and deciduous forests. Eggs are laid in bromeliads. It was thought not to have a call until recently as it does not have a vocal sac, but it actually does vocalize by means of vibration. It is restricted to old growth forest, and is not tolerant of disturbance of its forest habitat.

Major Threats Deforestation is a major threat throughout its range, primarily for agriculture, human settlement, development for tourist activities, and selective logging.

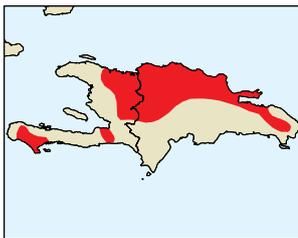
Conservation Measures It is known from a few forest reserves, but these do not guarantee the species' long-term protection, and increased management of these reserves, and improved habitat protection, are necessary.

Bibliography: Hedges, S.B. (1988b), Hedges, S.B. (1993), Hedges, S.B. (1999), Hedges, S.B. (2001), Henderson, R.W. and Powell, R. (1999), Henderson, R.W. and Powell, R. (2001), Schwartz, A. and Henderson, R.W. (1991)

Data Providers: Blair Hedges, Susan Koenig, Byron Wilson

YELLOW BROMELIAD FROG**EN** *Osteopilus pulchrilineatus* (Cope, 1869)

Endangered B2ab(iii,v)
Order, Family: Anura, Hylidae
Country Distribution: Dominican Republic, Haiti
Current Population Trend: Decreasing



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Geographic Range This species has a highly fragmented distribution on Hispaniola, which suggests that it is declining from a previously more uniform distribution. It has been recorded from sea level up to 1,091m asl. It is presently known to persist at only one location in the Dominican Republic.

Population This species has always been hard to find, but even so it appears to be in decline, with many historic populations that appear to have disappeared. It was not recorded during extensive searches of the Cordillera Central in the Dominican Republic in suitable habitat from 1998 to 2000. It was last recorded in Haiti in 1985.

Habitat and Ecology It occurs in mesic broadleaf forests, including remnant forests. Males call in flooded pools after heavy rain. Records from 40 years ago found the species in anthropogenic habitats such as rice fields, but recent records are all from forest. Eggs are laid in still water where the larvae also develop.

Major Threats Major threats include deforestation due to agricultural expansion, infrastructure development, and logging. Since it appears to have declined in suitable habitats, chytridiomycosis cannot be ruled out as a threat.

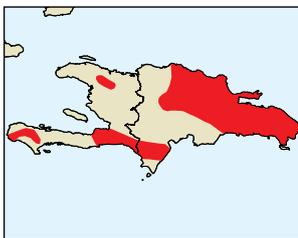
Conservation Measures Its range includes several protected areas in both Haiti and the Dominican Republic, although these are not well managed for biodiversity conservation. Further survey work is necessary to determine the current population status of this species in the wild, and to determine whether chytrid is a threat.

Bibliography: Hedges, S.B. (1993), Hedges, S.B. (1999), Hedges, S.B. (2001), Henderson, R.W. and Powell, R. (1999), Henderson, R.W. and Powell, R. (2001), Schwartz, A. and Henderson, R.W. (1991)

Data Providers: Blair Hedges, Sixto Inchaustegui, Marcelino Hernandez, Robert Powell

HISPANIOLAN YELLOW TREEFROG**EN** *Osteopilus vastus* (Cope, 1871)

Endangered B2ab(iii,v)
Order, Family: Anura, Hylidae
Country Distribution: Dominican Republic, Haiti
Current Population Trend: Decreasing



© Twan Leenders



Geographic Range This species is widely, but very patchily, distributed on Hispaniola (Haiti and Dominican Republic) at an altitudinal range from sea level to 1,697m asl. It was also recently found (2001-2002) just outside Santo Domingo.

Population This species is more common than *Osteopilus pulchrilineatus* in the Cordillera Central. However, other than the Cordillera Central and Santo Domingo localities, there have been very few records in the last two decades.

Habitat and Ecology It is found in mesic broadleaf forests, often along creeks and streams. Males call from trees overhanging running water, in which eggs are deposited.

Major Threats The montane stream-dwelling habitat of this species is threatened by deforestation due to agriculture and logging. M. Hernandez (pers. comm.) has found dead animals and animals with deformities (one animal with an eye on its back), and declines in suitable habitat are suggestive of chytridiomycosis; indeed, chytrid was confirmed in this species in La Vega, Arroyazo, in the Dominican Republic.

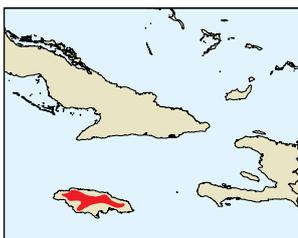
Conservation Measures The species occurs in several protected areas. Given the apparent risk of infection with chytrid, some individuals should probably form the basis for the establishment of a captive-breeding colony.

Bibliography: Hedges, S.B. (1993), Hedges, S.B. (1999), Hedges, S.B. (2001), Henderson, R.W. (2003), Henderson, R.W. and Powell, R. (1999), Henderson, R.W. and Powell, R. (2001), Powell, R. *et al.* (2000), Schwartz, A. and Henderson, R.W. (1991)

Data Providers: Blair Hedges, Sixto Inchaustegui, Marcelino Hernandez, Robert Powell

HISPANIOLAN GIANT TREEFROG**EN** *Osteopilus wilderi* (Dunn, 1925)

Endangered B1ab(iii)
Order, Family: Anura, Hylidae
Country Distribution: Jamaica
Current Population Trend: Decreasing



Geographic Range This species is restricted to central Jamaica at an altitudinal range of 120-880m asl.

Population It is declining but is more common than *Osteopilus marianae*.

Habitat and Ecology It is commonly found in terrestrial and arboreal bromeliads in closed-canopy forests. The species can occur in secondary growth, as long as there are bromeliads (since the eggs are laid, and larval development occurs, in bromeliads only).

Major Threats The major threat to this bromeliad-dependent species is habitat loss due to smallholder farming activities, wood extraction, and human settlement.

Conservation Measures It occurs in several forest reserves, but these do not guarantee the species' long-term protection. Its range overlaps with the Blue and John Crow Mountain National Park. Given this species' very specific habitat requirements, improved and strengthened habitat protection and management is essential.

Bibliography: Hedges, S.B. (1993), Hedges, S.B. (1999), Hedges, S.B. (2001), Henderson, R.W. and Powell, R. (1999), Henderson, R.W. and Powell, R. (2001), Schwartz, A. and Henderson, R.W. (1991)

Data Providers: Blair Hedges, Susan Koenig, Byron Wilson

GREEN BROMELIAD FROG

CR *Phyllodytes auratus* (Boulenger, 1917)

Critically Endangered B1ab(iii)+2ab(iii)
Order, Family: Anura, Hylidae
Country Distribution: Trinidad and Tobago
Current Population Trend: Decreasing



© Dan Thornham

Geographic Range This species is known only from the type locality, the summit of Aripo, in the Northern Range, and probably also Morne Bleu Ridge, Trinidad Island, in Trinidad and Tobago. The total range of the species is estimated to be 10km² or less. It is known from around 940m asl.

Population It is a rare species.

Habitat and Ecology It is found in montane rainforest and elfin woodland. It has a very specific microhabitat and is associated with the giant epiphytic bromeliad, *Glomeropitcairnia erectiflora*. It breeds by larval development in bromeliads. It is not adaptable to disturbance of its habitat.

Major Threats It is threatened by the collection of bromeliads from the forest, and the over collecting of specimens.

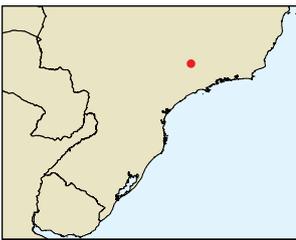
Conservation Measures It is not known if the species is present within any protected areas, but maintenance and protection of its habitat is urgently required.

Bibliography: Kenny, J.S. (1969), Murphy, J.C. (1997), Parker, H.W. (1933a), Parker, H.W. (1933b)

Data Providers: Jerry Hardy

CR *Phyllomedusa ayeaye* (B. Lutz, 1966)

Critically Endangered B1ab(iii)+2ab(iii)
Order, Family: Anura, Hylidae
Country Distribution: Brazil
Current Population Trend: Decreasing



© Ana Cristina Monteiro Leonel

Geographic Range This species is known only from the type locality (Poços de Caldas) in the state of Minas Gerais, Brazil. The type locality is around 1,400m asl.

Population It is a rare species.

Habitat and Ecology This species occurs in open areas on shrubs near pools. The egg clutch is deposited on leaves above permanent flowing water, and when hatched the tadpoles fall into streams below.

Major Threats Habitat loss due to mining and fires, as well as pollution from mining activities, are the major threats.

Conservation Measures The species is not known to occur within any protected areas, and protection of the remaining habitat of this species is needed. Further survey work is required to determine the population status of this species, as well as the limits of its range.

Bibliography: Cruz, C.A.G. (1982), Nascimento, L.B. (1998)

Data Providers: Ulisses Caramaschi, Carlos Alberto Gonçalves da Cruz, Raphael Lima

EN *Phyllomedusa baltea* Duellman and Toft, 1979

Endangered B1ab(iii)+2ab(iii)
Order, Family: Anura, Hylidae
Country Distribution: Peru
Current Population Trend: Decreasing



© Karl-Heinz Jungfer

Geographic Range This species is known only from the west slope of the Serrania de Sira, Huánuco Department, Peru. It possibly occurs in the Cordillera Azul, but this requires further investigation. Its presumed altitudinal range is around 1,280m asl.

Population There is no information on the population status of this species.

Habitat and Ecology It has been recorded from low cloud forest at 1,280m asl. Otherwise, nothing further is known about this species, though it may use temporary ponds for breeding.

Major Threats Although the restricted area that the species inhabits is relatively inaccessible, there is some habitat disturbance due to farming and human settlement. In addition, the lower parts of the range are being selectively logged.

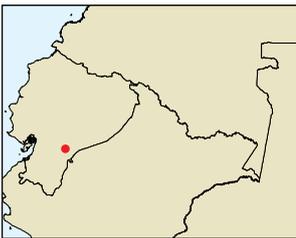
Conservation Measures It is present in the Reserva Comunal El Sira (an indigenous people's reserve). Further survey work is necessary to determine the precise limits of the distribution of this species, its current population status in the wild, and its breeding biology.

Bibliography: Cannatella, D.C. (1982), Duellman, W.E. and Toft, C.A. (1979), Rodríguez, L.O., Cordova, J.H. and Icochea, J. (1993)

Data Providers: Ariadne Angulo, Karl-Heinz Jungfer, Robert Reynolds, Javier Icochea

EN *Phyllomedusa ecuatoriana* Cannatella, 1982

Endangered B1ab(iii)
Order, Family: Anura, Hylidae
Country Distribution: Ecuador
Current Population Trend: Decreasing



Geographic Range This species is known only from Agua Rica, south-west of Limón, on the Amazonian slopes of the Andes in Morona-Santiago Province, Ecuador, at around 1,890m asl. It is likely to occur more widely.

Population There is no information on the population status of this species.

Habitat and Ecology It is apparently a species of montane cloud forest, presumably breeding in slow-flowing streams, or perhaps occasionally in still water.

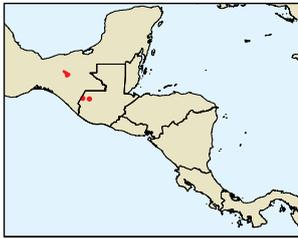
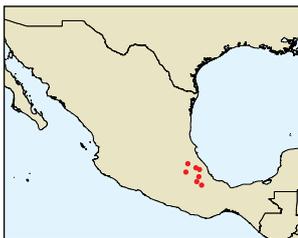
Major Threats The habitat around the type locality is apparently not very threatened at the moment, although there is some agricultural encroachment of the forest. However, the species lives in montane habitats where catastrophic declines have affected other frogs with stream-dwelling larvae, probably as a result of chytridiomycosis, and so this is a potential threat.

Conservation Measures It is not known from any protected areas,

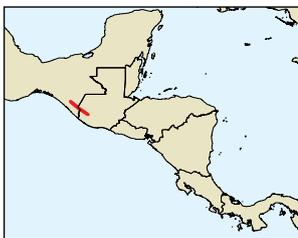
and its habitat may be in need of formal protection to guard against encroachment. Further research is needed to determine the current population status of this species, and whether chytrid poses a genuine threat.

Bibliography: Cannatella, D.C. (1982)

Data Providers: Luis A. Coloma, Santiago Ron

CR *Plectrohyla acanthodes* Duellman and Campbell, 1992**Critically Endangered B1ab(iii,v)****Order, Family:** Anura, Hylidae**Country Distribution:** Guatemala, Mexico**Current Population Trend:** Decreasing© Mark Francis of Middle Tennessee State University, 2001
Society for the Study of Amphibians and Reptiles**Geographic Range** This species is found in the northern slopes of the Meseta Central de Chiapas, Mexico, and the Sierra de los Cuchumatanes, western Guatemala, from 1,540-2,200m asl.**Population** It was common according to Duellman (2001) but it might now be uncommon. Recent searches in Guatemala have failed to find the species, and it seems that this population is declining. It is known now from only one locality in Chiapas, in a fragile ecosystem supporting only a few individuals.**Habitat and Ecology** This species inhabits cloud forests, and is associated with mountain streams where it breeds.**Major Threats** The expansion of agriculture and human settlements in northern Chiapas and Guatemala are a major threat. However, the observed decrease might also be due to chytridiomycosis, which has seriously affected other stream-breeding amphibians in the region.**Conservation Measures** This species is not known to occur in any protected areas, and protection of the Chiapan cloud forests is urgently needed to ensure the persistence of this, and other endemic, species in the region. Given the possible threat of chytridiomycosis, recommended conservation measures might need to include the establishment of a captive-breeding programme. Further research is needed to determine whether or not the species has been affected by chytrid. This species is protected by Mexican law under the "Special Protection" category (Pr).**Bibliography:** Duellman, W.E. (2001), Duellman, W.E. and Campbell, J.A. (1992)**Data Providers:** Georgina Santos-Barrera, Luis Canseco-Márquez, Manuel Acevedo, Antonio Muñoz Alonso, Joseph Mendelson III**EN** *Plectrohyla arborescendens* (Taylor, 1939)**Endangered B1ab(iii)****Order, Family:** Anura, Hylidae**Country Distribution:** Mexico**Current Population Trend:** Decreasing

© Tim Burkhardt

**Geographic Range** This species is known from the Atlantic slopes of Mexico, from Tlaxcala and northern Puebla and east-central to southern Puebla, at elevations of 1,800-3,100m asl.**Population** It is a common species.**Habitat and Ecology** This stream-breeding amphibian requires highly humid habitats such as streams in high-elevation cloud and pine-oak forests. It also takes refuge in bromeliads.**Major Threats** Disturbance and clearance of the primary forest and the desiccation of streams are the main threats to this species. Chytridiomycosis may be a threat, as it is a high-elevation stream dweller, and declines due to the disease have already been detected amongst other species of this genus elsewhere.**Conservation Measures** The protection of forest fragments in eastern central Mexico is recommended since no protected areas currently are included within the species' range. Further survey work and research is needed to determine whether chytrid poses a threat to this species. This species is protected by Mexican law under the "Special Protection" category (Pr).**Notes on taxonomy:** This species was previously included in the genus *Hyla* but has recently been moved to the genus *Plectrohyla* (Faivovich *et al.* 2005).**Bibliography:** Duellman, W.E. (2001), Faivovich, J. *et al.* (2005)**Data Providers:** Georgina Santos-Barrera, Luis Canseco-Márquez**CR** *Plectrohyla avia* Stuart, 1952**Critically Endangered A3e****Order, Family:** Anura, Hylidae**Country Distribution:** Guatemala, Mexico**Current Population Trend:** Decreasing© Mark Francis of Middle Tennessee State University, 2001
Society for the Study of Amphibians and Reptiles**Geographic Range** This species can be found in extreme south-western Chiapas, Mexico, southward to northern Pacific Guatemala from 1,700-2,200m asl.**Population** It is uncommon in Guatemala and rare at one location in Chiapas.**Habitat and Ecology** It occurs in cloud forests and is commonly found in vegetation along mountain streams.**Major Threats** Deforestation and transformation of native forest to agricultural areas represents the main threat. Chytridiomycosis is also a threat to this species, as it is a high-elevation, stream-breeder, and declines due to the disease have already been detected amongst other species of this genus in this region.**Conservation Measures** This species is not known to occur in any protected area, and protection of remaining cloud forest habitat in southern Chiapas is urgently needed. Given the possible threat of chytridiomycosis, the establishment of a captive-breeding programme might be necessary. This species is protected by Mexican law under the "Special Protection" category (Pr).**Bibliography:** Duellman, W.E. (2001)**Data Providers:** Georgina Santos-Barrera, Luis Canseco-Márquez, Manuel Acevedo, Antonio Muñoz Alonso, Joseph Mendelson III**CR** *Plectrohyla calthula* (Ustach, Mendelson, McDiarmid and Campbell, 2000)**Critically Endangered B1ab(iii,v)****Order, Family:** Anura, Hylidae**Country Distribution:** Mexico**Current Population Trend:** Decreasing© Mark Francis of Middle Tennessee State University, 2001
Society for the Study of Amphibians and Reptiles

were collected between 1,780 and 1,896m asl, and the specimens from the second locality were collected at 1,360m asl. The exact limits of its distribution are not known, but it is believed to have a restricted distribution.

Population It is known only from the type series, and two other specimens recently collected from the second locality.**Habitat and Ecology** It inhabits tropical cloud forest. The adults have been found on vegetation along streams; larvae have been found in a pool in a small stream. It is presumed to be sensitive to habitat modification.**Major Threats** The forest at the type locality has been cleared and no suitable habitat remains in the area. It is unlikely that any animals now remain at the type locality (Ustach *et al.* 2000). The second locality is also suffering from severe habitat fragmentation and the remaining habitat is likely to disappear in the near future. Chytridiomycosis is also a threat to this species, as it is a high-elevation, stream-dweller, and declines due to the disease have already been detected amongst other species of this genus.**Conservation Measures** The species has not been recorded from any protected areas. Survey work is required to determine the current population status and range of this species, and particularly to ascertain whether or not it still survives at the type locality. In view of the threat of chytridiomycosis, *ex-situ* populations might need to be established.**Notes on taxonomy:** This species was previously included in the genus *Hyla* but has recently been moved to the genus *Plectrohyla* (Faivovich *et al.* 2005).**Bibliography:** Duellman, W.E. (2001), Faivovich, J. *et al.* (2005), Meik, J.M. *et al.* (2005), Ustach, P.C. *et al.* (2000)**Data Providers:** Georgina Santos-Barrera, Joseph Mendelson III**Geographic Range** This species has been recorded from the type locality of Totontepec, Sierra Mixes, and from one other locality west of Zacatepec, very near the type locality in Oaxaca, Mexico. The specimens from the type locality

CR *Plectrohyla calvicollina* (Toal, 1994)

Critically Endangered B1ab(iii,v)+2ab(iii,v)
Order, Family: Anura, Hylidae
Country Distribution: Mexico
Current Population Trend: Decreasing



Geographic Range This species is known only from the northern slope of the Cerro Pelón, Sierra de Juárez, north-central Oaxaca, Mexico at 2,500-2,700m asl.

Population This has always been a rare species, but it appears to have gone into serious decline, and has not been recorded since 1984. Recent surveys to locate it have been unsuccessful, and it might now be extinct.

Habitat and Ecology This stream-breeding amphibian seems to occur in rocky streams in cloud forest areas.

Major Threats It has disappeared in suitable habitat, probably due to chytridiomycosis. It occurs within an area in Sierra de Juárez, Mexico, which is undergoing a rapid rate of land transformation at present due to logging and agricultural activities.

Conservation Measures The range of this species is not within any protected area; a plan for the protection and/or restoration of the large forested areas of Sierra de Juárez is urgently required.

Survey work is needed to determine the current population status of this species and whether or not it still survives in the wild. In view of the threat of chytridiomycosis, surviving individuals might need to form the basis for the establishment of an *ex-situ* population.

Notes on taxonomy: This species was previously included in the genus *Hyla* but has recently been moved to the genus *Plectrohyla* (Faivovich *et al.* 2005).

Bibliography: Duellman, W.E. (2001), Faivovich, J. *et al.* (2005), Lips, K.R. *et al.* (2004), Toal, K.R. (1994)

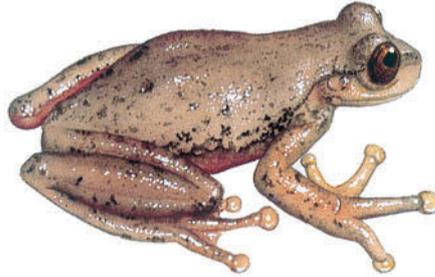
Data Providers: Georgina Santos-Barrera, Luis Canseco-Márquez

CR *Plectrohyla celata* (Toal III and Mendelson III, 1995)

Critically Endangered B2ab(iii,v)
Order, Family: Anura, Hylidae
Country Distribution: Mexico
Current Population Trend: Decreasing



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Geographic Range This species is known from the Sierra de Juárez, east of Oaxaca City, in south-eastern Mexico, at 2,640-2,890m asl.

Population This has always been a rare species, but it appears to have gone into serious decline, and has not been recorded since 1984. Recent surveys to locate it have been unsuccessful, and it might now be extinct.

Habitat and Ecology This species is associated exclusively with pristine streams in cloud forests.

Major Threats This species has disappeared in suitable habitat, probably due to chytridiomycosis. The fragmentation and disturbance of the forest due to logging and other human activities, and the continuing desiccation of streams, has probably also contributed to the disappearance of this species.

Conservation Measures The range of this species is not within any protected area. Urgent restoration and protection of the remnants of cloud forest in the Sierra de Juárez is required. A field study is necessary to evaluate the population status of this species, and whether or not it still survives in the wild. In view of the threat of chytridiomycosis, surviving individuals might need to form the basis for the establishment of an *ex-situ* population.

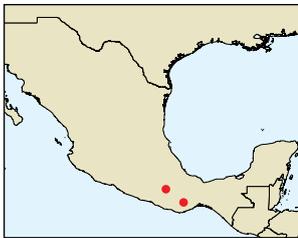
Notes on taxonomy: This species was previously included in the genus *Hyla* but has recently been moved to the genus *Plectrohyla* (Faivovich *et al.* 2005).

Bibliography: Duellman, W.E. (2001), Faivovich, J. *et al.* (2005), Lips, K.R. *et al.* (2004), Toal, K.R. and Mendelson III, J.R. (1995)

Data Providers: Georgina Santos-Barrera, Luis Canseco-Márquez

CR *Plectrohyla cembra* (Caldwell, 1974)

Critically Endangered A2ce
Order, Family: Anura, Hylidae
Country Distribution: Mexico
Current Population Trend: Decreasing



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Geographic Range This species occurs only in two locations, one on the Pacific slope of the Sierra Madre del Sur, Distrito de Pochutla, Oaxaca, Mexico (the type locality, at 2,160m asl), and one 7.5km south-east of Llano de Guadalupe, in north-west Oaxaca (2,850m asl).

Population This species has only been collected twice, once in 1969 and again in 1993. Recent attempts to locate it have been unsuccessful.

Habitat and Ecology This species was collected in pine-oak forest. It is believed to breed in small streams.

Major Threats A major threat is the loss of pine-oak forest habitat to logging and agriculture. It might also have been impacted by chytridiomycosis.

Conservation Measures The range of this species is not within any protected area, and the protection and/or restoration of the original habitat of this species is required. This species is listed as "Threatened" (Amenazada) by the Mexican government. Further survey work is required to determine the population status of this species, and whether or not it survives in the wild; given the likely threat of chytridiomycosis, any surviving individuals might need to form the basis for the establishment of an *ex-situ* population.

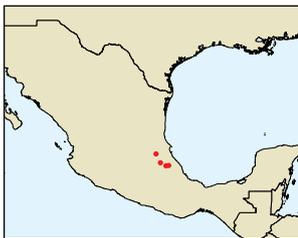
Notes on taxonomy: This species was previously included in the genus *Hyla* but has recently been moved to the genus *Plectrohyla* (Faivovich *et al.* 2005).

Bibliography: Duellman, W.E. (2001), Faivovich, J. *et al.* (2005), Lips, K.R. *et al.* (2004), Mendelson III, J.R. and Canseco-Márquez, L. (2002)

Data Providers: Georgina Santos-Barrera, Luis Canseco-Márquez, Joseph Mendelson III

EN *Plectrohyla charadricola* (Duellman, 1964)

Endangered B1ab(iii)+2ab(iii)
Order, Family: Anura, Hylidae
Country Distribution: Mexico
Current Population Trend: Decreasing



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Geographic Range This species occurs from north-western Hidalgo to the south and west to northern Puebla, Mexico. It is found from 2,000-2,300m asl.

Population This species is relatively common within its restricted range.

Habitat and Ecology It is specifically associated with epiphytic vegetation (bromeliads) in cloud and evergreen montane forest, and breeds in streams.

Major Threats The rapid rate of deforestation of the cloud and montane forests of Mexico is the main cause of the decline of this species and others. The disappearance of the forest results in the disappearance of streams and other water reservoirs where the species breeds. Chytridiomycosis is also a threat, as it is a high-elevation stream dweller, and declines due to the disease have already been detected amongst other species of this genus elsewhere.

Conservation Measures Urgent protection of the cloud and montane forest habitat of this species is required. An assessment of the population status of this species needs to be undertaken, particularly to determine whether chytrid poses a threat. This species is listed as "Threatened" (Amenazada) by the Mexican government.

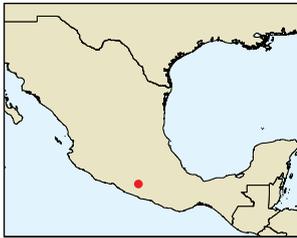
Notes on taxonomy: This species was previously included in the genus *Hyla* but has recently been moved to the genus *Plectrohyla* (Faivovich *et al.* 2005).

Bibliography: Duellman, W.E. (2001), Faivovich, J. *et al.* (2005)

Data Providers: Georgina Santos-Barrera, Luis Canseco-Márquez

CR *Plectrohyla chryses* (Adler, 1965)

Critically Endangered A3ce
Order, Family: Anura, Hylidae
Country Distribution: Mexico
Current Population Trend: Decreasing



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Geographic Range This species occurs in Carrizal de Bravos, central-western Guerrero, Mexico. It is found from 2,340-2,600m asl.

Population This is a very rare species.

Habitat and Ecology It is associated with humid cool areas in wet pine-oak-fir cloud forest. Breeding takes place in streams.

Major Threats The disturbance and transformation of the species' forest habitat is the major threat, mainly as a result of logging and the continuing expansion of human settlements in the region. Chytridiomycosis might also be a threat, since it is a high-elevation stream-dweller, and declines due to the disease have already been detected amongst other species of this genus.

Conservation Measures Legal protection of the Natural Park in Guerrero is required since it is not in a biosphere reserve and currently lacks any management plan. Further survey work is required to monitor the population status and trends of this species; also, in view of the threat of chytridiomycosis, *ex-situ* populations might need to be established. This species is protected by Mexican law under the "Special Protection" category (Pr).

Notes on taxonomy: This species was previously included in the genus *Hyla* but has recently been moved to the genus *Plectrohyla* (Faivovich *et al.* 2005).

Bibliography: Duellman, W.E. (2001), Faivovich, J. *et al.* (2005), Mendelson III, J.R. and Toal III, K.R. (1996)

Data Providers: Georgina Santos-Barrera, Luis Canseco-Márquez, Joseph Mendelson III

CR *Plectrohyla chrysopleura* Wilson, McCranie and Cruz, 1994

Critically Endangered A2ace;B1ab(iii,v)+2ab(iii,v)
Order, Family: Anura, Hylidae
Country Distribution: Honduras
Current Population Trend: Decreasing



© James McCranie



Geographic Range This species occurs in only one locality, Cerro Bufalo, Quebrado de Oro, Sierra Nombre de Dios, Departamento Atlantida in north-central Honduras, between 930 and 1,550m asl.

Population It is moderately uncommon and appears to be in decline.

Habitat and Ecology A stream-breeding species, it has been found along streams in premontane wet forest.

Major Threats Habitat destruction, due to smallholder farming activities and subsistence wood collection, and landslides represent major threats to this species. Tadpoles have been found infected with the chytrid fungus, and this is probably the cause of the recently observed decline.

Conservation Measures The only known locality is within Parque Nacional Pico Bonito. Further survey work is required to monitor the population status and trends of this species; in view of the severe risk of chytridiomycosis, *ex-situ* populations might need to be established.

Bibliography: McCranie, J.R. and Wilson, L.D. (2002b), Wilson, L.D., McCranie, J.R. and Cruz, G.A. (1994)

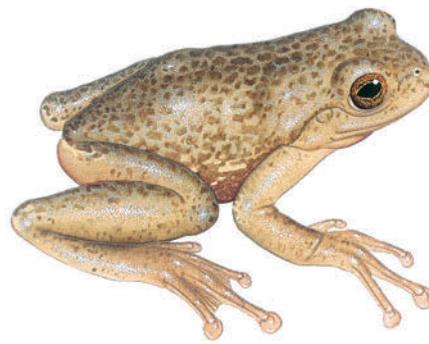
Data Providers: Gustavo Cruz, Larry David Wilson, Franklin Casteñeda

CR *Plectrohyla crassa* (Brocchi, 1877)

Critically Endangered B1ab(iii,v)
Order, Family: Anura, Hylidae
Country Distribution: Mexico
Current Population Trend: Decreasing



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Geographic Range This species is known from Cerro San Felipe, northern Oaxaca and So la de Vega and La Cofradia, central Oaxaca, Mexico. It occurs at elevations from 1,540-2,650m asl and is currently known from only five localities. It might occur a little more widely.

Population This is a rare species.

Habitat and Ecology From the limited information available, it appears that this frog inhabits and breeds in lower streams in montane cloud forest.

Major Threats Loss of the original montane forests on the slopes of northern Oaxaca due to agriculture, logging and human settlement is a major threat. Chytridiomycosis might be a threat to this species, since it is a high-elevation stream-dweller, and declines due to the disease have already been detected amongst other species of this genus.

Conservation Measures This species is not known to occur in any protected areas, but the protection of the Sierra de Juárez and adjacent areas in northern Oaxaca is urgently required. In view of the risk of chytridiomycosis, the status of this species should be closely monitored, and *ex-situ* populations might need to be established. It is protected by Mexican law under the "Special Protection" category (Pr).

Notes on taxonomy: This species was previously included in the genus *Hyla* but has recently been moved to the genus *Plectrohyla* (Faivovich *et al.* 2005).

Bibliography: Duellman, W.E. (2001), Faivovich, J. *et al.* (2005), Toal, K.R. and Mendelson III, J.R. (1995)

Data Providers: Georgina Santos-Barrera, Luis Canseco-Márquez, Joseph Mendelson III

CR *Plectrohyla cyanomma* (Caldwell, 1974)

Critically Endangered B1ab(iii,v)+2ab(iii,v)
Order, Family: Anura, Hylidae
Country Distribution: Mexico
Current Population Trend: Decreasing



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Geographic Range This species occurs in Cerro Pelón and Cerro Humo Chico in the Sierra de Juárez, north-eastern Oaxaca, Mexico. It is currently known from only three localities. It is found from 2,640-2,670m asl.

Population This species used to be very conspicuous in its habitat. However, recent efforts to find individuals have been unsuccessful. It was last collected in 1980, and is possibly now extinct.

Habitat and Ecology This species is known only from pristine forest, and requires the presence of low or moderate streams at high elevations in areas covered by cloud forest. It is likely to breed in streams.

Major Threats This species has disappeared in suitable habitat, probably due to chytridiomycosis. The disturbance and clearance of the forest in the Sierra de Juárez has probably also contributed to its disappearance.

Conservation Measures The protection and restoration of the original forest is necessary for the protection of this species and others inhabiting the cloud forests of the Sierra de Juárez. This species is considered "Threatened" by the Mexican government. In view of the risk of chytridiomycosis, it is a very high priority to conduct surveys to relocate this species and determine its current population status; any surviving individuals might need to form the basis for a captive-breeding programme.

Notes on taxonomy: This species was previously included in the genus *Hyla* but has recently been moved to the genus *Plectrohyla* (Faivovich *et al.* 2005).

Bibliography: Duellman, W.E. (2001), Faivovich, J. *et al.* (2005), Lips, K.R. *et al.* (2004)

Data Providers: Georgina Santos-Barrera, Luis Canseco-Márquez, Oscar Flores-Villela

EN *Plectrohyla cyclada* (Campbell and Duellman, 2000)

Endangered B1ab(iii)
Order, Family: Anura, Hylidae
Country Distribution: Mexico
Current Population Trend: Decreasing



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Geographic Range This species is known from the northern versant of the Sierra Juárez (at 1,600-2,180m asl), near the crest of the Sierra Juárez (Cerro Machín and Cerro San Felipe) (at 2,370 and 2,670m asl), and the Sierra Mixes (at 2,121-2,568m asl), Oaxaca, Mexico. It might occur a little more widely.

Population The population status of this species is unknown.

Habitat and Ecology It inhabits cloud forest and pine-oak forest at high elevations. Adults may be found close to forest streams or in arboreal bromeliads. The larvae have been found in pools in streams.

Major Threats It is presumably threatened by the conversion of forest habitat to agricultural land, and by logging. Chytridiomycosis may also pose a threat, as it is a high-elevation stream-dwelling amphibian, and declines due to the disease have already been detected amongst other species of this genus.

Conservation Measures It is not known if the species occurs in protected areas, but the montane pine-oak forest habitats of Mexico in general are poorly protected. Further survey work is needed to determine the population status of this species, and whether chytrid is a threat.

Notes on taxonomy: This species was previously included in the genus *Hyla* but has recently been moved to the genus *Plectrohyla* (Faivovich *et al.* 2005).

Bibliography: Campbell, J.A. and Duellman, W.E. (2000), Duellman, W.E. (2001), Faivovich, J. *et al.* (2005)

Data Providers: Georgina Santos-Barrera, Joseph Mendelson III

CR *Plectrohyla dasypus* McCranie and Wilson, 1981

Critically Endangered A2ace;B1ab(iii,v)+Zab(iii,v)
Order, Family: Anura, Hylidae
Country Distribution: Honduras
Current Population Trend: Decreasing



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Geographic Range This species is found in the Parque Nacional Cusuco on the Sierra de Omoa, Departamento de Cortes, north-western Honduras, between 1,410 and 1,990m asl.

Population This species was previously moderately common, but populations are currently undergoing drastic declines.

Habitat and Ecology This stream-breeding amphibian is found on low vegetation along streams, and in arboreal bromeliads in lower montane wet forest.

Major Threats Tadpoles of this species have been found with deformed mouth parts, presumably as a result of infection with the chytrid fungus, likely the cause of the observed decline.

Conservation Measures The entire range of this species is within Parque Nacional Cusuco. In view of the threat of chytridiomycosis, the status of this species should be closely monitored, and *ex-situ* populations should be established.

Bibliography: Duellman, W.E. (2001), McCranie, J.R. and Wilson, L.D. (1981), McCranie, J.R. and Wilson, L.D. (2002b)

Data Providers: Gustavo Cruz, Larry David Wilson, Franklin Casteñeda

CR *Plectrohyla ephemera* (Meik, Canseco-Márquez, Smith and Campbell, 2005)

Critically Endangered A4e
Order, Family: Anura, Hylidae
Country Distribution: Mexico
Current Population Trend: Decreasing



Geographic Range This species is known from 1,100-1,220m asl on Cerro Las Flores, a semi-isolated uplifted area that is part of the fragmented Sierra Mixe, in south-central Oaxaca, Mexico. Many hylids in this region have been found to be localized endemics.

Population No information is currently available on the species' population status, but it is possible that it has undergone a serious decline due to chytridiomycosis, and the only known population might already be extinct.

Habitat and Ecology This species is recorded from cloud forest. One individual was found on vegetation 1.8m above a small stream. Tadpoles were found in pools in this stream, which contained little flowing water at the time, and coursed through large boulders at the bottom of a deep ravine. Tadpoles were found in several similar streams nearby.

Major Threats The primary threat to the species is habitat loss, and large expanses of forest are being cleared in this region. In addition,

many of the tadpoles found at Cerro Las Flores possessed deformed or missing mouthparts, which might indicate infection with chytridiomycosis. Indeed, the specific name of this species is derived from the Greek *ephemeros*, meaning shortlived, referring to the ominous observation that chytridiomycosis might be present.

Conservation Measures The species is not known from any protected areas, and protection and maintenance of remaining habitat in the region is urgently required. It is a very high priority to conduct surveys to relocate this species and determine its current population status and whether or not it is still extant; in view of the threat of chytridiomycosis, any surviving individuals would need to form the basis for a captive-breeding programme.

Notes on taxonomy: This species was previously included in the genus *Hyla* but has recently been moved to the genus *Plectrohyla* (Faivovich *et al.* 2005).

Bibliography: Faivovich, J. *et al.* (2005), Meik, J.M. *et al.* (2005)

Data Providers: Joseph Mendelson III

CR *Plectrohyla exquisita* McCranie and Wilson, 1998

Critically Endangered A3e
Order, Family: Anura, Hylidae
Country Distribution: Honduras
Current Population Trend: Stable



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Geographic Range This species is only found within the Parque Nacional Cusuco in the Sierra de Omoa, Departamento de Cortes, north-western Honduras, between 1,490 and 1,680m asl.

Population It is considered moderately common within its very restricted range.

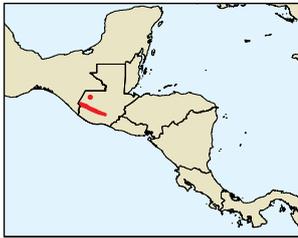
Habitat and Ecology This stream-breeding frog is found on low vegetation along streams in the lower montane wet forest. It is restricted to streams throughout its life cycle.

Major Threats Natural disasters are most likely the major threats to this species. However, given the declines in some other *Plectrohyla* species in Honduras due to chytridiomycosis, this must also be considered as a potential threat.

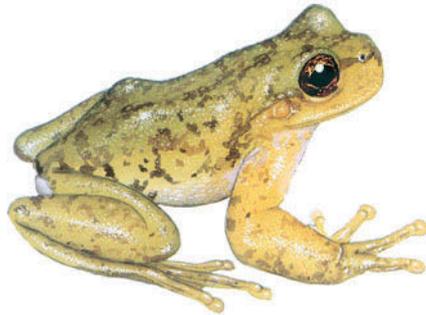
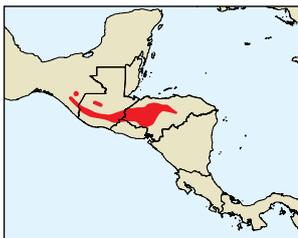
Conservation Measures The species occurs wholly within the Parque Nacional Cusuco that has been declared a national park since 1987. In view of the severe risk of chytridiomycosis, the status of this species should be closely monitored, and *ex-situ* populations might need to be established.

Bibliography: Duellman, W.E. (2001), Duellman, W.E. and Campbell, J.A. (1992), McCranie, J.R. and Wilson, L.D. (1998)

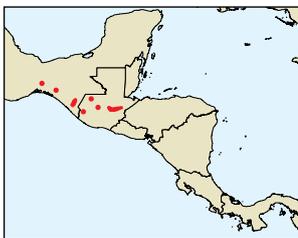
Data Providers: Gustavo Cruz, Larry David Wilson, Franklin Casteñeda, Joseph Mendelson III

EN *Plectrohyla glandulosa* (Boulenger, 1883)**Endangered B2ab(iii)****Order, Family:** Anura, Hylidae**Country Distribution:** Guatemala**Current Population Trend:** Decreasing

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**Geographic Range** This species is known only from the Sierra de los Cuchumatanes and the central and southern highlands of Guatemala at an altitudinal range of 2,400-3,500m asl.**Population** There is no information on the population status of this species.**Habitat and Ecology** It is a stream-breeding amphibian, living in fir forest, pine-cypress forest, and montane grasslands. It is not known whether or not it can survive in lightly degraded habitats.**Major Threats** The main threat is habitat destruction due to expanding agriculture and human settlement, and extraction of wood. Chytridiomycosis is a potential threat to this species, as it is a high-elevation stream dweller, and declines due to the disease have already been detected among congeners.**Conservation Measures** It is not known from any protected areas. However, the range includes the proposed Parque Nacional Cuchumatanes as well as the slopes of the southern Guatemalan volcanoes, which are also proposed for protection. Further survey work is needed to determine the population status of this species, and whether chytrid is a threat.**Notes on taxonomy:** The form occurring in El Salvador and Honduras is considered a separate species, *Plectrohyla psiloderma* (McCranie and Wilson 1999a).**Bibliography:** Campbell, J.A. (2001), Duellman, W.E. (2001), McCranie, J.R. and Wilson, L.D. (1999a)**Data Providers:** Manuel Acevedo, Eric Smith**CR** *Plectrohyla guatemalensis* Brocchi, 1877**Critically Endangered A3e****Order, Family:** Anura, Hylidae**Country Distribution:** El Salvador, Guatemala, Honduras, Mexico**Current Population Trend:** Decreasing

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**Geographic Range** This species occurs on both versants from south-eastern Chiapas, Mexico, to east-central Honduras. Its altitudinal range is 950-2,600m asl.**Population** It is still relatively common in Honduras, but, while formerly common, it is now uncommon in Guatemala and El Salvador. It has not been recorded in Mexico since 1944, and recent surveys to locate it have been unsuccessful.**Habitat and Ecology** This stream-breeding species inhabits cloud forests and premontane and lower montane forest. It is associated with cascading mountain streams.**Major Threats** Although it tolerates moderate habitat destruction, loss of original forest cover affects the microhabitat of this species. In Honduras, tadpoles have been found with deformed mouthparts, indicating chytridiomycosis. This is probably the explanation for the observed declines in the species in recent years.**Conservation Measures** There is protection of the cloud forests in southern Mexico and it occurs in several parks in Honduras, one in Guatemala, and one in El Salvador. However, given the threat of chytridiomycosis, a captive-breeding programme might need to be established.**Bibliography:** Duellman, W.E. (2001), Duellman, W.E. and Campbell, J.A. (1992), McCranie, J.R. and Wilson, L.D. (2002b)**Data Providers:** Georgina Santos-Barrera, Luis Canseco-Márquez**CR** *Plectrohyla hartwegi* Duellman, 1968**Critically Endangered A3e****Order, Family:** Anura, Hylidae**Country Distribution:** Guatemala, Mexico**Current Population Trend:** Decreasing

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**Geographic Range** This species occurs in Chiapas, Mexico, and western Guatemala, in an altitudinal range of 1,000-2,400m asl.**Population** A recent survey in Chiapas indicated its disappearance, at least from some localities, and there have been no records from Mexico since 1993. A survey of Río Cafetal, Baja Verapaz, Guatemala in the Sierra de las Minas, showed a dramatic decline of this species, most likely due to chytridiomycosis (confirmed in a tadpole of another species at the same site). The survey also showed that the species no longer appears to be breeding at this site, although tadpoles have been observed at nearby localities.**Habitat and Ecology** This is a high-elevation cloud forest species, associated with rocky mountain streams where it breeds.**Major Threats** Although chytridiomycosis is the suspected cause of decline in Mexico and in Guatemala, deforestation and transformation of the original forested areas due to agriculture, logging and human settlement is also a major threat to the species.**Conservation Measures** This species occurs in the Reserva de la Biósfera El Triunfo, and also in Biotopo del Quetzal and the Reserva de la Biósfera Sierra de las Minas. Protection of the cloud forested areas in southern Chiapas is needed. In view of the severe risk of chytridiomycosis, *ex-situ* populations might need to be established. This species is protected by Mexican law under the "Special Protection" category (Pr).**Bibliography:** Duellman, W.E. (2001), Lips, K.R. *et al.* (2004), Mendelson III, J.R. *et al.* (2004)**Data Providers:** Georgina Santos-Barrera, Luis Canseco-Márquez, Manuel Acevedo**CR** *Plectrohyla hazelae* (Taylor, 1940)**Critically Endangered A2ace****Order, Family:** Anura, Hylidae**Country Distribution:** Mexico**Current Population Trend:** Decreasing**Geographic Range** This species is found in Sierra de Juárez, north-central Oaxaca City, and Cerro San Felipe and Cerro Machin, Oaxaca, Mexico. It is also recorded from the Sierra Madre del Sur (Puerto del Gallo) in south-western Guerrero and Oaxaca. It is known from elevations of 2,200-2,865m asl. With increased survey work, it is quite likely to be found elsewhere, especially in intervening areas between known sites.**Population** This was never a common species, but it appears to have gone into serious decline, and has not been recorded since 1984. Recent surveys at known sites to locate it have been unsuccessful.**Habitat and Ecology** This stream-breeding species occurs only in pine-oak forest at high elevations. It shows a close affinity to slow streams and small bushes.**Major Threats** This species has disappeared in suitable habitat, probably due to chytridiomycosis. Logging of the original pine-oak forest at Sierra de Juárez is also a major threat to this species.**Conservation Measures** The range of this species does not include any protected area, and the implementation of a conservation strategy in the Sierra de Juárez is urgent. It is a very high priority to conduct surveys to relocate this species and determine whether or not it survives in the wild; in view of the risk of chytridiomycosis, any surviving individuals might need to form the basis for a captive-breeding programme. It is protected by Mexican law under the "Special Protection" category (Pr).**Notes on taxonomy:** This species was previously included in the genus *Hyla* but has recently been moved to the genus *Plectrohyla* (Faivovich *et al.* 2005).**Bibliography:** Duellman, W.E. (2001), Faivovich, J. *et al.* (2005), Lips, K.R. *et al.* (2004)**Data Providers:** Georgina Santos-Barrera, Luis Canseco-Márquez

CR *Plectrohyla ixil* Stuart, 1942**Critically Endangered A3ce****Order, Family:** Anura, Hylidae**Country Distribution:** Guatemala, Mexico**Current Population Trend:** Decreasing

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Geographic Range This species occurs in two disjunct populations on the Atlantic slopes of northern Chiapas, Mexico, and western Guatemala. Its altitudinal range is from 1,175-2,200m asl. Its distribution remains largely unknown, and the species could occur more widely.

Population There is no information on its population status in Guatemala, but they are considered rare in Chiapas.

Habitat and Ecology The species occurs in montane cloud forests, and is associated with high-elevation streams and adjacent low vegetation where it also breeds.

Major Threats The disturbance and deforestation due to human settlement and associated activities is a major threat. Chytridiomycosis is also a threat to this species, since it is a high-elevation stream-dweller, and declines due to the disease have already been detected amongst other species of this genus.

Conservation Measures The species is not known to occur in any protected areas, and protection of the remaining forests in Chiapas, in particular, is urgent. In view of the threat of chytridiomycosis, the status of this species should be closely monitored, and *ex-situ* populations should be established.

Bibliography: Duellman, W.E. (2001)

Data Providers: Georgina Santos-Barrera, Luis Canseco-Márquez, Manuel Acevedo, Antonio Muñoz Alonso, Joseph Mendelson III

EN *Plectrohyla lacertosa* Bumzahem and Smith, 1954**Endangered B1ab(iii)+2ab(iii)****Order, Family:** Anura, Hylidae**Country Distribution:** Mexico**Current Population Trend:** Decreasing

Geographic Range This species is known only from two localities in Cerro Tres Picos and Soconusco region, south-western Chiapas, Mexico. It is known from elevations at around 2,130m asl.

Population It is considered rare.

Habitat and Ecology It is a stream-breeding amphibian that inhabits cloud forest at high elevations.

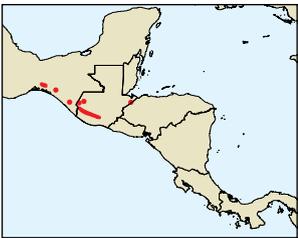
Major Threats Transformation or deforestation of the cloud forests in the Soconusco region is a major threat to this species. Chytridiomycosis may also be a threat, as it is a high-elevation stream dweller, and declines due to the disease have already been detected amongst other species of this genus.

Conservation Measures The range of this species includes the Reserva de la Biósfera La Sepultura, which still contains well-preserved forest areas. Regular surveillance of this area is required to avoid illegal logging and other human activities from degrading the forest. Protection of other forest areas in Chiapas is needed. Further

survey work is needed to better understand the population status of this species, and whether chytrid poses a threat. This species is protected by Mexican law under the "Special Protection" category (Pr).

Bibliography: Duellman, W.E. (2001)

Data Providers: Georgina Santos-Barrera, Luis Canseco-Márquez

VU *Plectrohyla matudai* Hartweg, 1941**Vulnerable B1ab(iii)****Order, Family:** Anura, Hylidae**Country Distribution:** Guatemala, Mexico**Current Population Trend:** Decreasing

© James McCranie

Geographic Range This species can be found on the Pacific slopes from Oaxaca and Chiapas, Mexico, to central Guatemala, at 1,500-2,000m asl.

Population It is common to abundant in Chiapas and Guatemala.

Habitat and Ecology This species inhabits pine-oak and cloud forests. It is closely associated with low vegetation along small mountain streams. Reproduction occurs via larval development in streams.

Major Threats The major threat is habitat loss and disturbance due to agriculture, logging, and human settlement. Chytridiomycosis is a potential future threat, given the impact that it has had on some other members of the genus in the region.

Conservation Measures It is present in Reserva de la Biósfera El Triunfo in Mexico, and is presumably present in several protected areas in Guatemala. Improved legal protection of the extensive forested areas in Los Chimalapas is needed.

Bibliography: Duellman, W.E. (2001)

Data Providers: Georgina Santos-Barrera, Luis Canseco-Márquez, Manuel Acevedo, Antonio Muñoz Alonso

EN *Plectrohyla mykter* (Adler and Dennis, 1972)**Endangered B1ab(iii)****Order, Family:** Anura, Hylidae**Country Distribution:** Mexico**Current Population Trend:** Decreasing

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Geographic Range This species is known only from the Sierra Madre del Sur de Guerrero, in Omiltemi and Puerto del Gallo, Mexico, at elevations from 1,985-2,520m asl.

Population This is a rare species.

Habitat and Ecology It inhabits high-elevation cloud and pine-oak forest, in association with streams. Its breeding biology is unknown, but it might take place in streams.

Major Threats Degradation and destruction of the forest patches in Guerrero due to smallholder farming activities and logging is a major threat to this species. Chytridiomycosis may also be a threat, since it occurs at high elevations (and presumably breeds in streams), and declines due to the disease have already been detected amongst other species of this genus.

Conservation Measures The range of this species does not include any protected areas, and effective formal protection of the Omiltemi State Ecological Park is needed; the Puerto del Gallo also requires urgent protection. Further survey work is needed to better understand the population status of this species, and whether chytrid poses a threat. This species is listed as "Threatened" (Amenazada) by the Mexican government.

Notes on taxonomy: This species was previously included in the genus *Hyla* but has recently been moved to the genus *Plectrohyla* (Faivovich *et al.* 2005).

Bibliography: Duellman, W.E. (2001), Faivovich, J. *et al.* (2005), Mendelson III, J.R. and Toal III, K.R. (1996)

Data Providers: Georgina Santos-Barrera, Luis Canseco-Márquez

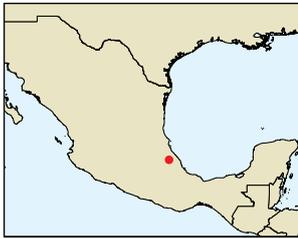
CR *Plectrohyla pachyderma* (Taylor, 1942)

Critically Endangered B1ab(iii)

Order, Family: Anura, Hylidae

Country Distribution: Mexico

Current Population Trend: Decreasing



Geographic Range This species is known only from the Atlantic slopes of the Sierra Madre Oriental in central Veracruz close to Teziutlán, at the border with the state of Puebla, Mexico. The type locality is at 1,600m asl.

Population This species has not been collected since it was first described, and is most likely a rare species.

Habitat and Ecology It inhabits streams and bushes in cloud forest, and presumably breeds in streams.

Major Threats There is high pressure from infrastructure development for human settlements, and other anthropogenic activities in this region, and alteration of the original forest cover is resulting in the disappearance of streams and other water systems required for the survival of this species. Chytridiomycosis might also be a threat to this species, since it is a high-elevation stream-dweller, and declines due to the disease have already been detected amongst other species of this genus.

Conservation Measures This species is not known to occur within any protected area. A specific survey to evaluate the conservation status of the cloud forest areas in the Huasteca region in Mexico is required, and a programme to restore and protect this area is important to conserve this and other amphibian species. It is a very high priority to relocate this species and determine its current population status; in view of the threat of chytridiomycosis, surviving individuals might need to form the basis for the establishment of a captive-breeding programme. This species is protected by Mexican law under the "Special Protection" category (Pr).

Notes on taxonomy: This species was previously included in the genus *Hyla* but has recently been moved to the genus *Plectrohyla* (Faivovich *et al.* 2005).

Bibliography: Duellman, W.E. (2001), Faivovich, J. *et al.* (2005)

Data Providers: Georgina Santos-Barrera, Luis Canseco-Márquez

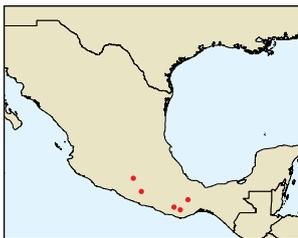
EN *Plectrohyla pentheter* (Adler, 1965)

Endangered B1ab(iii,v)

Order, Family: Anura, Hylidae

Country Distribution: Mexico

Current Population Trend: Decreasing



© Tim Bunkharat

Geographic Range This species is found on the Pacific versant of the Sierra Madre del Sur in Guerrero and Oaxaca, and in central Guerrero and south-western Oaxaca in fragmented areas, at elevations of 1,280-2,000m asl.

Population Recent surveys suggest that this formerly common species has declined and is now rare.

Habitat and Ecology It is a stream-breeding amphibian that inhabits cloud forest, close to low streams.

Major Threats The recently recorded declines are probably due to chytridiomycosis, although habitat loss and disturbance due to human activities (agriculture and logging) also represents a major threat to this species.

Conservation Measures The range of this species does not include any protected areas, and protection of the original cloud forest habitat is required. Given the apparent risk posed by chytrid, a captive-breeding programme may need to be established.

Notes on taxonomy: This species was previously included in the genus *Hyla* but has recently been moved to the genus *Plectrohyla* (Faivovich *et al.* 2005).

Bibliography: Duellman, W.E. (2001), Faivovich, J. *et al.* (2005), Lips, K.R. *et al.* (2004), Parra-Olea, G. *et al.* (2003)

Data Providers: Georgina Santos-Barrera, Luis Canseco-Márquez, Joseph Mendelson III

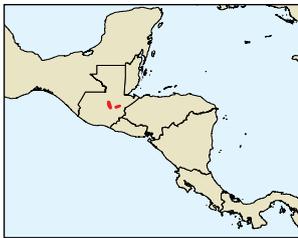
CR *Plectrohyla pokomchi* Duellman and Campbell, 1984

Critically Endangered A4ce

Order, Family: Anura, Hylidae

Country Distribution: Guatemala

Current Population Trend: Decreasing



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Geographic Range This species is known only from the Sierra de las Minas and the Sierra de Xucaneb, central and eastern Guatemala, from 1,400-1,900m asl.

Population It is an uncommon species. There is evidence of a recent dramatic decline and possible extirpation in Río Cafetal, Baja Verapaz, Guatemala, in the Sierra de las Minas, possibly due to chytrid (a tadpole of another species at this site was confirmed to have chytridiomycosis).

Habitat and Ecology This species inhabits cloud forests, living in vegetation near cascading streams, and breeds in clear streams. It can survive in old secondary forest.

Major Threats The main threat is habitat loss, especially due to encroaching agriculture (in particular leather-leaf plantations). There is also the risk of contamination or change in flow-regime of streams. As noted, chytridiomycosis is also a threat, given the impact that it has had on some other members of this genus in Central America, and due to the apparent disappearance of this species at a site where chytridiomycosis in another species has been confirmed.

Conservation Measures It occurs in the Reserva de la Biosfera Sierra de las Minas and Biotopo del Quetzal. In view of the threat of chytrid, the status of this species should be very closely monitored, and *ex-situ* populations should be established.

Bibliography: Campbell, J.A. (2001), Duellman, W.E. (2001), Duellman, W.E. and Campbell, J.A. (1984), Mendelson III, J.R. *et al.* (2004)

Data Providers: Manuel Acevedo, Eric Smith, Joseph Mendelson III

CR *Plectrohyla psarosema* (Campbell and Duellman, 2000)

Critically Endangered B1ab(iii)

Order, Family: Anura, Hylidae

Country Distribution: Mexico

Current Population Trend: Decreasing



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Geographic Range This species is known only from the type locality: 5.8km (by road) west of Totontepec (17° 14' 24"N; 96° 03' 36"W), at an elevation of 2,103m asl, on the Sierra Mixes in northern Oaxaca, Mexico. It might occur more widely, but it is believed to have a small distribution.

Population The population status of this recently described species is not known.

Habitat and Ecology It was collected in pristine cloud forest, and was found in crevices in boulders in a small stream and on leaves of vegetation surrounding the same stream. It is presumed to reproduce by larval development in the water.

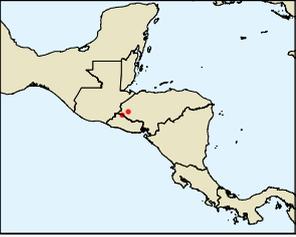
Major Threats The type locality of this species was totally cleared and burned as far back as 1983, and the stream was badly silted and littered with burned logs. Even if the species does occur elsewhere, chytridiomycosis is a very real threat, since it is a high-elevation stream-dweller, and declines due to the disease have been detected amongst other species of this genus.

Conservation Measures The species is not known to occur in any protected areas. In view of the risk of chytridiomycosis, it is a very high priority to conduct surveys to relocate this species and determine whether or not it still survives in the wild.

Notes on taxonomy: This species was previously included in the genus *Hyla* but has recently been moved to the genus *Plectrohyla* (Faivovich *et al.* 2005).

Bibliography: Campbell, J.A. and Duellman, W.E. (2000), Duellman, W.E. (2001), Faivovich, J. *et al.* (2005)

Data Providers: Georgina Santos-Barrera

EN *Plectrohyla psiloderma* McCranie and Wilson, 1999**Endangered B1ab(iii)****Order, Family:** Anura, Hylidae**Country Distribution:** El Salvador, Honduras**Current Population Trend:** Decreasing

© James McCranie

Geographic Range This species is known from Parque Nacional Celaque, Montana Celaque, in the department of De Lempira, western Honduras, and from El Pital in northern El Salvador near the Honduran border. It might occur in Parque Nacional Pital in Honduras (on the Salvadorian border), where larvae thought to belong to this species have been found. Its altitudinal range is from 2,450-2,530m asl.

Population It is moderately common in Honduras; there are no recent records in El Salvador.

Habitat and Ecology It lives on low vegetation and boulders along pristine streams in lower montane moist forest. It breeds in streams, and is not found in disturbed habitats.

Major Threats The main threat is habitat loss, mainly due to agricultural encroachment and wood extraction. Pollution from pesticides is also suspected to be a problem. Chytridiomycosis is a potential future threat, given the impact that it has had on some other high-elevation stream-breeding members of this genus in Central America.

Conservation Measures It occurs in Parque Nacional Celaque, and possibly also Parque Nacional Pital, both in Honduras; the Salvadorian population is not protected. Further survey work is needed to determine the status of this species in the Salvadorian part of the range.

Bibliography: Duellman, W.E. (2001), McCranie, J.R. and Wilson, L.D. (1999a), McCranie, J.R. and Wilson, L.D. (2002b)

Data Providers: Gustavo Cruz, Larry David Wilson, Randy McCranie, Gunther Köhler

CR *Plectrohyla pycnochila* Rabb, 1959**Critically Endangered B1ab(iii)****Order, Family:** Anura, Hylidae**Country Distribution:** Mexico**Current Population Trend:** Decreasing

Geographic Range This species is known only from the Meseta Central of Chiapas, in northern San Cristobal de las Casas, Mexico, at 2,400m asl.

Population This is a rare species.

Habitat and Ecology It occurs in pine-oak forests, presumably inhabiting and breeding in mountain streams.

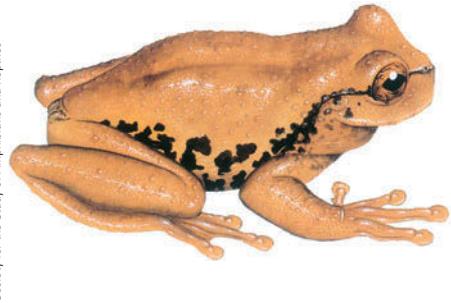
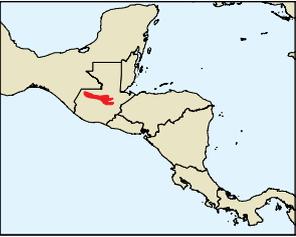
Major Threats The major threat to the species is clear-cut logging of its forest habitat, and transformation of the forest to agricultural land. Chytridiomycosis might also be a threat, since this is a high-elevation stream-dwelling species, and declines due to the disease have already been detected in other species of this genus.

Conservation Measures The range of this species does not include any protected areas, and protection of the forested areas surrounding San Cristobal de las Casas is needed. This species is listed as "Threatened" (Amenazada) by the Mexican government. In view of the threat of chytridiomycosis, the population status of this species

should be closely monitored, and *ex-situ* populations might need to be established.

Bibliography: Duellman, W.E. (2001)

Data Providers: Georgina Santos-Barrera, Luis Canseco-Márquez

CR *Plectrohyla quechi* Stuart, 1942**Critically Endangered A4ce****Order, Family:** Anura, Hylidae**Country Distribution:** Guatemala**Current Population Trend:** Decreasing

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Geographic Range This species is known from the slopes of the northern highlands in Guatemala from the Sierra de los Chumatanes to the highlands of Alta Verapaz and the Sierra de las Minas, from 615-1,850m asl.

Population It is a common species, but there is evidence of a recent dramatic decline and possible extirpation in Rio Cafetal, Baja Verapaz, Guatemala, in the Sierra de las Minas, possibly due to chytridiomycosis (a tadpole of another species at this site was confirmed to have the disease). However, *P. quechi* is reportedly still breeding at nearby sites.

Habitat and Ecology This stream-breeding species inhabits cloud forest, and individuals have been found among rocks alongside streams. It is not found in degraded habitats, but does occur in old secondary forest.

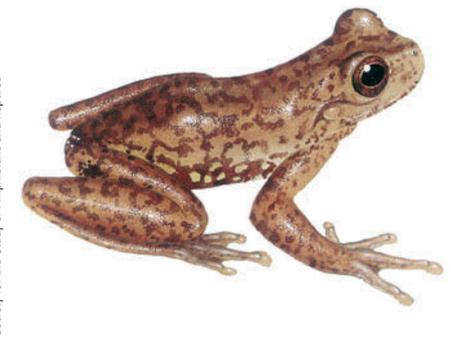
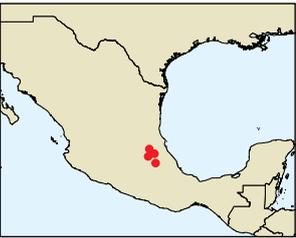
Major Threats The main threat is habitat loss, especially due to encroaching agriculture (in particular leather-leaf plantations). There is also the risk of contamination or change in flow-regime of streams. As noted, chytridiomycosis is also a threat, given the impact that this has had on some other members of this genus in Central America, and due to the apparent disappearance of this species at a site where chytridiomycosis in another species has been confirmed.

Conservation Measures This species occurs in the Reserva de la Biósfera Sierra de las Minas, Biotopo del Quetzal, and the Reserva de la Biósfera Bisil Caba. In view of the threat of chytridiomycosis, the population status of this species requires close monitoring, and animals might need to be maintained in captivity. The taxonomic status of this species, relative to *Plectrohyla sagorum*, requires investigation.

Notes on taxonomy: This species could be conspecific with *Plectrohyla sagorum* (M. Acevedo pers. comm.).

Bibliography: Campbell, J.A. (2001), Duellman, W.E. (2001), Duellman, W.E. and Campbell, J.A. (1992), Mendelson III, J.R. et al. (2004), Stuart, L.C. (1942)

Data Providers: Manuel Acevedo, Eric Smith, Joseph Mendelson III

EN *Plectrohyla robertsorum* (Taylor, 1940)**Endangered B1ab(iii)+2ab(iii)****Order, Family:** Anura, Hylidae**Country Distribution:** Mexico**Current Population Trend:** Decreasing

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Geographic Range This species is known from the Sierra Madre Oriental, in extreme east-central Hidalgo, up to the border with the states of Puebla and Tlaxcala, Mexico. It has been recorded at 2,250-3,050m asl. It probably occurs more widely than current records suggest, especially in areas between known sites.

Population This is thought to be a rare species. Surveys conducted in 2001 within the species' range collected only a single specimen.

Habitat and Ecology It occurs in pine and fir forests and montane meadows, and is commonly found close to streams, in which it breeds.

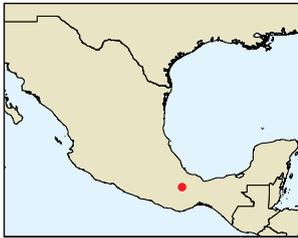
Major Threats The main threat to this species is habitat loss and degradation due to the activities of smallholder farmers, logging, and human settlement. Chytridiomycosis may also be a threat, as it is a high-elevation stream-breeding amphibian, and declines due to the disease have already been detected amongst other species of this genus.

Conservation Measures The range of this species includes Parque Nacional El Chico, although this was logged in the last 10-15 years and is subject to human settlement. Expanded and strengthened protection of the high-elevation pine and fir forests in the Sierra Madre Oriental of eastern Hidalgo is necessary, and an extensive survey to establish the current population status of this species (and the threat posed by chytrid) is required. This species is listed as "Threatened" (Amenazada) by the Mexican government.

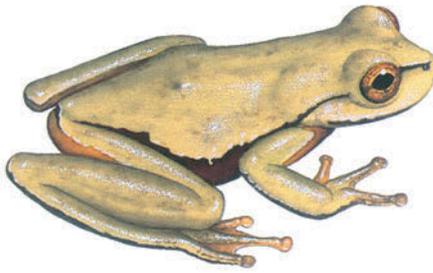
Notes on taxonomy: This species was previously included in the genus *Hyla* but has recently been moved to the genus *Plectrohyla* (Faivovich et al. 2005).

Bibliography: Duellman, W.E. (2001), Faivovich, J. et al. (2005)

Data Providers: Georgina Santos-Barrera, Luis Canseco-Márquez

CR *Plectrohyla sabrina* (Caldwell, 1974)**Critically Endangered A3ce****Order, Family:** Anura, Hylidae**Country Distribution:** Mexico**Current Population Trend:** Decreasing

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Geographic Range This species occurs on the northern slopes of Sierra de Juárez, northern Oaxaca, Mexico, at 1,580-2,020m asl.

Population There is no information on the population status of this species; however, it is probably quite rare, and there have only been a few individuals collected since the 1970s.

Habitat and Ecology This stream-breeding species exclusively inhabits cloud forest in the highlands of the Sierra de Juárez, and is found in moist and rocky habitats with abundant aquatic vegetation along streams.

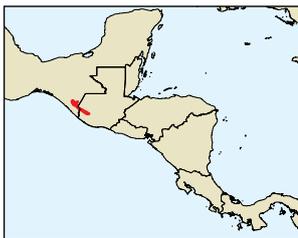
Major Threats The transformation and clearance of original cloud forest in the region is the main threat to this species. In southern Mexico, tadpoles have been found with damaged mouthparts, an indication of chytrid infection.

Conservation Measures The protection of the Sierra de Juárez forest fragments is extremely urgent since there are currently no protected areas in this region. Further surveys to establish the species' population status are also required, and in view of the severe risk of chytridiomycosis, *ex-situ* populations might need to be established. This species is listed as "Threatened" (Amenazada) by the Mexican government.

Notes on taxonomy: This species was previously included in the genus *Hyla* but has recently been moved to the genus *Plectrohyla* (Faivovich *et al.* 2005).

Bibliography: Duellman, W.E. (2001), Faivovich, J. *et al.* (2005)

Data Providers: Georgina Santos-Barrera, Luis Canseco-Márquez, Joseph Mendelson III

EN *Plectrohyla sagorum* Hartweg, 1941**Endangered B1ab(iii)****Order, Family:** Anura, Hylidae**Country Distribution:** El Salvador, Guatemala, Mexico**Current Population Trend:** Decreasing

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Geographic Range This species occurs on the Pacific slopes of the Sierra Madre del Sur de Chiapas, south-central Chiapas, Mexico, south-west to Guatemala and again in northern El Salvador (not mapped here), from 1,000-2,050m asl.

Population It is abundant in two localities in the Cuchumatanes, Guatemala. It is very rare in Mexico, where it is known from a single locality. Only one specimen is known from El Salvador.

Habitat and Ecology This stream-breeding amphibian exists only in cloud forests.

Major Threats The main threat to the species is habitat loss due to deforestation and transformation of the original forest habitats in both southern Chiapas and Guatemala for agriculture, logging, timber plantations, and human settlement. Since this is a relatively high-elevation, stream-breeding species, chytridiomycosis is a potential future threat, and has already led to declines in other species in this genus in Central America.

Conservation Measures It is present in the Reserva de la Biosfera El Triunfo (Mexico) where a well-preserved forest still exists, but is not known from any protected areas in Guatemala, and there is a need for improved protection of suitable habitats for this species. Further survey work is needed to determine the status of populations in Mexico and El Salvador, and to assess the risk posed by chytrid.

Data Providers: Georgina Santos-Barrera, Luis Canseco-Márquez, Manuel Acevedo

CR *Plectrohyla siopela* (Duellman, 1968)**Critically Endangered B1ab(iii,v)+2ab(iii,v)****Order, Family:** Anura, Hylidae**Country Distribution:** Mexico**Current Population Trend:** Decreasing

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Geographic Range This species is known only from the west slope of the Cofre de Perote Mountain, central Veracruz, Mexico, at 2,500-2,550m asl.

Population This species used to be abundant, but it has not been collected in over 10 years despite numerous surveys in suitable habitats in the area from which it has been recorded.

Habitat and Ecology It inhabits dry pine forest, and is found only in mountain streams in crevices and rocks.

Major Threats The major threat to this species is the disappearance of suitable stream habitat. Its apparent disappearance in areas of remaining suitable habitat is suggestive of a threat such as chytridiomycosis, so this requires investigation.

Conservation Measures The range of this species falls entirely in the Parque Nacional Cofre de Perote. In view of the risk of chytridiomycosis, it is a very high priority to conduct surveys to determine whether or not this species still survives; surviving individuals might need to form the basis for the establishment of an *ex-situ* population.

Notes on taxonomy: This species was previously included in the genus *Hyla* but has recently been moved to the genus *Plectrohyla* (Faivovich *et al.* 2005).

Bibliography: Duellman, W.E. (2001), Faivovich, J. *et al.* (2005)

Data Providers: Georgina Santos-Barrera, Luis Canseco-Márquez

CR *Plectrohyla tecunumani* Duellman and Campbell, 1984**Critically Endangered B1ab(iii)+2ab(iii)****Order, Family:** Anura, Hylidae**Country Distribution:** Guatemala**Current Population Trend:** Decreasing

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Geographic Range This species is known from two localities in the Sierra de los Cuchumatanes in western Guatemala, at 3,200-3,395m asl.

Population The type series was collected in 1968. A visit to the cave where the series was collected in June 1989 turned up no individuals. The forest around the cave had been cleared, the area was heavily grazed, and the water in the stream in the cave was heavily silted. In 1995, a tadpole was found very close to the type locality in a stream that has subsequently dried up after the water was piped to the local community. In 2002, tadpoles were found at another locality (Magdalena). There are few other streams in the region and most natural habitat has been severely degraded.

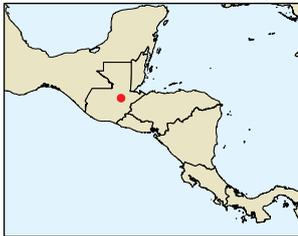
Habitat and Ecology All records have been from small caves, with streams flowing out of them. It is presumed that the adults live in the surrounding montane pine forest, which is now somewhat degraded.

Major Threats The main threats to the species, as already indicated, include forest destruction (due to expanding farming and human settlements, as well as wood extraction) and deterioration of water quality. Chytridiomycosis is a potential threat, given the impact that it has had on some other members of this genus in Central America.

Conservation Measures It occurs in the proposed Parque Nacional Cuchumatanes. Further survey work is required to determine the biology and population status and trends of this species and the limits of its range. In view of the threat of chytridiomycosis, *ex-situ* populations might need to be established.

Bibliography: Campbell, J.A. (2001), Duellman, W.E. (2001), Duellman, W.E. and Campbell, J.A. (1984), Duellman, W.E. and Campbell, J.A. (1992)

Data Providers: Manuel Acevedo, Eric Smith

CR *Plectrohyla teuchestes* Duellman and Campbell, 1992**Critically Endangered B1ab(iii)+2ab(iii)****Order, Family:** Anura, Hylidae**Country Distribution:** Guatemala**Current Population Trend:** Decreasing

Geographic Range As currently understood, this species is known only from the type locality on the southern slopes of the Sierra de Xucaneb, north of the Río Polochic, Alta Verapaz, in central Guatemala (15° 22'N; 90° 01'W), at 1,000m asl.

Population When discovered, a handful of adults and tadpoles were observed at the type locality. However, recent attempts to locate the species have not been successful.

Habitat and Ecology It apparently lives near, and breeds in, streams and waterfalls in montane forest. It has only been recorded from undisturbed habitats.

Major Threats The only known site is facing habitat loss as a result of farming and wood extraction. Chytridiomycosis is a potential threat, given the impact that it has had on some other members of this genus in Central America.

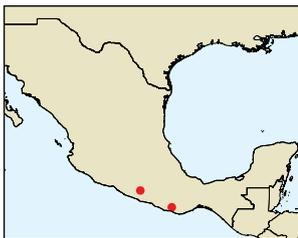
Conservation Measures This species is not known to occur in any protected area; the site from which it has been recorded is on

private land. In view of the threat of chytridiomycosis, it is necessary to conduct surveys to relocate this species and determine its current population status and the limits of its distribution, and possibly to initiate a captive-breeding programme.

Notes on taxonomy: The forms that occur in Honduras have been separated to form the species *Plectrohyla exquisita* (McCranie and Wilson 1998).

Bibliography: Campbell, J.A. (2001), Duellman, W.E. (2001), Duellman, W.E. and Campbell, J.A. (1992), McCranie, J.R. and Wilson, L.D. (1998)

Data Providers: Manuel Acevedo, Eric Smith

CR *Plectrohyla thorectes* (Adler, 1965)**Critically Endangered A2ace****Order, Family:** Anura, Hylidae**Country Distribution:** Mexico**Current Population Trend:** Decreasing

© Tim Bunkharat

Geographic Range This species is known from the Sierra Madre del Sur in Oaxaca and Guerrero, Mexico, in the vicinity of San Gabriel Mixtepec, south-western Oaxaca and Puerto del Gallo, Guerrero, Mexico, at elevations of 1,600-1,900m asl. It probably occurs more widely than current records suggest, especially in areas between known sites.

Population This was never a common species, but it appears to have gone into serious decline, and has not been recorded since 1984. Recent surveys to locate it within known localities have been unsuccessful.

Habitat and Ecology A stream-breeding species, it occurs in pine-oak forest, and individuals are often found on low vegetation such as ferns and bushes along mountain streams.

Major Threats Clearance of the original forest cover for conversion to agricultural land in the region is a threat to this species. However, the species has also disappeared in suitable habitat, probably due to chytridiomycosis.

Conservation Measures The range of this species does not include any protected areas, and urgent protection of the forested areas surrounding San Gabriel Mixtepec and Puerto del Gallo is recommended. It is a very high priority to conduct surveys to relocate this species and determine its current population status; if the threat of chytrid proves to be real, then surviving individuals might need to form the basis for a captive-breeding programme. This species is protected by Mexican law under the "Special Protection" category (Pr).

Notes on taxonomy: This species was previously included in the genus *Hyla* but has recently been moved to the genus *Plectrohyla* (Faivovich *et al.* 2005).

Bibliography: Duellman, W.E. (2001), Faivovich, J. *et al.* (2005), Lips, K.R. *et al.* (2004)

Data Providers: Georgina Santos-Barrera, Luis Canseco-Márquez

CR *Ptychohyla dendrophasma* (Campbell, Smith and Acevedo, 2000)**Critically Endangered B1ab(iii)****Order, Family:** Anura, Hylidae**Country Distribution:** Guatemala**Current Population Trend:** Decreasing© Amy Farago & Middle America, 2001
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Geographic Range This species is known from a single female specimen collected in 1998 from the type locality: Quebrada Sancapech, Finca San Francisco, Huehuetenango department, Guatemala, at 1,270m asl. This locality is in the north-western portion of the Sierra de Los Cuchumatanes.

Population There is no information on current population status, and three subsequent trips to the type locality have not turned up any more individuals.

Habitat and Ecology It is recorded from cloud forest. There is no information on breeding, although closely related species breed by larval development in tree cavities and in bromeliads.

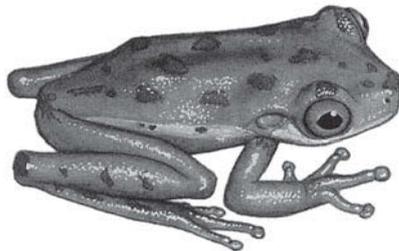
Major Threats Habitat loss is a threat to this species: it was found in the only small forest fragment in the area, which is surrounded by extensively cleared agricultural lands. Chytridiomycosis is also a potential threat, as other species of the genus have also declined in Guatemala due to the impacts of the disease.

Conservation Measures It does not occur in any protected area. Further survey work is required to determine the population status of this species and the limits of its range, particularly to ascertain whether or not it might survive in forested areas outside the type locality. Given the possible threat of chytridiomycosis, surviving individuals might need to form the basis for the establishment of an *ex-situ* population.

Notes on taxonomy: This species was previously included in the genus *Hyla* but has recently been moved to the genus *Ptychohyla* (Faivovich *et al.* 2005).

Bibliography: Campbell, J.A., Smith, E.N. and Acevedo, M.E. (2000), Faivovich, J. *et al.* (2005)

Data Providers: Manuel Acevedo, Bruce Young

EN *Ptychohyla erythromma* (Taylor, 1937)**Endangered B1ab(iii)+2ab(iii)****Order, Family:** Anura, Hylidae**Country Distribution:** Mexico**Current Population Trend:** Decreasing© Amy Farago & Middle America, 2001
Society for the Study of Amphibians and Reptiles

Geographic Range This species occurs on the Pacific slopes of the Sierra Madre del Sur de Guerrero, central Guerrero, Mexico, at elevations from 700-950m asl.

Population It is not a common species.

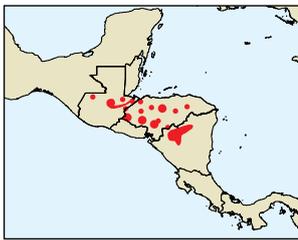
Habitat and Ecology It inhabits pine-oak forest and tropical deciduous forest. It is often found on low vegetation, under logs, rocks and vegetation along streams where it breeds.

Major Threats Habitat loss as a result of smallholder farming activities and logging is the main threat to this species. A larva has been found with keratinised mouthparts, indicative of chytridiomycosis.

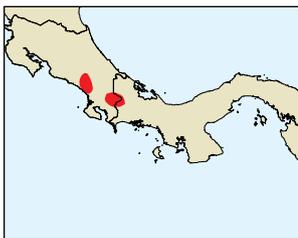
Conservation Measures The range of this species does not include any protected areas, and protection and restoration of forested areas in Guerrero is urgently needed. Further research and survey work is needed to determine the extent to which chytrid poses a threat; there may be a need to establish a captive assurance colony of this species.

Bibliography: Duellman, W.E. (2001), Lips, K.R. *et al.* (2004)

Data Providers: Georgina Santos-Barrera, Luis Canseco-Márquez

CR *Ptychohyla hypomykter* McCranie and Wilson, 1993**Critically Endangered A3e****Order, Family:** Anura, Hylidae**Country Distribution:** Guatemala, Honduras, Nicaragua**Current Population Trend:** Decreasing

© Ignacio De La Riva

**Geographic Range** This species ranges from western Guatemala, through most of Honduras to central Nicaragua, from 620-2,070m asl.**Population** It is still relatively common in some areas, but is in decline.**Habitat and Ecology** It is a forest species, living on low vegetation along mountain streams where it breeds, but is tolerant of some habitat disturbance. However, it does require some woody vegetation cover, such as trees along streams in pastureland.**Major Threats** The main threats are habitat loss due to expanding agriculture and pasture, forest fires, and water pollution. The recent emergence of chytridiomycosis is also a threat. Tadpoles have been found with deformed mouthparts, and one was confirmed with chytridiomycosis in Río Cafetal, Baja Verapaz, Guatemala in the Sierra de las Minas, where there has been an observed dramatic population decline (although the species is still present at this site) (Mendelson *et al.* 2004).**Conservation Measures** It occurs in a number of protected areas in its range. In view of the threat of chytridiomycosis, the status of this species should be closely monitored, and *ex-situ* populations should be established.**Notes on taxonomy:** Much of the scientific literature uses the name *Ptychohyla spinipollex* for this species. McCranie and Wilson (1993b) explain the correct usage of the names.**Bibliography:** Campbell, J.A. (2001), Duellman, W.E. (2001), Köhler, G. (2001), McCranie, J.R. and Wilson, L.D. (1993b), McCranie, J.R. and Wilson, L.D. (2002b), Mendelson III, J.R. *et al.* (2004)**Data Providers:** Manuel Acevedo, Gustavo Cruz, Larry David Wilson, Randy McCranie, Gunther Köhler, Joseph Mendelson III**EN** *Ptychohyla legleri* (Taylor, 1958)**Endangered B1ab(iii)****Order, Family:** Anura, Hylidae**Country Distribution:** Costa Rica, Panama**Current Population Trend:** Decreasing

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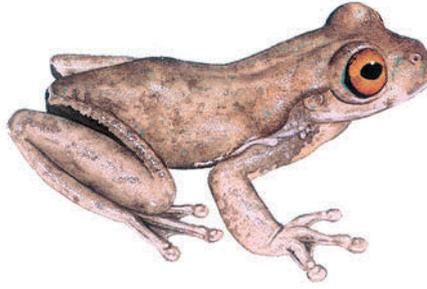
**Geographic Range** This species occurs on the Pacific slopes of the Cordillera de Talamanca of Costa Rica and extreme western Panama, from 880-1,524m asl (Savage 2002).**Population** It is moderately common in appropriate habitat.**Habitat and Ecology** It is a nocturnal, stream-breeding species, present in humid montane forest and usually found along (and occasionally in) small streams and dense vegetation no more than one metre above the water.**Major Threats** The major threats to the species are the alteration of water flow in streams (for instance through hydroelectric projects), and general habitat destruction due to smallholder livestock ranching and more extensive agriculture (crops). Chytridiomycosis is also a potential threat to this species.**Conservation Measures** Although present in protected areas such as Parque Internacional La Amistad and the Las Cruces Biological Station (the latter is part of the Reserva de la Biosfera La Amistad), the habitat in the range of this species is in need of further protection.**Bibliography:** Duellman, W.E. (2001), Ibáñez, R. *et al.* (2000), Savage, J.M. (2002), Young, B. *et al.* (1999)**Data Providers:** Frank Solís, Roberto Ibáñez, Gerardo Chaves, Jay Savage, César Jaramillo, Querube Fuenmayor, Brian Kubicki, Federico Bolaños**EN** *Ptychohyla leonhardschultzei* (Ahl, 1934)**Endangered B1ab(v)****Order, Family:** Anura, Hylidae**Country Distribution:** Mexico**Current Population Trend:** Decreasing

© Tim Burkhart

**Geographic Range** This species is known from the Pacific slopes of Guerrero and Oaxaca, Mexico, at elevations between 700 and 2,000m asl. It probably occurs more widely than current records suggest.**Population** This is not a common species.**Habitat and Ecology** It inhabits pine-oak and cloud forest, and is found in, or on, low vegetation along mountain streams. It breeds in streams and some populations have been found surviving in coffee plantations.**Major Threats** The main threat is habitat loss mainly as a result of deforestation and the planting of coffee and other non-timber plantations. Larvae have been found in southern Mexico with keratinised mouthparts, indicative of chytridiomycosis.**Conservation Measures** The range of this species does not include any protected areas, and the protection of the original forested areas in Guerrero and Oaxaca is urgently needed. Further research and survey work is needed to determine the extent to which chytrid poses a threat; there may be a need to establish a captive assurance colony of this species. This species is protected by Mexican law under the "Special Protection" category (Pr).**Bibliography:** Duellman, W.E. (2001), Lips, K.R. *et al.* (2004)**Data Providers:** Georgina Santos-Barrera, Luis Canseco-Márquez, Joseph Mendelson III**CR** *Ptychohyla macrotympanum* Campbell and Smith, 1992**Critically Endangered B1ab(iii)****Order, Family:** Anura, Hylidae**Country Distribution:** Guatemala**Current Population Trend:** Decreasing© Herpetological Society of Middle America, 2001
Society for the Study of Amphibians and Reptiles**Geographic Range** This species is known only from the road to La Cumbre, Municipio de la Democracia, Huehuetenango, Guatemala, from approximately 600-1,000m asl.**Population** It was found to be common in 1996 within this restricted range.**Habitat and Ecology** It occurs along, and reproduces in, streams in dry forest.**Major Threats** Although this species does tolerate moderate levels of habitat destruction, wholesale habitat loss caused by agricultural activities is a major threat to the species. Chytridiomycosis is also a major threat, and declines due to the disease have already been detected amongst species of this genus in Guatemala (Mendelson *et al.* 2004).**Conservation Measures** It is not known to occur in any protected areas, and habitat protection is urgently needed. In view of the severe risk of chytridiomycosis, the status of this species should be closely monitored, and *ex-situ* populations might need to be established.**Notes on taxonomy:** This species was removed from synonymy of *Ptychohyla euthysanota* by Campbell and Smith (1992).**Bibliography:** Campbell, J.A. and Smith, E.N. (1992), Mendelson III, J.R. *et al.* (2004)**Data Providers:** Manuel Acevedo, Bruce Young

EN *Ptychohyla panchoi* Duellman and Campbell, 1982**Endangered B1ab(iii)****Order, Family:** Anura, Hylidae**Country Distribution:** Guatemala**Current Population Trend:** Decreasing

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Geographic Range This species is known from the Sierra de las Minas, the Montañas del Mico, and the Sierra Xucaneb in eastern and central Guatemala, from 100-895m asl. It probably occurs more widely.

Population It is an uncommon species.

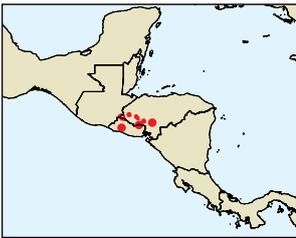
Habitat and Ecology This is a stream-breeding species that lives in moist tropical forest, often along streams, and is not found in degraded habitats.

Major Threats Habitat loss, due to expanding agriculture, wood extraction, and human settlement, as well as water pollution, are the major threats to the species. Chytridiomycosis is also a major threat, and declines due to the disease have already been detected amongst species of this genus in Guatemala (Mendelson *et al.* 2004).

Conservation Measures It occurs in the Reserva de la Biosfera Sierra de las Minas and Montanos del Mico Catchment Reserve. Given the risk of chytridiomycosis, there may be a need to establish a captive-breeding programme for this species.

Bibliography: Campbell, J.A. (2001), Duellman, W.E. (2001), Duellman, W.E. and Campbell, J.A. (1982), Mendelson III, J.R. *et al.* (2004)

Data Providers: Manuel Acevedo, Eric Smith

EN *Ptychohyla salvadorensis* (Mertens, 1952)**Endangered B1ab(iii)****Order, Family:** Anura, Hylidae**Country Distribution:** El Salvador, Guatemala, Honduras**Current Population Trend:** Decreasing

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Geographic Range This species occurs in extreme south-eastern Guatemala, northern and central El Salvador, and south-western to south-central Honduras, from 1,440-2,050m asl. It probably occurs more widely than current records suggest.

Population It is relatively common.

Habitat and Ecology This stream-breeding species lives on low vegetation along streams in premontane to lower montane moist forest. It is tolerant of some habitat disturbance; however, it requires some woody vegetation, such as trees along streams in pastureland.

Major Threats The main threats are habitat loss due to expanding agriculture, creation of pasturelands, and forest fires. Chytridiomycosis is also a major threat, and declines due to the disease have already been detected amongst species of this genus in Guatemala (Mendelson *et al.* 2004), and similar declines have also been observed in Honduras.

Conservation Measures It occurs in protected areas in all three countries. Given the risk of chytridiomycosis, there may be a need to establish a captive-breeding programme for this species.

Bibliography: Campbell, J.A. (2001), Campbell, J.A. and Smith, E.N. (1992), Duellman, W.E. (2001), McCranie, J.R. and Wilson, L.D. (2002b), Mendelson III, J.R. *et al.* (2004), Mertens, R. (1952)

Data Providers: Gustavo Cruz, Larry David Wilson, Randy McCranie, Gunther Köhler, Manuel Acevedo, Joseph Mendelson III

CR *Ptychohyla sanctaerucis* Campbell and Smith, 1992**Critically Endangered B1ab(iii.v)****Order, Family:** Anura, Hylidae**Country Distribution:** Guatemala**Current Population Trend:** Decreasing

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Geographic Range This species is known only from the Sierra de Santa Cruz, eastern Guatemala, from 366-1,150m, though it might occur a little more widely.

Population It is a common species within its range.

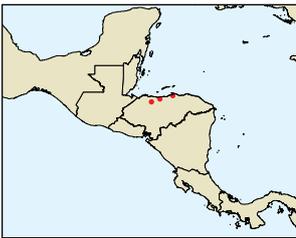
Habitat and Ecology It inhabits undisturbed subtropical moist forest and is found near, and breeds in, streams.

Major Threats The major threats to this species include habitat loss due to expanding agriculture, wood extraction, and human settlement, and water pollution. Chytridiomycosis is also a potential threat, and declines due to the disease have already been detected amongst other species of this genus in Guatemala (Mendelson *et al.* 2004).

Conservation Measures This species has not been found in any protected area, though one has been proposed within its range. In view of the severe risk of chytridiomycosis, the status of this species should be closely monitored, and *ex-situ* populations might need to be established.

Bibliography: Campbell, J.A. (2001), Campbell, J.A. and Smith, E.N. (1992), Duellman, W.E. (2001), Mendelson III, J.R. *et al.* (2004)

Data Providers: Manuel Acevedo, Eric Smith

EN *Ptychohyla spinipollex* (K. Schmidt, 1936)**Endangered B1ab(iii)+2ab(iii)****Order, Family:** Anura, Hylidae**Country Distribution:** Honduras**Current Population Trend:** Decreasing

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Geographic Range This species occurs in the Cordillera Nombre de Dios in the departments of Atlantida, Colon and Yoro in northern Honduras, at 160-1,580m asl.

Population It is relatively common.

Habitat and Ecology A stream-breeding species, it lives on vegetation and boulders along streams, in lowland moist forest and premontane and lower montane wet forest. It can survive in somewhat degraded forest.

Major Threats The main threats are loss of habitat due to subsistence agriculture, creation of pastureland, and forest fires. Chytridiomycosis is also a plausible potential threat.

Conservation Measures It is found in three protected areas, namely Pico Bonito, Texiguat, and Capiro y Calentura National Parks. Further survey work is necessary to determine the degree to which chytrid poses a threat to this species.

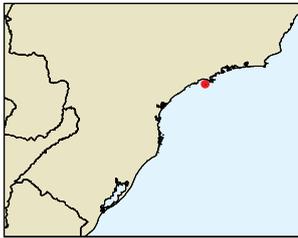
Notes on taxonomy: The use of this name has been clarified by McCranie and Wilson (1993b).

Bibliography: Duellman, W.E. (2001), McCranie, J.R. and Wilson, L.D. (1993b), McCranie, J.R. and Wilson, L.D. (2002b), Schmidt, K.P. (1936b), Stuart, L.C. (1954), Wilson, L.D. and McCranie, J.R. (1989)

Data Providers: Gustavo Cruz, Larry David Wilson, Randy McCranie

CR *Scinax alcatraz* (B. Lutz, 1973)

Critically Endangered B1ab(iii)+2ab(iii)
Order, Family: Anura, Hylidae
Country Distribution: Brazil
Current Population Trend: Decreasing



Geographic Range This species is known only from the type locality: Ilha de Alcatrazes, an island off the coast of the state of São Paulo, Brazil. The maximum elevation of the island is no more than 100m asl.

Population The population status of this species is unknown.
Habitat and Ecology It occurs in primary and secondary forest, and has also been recorded from degraded forest. The breeding habits are unknown, but it presumably breeds in water by larval development.

Major Threats Ilha de Alcatrazes was used as a military base in the past, but this is no longer the case. Although there currently is no human settlement on the island, direct disturbance of the species, and degradation of its habitat from touristic activities and fire are ongoing threats.

Conservation Measures There are no protected areas established on the island. Further survey work is required to determine the biology

and population status of this species.

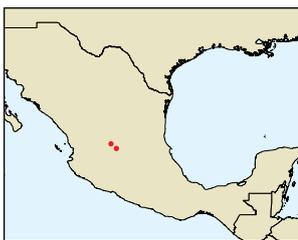
Notes on taxonomy: This species was removed from synonymy (as a subspecies) of *Scinax catharinae* by Peixoto (1988).

Bibliography: Lutz, B. (1973a), Lutz, B. (1973b), Peixoto, O.L. (1981)

Data Providers: Miguel Trefaut Rodrigues, Carlos Alberto Gonçalves da Cruz

EN *Smilisca dentata* (Smith, 1957)

Endangered B1ab(iii)+2ab(iii)
Order, Family: Anura, Hylidae
Country Distribution: Mexico
Current Population Trend: Decreasing



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Geographic Range This species occurs in southern Agusalientes and extreme north-western Jalisco, Mexico, at elevations between 1,800 and 1,900m asl.

Population It is a rare species.

Habitat and Ecology It occurs only in flooded grasslands, and breeds in temporary and permanent pools.

Major Threats The transformation of the original grassland habitat into agricultural land, and the subsequent pollution from pesticides, are major threats to this species.

Conservation Measures It does not occur within any protected areas, and urgent protection of the original habitat of this species is required (especially in Agusalientes where only a small area of suitable habitat remains). This species is listed as "Threatened" (Amenazada) by the Mexican government.

Notes on taxonomy: This species was previously included in the genus *Pternohyla* which was recently synonymized with *Smilisca* (Faivovich *et al.* 2005).

Bibliography: Duellman, W.E. (2001), Faivovich, J. *et al.* (2005)

Data Providers: Georgina Santos-Barrera, Luis Canseco-Márquez

VU *Smilisca puma* (Cope, 1884)

Vulnerable B1ab(iii)
Order, Family: Anura, Hylidae
Country Distribution: Costa Rica, Nicaragua
Current Population Trend: Decreasing



© Brian Kubicki



Geographic Range This species can be found from the Caribbean lowlands of Costa Rica and adjacent Nicaragua, at 15-520m asl.

Population It is uncommon, but regularly recorded in Costa Rica.

Habitat and Ecology It lives in lowland tropical rainforest, and has also been found breeding in somewhat disturbed habitats, such as secondary growth. Males call throughout the rainy season, from shallow water and low bushes, usually hidden in vegetation. Breeding takes place in small, shallow temporary pools or ponds (Savage 2002).

Major Threats The major threat is habitat loss and degradation due to small- and large-scale agriculture and logging. The forests of south-eastern Nicaragua have been less altered than those on the Costa Rican side of the border.

Conservation Measures The range of this species includes several national parks and other protected areas.

Bibliography: Savage, J.M. (2002)

Data Providers: Federico Bolaños, Gerardo Chaves

VU *Tepuihyla rimarum* Ayarzagüena, Señaris and Gorzula, 1992

Vulnerable D2
Order, Family: Anura, Hylidae
Country Distribution: Venezuela
Current Population Trend: Stable



Geographic Range This species is restricted to the Ptari-tepui (5° 47' N; 61° 47' W), at 2,400m asl, in Bolívar state, Venezuela. It is likely to have a genuinely restricted range.

Population It is a common species.

Habitat and Ecology It is found in crevices and under slabs in rocky areas adjacent to shrublands on the bare sandstone summit of Ptari-tepui. Reproductive habits are unknown, but it presumably breeds in water like other species of the genus.

Major Threats Although there are no major threats, its restricted range makes it more susceptible to stochastic threatening processes.

Conservation Measures It occurs in Parque Nacional Canaima. There is a need for close population monitoring of this species, given that it is known only from a single location.

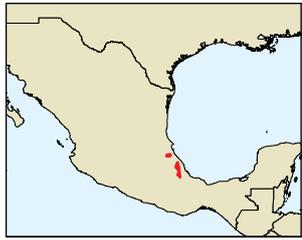
Bibliography: Ayarzagüena, J., Señaris, J.C. and Gorzula, S. (1992a), Ayarzagüena, J., Señaris, J.C. and Gorzula, S. (1992b), Barrio Amorós, C.L.

(2004), Duellman, W.E. and Yoshpa, M. (1996), Gorzula, S. and Señaris, J.C. (1998), La Marca, E. (1997)

Data Providers: Celsa Señaris, Enrique La Marca

VU *Tlalocohyla godmani* (Günther, 1901)

Vulnerable B1ab(iii)
Order, Family: Anura, Hylidae
Country Distribution: Mexico
Current Population Trend: Decreasing



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Geographic Range This species is known from north-eastern Puebla and adjacent Veracruz, south to south-central Veracruz, in Mexico.

Population It is not common.

Habitat and Ecology It inhabits montane forest, and breeding takes place in temporary streams.

Major Threats Conversion of forest to agricultural land has resulted in the disappearance of the original habitat of this species. The mesic montane forest is one of the most heavily impacted environments in Mexico. Pollution from mining is also degrading the quality of the species' habitat.

Conservation Measures The range of this species does not include any protected areas, and habitat preservation and restoration is required. It is listed as "Threatened" by the Mexican government.

Notes on taxonomy: This species was previously included in the genus *Hyla* but has recently been moved to the new genus *Tlalocohyla* (Faivovich *et al.* 2005).

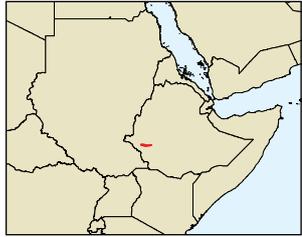
Bibliography: Duellman, W.E. (2001), Faivovich, J. *et al.* (2005)

Data Providers: Georgina Santos-Barrera, Luis Canseco-Márquez

HYPEROLIIDAE

VU *Afrixalus clarkeorum* Largen, 1974

Vulnerable B1ab(iii)
Order, Family: Anura, Hyperoliidae
Country Distribution: Ethiopia
Current Population Trend: Decreasing



© M.J. Largen



Geographic Range This species is endemic to Ethiopia, where it is currently known from only two areas (the vicinity of Bonga, and Godare) at 820-1,800m asl, in the south-western region of the country.

Population It appeared to be relatively common at the type locality in 1971, but its status is otherwise unknown due to lack of recent survey work.

Habitat and Ecology It is found in tropical deciduous forest and forest edge, breeding amongst herbaceous vegetation surrounding pools in forest clearings. It has also been found in coffee plantations and other secondary habitats. For breeding it requires emergent vegetation in marshy pools, at least some of which are likely to become dry for part of the year.

Major Threats The major threat is habitat loss due to selective logging, human settlement, and agricultural encroachment (including coffee plantations).

Conservation Measures It is not known from any protected areas. There is a need for improved habitat protection at sites where this species is known to occur.

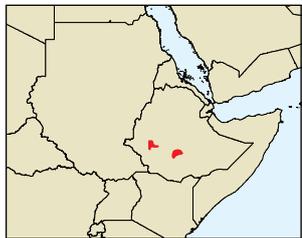
Notes on taxonomy: Largen (2001) emended the name from *Afrixalus clarkei* to *Afrixalus clarkeorum*.

Bibliography: Largen, M.J. (1974), Largen, M.J. (2001), Schiøtz, A. (1999)

Data Providers: Malcolm Largen, Arne Schiøtz

VU *Afrixalus enseticola* Largen, 1974

Vulnerable B2ab(iii)
Order, Family: Anura, Hyperoliidae
Country Distribution: Ethiopia
Current Population Trend: Decreasing



© M.J. Largen



Geographic Range This species is endemic to high-altitude areas of southern Ethiopia on both sides of the Rift Valley at altitudes of 1,700-2,750m asl.

Population It is locally common within its relatively restricted range.

Habitat and Ecology It is found in montane forest at altitudes, and rarely in montane grassland after forest clearance, typically breeding amongst herbaceous vegetation surrounding pools in forest clearings. It can survive in suitable situations in plantations, rural gardens, and even urban areas. For breeding it requires emergent vegetation in marshy pools, at least some of which are likely to become dry for part of the year.

Major Threats Threats include forest clearance, human settlement, and agricultural encroachment.

Conservation Measures It is known to occur in the Bale Mountains National Park.

Bibliography: Largen, M.J. (1974), Largen, M.J. (2001), Schiøtz, A. (1999)

Data Providers: Malcolm Largen, Arne Schiøtz

ETHIOPIAN BANANA FROG

EN *Afrixalus knysnae* (Loveridge, 1954)

Endangered B1ab(ii,iii,iv,v)+Zab(ii,iii,iv,v)
Order, Family: Anura, Hyperoliidae
Country Distribution: South Africa
Current Population Trend: Decreasing



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Geographic Range This species is known from a few localities at low altitude on the south coast of South Africa on either side of the border between the Eastern Cape and Western Cape Provinces.

Population It is a rare species, with only a few individuals known in each locality.

Habitat and Ecology It lives in a coastal mosaic of vegetation types, including mountain fynbos heathland, forest, and to some extent on agricultural land. It breeds in small dams and shallow semi-permanent water with much emergent vegetation.

Major Threats The main threat is habitat loss due to urban and recreational development, afforestation, and agricultural expansion.

Conservation Measures It occurs in Tsitsikamma National Park, Goukamma Nature Reserve, and Diepwalle Forestry Area.

Notes on taxonomy: This species is closely related to *Afrixalus spinifrons* (Schiøtz 1999).

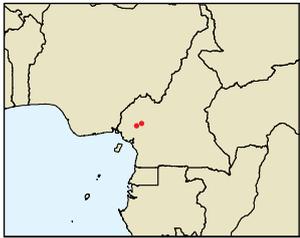
Bibliography: Channing, A. (2001), Minter, L.R. *et al.* (2004), Passmore, N.I. and Carruthers, V.C. (1995), Pickersgill, M. (1996), Pickersgill, M. (2000), Schiøtz, A. (1999)

Data Providers: Leslie Minter, Arne Schiøtz

KNYSNA BANANA FROG

EN *Afrivalus lacteus* Perret, 1976

Endangered B1ab(i,iii)
Order, Family: Anura, Hyperoliidae
Country Distribution: Cameroon
Current Population Trend: Decreasing



© Jean-Louis Amiet



Geographic Range This species is known only from a few mountains in western Cameroon, specifically the western and southern slopes of Mount Manenguba, Mount Nlonako, and the southern portion of the Bamileke Plateau (at Mount Bana, Foto and Batie), at an altitude of 1,200-1,900m asl.

Population It is generally an uncommon species.

Habitat and Ecology It lives in montane forest (including secondary forest and forest edges), and raffia palm swamps, and is often associated with streams in which it breeds (which is unusual for a species in this genus).

Major Threats It is threatened by forest loss as a result of agricultural encroachment, expanding human settlements, and removal of wood.

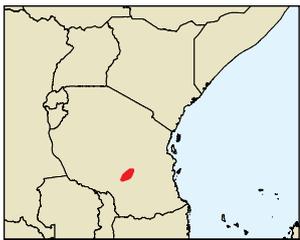
Conservation Measures It does not occur in any protected areas. The protected area network in western Cameroon urgently needs to be expanded to include the remaining montane forest habitats, particularly those on Mount Manenguba.

Bibliography: Amiet, J.-L. (1972d), Amiet, J.-L. (1975), Herrmann, H.-W. *et al.* (2005), Perret, J.-L. (1976a), Schiøtz, A. (1999)

Data Providers: Jean-Louis Amiet, Arne Schiøtz

VU *Afrivalus morerei* Dubois, 1986 "1985"

Vulnerable B1ab(iii)
Order, Family: Anura, Hyperoliidae
Country Distribution: Tanzania
Current Population Trend: Decreasing



© Michele Menegon



Geographic Range This species is endemic to the Udzungwa Mountains in southern Tanzania, occurring between 1,300 and 2,050m asl.

Population It is moderately abundant in suitable habitats.

Habitat and Ecology It is a species of marshy areas in open montane grasslands, and from grassy glades in forest/grassland mosaic. It has been found in pastureland, but it is not clear that it can survive in croplands.

Major Threats Its montane grassland habitat is threatened by afforestation, agricultural expansion, fire, and human settlement.

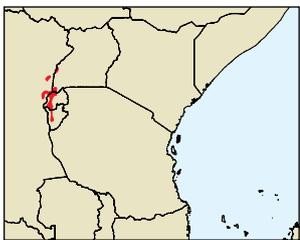
Conservation Measures There are no records from Udzungwa National Park, but it is likely to occur there.

Bibliography: Dubois, A. (1985), Pickersgill, M. (1992), Pickersgill, M. (1995), Poynton, J.C. (2003b), Schiøtz, A. (1974), Schiøtz, A. (1975), Schiøtz, A. (1999)

Data Providers: Martin Pickersgill, Arne Schiøtz, Kim Howell

VU *Afrivalus orophilus* (Laurent, 1947)

Vulnerable B1ab(iii)
Order, Family: Anura, Hyperoliidae
Country Distribution: Burundi, Congo, D.R., Rwanda, Uganda
Current Population Trend: Decreasing



© R.C. Drewes



Geographic Range This species occurs in Kivu Province in eastern Democratic Republic of Congo, western Rwanda, western Burundi, and south-western Uganda, probably north to Mount Ruwenzori. It is normally found above 1,500m asl.

Population It is not a very abundant species.

Habitat and Ecology Its habitat is not well known, but it has been found in montane grassland, bamboo forests, and in wetland areas in reeds and papyrus. It breeds in marshy areas.

Major Threats Little information is available, though it is likely to be impacted by loss of habitat for agriculture and human settlements.

Conservation Measures It has been recorded from Virungas National Park in the Democratic Republic of Congo and Bwindi National Park in Uganda.

Bibliography: Drewes, R.C. and Vindum, J.V. (1994), Laurent, R.F. (1972), Laurent, R.F. (1982), Schiøtz, A. (1999), Vonesh, J. (2001)

Data Providers: Robert Drewes, Arne Schiøtz

VU *Afrivalus spinifrons* (Cope, 1862)

Vulnerable B2ab(ii,iii,iv,v)
Order, Family: Anura, Hyperoliidae
Country Distribution: South Africa
Current Population Trend: Decreasing



© Richard Boycott



NATAL BANANA FROG

Geographic Range This species, which is endemic to South Africa, occurs as two subspecies: *A. s. spinifrons* occurs in the KwaZulu-Natal lowlands, and eastern Cape coast of South Africa at low to intermediate altitudes; *A. s. intermedius* occurs at altitudes above 1,000m asl in western KwaZulu-Natal.

Population There have been relatively few records in recent years, perhaps because of a decline, but this species is somewhat hard to detect. It certainly seems to have disappeared from some localities, and many surviving populations are small and isolated. However, in other places, high-density choruses are common.

Habitat and Ecology It is associated with low vegetation in shrubland, dry forest and to some extent agricultural land. It breeds in vleis and temporary pools and pans (including roadside pools).

Major Threats Certain populations are affected by urban and recreational development, afforestation, agricultural expansion, pesticides, and overgrazing by livestock.

Conservation Measures *Afrivalus spinifrons intermedius* occurs in the Kahlamba-Drakensberg National Park. *Afrivalus s. spinifrons* occurs in a number of coastal protected areas.

Notes on taxonomy: We follow Pickersgill (1996) in considering what were formerly regarded as the eastern populations of *Afrivalus knysnae* to be a subspecies of *A. spinifrons* (*A. s. intermedius*).

Bibliography: Alexander, G.J. (1990), Armstrong, A. (2001), Backwell, P.R.Y. and Passmore, N.I. (1991), Channing, A. (2001), Lambiris, A.J.L. (1989a), Minter, L.R. *et al.* (2004), Passmore, N.I. and Carruthers, V.C. (1995), Pickersgill, M. (1984), Pickersgill, M. (1996), Pickersgill, M. (2000), Poynton, J.C. (1964b), Schiøtz, A. (1999)

Data Providers: Leslie Minter, Arne Schiøtz, Martin Pickersgill

EN *Afrivalus sylvaticus* Schiøtz, 1974

Endangered B2ab(iii)
Order, Family: Anura, Hyperoliidae
Country Distribution: Kenya, Tanzania
Current Population Trend: Decreasing



© Arne Schiøtz

Geographic Range This species ranges from the Shimba Hills in southern coastal Kenya south through the East Usambara foothills in north-eastern Tanzania, as far south as the Kazizumbwi Forest in central coastal Tanzania. There is an unconfirmed record from further north along the Tana River in eastern Kenya. It occurs only very patchily within the mapped range due to limited suitable habitat.

Population It is fairly abundant where it occurs.

Habitat and Ecology It is a species of lowland forest that can survive in secondary growth and plantations, but not in completely degraded habitats. It breeds in temporary pools and water-filled depressions in forest.

Major Threats Although it can tolerate degraded forest and secondary growth, these habitats are also known to be suitable for *A. stuhlmanni* with which this species hybridizes, and this is probably the most serious threat to the species.

Conservation Measures It occurs in the Shimba Hills National Park, but the maintenance and protection of other tracts of lowland coastal forest habitat is essential to ensure the persistence of this species.

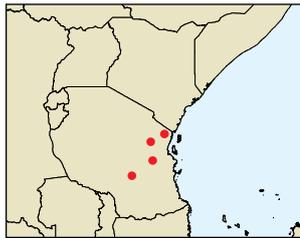
Notes on taxonomy: Pickersgill (2000, 2005) considers this form to be a subspecies of *Afrivalus stuhlmanni*, with which it hybridizes as forests are cleared. We follow Schiøtz (1999, and pers. comm.) in considering it to be a valid species. However, we follow Pickersgill (2005) and K. Howell (pers. comm.) in considering it to occur in the coastal areas of Tanzania, as well as in the Shimba Hills in Kenya.

Bibliography: Howell, K.M. (1993), Pickersgill, M. (2005), Schiøtz, A. (1974), Schiøtz, A. (1975), Schiøtz, A. (1999)

Data Providers: Martin Pickersgill, Arne Schiøtz, Kim Howell

VU *Afrivalus uluguruensis* (Barbour and Loveridge, 1928)

Vulnerable B1ab(iii)
Order, Family: Anura, Hyperoliidae
Country Distribution: Tanzania
Current Population Trend: Decreasing



© Elizabeth Harper

Geographic Range This species occurs in the Usambara, Nguu, Uluguru and Udzungwa mountains in Tanzania. Its altitudinal range is not fully known, but it is a species of medium to high altitudes. Records from the coastal plain of Tanzania require confirmation.

Population It is abundant where it occurs.

Habitat and Ecology It is a forest-dependent species, and does not survive in degraded habitats. It breeds in swampy valley bottoms and temporary pools in closed-canopy forest.

Major Threats The main threat is habitat loss due to agricultural encroachment, logging, and expanding human settlements. Its habitat in the East Usambara Mountains has recently come under serious threat as a result of the activities of illegal gold miners.

Conservation Measures It occurs in the Amani Nature Reserve. It might occur in the Udzungwa National Park, but there have not yet been any confirmed records.

Bibliography: Drewes, R.C., Altig, R. and Howell, K.M. (1989), Harper, E. and Vonesh, J.R. (2003), Howell, K.M. (1993), Schiøtz, A. (1975), Schiøtz, A. (1999)

Data Providers: Arne Schiøtz, Kim Howell, Martin Pickersgill, Michele Menegon

CR *Alesteroon jynx* Amiet, 2000

Critically Endangered B1ab(iii)+2ab(iii)
Order, Family: Anura, Hyperoliidae
Country Distribution: Cameroon
Current Population Trend: Decreasing



© Jean-Louis Amiet

Geographic Range This recently described species is known only from two localities at 800-1,050m asl, 6km apart near the villages of Betenge and Mofako on the eastern slopes of the Rumpi Hills in south-western Cameroon. It might occur a little more widely, but appears to be absent from other sites that have been explored nearby.

Population There is no available information on its population status.

Habitat and Ecology It is associated with narrow streams in forests, over which there is a continuous canopy. It favours well aerated, flowing water, but avoids torrents. Males call close to streams in dense vegetation, and they presumably breed in a similar manner to *Alesteroon obstetricans* (i.e., small clumps of eggs are laid on leaves above streams, into which the larvae fall, and develop).

Major Threats Severe forest loss is taking place in the Rumpi Hills due to smallholder farming activities, logging, and human settlement.

Conservation Measures It is not known whether or not this species occurs in any protected areas, though it might well occur in the Rumpi Hills Forest Reserve; habitat protection is a matter of urgent priority for this species. Survey work is also required to determine the current population status of this species and the limits of its range.

Bibliography: Amiet, J.-L. (2000)

Data Providers: Jean-Louis Amiet, Arne Schiøtz

EN *Arlequinus krebsi* (Mertens, 1938)

Endangered B1ab(iii)
Order, Family: Anura, Hyperoliidae
Country Distribution: Cameroon
Current Population Trend: Decreasing



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Geographic Range This species is known from only two localities in western Cameroon: Mubenge on the southern slopes of Mount Cameroon, where it is known only from the type specimen; and Nkondjock at 750m asl on the southern slopes of the Bamileke Plateau, where it is known from a small number of specimens and a handful of field observations. It presumably occurs more widely, but it has not been found elsewhere despite extensive fieldwork in the region.

Population This species is poorly known, but it seems to be rare. It is probably mute, and this makes it very hard to find.

Habitat and Ecology It has been found in dense forest where the eggs are placed above small pools with stagnant or slowly flowing water, and the larvae develop in these pools. It is not known whether or not it can survive in secondary habitats.

Major Threats The major threat is likely to be ongoing forest loss due to subsistence wood cutting and agriculture, and human settlement.

Conservation Measures It is not known to occur in any protected areas. The protected area network in western Cameroon urgently needs to be expanded to include remaining montane forest habitats, such as those on Mount Cameroon.

Bibliography: Amiet, J.-L. (1972d), Amiet, J.-L. (1976a), Perret, J.-L. (1988b), Schiøtz, A. (1999)

Data Providers: Jean-Louis Amiet, Arne Schiøtz

VU *Callixalus pictus* Laurent, 1950**Vulnerable B1ab(iii)****Order, Family:** Anura, Hyperoliidae**Country Distribution:** Congo, D.R., Rwanda**Current Population Trend:** Decreasing

Geographic Range This species is known only from the Itombwe and Kabobo highlands of eastern Democratic Republic of Congo, and from the mountains of western Rwanda. It has never been found below 2,100m, and is rare below 2,400m asl. There have been no recent records of this species, presumably due to lack of fieldwork within its range.

Population There is no recent information on the population status of this species.

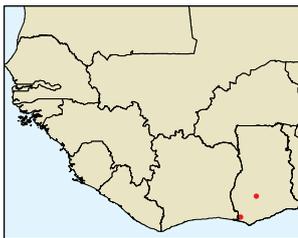
Habitat and Ecology It is a species of high-altitude forests, especially bamboo forest. By day, it hides in broken bamboo stems at 2-4m above the ground, or, where bamboo is scarce, it hides between bark and moss, which covers the tree trunks. There is no information on its breeding, but it is presumed to breed in water.

Major Threats There is no direct information, but it is restricted to unprotected habitats that are probably being lost due to agriculture, wood extraction, and expanding human settlements.

Conservation Measures It is not known from any protected areas. There is a need for improved habitat protection at sites where this species is known to occur, such as on the Itombwe massif. Further survey work is required to determine the current population status of the species.

Bibliography: Laurent, R.F. (1950), Laurent, R.F. (1964), Schiøtz, A. (1999)

Data Providers: Arne Schiøtz

EN *Hyperolius bobirensis* Schiøtz, 1967**Endangered B1ab(iii)****Order, Family:** Anura, Hyperoliidae**Country Distribution:** Ghana**Current Population Trend:** Decreasing

© Annika Hillers

Geographic Range This species is known from the Bobiri Forest Reserve in south-western Ghana and from the Ankasa Conservation Area (ACA), a twin wildlife protected area comprised of Nini-Suhien National Park to the north and the Ankasa Forest Reserve to the south, also in Ghana. It is presumed to occur in other forests in Ghana, but it cannot range much further to the west, where *Hyperolius zonatus* occurs.

Population It is very common at the type locality (Bobiri Forest Reserve).

Habitat and Ecology It is confined to lowland forest, where it is associated with temporary, stagnant pools in which it breeds. The eggs are laid on leaves above water, into which the larvae fall and develop.

Major Threats It is presumably threatened by ongoing habitat loss due to logging, agriculture and human settlements.

Conservation Measures The species occurs in the Bobiri Forest Reserve (although it is not clear how well protected this is) as well as the Ankasa Conservation Area.

Bibliography: Rödel, M.-O. *et al.* (2005), Schiøtz, A. (1967), Schiøtz, A. (1999)

Data Providers: Arne Schiøtz, Mark-Oliver Rödel

VU *Hyperolius castaneus* Ahl, 1931**Vulnerable B1ab(iii)****Order, Family:** Anura, Hyperoliidae**Country Distribution:** Burundi, Congo, D.R., Rwanda, Uganda**Current Population Trend:** Decreasing

© R.C. Drewes

Geographic Range This species occurs in eastern Democratic Republic of Congo, western Rwanda, western Burundi, and south-western Uganda. It occurs between 1,600 and 2,850m asl.

Population It is an abundant species.

Habitat and Ecology It inhabits and breeds in swamps in montane grassland and forest.

Major Threats Little information is available, though it is likely to be impacted by loss of habitat for agriculture (crops and livestock) and human settlements.

Conservation Measures It is present in Bwindi National Park (Uganda) and the Virungas National Park (Democratic Republic of Congo).

Bibliography: Drewes, R.C. and Vindum, J.V. (1994), Laurent, R.F. (1951), Laurent, R.F. (1972), Schiøtz, A. (1975), Schiøtz, A. (1999)

Data Providers: Arne Schiøtz, Robert Drewes

VU *Hyperolius chrysogaster* Laurent, 1950**Vulnerable B1ab(iii)****Order, Family:** Anura, Hyperoliidae**Country Distribution:** Congo, D.R.**Current Population Trend:** Decreasing

Geographic Range This species is known only from Kivu Province in eastern Democratic Republic of Congo, from Mount Ruwenzori south to the northern slopes of the Itombwe Mountains. It occurs at intermediate altitudes, and the type locality is at 1,750m asl. There have been no recent records, presumably due to the lack of survey work within its range.

Population The population status of this species is unknown.

Habitat and Ecology It is a species of transition forests, and its adaptability to degraded habitats is not known. Its breeding biology is unknown, though it presumably takes place in water.

Major Threats It is likely to be threatened by ongoing habitat loss due to logging, agriculture and human settlements.

Conservation Measures It occurs in the Virungas National Park. Further survey work is required to determine the current population status of the species.

Bibliography: Laurent, R.F. (1950), Laurent, R.F. (1972), Schiøtz, A. (1999)

Data Providers: Arne Schiøtz

VU *Hyperolius cystocandicans* Richards and Schiøtz, 1977**Vulnerable B1ab(v)****Order, Family:** Anura, Hyperoliidae**Country Distribution:** Kenya**Current Population Trend:** Decreasing

© R.C. Drewes

Geographic Range This species is endemic to the Kenyan Highlands, east of the Rift Valley, from Limuru to Thompson's Falls, and east to the Nyambeni Mountains. It is a montane species and the type locality is at 2,200m asl.

Population It is said to be an abundant species, but there has apparently been a general decline in its population.

Habitat and Ecology It is a species of open farmland and high-altitude grassland. It breeds in temporary, and sometimes permanent, pools. It is often found together with *Hyperolius montanus*.

Major Threats Its montane grassland and pastureland habitats are probably not seriously threatened (except perhaps by afforestation), but there has apparently been a general population decline in areas of suitable habitat for reasons that are not understood.

Conservation Measures It occurs in the Mount Kenya and Aberdares National Parks. Research is needed to investigate the reasons for the decline of this species in apparently suitable habitat.

Bibliography: Lötters, S. *et al.* (2004), Richards, C.M. and Schiøtz, A. (1977), Schiøtz, A. (1999)

Data Providers: Arne Schiøtz, Kim Howell, Stefan Lötters

EN *Hyperolius dintelmanni* Lötters and Schmitz, 2004**Endangered B1ab(iii)****Order, Family:** Anura, Hyperoliidae**Country Distribution:** Cameroon**Current Population Trend:** Decreasing

© Andreas Schmitz

Geographic Range This recently described species is known only from the Edib Hills in the Bakossi Mountains in south-western Cameroon at an altitude of 1,100-1,250m asl. Surveys in nearby areas, such as Mount Kupe and Mount Nlonako, have not located this species, and it is probably endemic to the Bakossi Mountains.

Population There is little information on its current population status.

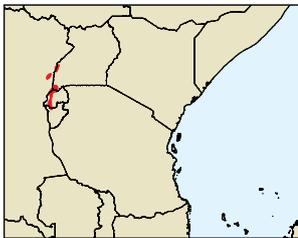
Habitat and Ecology All specimens have been found on the outer margins of patches of primary forest. Most specimens were found sitting at night in grassy vegetation in areas with ferns, less than one metre above the ground. It is presumed to breed in water by larval development.

Major Threats Although it appears to be somewhat adaptable to habitat disturbance (since it has been found on the edges of forest), it occurs in an area where extensive forest clearance for smallholder farming is taking place and it is unlikely to persist in the face of such rampant habitat loss.

Conservation Measures It does not occur in any protected areas, and its habitat in the Bakossi Mountains should be protected. Further survey work is needed to determine the population status of this species.

Bibliography: Lötters, S. and Schmitz, A. (2004)

Data Providers: Stefan Lötters

VU *Hyperolius discodactylus* Ahl, 1931**Vulnerable B1ab(iii)****Order, Family:** Anura, Hyperoliidae**Country Distribution:** Burundi, Congo, D.R., Rwanda, Uganda**Current Population Trend:** Decreasing

© Alan Channing

Geographic Range This species occurs in western Rwanda, western Burundi, south-western Uganda and eastern Democratic Republic of Congo (west of Lake Edward and in Mount Ruwenzori). It is a montane species, but its exact altitudinal range is unclear.

Population It is rare and seldom found.

Habitat and Ecology It is a species of montane forests, associated with rivers, streams and moving waters where it presumably breeds. Its adaptability to secondary habitats is not known.

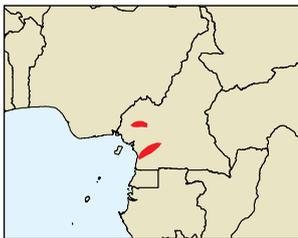
Major Threats Little information is available, though it is probably impacted by the loss of habitat for agriculture (crops and livestock), wood extraction and human settlements.

Conservation Measures It is present in the Bwindi National Park (Uganda), Ruwenzori Mountains National Park (Uganda), and Virungas National Park (Democratic Republic of Congo).

Notes on taxonomy: There is some question as to the correct name for this species. *Hyperolius alticola* is usually considered to be a synonym of *H. discodactylus*, and the name *discodactylus* has priority over *alticola*. However, Schiøtz (1999) found the type of *H. discodactylus* to be indeterminate, and therefore preferred to use the name *alticola*. Here we use the older name, *discodactylus*, pending resolution of this problem. There appears to be some question as to whether or not this species is specifically distinct from *Hyperolius frontalis* (Schiøtz 1999).

Bibliography: Drewes, R.C. and Vindum, J.V. (1994), Laurent, R.F. (1972), Schiøtz, A. (1975), Schiøtz, A. (1999)

Data Providers: Arne Schiøtz, Robert Drewes

VU *Hyperolius endjami* Amiet, 1980**Vulnerable B1ab(iii)****Order, Family:** Anura, Hyperoliidae**Country Distribution:** Cameroon**Current Population Trend:** Decreasing

© Jean-Louis Amiet

Geographic Range This species is known only from south-western Cameroon at 100-1,100m asl. It occurs as two separate populations: a northern range from Mboassoum and Mankouat (near Nkongssamba) to Fopouanga (near Nkondjock); and a southern population from near Kribi to the general vicinity of Yaounde. It probably occurs a little more widely than current records suggest.

Population It appears to be an uncommon species.

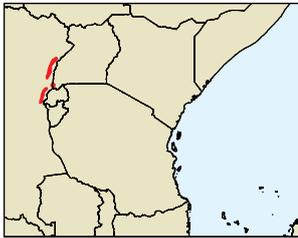
Habitat and Ecology It inhabits dense primary and secondary forest, and does not survive outside forest. It breeds in flooded swamps with shallow water and in small pools.

Major Threats It is likely to be threatened by ongoing habitat loss for logging, agriculture, and human settlements.

Conservation Measures It is not confirmed from any protected areas, though it probably does occur in at least one. Nonetheless, there is a need for improved habitat protection at sites where this species is known to occur.

Bibliography: Amiet, J.-L. (1975), Amiet, J.-L. (1980b), Amiet, J.-L. (1986), Schiøtz, A. (1999)

Data Providers: Jean-Louis Amiet, Arne Schiøtz

VU *Hyperolius frontalis* Laurent, 1950**Vulnerable B1ab(iii)****Order, Family:** Anura, Hyperoliidae**Country Distribution:** Congo, D.R., Uganda**Current Population Trend:** Decreasing

© R.C. Drewes

Geographic Range This species occurs in eastern Democratic Republic of Congo from north-west of Mount Ruwenzori, south to west of Lake Kivu, extending into extreme south-western Uganda in the Bwindi Forest. Its recorded altitudinal range is 700-2,000m asl.

Population It is reasonably abundant where it occurs.

Habitat and Ecology It is a species of transition and montane forest. It has been found in dense secondary vegetation overhanging a small stream and in a small marsh in forest. Its breeding biology is unknown, though it presumably takes place in aquatic habitats.

Major Threats Little information is available, though it is likely to be impacted by loss of habitat for agriculture (crops and livestock), wood extraction, and human settlements.

Conservation Measures It is present in Bwindi National Park (Uganda) and Virungas National Park (Democratic Republic of Congo).

Notes on taxonomy: There appears to be some question as to whether or not this species is specifically distinct from *Hyperolius discodactylus* (Schlötter 1999).

Bibliography: Drewes, R.C. and Vindum, J.V. (1994), Laurent, R.F. (1950), Laurent, R.F. (1972), Schlötter, A. (1975), Schlötter, A. (1999)

Data Providers: Arne Schlötter, Robert Drewes

VU *Hyperolius horstockii* (Schlegel, 1837)**Vulnerable B1ab(iii)****Order, Family:** Anura, Hyperoliidae**Country Distribution:** South Africa**Current Population Trend:** Decreasing

© Atherton de Villiers

Geographic Range This is a coastal species occurring at low elevations along the southern coast of the Western Cape Province (including the Cape Peninsula) in South Africa, east into the western part of the Eastern Cape Province.

Population It is a locally common species, though it has declined at the western extremities of its range.

Habitat and Ecology It lives in wetlands in coastal fynbos heathland. It breeds in large and small pans, dams, vleis, and even slow-flowing streams. It needs emergent vegetation, and therefore requires relatively permanent water, though it seems to avoid very deep water.

Major Threats Spreading alien vegetation can lead to drying out of its breeding habitats. It is probably also adversely affected by fires. Several populations have disappeared due to the impacts of agricultural and urban expansion on its native habitat.

Conservation Measures It occurs in several protected areas, including Cape Peninsula National Park and De Hoop Nature Reserve.

Bibliography: Channing, A. (2001), Minter, L.R. *et al.* (2004), Passmore, N.I. and Carruthers, V.C. (1995), Poynton, J.C. (1963), Schlötter, A. (1999), Visser, J. (1979a), Wager, V.A. (1986)

Data Providers: Leslie Minter, Alan Channing, James Harrison

EN *Hyperolius kihangensis* Schiøtz and Westergaard In Schiøtz, 1999**Endangered B1ab(iii)****Order, Family:** Anura, Hyperoliidae**Country Distribution:** Tanzania**Current Population Trend:** Decreasing

© Michele Menegon

Geographic Range This species is known only from the Luhega Forest in the Udzungwa Scap Forest Reserve at 1,740m asl in the Udzungwa Mountains in eastern Tanzania. It is probably more widespread in the Udzungwa Mountains, though it appears to be absent from apparently suitable sites close to the type locality.

Population It is common in its only known locality.

Habitat and Ecology It has been found in swamps in dense montane forest. Its breeding biology is unknown, though it is likely to take place in swamps. Its adaptability to altered habitats is unknown.

Major Threats The main threat to the species is likely to be the loss of habitats for agriculture, livestock, wood extraction, and human settlements.

Conservation Measures It occurs in the Udzungwa Scap Forest Reserve; it could also occur in the Udzungwa National Park, although its presence there has not yet been confirmed.

Bibliography: Poynton, J.C. (2003b), Schiøtz, A. (1999), Schiøtz, A. and Westergaard, M. (2000)

Data Providers: Arne Schiøtz, Kim Howell

VU *Hyperolius laurenti* Schiøtz, 1967**Vulnerable B1ab(iii)****Order, Family:** Anura, Hyperoliidae**Country Distribution:** Côte d'Ivoire, Ghana**Current Population Trend:** Decreasing

© Annika Hillers

Geographic Range This species has been recorded from Lakota in south-central Côte d'Ivoire, and in Ghana from Bobiri Forest Reserve in the south-west and Boi-Tano Forest Reserve, Draw River Forest Reserve, and the Ankasa Conservation Area. Surveys in the forests of south-western Ghana in recent years have not succeeded in locating this species.

Population It could be a rare species, but it is very cryptic, and so might be under-recorded.

Habitat and Ecology It has only been found in lowland wet evergreen tropical rainforest, and it probably cannot survive in altered habitats. The males call at dusk, from branches above small, swiftly flowing streams in which the species breeds (it can sometimes be found up to 4m above water in the vegetation).

Major Threats It is threatened by ongoing habitat loss for logging, agriculture, and human settlements.

Conservation Measures It occurs in the Bobiri Forest Reserve in Ghana, but it is not known how well protected this area is, as well as the Boi-Tano Forest Reserve, Draw River Forest Reserve, and the Ankasa Conservation Area, a twin wildlife protected area comprised of Nini-Suhien National Park to the north, and the Ankasa Forest Reserve to the south.

Bibliography: Rödel, M.-O. *et al.* (2005), Schiøtz, A. (1967), Schiøtz, A. (1999)

Data Providers: Arne Schiøtz, Mark-Oliver Rödel

EN *Hyperolius leleupi* Laurent, 1951**Endangered B1ab(iii)****Order, Family:** Anura, Hyperoliidae**Country Distribution:** Congo, D.R.**Current Population Trend:** Decreasing

Geographic Range This species is known only from the Itombwe Mountains in eastern Democratic Republic of Congo. The type locality is at 2,550m asl. A mapped occurrence in Burundi (Schlötter 1999) appears not to be correct.

Population It is poorly known, but it is apparently a rare species. There have been no recent records, presumably due to lack of recent herpetological work within its range.

Habitat and Ecology It is a species of high-altitude bamboo forests. Its breeding biology is unknown, but if it is similar to the closely related *Hyperolius castaneus*, then it is likely to breed in swamps.

Major Threats The major threat is likely to be habitat loss for agriculture, livestock and human settlements.

Conservation Measures It is not known from any protected areas, and the Itombwe Mountains are in urgent need of formal protection.

Bibliography: Laurent, R.F. (1951), Schlötter, A. (1999)**Data Providers:** Arne Schlötter**EN** *Hyperolius leucotaenius* Laurent, 1950**Endangered B1ab(iii)****Order, Family:** Anura, Hyperoliidae**Country Distribution:** Congo, D.R.**Current Population Trend:** Decreasing

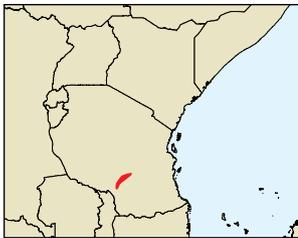
Geographic Range This species is known only from the area to the west of the southern part of the Itombwe Highlands and northern slopes of the Kabobo Highlands, in eastern Democratic Republic of Congo. It has been recorded at 1,850-2,000m asl.

Population The population status of this species is unknown. There have been no recent records, presumably due to lack of recent herpetological work within its range.

Habitat and Ecology It is a species of transition forests, and its adaptability to altered habitats is not known. Its breeding biology is also unknown, though it presumably takes place in water.

Major Threats It is likely to be threatened by habitat loss for agriculture, livestock and human settlements.

Conservation Measures It is not known from any protected areas, and there is a need for urgent protection of its habitat.

Bibliography: Laurent, R.F. (1950), Schlötter, A. (1999)**Data Providers:** Arne Schlötter**VU** *Hyperolius minutissimus* Schlötter, 1975**Vulnerable B1ab(iii)****Order, Family:** Anura, Hyperoliidae**Country Distribution:** Tanzania**Current Population Trend:** Decreasing

© Michèle Menegon

Geographic Range This species is known only from southern Tanzania, where it has been recorded from the Udzungwa Mountains and from the Njombe area in the western part of the Southern Highlands. It has been suggested that it might occur in northern Malawi, but recent surveys on Mount Rungwe, in southern Tanzania, close to the Malawi border, did not find this species. Its altitudinal range is not recorded, but it is likely to be mainly above 1,800m asl.

Population It is rarely seen, but easily overlooked, and so perhaps not as rare as records suggest.

Habitat and Ecology It lives in open, windswept, montane grasslands. It has been found in pastureland, but it is not clear that it can survive in croplands. It breeds in shallow, temporary swamps.

Major Threats Its montane grassland habitat is threatened by afforestation, agricultural expansion, fire, and human settlement.

Conservation Measures It has not been found in the Udzungwa National Park, though it might occur there.

Bibliography: Poynton, J.C. (2003b), Schlötter, A. (1975), Schlötter, A. (1999), Schlötter, A. and Westergaard, M. (2000)**Data Providers:** Arne Schlötter, Kim Howell**EN** *Hyperolius nienkouensis* Rödel, 1999**Endangered B1ab(iii)****Order, Family:** Anura, Hyperoliidae**Country Distribution:** Côte d'Ivoire**Current Population Trend:** Decreasing

© Mark-Oliver Rödel

Geographic Range This species is known only from two localities in south-western Côte d'Ivoire: the foot of Mont Niénkoué (approximately 15km west of Guiroutou) on the south-western edge of Taï National Park; and a nearby locality 30km to the north of this.

Population It is a very uncommon species. A visit to the type locality in 2002 was unsuccessful in locating the species.

Habitat and Ecology It is found only in primary rainforest, and probably attaches eggs to leaves above shallow temporary ponds and swamps, where the larvae develop.

Major Threats It is presumably threatened by ongoing habitat loss for logging, agriculture and human settlements.

Conservation Measures It occurs in Taï National Park.

Bibliography: Rödel, M.-O. (1999), Rödel, M.-O. (2000b), Schlötter, A. (1999)**Data Providers:** Arne Schlötter, Mark-Oliver Rödel

EN *Hyperolius nimbae* Laurent, 1958**Endangered B1ab(iii)****Order, Family:** Anura, Hyperoliidae**Country Distribution:** Côte d'Ivoire**Current Population Trend:** Decreasing

© Arne Schiøtz

Geographic Range This species is known only from lowlands on the south-eastern foot of Mount Nimba in Côte d'Ivoire, though it presumably also occurs in Guinea and Liberia.

Population It is apparently extremely common in its restricted range.

Habitat and Ecology It lives in clearings in lowland forest, where it calls at the edge of large swamps. It presumably breeds in swamps.

Major Threats The threats are hard to determine, since it is not known to what extent the species can adapt to opening up of its habitat. It appears to have a genuinely small range, since it is a conspicuous species and probably would have been found elsewhere if it is more widespread. It might be adversely affected by expanding agriculture, logging and human settlement.

Conservation Measures It is not known from any protected areas. Although part of Mount Nimba is protected as the Mount Nimba Strict Nature Reserve (which was added to the list of World Heritage Sites in 1981) the site is urgently in need of stricter protection and improved management, particularly given that it represents the only known site where several highly threatened species are known to persist.

Notes on taxonomy: This species is part of the *Hyperolius tuberculatus* Group within the *H. viridiflavus* complex (Schiøtz 1999).

Bibliography: Laurent, R.F. (1958a), Laurent, R.F. (1976a), Schiøtz, A. (1967), Schiøtz, A. (1971), Schiøtz, A. (1999)

Data Providers: Arne Schiøtz, Mark-Oliver Rödel

EN *Hyperolius pickersgilli* Raw, 1982**Endangered B1ab(ii,iii,iv)+2ab(ii,iii,iv)****Order, Family:** Anura, Hyperoliidae**Country Distribution:** South Africa**Current Population Trend:** Decreasing

© Richard Boycott

PICKERSGILL'S REED FROG

Geographic Range This species is endemic to the coast of Kwa-Zulu Natal Province, South Africa, ranging from Kingsburgh in the south to Bonamanzi Game Park in the north. It occurs close to sea level.

Population It is secretive and so is under-recorded, but appears to be a rare species.

Habitat and Ecology It is a species of coastal mosaic bushland and grassland, breeding in stagnant, usually temporary to semi-permanent, water, rarely exceeding 50cm in depth, surrounded by dense sedges. It is seldom found at the same breeding sites as the abundant *Hyperolius marmoratus*.

Major Threats It is confined to a small area subject to urbanization, habitat fragmentation, afforestation, and drainage for agricultural and urban development. Some breeding sites are being polluted by DDT, which is used for controlling malarial mosquitoes. The spread of alien vegetation, in particular eucalyptus, is responsible for the drying out of some breeding sites.

Conservation Measures It occurs in the Greater St Lucia Wetland Park, the Ulalazi Game Reserve, and the Twin-streams-Mtunzini Natural Heritage Site.

Bibliography: Branch, W.R. (1988), Channing, A. (2001), Lambiris, A.J.L. (1989a), Minter, L.R. *et al.* (2004), Passmore, N.I. and Carruthers, V.C. (1995), Poynton, J.C. and Broadley, D.G. (1987), Raw, L.R.G. (1982), Schiøtz, A. (1999)

Data Providers: Leslie Minter, James Harrison, Arne Schiøtz

VU *Hyperolius polystictus* Laurent, 1943**Vulnerable D2****Order, Family:** Anura, Hyperoliidae**Country Distribution:** Congo, D.R.**Current Population Trend:** Unknown

Geographic Range This species is probably restricted to the surroundings of the falls of the Lofoi River, in south-eastern Democratic Republic of Congo. There have been no recent records, presumably due to a lack of survey work within its range.

Population The population status of this species is unknown.

Habitat and Ecology It is only known from the area around the Lofoi River waterfalls. It could be a specialized species restricted to the spray zone of the waterfalls, or to humid forest fed by the spray.

Major Threats There is no information on threats to this species. However, any developments upstream of the falls could have a devastating impact on the micro-habitat on which this species depends, as happened with the Kihansi Spray Toad *Nectophrynoides asperginis*.

Conservation Measures It is not known from any protected areas. There is a need for further survey work to determine, and monitor, the current population status of this species.

Bibliography: Laurent, R.F. (1943), Schiøtz, A. (1999)

Data Providers: Arne Schiøtz

VU *Hyperolius riggenbachi* Nieden, 1910**Vulnerable B1ab(iii)****Order, Family:** Anura, Hyperoliidae**Country Distribution:** Cameroon, Nigeria**Current Population Trend:** Decreasing

© Václav Gvoždík

Geographic Range This species is known from the Obudu and Mambilla Plateaus of eastern Nigeria, and the Bamenda Highlands, and the Adamawa Plateau (at Ngaouyanga and Banguve), western and central Cameroon. Two subspecies occur: *H. r. riggenbachi* and *H. r. hieroglyphicus*, the latter occurring in the Bamenda Highlands and on the Obudu Plateau, in an enclave surrounded by the former subspecies. Its altitudinal range is 900-1,800m asl.

Population It is a very common species.

Habitat and Ecology It lives in wetlands and small wooded watercourses in montane grassland. Males call at dusk from the stems of waterside plants. It breeds in still water near streams.

Major Threats It is probably affected by the ongoing loss of its montane grassland, wetland and stream habitat due to small-scale agricultural activities and wood collection, as well as human settlement.

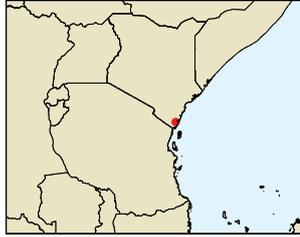
Conservation Measures It is not known to occur in any protected areas. Improved habitat protection at sites where this species is known to occur is needed.

Bibliography: Amiet, J.-L. (1973b), Böhme, W. and Schneider, B. (1987), Gartshore, M.E. (1986), Joger, U. (1982), Laurent, R.F. (1961), Perret, J.-L. (1962), Perret, J.-L. (1966), Schiøtz, A. (1967), Schiøtz, A. (1999)

Data Providers: Arne Schiøtz, Jean-Louis Amiet

EN *Hyperolius rubrovermiculatus* Schiøtz, 1975

Endangered B1ab(iii)
Order, Family: Anura, Hyperoliidae
Country Distribution: Kenya
Current Population Trend: Decreasing



© De Saix, courtesy of Arne Schiøtz



Geographic Range This species is known only from the Shimba Hills, south of Mombassa, in coastal Kenya, being replaced further south by *Hyperolius mitchelli*.

Population It is common in its tiny range.

Habitat and Ecology It lives in dry forest, dense humid savannah, and heavily degraded former forest (farm bush). It breeds in marshes and temporary pools.

Major Threats Although somewhat adaptable, there is a limit to the amount of opening up of its habitat that it can tolerate, and so it is probably impacted by agricultural expansion and increasing human settlements.

Conservation Measures It probably occurs in the Shimba Hills National Reserve, which is in need of strengthened management.

Notes on taxonomy: This species is possibly a subspecies of *Hyperolius mitchelli* (Schiøtz 1999).

Bibliography: Howell, K.M. (1993), Schiøtz, A. (1975), Schiøtz, A. (1999)

Data Providers: Arne Schiøtz, Robert Drewes

EN *Hyperolius tannerorum* Schiøtz, 1982

Endangered B1ab(iii)+2ab(iii)
Order, Family: Anura, Hyperoliidae
Country Distribution: Tanzania
Current Population Trend: Decreasing



© Arne Schiøtz



Geographic Range This species is known only from just outside the Mazumbai Forest Reserve at 1,410m asl in the West Usambara Mountains, in north-eastern Tanzania. It might occur more widely in the West Usambara Mountains, although there is little remaining undisturbed forest at this altitude.

Population There is very little information on its population status, and only one small population is known. It possibly has no advertisement call, so it might be easily overlooked.

Habitat and Ecology It is known only from undisturbed montane forest. The only known breeding site is a small swamp in forest, bordering a small stream.

Major Threats The forest habitat outside the Mazumbai Forest Reserve is being impacted by agricultural expansion, logging and expanding human settlements.

Conservation Measures It probably occurs in the University of Dar es Salaam's forest reserve at Mazumbai. Further survey work is necessary to obtain a better understanding of the population status and distribution range of this species.

Notes on taxonomy: Schiøtz (1999) emended the name from *Hyperolius tanneri* to *H. tannerorum*.

Bibliography: Howell, K.M. (1993), Schiøtz, A. (1982), Schiøtz, A. (1999)

Data Providers: Arne Schiøtz, Kim Howell

EN *Hyperolius thomensis* Bocage, 1886

Endangered B1ab(iii)
Order, Family: Anura, Hyperoliidae
Country Distribution: São Tomé and Príncipe
Current Population Trend: Decreasing



© R.C. Drewes



Geographic Range This species is endemic to São Tomé Island in São Tomé and Príncipe. It is restricted to primary forest remnants at elevations usually above 800m asl.

Population There is little information on the population status of this species, since it is notoriously difficult to find.

Habitat and Ecology It is restricted to primary rainforest, and is known to breed by larval development in tree holes. The same tree hole can be utilized by many individuals for breeding at different times. It has previously been reported from towns, but there is now significant doubt about these records.

Major Threats Little information is available on threats, though it is likely to be impacted by habitat loss for agriculture, livestock, wood extraction, and human settlements.

Conservation Measures A large portion of its range falls within the proposed 295km² Parc Naturel Obo.

Notes on taxonomy: This species has previously been assigned to the genus *Nesioixalus*.

Bibliography: Drewes, R.C. (2002), Drewes, R.C. and Stoelting, R.E. (2004), Drewes, R.C. and Wilkinson, J.A. (2004), Loumont, C. (1992), Perret, J.-L. (1988b), Schiøtz, A. (1999)

Data Providers: Robert Drewes, Arne Schiøtz

EN *Hyperolius torrentis* Schiøtz, 1967

Endangered B1ab(iii)+2ab(iii)
Order, Family: Anura, Hyperoliidae
Country Distribution: Ghana, Togo
Current Population Trend: Decreasing



© Mark-Oliver Rödel



Geographic Range This species occurs only from the Akwapim-Togo Range in eastern Ghana and western Togo.

Population It is an uncommon species, and only a very few localities are known.

Habitat and Ecology It is a forest species that is restricted to an area where forest is severely degraded (though it does not occur in degraded habitats outside forest). A stream-breeding species, it is closely associated with very fast-flowing streams and waterfalls; the eggs are laid on leaves above water. It has been found on or near vertical cliffs in forest, in gullies in open forest, and in trees and on vegetation close to streams.

Major Threats Its forest habitat is being impacted by agricultural expansion, logging, and increasing human settlements.

Conservation Measures It occurs in Kyabobo National Park in Ghana.

Bibliography: Rödel, M.-O. and Agyei, A.C. (2003), Schiøtz, A. (1967), Schiøtz, A. (1999)

Data Providers: Arne Schiøtz, Mark-Oliver Rödel

VU *Hyperolius viridigulosus* Schiøtz, 1967

Vulnerable B2ab(iii)
Order, Family: Anura, Hyperoliidae
Country Distribution: Côte d'Ivoire, Ghana
Current Population Trend: Decreasing



© Raffael Ernst



Geographic Range This species is known only from south-central and western Ghana and southern Côte d'Ivoire.
Population It appears to be a rare species. It is easy to overlook, since it is a canopy species, but it has a distinctive, though rarely heard, call.

Habitat and Ecology It occurs in closed-canopy lowland rainforest, where it calls from high up in the trees, sometimes far from water, but usually beside streams. Its breeding habits are unknown.

Major Threats Its forest habitat is being impacted by agricultural expansion, logging, and increasing human settlements.

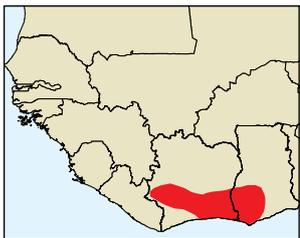
Conservation Measures It occurs in Bobiri Forest Reserve, but it is not clear how well protected this site is, as well as Boi-Tano Forest Reserve, Draw River Forest Reserve and the Ankasa Conservation Area, a twin wildlife protected area comprising Nini-Suhien National Park to the north and the Ankasa Forest Reserve to the south, in Ghana.

Bibliography: Rödel, M.-O. *et al.* (2005), Schiøtz, A. (1967), Schiøtz, A. (1999)

Data Providers: Arne Schiøtz, Mark-Oliver Rödel

VU *Kassina arboricola* Perret, 1985

Vulnerable B2ab(iii)
Order, Family: Anura, Hyperoliidae
Country Distribution: Côte d'Ivoire, Ghana
Current Population Trend: Decreasing



© Mark-Oliver Rödel



Geographic Range This species ranges from south-western Côte d'Ivoire to south-central Ghana, though within this general range it is known only from 4-5 localities.

Population There have only been a few records, but it is abundant where it has been found.

Habitat and Ecology It is a species of secondary forest and forest edges, rather than undisturbed primary forest. It only occurs marginally in heavily degraded former forest (farm bush). It breeds in both temporary and permanent water, favouring large, well-vegetated pools.

Major Threats It is probably suffering from severe deforestation as a result of agricultural expansion, logging, and growing human settlements.

Conservation Measures It occurs in Banco National Park and Mont Peko National Park in Côte d'Ivoire, and in Bobiri Forest Reserve in Ghana.

Notes on taxonomy: We follow Perret (1985) and Rödel *et al.* (2002) in considering this to be a species distinct from *Kassina cochranæ*.

Bibliography: Perret, J.-L. (1985), Rödel, M.-O. (2003), Rödel, M.-O. *et al.* (2002), Rödel, M.-O. and Ernst, R. (2003), Schiøtz, A. (1999)

Data Providers: Mark-Oliver Rödel, Arne Schiøtz

VU *Kassina lamottei* Schiøtz, 1967

Vulnerable B1ab(iii)+2ab(iii)
Order, Family: Anura, Hyperoliidae
Country Distribution: Côte d'Ivoire
Current Population Trend: Decreasing



© Mark-Oliver Rödel



Geographic Range This species is only known from western and south-western Côte d'Ivoire, from the Mount Nimba area, south to the Taï National Park. It is likely to occur in Liberia and Guinea, but there have not so far been any records. Records from Sierra Leone are in error.

Population It is a very localized species, but nonetheless abundant where it occurs.

Habitat and Ecology It is a terrestrial species inhabiting lowland rainforest, and living only in mature and closed-canopy forest. It breeds in large temporary forest pools.

Major Threats It is probably suffering from severe deforestation as a result of agricultural expansion, logging, and growing human settlements. The trend towards decreasing rainfall seriously affects this species in particular, since it lives in a sandy area, and low rainfall leads to drying out of its breeding ponds.

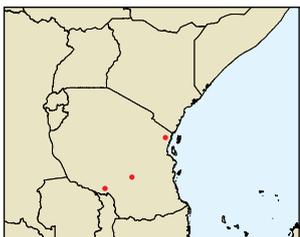
Conservation Measures It occurs in Taï National Park and Cavally Classified Forest.

Bibliography: Rödel, M.-O. (2000b), Rödel, M.-O. *et al.* (2002), Rödel, M.-O. and Branch, W.R. (2002), Rödel, M.-O. and Ernst, R. (2001), Schiøtz, A. (1967), Schiøtz, A. (1999)

Data Providers: Mark-Oliver Rödel, Arne Schiøtz

VU *Leptopelis barbouri* Ahl, 1929

Vulnerable B1ab(iii)
Order, Family: Anura, Hyperoliidae
Country Distribution: Tanzania
Current Population Trend: Decreasing



© Tim Davenport / IWCS



Geographic Range This species is endemic to eastern and southern Tanzania, and occurs in the East Usambara Mountains, the Uzungwa Mountains, and on Mount Rungwe. It probably also occurs on other mountain ranges in the Eastern Arc Mountain chain. It ranges from 700-2,100m asl.

Population It is common along watercourses in the Udzungwa Mountains, but is apparently less common in the East Usambara Mountains.

Habitat and Ecology It is a species of transition and montane rainforest, and can tolerate limited habitat disturbance, although it requires forest in reasonable condition nearby. The eggs are laid in an underground nest near streams and pools (sometimes as much as 10m away), into which tadpoles emerge.

Major Threats Its forest habitat is being impacted by agricultural expansion, logging, and increasing human settlements. Its habitat in the East Usambara Mountains has recently come under serious threat as a result of the activities of illegal gold miners.

Conservation Measures It occurs in the Amani Nature Reserve, and is likely to occur in the Udzungwa National Park, though there have not yet been any records.

Bibliography: Harper, E. and Vonesh, J.R. (2003), Howell, K.M. (1993), Poynton, J.C. (2003b), Schiøtz, A. (1975), Schiøtz, A. (1999)

Data Providers: Arne Schiøtz, Kim Howell, John Poynton, Tim Davenport

EN *Leptopelis karissimbensis* Ahl, 1929**Endangered B1ab(iii)****Order, Family:** Anura, Hyperoliidae**Country Distribution:** Congo, D.R., Rwanda, Uganda**Current Population Trend:** Decreasing

© Romaldo Keith



Geographic Range This species is known only from high altitudes in north-western Rwanda, south-western Uganda and adjacent eastern Democratic Republic of Congo. Its range is centred on the Virunga volcanoes, with an altitudinal range of 2,000-2,800m asl and occasionally down to 1,500m asl. The map in Schiøtz (1999) is in error, since it is, by mistake, a duplicate of that for *Leptopelis oryi*.

Population There is no recent information on the population status of this species.

Habitat and Ecology It is known from montane meadows in steep forest on volcanic soils, and also from highland savannahs and heathland. Its adaptability to secondary habitats is also unknown. There is no information on its breeding. However, assuming that it breeds in a similar manner to other species in the genus, it lays its eggs in a nest buried in mud near water, into which the larvae emerge and develop.

Major Threats There is no direct information on threats, but most of its range is in protected areas. However, political instability and high human population pressure continue to threaten the remaining habitat in its range.

Conservation Measures It occurs in the Virunga National Park in the Democratic Republic of Congo, the Volcanoes National Park in Rwanda, and the Mgahinga Gorilla National Park in Uganda. Further survey work is needed to determine the current population status of this species and to investigate aspects of its breeding biology.

Notes on taxonomy: This species is often confused with *Leptopelis kivuensis* (see Schiøtz 1999).

Bibliography: Laurent, R.F. (1972), Laurent, R.F. (1973), Schiøtz, A. (1975), Schiøtz, A. (1999)

Data Providers: Arne Schiøtz, Robert Drewes

VU *Leptopelis palmatus* (Peters, 1868)**Vulnerable D2****Order, Family:** Anura, Hyperoliidae**Country Distribution:** São Tomé and Príncipe**Current Population Trend:** Stable

© R.C. Drewes



Geographic Range This species is endemic to Príncipe Island, in São Tomé and Príncipe, in the Gulf of Guinea. It is present through most of the island, up to at least 700m, and possibly up to 1,000m asl.

Population It is a reasonably abundant species.

Habitat and Ecology It generally inhabits wet forest along the edges of creeks and streams. It can also be found in forest remnants and possibly in towns. It presumably buries its eggs close to water, with the tadpoles moving into pools or streams where they develop further.

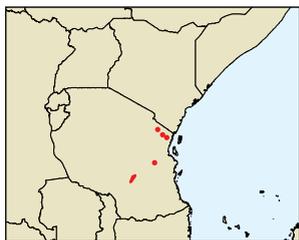
Major Threats There are no immediate threats, but increasing development of the island, leading to severe opening up of the habitat, is a potential future threat.

Conservation Measures It is not known from any protected areas. This species requires close population monitoring given that it is restricted entirely to Príncipe.

Notes on taxonomy: Populations from mainland Africa assigned to this species are now considered to be *Leptopelis rufus*.

Bibliography: Drewes, R.C. (2002), Drewes, R.C. and Stoelting, R.E. (2004), Loumont, C. (1992), Perret, J.-L. (1973), Schiøtz, A. (1999)

Data Providers: Robert Drewes, Arne Schiøtz

VU *Leptopelis parkeri* Barbour and Loveridge, 1928**Vulnerable B1ab(iii)****Order, Family:** Anura, Hyperoliidae**Country Distribution:** Tanzania**Current Population Trend:** Decreasing

© Don Church



Geographic Range This species is endemic to several mountains in the Eastern Arc chain of Tanzania, namely: Uluguru, Udzungwa, East and West Usambara, and South Pare. It probably occurs a little more widely than these records suggest. Although mainly a montane species, it lives in the foothills down at least to 300m asl (perhaps lower), and up to at least 2,000m asl.

Population In some places it appears to be easy to find and even common, whereas in other places it is rare.

Habitat and Ecology It inhabits closed, intact rainforest, not surviving in seriously disturbed habitats outside forest. It breeds in slow-flowing streams, although the eggs are laid in a nest on land not far from water.

Major Threats It is affected by habitat loss as a result of expanding human settlements and agriculture, as well as the harvesting of wood. Its habitat in the East Usambara Mountains has recently come under serious threat as a result of the activities of illegal gold miners.

Conservation Measures It occurs in the Amani Nature Reserve, and in the University of Dar es Salaam's reserve at Mazumbai. It has not yet been recorded from Udzungwa National Park, but with further survey work probably will be shown to occur there.

Bibliography: Harper, E. and Vonesh, J.R. (2003), Howell, K.M. (1993), Poynton, J.C. (2003b), Schiøtz, A. (1975), Schiøtz, A. (1999)

Data Providers: Kim Howell, John Poynton, Arne Schiøtz

VU *Leptopelis ragazzii* (Boulenger, 1896)**Vulnerable B2ab(iii)****Order, Family:** Anura, Hyperoliidae**Country Distribution:** Ethiopia**Current Population Trend:** Decreasing

© M.J. Largent



Geographic Range This species is endemic to the Ethiopian plateau, on both sides of the Rift Valley, at altitudes of 1,930-3,010m asl.

Population It is still locally common at suitable sites within its relatively limited range.

Habitat and Ecology It is strictly associated with montane forest, not surviving in degraded habitats. It breeds by larval development in pools and small streams, both permanent and temporary. The eggs are laid in nests on land not far from water.

Major Threats The main threat is habitat loss from forest clearance, human settlement, and agricultural encroachment. In some areas, this species seems only to survive in isolated forest remnants, such as often occur along the slopes of steep-sided valleys.

Conservation Measures It is present in the Bale Mountains National Park.

Bibliography: Largent, M.J. (1977), Largent, M.J. (2001), Schiøtz, A. (1999)

Data Providers: Malcolm Largent, Arne Schiøtz

EN *Leptopelis susanae* Largen, 1977

Endangered B1ab(iii)+2ab(iii)
Order, Family: Anura, Hyperoliidae
Country Distribution: Ethiopia
Current Population Trend: Decreasing



© M.J. Largen



Geographic Range This species is endemic to the Gughe Mountains, at 2,600-3,000m asl, in southern Ethiopia.
Population It was still reasonably numerous in at least two localities in 1975, but the absence of subsequent records is due to a lack of fieldwork.

Habitat and Ecology It is confined to montane forest remnants, and has not been found in degraded habitats. Calling males have been found along the banks of streams, in which larval development presumably occurs. The eggs are presumably laid in nests on land, near the water.

Major Threats The main threats are forest clearance, human settlement, and agricultural encroachment. The Gughe Mountains are heavily populated and intensively cultivated, and only small patches of montane forest remain.

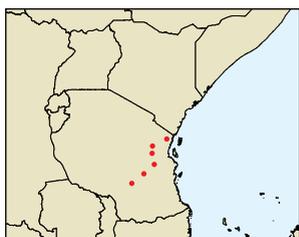
Conservation Measures It is not currently known to be present in any protected areas, and the protection of forest remnants in the Gughe Mountains, and the search for further sites where the species might be found, are of the highest priority.

Bibliography: Largen, M.J. (1977), Largen, M.J. (2001), Schiøtz, A. (1999)

Data Providers: Malcolm Largen, Arne Schiøtz

VU *Leptopelis uluguruensis* Barbour and Loveridge, 1928

Vulnerable B1ab(iii)
Order, Family: Anura, Hyperoliidae
Country Distribution: Tanzania
Current Population Trend: Decreasing



© Michele Menegon



Geographic Range This species is endemic to several mountains in the Eastern Arc chain of Tanzania, namely: East Usambara, Nguu, Nguru, Uluguru, and Udzungwa (Kihansi Gorge and Mwanihana Forest). It probably occurs a little more widely than records suggest. It occurs mainly above 900m asl, and it is probably sub-montane, perhaps not ranging much above 1,650m asl.

Population It is a common species.

Habitat and Ecology It inhabits wet submontane rainforest, but can tolerate slight disturbance and is sometimes found in banana patches in forest clearings. However, it is never found in open areas away from mature forest. Its breeding biology is unknown, but it presumably breeds in water, and males call near streams. The eggs are probably laid in nests on land, not far from water (either streams or temporary pools).

Major Threats It is affected by habitat loss as a result of expanding human settlements and agriculture, as well as the harvesting of wood. Its habitat in the East Usambara Mountains has recently come under serious threat from the activities of illegal gold miners.

Conservation Measures It occurs in the Udzungwa National Park and the Amani Nature Reserve.

Bibliography: Harper, E. and Vonesh, J.R. (2003), Howell, K.M. (1993), Poynton, J.C. (2003b), Schiøtz, A. (1975), Schiøtz, A. (1999)

Data Providers: Kim Howell, John Poynton, Arne Schiøtz, Michele Menegon

VU *Leptopelis vannutellii* (Boulenger, 1898)

Vulnerable B2ab(iii)
Order, Family: Anura, Hyperoliidae
Country Distribution: Ethiopia
Current Population Trend: Decreasing



© M.J. Largen



Geographic Range This species is known only from the highlands of south-western Ethiopia, at altitudes of 1,500-2,200m asl.

Population It is still locally common at suitable sites within its relatively limited range.

Habitat and Ecology It is confined to dense, tropical deciduous forest, and does not survive in degraded habitats. It breeds by larval development in pools and small streams, both permanent and temporary. The eggs are laid in nests on land, not far from water.

Major Threats The main threat is habitat loss due to forest clearance, human settlement, and agricultural encroachment.

Conservation Measures It is not currently known from any protected areas. The most obvious requirement is habitat conservation at selected sites, within the species range, where still undamaged lowland forest survives.

Bibliography: Largen, M.J. (1977), Largen, M.J. (2001), Schiøtz, A. (1999)

Data Providers: Malcolm Largen, Arne Schiøtz

VU *Leptopelis vermiculatus* (Boulenger, 1909)

Vulnerable B2ab(iii)
Order, Family: Anura, Hyperoliidae
Country Distribution: Tanzania
Current Population Trend: Decreasing



© Elizabeth Harper



Geographic Range This species is endemic to several mountains in the Eastern Arc chain of Tanzania, namely: East and West Usambara, Nguu, Udzungwa, Poroto and Mount Rungwe. It occurs above 900m asl, up to elevations of at least 1,800m asl in southern Tanzania.

Population It is a very common species through much of its range.

Habitat and Ecology It inhabits submontane and montane forest, and requires mature, closed-canopy forest. Its breeding biology is unknown, but it presumably breeds in water, and males call near streams. The eggs are probably laid in nests on land, not far from water (either streams or temporary pools).

Major Threats It is affected by habitat loss as a result of expanding human settlements and agriculture, and the harvesting of wood. Its habitat in the East Usambara Mountains has recently come under serious threat from the activities of illegal gold miners. It is sometimes found in the international pet trade although this is not currently believed to constitute a major threat.

Conservation Measures It occurs in the Amani Nature Reserve and the Udzungwa National Park.

Bibliography: Drewes, R.C., Altig, R. and Howell, K.M. (1989), Harper, E. and Vonesh, J.R. (2003), Howell, K.M. (1993), Poynton, J.C. (2003b), Schiøtz, A. (1975), Schiøtz, A. (1999)

Data Providers: Kim Howell, John Poynton, Arne Schiøtz, Michele Menegon

EN *Leptopelis xenodactylus* Poynton, 1963**Endangered B2ab(ii,iii,iv)****Order, Family:** Anura, Hyperoliidae**Country Distribution:** South Africa**Current Population Trend:** Decreasing

© Richard Boycott



Geographic Range This species is endemic to south-eastern South Africa in the southern KwaZulu-Natal Province highlands, and marginally in Eastern Cape Province. It is not found on the steep slopes of the escarpment, and is usually found between 1,000 and 1,830m asl. Only a few localities are known, but it might be more widespread.

Population It is a rare species.

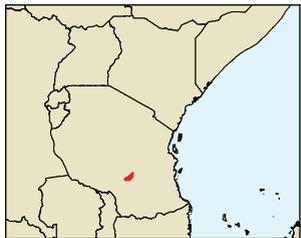
Habitat and Ecology It occurs in grassland, keeping to areas away from trees, and breeds in upland bogs, grassy wetlands and marshes, generally using semi-permanent water. Eggs are presumably laid in a nest on the ground near water.

Major Threats It has a small range, and lives in a habitat that is threatened by afforestation, fire, and the spread of alien plants that lower the water table (leading to drying out of breeding sites).

Conservation Measures It is found in the uKhahlamba-Drakensberg Park, which is at least well managed for biodiversity conservation.

Bibliography: Armstrong, A. (2001), Branch, W.R. (1988), Channing, A. (2001), Lambiris, A.J.L. (1989a), Minter, L.R. *et al.* (2004), Passmore, N.I. and Carruthers, V.C. (1995), Poynton, J.C. (1963), Poynton, J.C. (1964b), Schiøtz, A. (1999)

Data Providers: Leslie Minter, Alan Channing, Arne Schiøtz, James Harrison

VU *Phlyctimantis keithae* Schiøtz, 1975**Vulnerable B1ab(iii)****Order, Family:** Anura, Hyperoliidae**Country Distribution:** Tanzania**Current Population Trend:** Decreasing

© Michelle Menegon



Geographic Range This species is known only from the Udzungwa Mountains in eastern Tanzania. It has generally been recorded at 1,800-2,000m asl, but probably has a wider altitudinal range than this.

Population It is common within its restricted range.

Habitat and Ecology It lives in forest, montane grassland, and open farmland near forest. It breeds in shallow pools, including artificial ponds, with emergent vegetation. It is probably a forest species that moves into open areas when it is breeding. It exhibits a rather unusual and cryptic defensive posture.

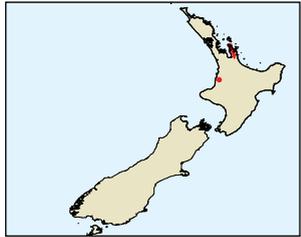
Major Threats Its montane forest and grassland habitat is threatened by afforestation, agricultural expansion, fire, and human settlement.

Conservation Measures There are no records from the Udzungwa National Park, but with further survey work it probably will be shown to occur there.

Bibliography: Channing, A. and Howell, K. (2003), Perret, J.-L. (1986), Poynton, J.C. (2003b), Schiøtz, A. (1975), Schiøtz, A. (1999)

Data Providers: Arne Schiøtz, Kim Howell

LEIOPELMATIDAE

CR *Leiopelma archeyi* Turbott, 1942**Critically Endangered A2ae****Order, Family:** Anura, Leiopelmatidae**Country Distribution:** New Zealand**Current Population Trend:** Decreasing

© Avi Hutzupfel



ARCHEY'S FROG

Geographic Range This species occurs in the Whareorino range in the west and Coromandel ranges in the east on North Island, New Zealand. Ranges from 400-1,000m asl.

Population Formerly, this species was recorded in the tens of thousands, but declines since 1996 have reduced the numbers throughout their range. The decline was first noted in 1996; one study population on the Tapu Ridge declined by 88% (433 frogs down to 53 frogs) over the period 1996-2002.

Habitat and Ecology A terrestrial and nocturnal species, it occurs mostly at higher altitudes in forested ranges and more open sub-alpine scrub. It lays large unpigmented eggs in damp situations on the ground, which undergo direct development without a larval stage.

Major Threats The definitive cause of the decline of this species is still not known, though disease of some kind is the most likely cause, in particular chytridiomycosis. Chytrid fungus infection was first identified in this species in September 2001 (specimen collected June 2001 at Te Moehu). Declines of species were documented through most of its range-central Coromandel (1996-1998), northern Coromandel (2000-2001) and Whareorino (2001).

Conservation Measures The NZ Department of Conservation (DOC) through its Native Frog Recovery Group and Native Frog Recovery Plan administers conservation management of the species and permits appropriate research, including a collaborative program with Auckland Zoo which has recently established a new facility for breeding and maintaining the species. Recent declines and the positive identification of chytrid fungus has stimulated urgent research and management of the species, including pathology, population monitoring, captive management and molecular research. This involves DOC and Canterbury, Massey, Otago and Victoria Universities.

Bibliography: Archey, G. (1922), Bell, B.D. (1978), Bell, B.D. (1982b), Bell, B.D. (1985), Bell, B.D. (1996), Bell, B.D. (1999), Bell, B.D. *et al.* (2004), Bell, B.D., Daugherty, C.H. and Hitchmough, R.A. (1998), Gill, B.J., Whitaker, A.H. (1996), Newman, D.G. (1996), Stephenson, E.M., Stephenson, N.G. (1957), Turbott, E.G. (1942)

Data Providers: Ben Bell

EN *Leiopelma hamiltoni* McCulloch, 1919**Endangered D****Order, Family:** Anura, Leiopelmatidae**Country Distribution:** New Zealand**Current Population Trend:** Stable

© Paddy Ryan



HAMILTON'S FROG

Geographic Range This species is confined to a single rock stack on Stephens Island in New Zealand. Translocation to an adjoining man-made rock stack on Stephens Island has been attempted but with limited success.

Population The total population numbers less than 300 individuals.

Habitat and Ecology It is found on boulder banks near the summit of Stephens Island. It lays large unpigmented eggs in damp situations on the ground, which undergo direct development without a larval stage.

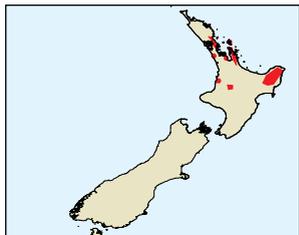
Major Threats The major threats to the species are introduced mammalian predators (e.g. *Rattus rattus*) and possibly disease (chytridiomycosis has been recently identified in the closely related *L. archeyi*). Tuatara (*Sphenodon punctatus*) also prey on the species.

Conservation Measures A tuatara-proof fence has been constructed around the frog's habitat. Regular population monitoring is also in place, and an island habitat restoration programme is under way. The prevention of accidental colonization by introduced mammalian predators is necessary. Translocation of some frogs to a second island is under consideration. The NZ Department of Conservation (DOC) through its Native Frog Recovery Group and Native Frog Recovery Plan administers conservation management of this species and permits appropriate species research.

Notes on taxonomy: Populations on Maud Island were previously considered to belong to this species, but were described as a new species, *Leiopelma pakaka*, in 1998.

Bibliography: Bell, B.D. (1978), Bell, B.D. (1985), Bell, B.D. (1996), Bell, B.D., Daugherty, C.H. and Hay, J.M. (1998), Brown, D. (1994), Gill, B.J., Whitaker, A.H. (1996), Holyoake, A., Waldman, B. and Gemmill, N.J. (2001), McCulloch, A.R. (1919), Newman, D.G. (1990), Newman, D.G. (1996)

Data Providers: Mandy Tocher, Derek Brown, Ben Bell

VU *Leiopelma hochstetteri* Fitzinger, 1861**Vulnerable A3e; B1ab(iii)****Order, Family:** Anura, Leiopelmatidae**Country Distribution:** New Zealand**Current Population Trend:** Decreasing

© Paddy Ryan



Geographic Range This species is known from numerous localities in northern North Island, New Zealand.

Population It is a common species.

Habitat and Ecology This semi-aquatic species can be found alongside forested creeks and watercourses, mostly in native forest, but surviving to some extent in modified habitats such as farmland and exotic forest. It lays large unpigmented eggs in damp situations on the ground, which then undergo direct development without a larval stage.

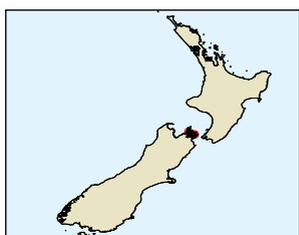
Major Threats Disease (chytridiomycosis) will most likely be a major threat to this species in the near future, as it has recently been identified in the related *L. archeyi*. This species co-exists with introduced mammalian predators (such as *Rattus rattus*, *Mustela erminea*), but their long-term impact on the species is uncertain. Habitat loss, due to the conversion of native habitat to pine plantations, is certainly a threat, as is the siltation of breeding streams that takes place as a result of logging and road building activities.

Conservation Measures The NZ Department of Conservation (DOC), through its Native Frog Recovery Group and Native Frog Recovery Plan, administers conservation management of this species and permits appropriate species research. Possible declines, and the identity of chytrid fungus in *Leiopelma archeyi*, have stimulated urgent research and management of the two species, including studies on pathology, population monitoring, captive management and molecular research. This involves DOC and Canterbury, Massey, Otago, and Victoria Universities. Recent studies have suggested that this species might comprise cryptic species, and hence taxonomic research is recommended to resolve this taxonomic issue.

Notes on taxonomy: Recent genetic studies suggest that this species, as currently recognized, represents a species complex.

Bibliography: Bell, B.D. (1978), Bell, B.D. (1985), Bell, B.D. (1996), Bowsher, J.H. (2000), Fitzinger, L.J. (1861), Gill, B.J., Whitaker, A.H. (1996), Newman, D.G. (1996), Stephenson, E.M., Stephenson, N.G. (1957)

Data Providers: Ben Bell, Mandy Tocher, Philip Bishop, Bruce Waldman

HOCHSTETTER'S FROG**VU** *Leiopelma pakeka* Bell, Daugherty and Hay, 1998**Vulnerable D2****Order, Family:** Anura, Leiopelmatidae**Country Distribution:** New Zealand**Current Population Trend:** Stable

© Paddy Ryan



Geographic Range This species is confined to Maud Island, New Zealand. In 1997, 300 individuals were translocated to Motuara Island, where it seems to have been established successfully.

Population This species' population is estimated at between 27,500 and 39,500 individuals in a 16-ha forest remnant on Maud Island. There are approximately 200 individuals estimated on Motuara Island.

Habitat and Ecology It can be found in coastal forest, mostly in deep boulder banks on lower slopes. It lays large unpigmented eggs in damp situations on the ground, which then undergo direct development without a larval stage.

Major Threats The introduction of mammalian predators, such as *Rattus rattus* and *Mustela erminea*, represents a major potential threat to this species. Disease (chytridiomycosis) also represents a possible threat, since it has recently been identified in the closely related *L. archeyi*.

Conservation Measures NZ Department of Conservation (DOC), through its Native Frog Recovery Group and Native Frog Recovery Plan, administers conservation management of the species and permits appropriate species research. Regular population monitoring and a habitat restoration programme are needed. The colonization of the islands by introduced mammalian predators must be prevented.

Notes on taxonomy: The frogs now described as *Leiopelma pakeka* were previously considered to belong to *L. hamiltoni*.

Bibliography: Bell, B.D. (1978), Bell, B.D. (1985), Bell, B.D. (1996), Bell, B.D., Daugherty, C.H. and Hay, J.M. (1998), Gill, B.J., Whitaker, A.H. (1996), Holyoake, A., Waldman, B. and Gemmill, N.J. (2001), Newman, D.G. (1990), Newman, D.G. (1996), Tocher, M. and Newman, D.G. (1997)

Data Providers: Ben Bell, Mandy Tocher, Philip Bishop, Bruce Waldman

MAUD ISLAND FROG**LEPTODACTYLIDAE****VU** *Adelophryne baturitensis* Hoogmoed, Borges and Cascon, 1994**Vulnerable B1ab(iii)****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Brazil**Current Population Trend:** Decreasing

Geographic Range This species is known only from the Serra (or Maciço) de Baturité, in the State of Ceará, north-eastern Brazil, at 600-1,000m asl.

Population It was very common within its small range, and often found at numerous localities since it was first described up until 1993; however, from 1994 to 2003 there were 34 surveys of the same sites and not a single individual was found, until in July 2004 three individuals were recorded.

Habitat and Ecology Most specimens have been found in dry or moist leaf-litter on the ground, in bromeliads, and stream margins in reasonably well-preserved closed forests. However, it can also survive in shaded coffee plantations. It is a diurnal species that breeds by direct development, and the eggs are probably deposited in wet spots on the ground.

Major Threats The major threat is habitat loss due to logging, agriculture, and human settlement. The very good soils and favour-

able climate of the area are encouraging agricultural expansion, and the species is unable to survive in the banana plantations that are rapidly taking over the area.

Conservation Measures It is not known from any protected areas, and there is clearly a need for improved habitat protection at sites where this species is known to occur. Further survey work is needed to determine whether or not this species is experiencing a decline, or whether or not it is just undergoing natural population fluctuations.

Bibliography: Eterovick, P.C. *et al.* (2005), Hoogmoed, M.S., Borges, D.M. and Cascon, P. (1994)

Data Providers: Débora Silvano, Diva Borges-Najosa

EN *Adelophryne maranguapensis* Hoogmoed, Borges and Cascon, 1994**Endangered B1ab(iii)****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Brazil**Current Population Trend:** Decreasing

Geographic Range This species is known only from the Serra de Maranguape, in the State of Ceará, north-eastern Brazil, at 800-900m asl.

Population It is abundant in certain parts of its small range and is regularly recorded.

Habitat and Ecology This is a diurnal species that lives in the leaf-litter of primary and secondary forest, and has also been found in bamboo and banana plantations, as well as forest fragments (but not open habitats). It is a direct developer, and the eggs are probably laid on the ground.

Major Threats The Serra de Maranguape is being very heavily deforested, due to logging, agriculture, and human settlement.

Conservation Measures It is not found in any protected areas, and the formal protection of remaining forest and forest fragments in the Serra de Maranguape is urgently needed.

Bibliography: Borges-Najosa, D.M. and Lima, D.C. (2001), Eterovick, P.C. *et al.* (2005), Hoogmoed, M.S., Borges, D.M. and Cascon, P. (1994)

Data Providers: Débora Silvano, Diva Borges-Najosa

VU *Alsodes barrioi* Veloso, Díaz, Iturra, Penna, 1981**Vulnerable A3c**

Order, Family: Anura, Leptodactylidae
Country Distribution: Chile
Current Population Trend: Decreasing



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Geographic Range This species is known only from the Cordillera de Nahuelbuta, Estero Cabrería, Provincia de Malleco, Chile (37° 50' S; 73° 00' W). It has an altitudinal range of 1,000-1,500m asl.

Population The species is relatively abundant at the type locality. During breeding periods, it is possible to find large numbers of tadpoles in streams.

Habitat and Ecology It occurs under logs or stones close to mountain streams, and the surrounding vegetation mainly comprises *Nothofagus dombeyi* and *Araucaria araucana*. Breeding takes place in streams.

Major Threats The main threat is the afforestation of the watershed where this species occurs with an introduced pine. When the pine is harvested, the effect on the surrounding breeding streams could be catastrophic.

Conservation Measures It occurs in Parque Nacional Nahuelbuta.

Bibliography: Formas, J.R. (1995), Glade, A. (1993), Servicio Agrícola Ganadero (1998), Veloso, A. *et al.* (1981), Veloso, A. and Navarro, J. (1988)

Data Providers: Alberto Veloso, Herman Núñez, Ramón Formas

CR *Alsodes montanus* (Lataste, 1902)**Critically Endangered B1ab(iii,v)+2ab(iii,v)**

Order, Family: Anura, Leptodactylidae
Country Distribution: Chile
Current Population Trend: Decreasing



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Geographic Range This species is currently known only from Farellones (33° 32' S; 70° 19' W), in central Chile, 35km north-east of Santiago, at 2,300-3,000m asl. The exact location of the type locality is uncertain, though it is somewhere on the western slopes of the Andes in central Chile.

Population The current known population comprises only a few adults. It was last collected in 2003, and the population is known to have declined substantially in recent years. Areas in which the species has been known to reproduce were found to have been completely destroyed in February 2002.

Habitat and Ecology This stream-breeding species has been found under stones, close to mountain streams, where the surrounding vegetation comprises grasses and shrubs of cold Andean areas. It has free-swimming tadpoles.

Major Threats Currently, the primary threat to this species is from recreational skiing and tourist infrastructure development, since the only known locality where the species is found is in a ski resort.

Conservation Measures Protection and maintenance of its existing habitat is a priority for this species, since it is not currently known from any protected area.

Bibliography: Díaz, N. (1989), Formas, J.R. (1995), Glade, A. (1993), Servicio Agrícola Ganadero (1998), Veloso, A. and Navarro, J. (1988)

Data Providers: Alberto Veloso, Herman Núñez

CR *Alsodes tumultuosus* Veloso, Iturra, Galleguillos, 1979**Critically Endangered B1ab(iii,v)+2ab(iii,v)**

Order, Family: Anura, Leptodactylidae
Country Distribution: Chile
Current Population Trend: Decreasing



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Geographic Range This species is known only from Farellones (33° 32' S; 70° 19' W), Central Chile, 35km north-east of Santiago, at an altitudinal range of 2,300-3,000m asl, though it is possibly more widely distributed.

Population The population is currently believed to comprise only a few adults. Like its congener, *A. montanus*, it was last collected in 2003, and the population has declined substantially in recent years. Areas where the species is known to breed were found to have been completely destroyed by February 2002.

Habitat and Ecology This stream-breeding species has been found under stones, close to mountain streams, where the surrounding vegetation comprises grasses and shrubs characteristic of cold Andean areas. It has free-swimming tadpoles.

Major Threats Currently, the primary threat to this species is from recreational skiing and tourist infrastructure development, since the only known locality where the species is found is in a ski resort.

Conservation Measures Protection and maintenance of its existing habitat is a priority for this species, as it is currently not known from any protected area.

Bibliography: Formas, J.R. (1995), Glade, A. (1993), Servicio Agrícola Ganadero (1998), Veloso, A. and Navarro, J. (1988), Veloso, A., Iturra, P. and Galleguillos, R. (1979)

Data Providers: Alberto Veloso, Herman Núñez

CR *Alsodes vanzolinii* (Donoso-Barros, 1974)**Critically Endangered A2ac; B2ab(iii)**

Order, Family: Anura, Leptodactylidae
Country Distribution: Chile
Current Population Trend: Decreasing



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Geographic Range This species is endemic to the western slopes of the Nahuelbuta Range, Arauco Province (37° 59' S; 73° 22' W), Chile, at 50m asl.

Population The most recent collection was of tadpoles in 2002 which were found in the only pool in the area.

Habitat and Ecology This species can be found in small patches of *Nothofagus* forest, and is not tolerant of habitat modification. It reproduces in pools within permanent streams and has free-swimming tadpoles.

Major Threats It is highly threatened by habitat destruction due to expanding pine plantations and human settlement. In the last 10 years, in particular, the range of this species has been nearly completely destroyed as a result of afforestation with pine plantations.

Conservation Measures The species is not known to occur in any protected area, and protection and maintenance of its remaining native habitat is an urgent priority. Further survey work is necessary to determine the current population status of this species and the limits of its range.

Bibliography: Donoso-Barros, R. (1974), Formas, J.R. (1981), Formas, J.R. (1995), Formas, J.R. and Brieva, L. (2003), Servicio Agrícola Ganadero (1998), Veloso, A. and Navarro, J. (1988)

Data Providers: Alberto Veloso, Herman Núñez, Juan Carlos Ortiz

VU *Atelognathus nitoi* (Barrio, 1973)**Vulnerable D2****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Argentina**Current Population Trend:** Stable

© Boris Blotto



Geographic Range This species occurs only at the type locality (Laguna Verde on Cerro Challuanco) and in neighbouring areas in Argentina. Its altitudinal range is between 1,300 and 1,550m asl.

Population It is common within its restricted range. The minimum population size is estimated at around 1,000 individuals (Ubeda *et al.* 1999).

Habitat and Ecology This species can be found in permanent and temporary ponds and humid areas of caducifolius forest (*Nothofagus pumilio*); breeding takes place in permanent ponds. It is not known from modified habitats.

Major Threats Potential major threats include fires (both natural and human initiated) and increasing touristic activities.

Conservation Measures The entire known population is in the reserve area of the Parque Nacional Nahuel Huapi. There is a need for close population monitoring of this species given that it is known from only a single location.

Bibliography: Barrio, A. (1973), Basso, N.G. and Ubeda, C.A. (1997), Echeverría, D.D., Ubeda, C.A. and Basso, N.G. (2001), Lavilla, E.O. *et al.* (2000), Lynch, J.D. (1978), Ubeda, C. *et al.* (1999)

Data Providers: Carmen Úbeda, Esteban Lavilla

EN *Atelognathus patagonicus* (Gallardo, 1962)**Endangered A2ace; B1ab(i,ii,v)****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Argentina**Current Population Trend:** Decreasing

© Boris Blotto



Geographic Range This species is endemic to north-western Argentinean Patagonia where it has been recorded from a system of endoreic and isolated lagoons scattered in the volcanic tablelands of Neuquen (between 38° 55' and 39° 32'S and 70° 20' to 70° 39'W). Its altitudinal range is 1,265-1,410m asl.

Population It is common within its preferred habitat. New subpopulations have recently been discovered (at 14 satellite ponds), but the major subpopulation (Laguna Blanca) is believed to have been extirpated.

Habitat and Ecology The species inhabits permanent lagoons that are surrounded by steppe and/or semi-desert. Individuals are only found in areas adjacent to the ponds, and breeding takes place within these ponds. It is not known from degraded habitats.

Major Threats The main subpopulation (Laguna Blanca) is believed to have been extirpated through predation by introduced fishes (perch and salmonids). The remaining subpopulations are isolated from this lake and mostly appear to be stable, although eutrophication of two ponds due to livestock may be leading to a decline in two subpopulations. Introduction of predatory fishes to the remaining lakes is a potential major threat to all subpopulations.

Conservation Measures While the species was previously recorded from Parque Nacional Laguna Blanca it is now known only from the ponds within the buffer zone of the park. Measures need to be put in place to prevent the introduction of predatory fishes into the habitat of the remaining subpopulations.

Notes on taxonomy: This is a polymorphic species that might consist of several species or subspecies.

Bibliography: Cei, J.M. (1980), Cei, J.M. and Roig, V.G. (1968), Gallardo, J.M. (1962b), Lynch, J.D. (1978)

Data Providers: Carmen Úbeda, Esteban Lavilla, Néstor Basso

EN *Atelognathus praebasalticus* (Cei and Roig, 1968)**Endangered A2ace; B1ab(i,ii,v)****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Argentina**Current Population Trend:** Decreasing

© Boris Blotto



Geographic Range This species is endemic to north-western Argentinean Patagonia, and has been recorded from a number of localities in Neuquen Province. The altitudinal range is from 1,000-1,500m asl.

Population It is a rare species.

Habitat and Ecology It lives on the ground under stones and in humid ravines surrounding small-scattered lagoons, in volcanic tablelands, with steppe and semi-desert landscapes; it is presumed to breed in the lagoons. The species does not occur in modified habitats.

Major Threats The main threat is the introduction of predatory fishes (perch and salmonids) in Laguna Blanca, but it is also threatened by the loss of pond side vegetation through overgrazing and trampling by livestock (sheep).

Conservation Measures The species was previously protected in Parque Nacional Laguna Blanca; however, it is now extirpated in this park because of the introduction of predatory fishes and habitat loss. Three of the subspecies lack any protection, and habitat protection is urgently needed as are measures to prevent the future introduction of predatory fish species.

Notes on taxonomy: The *Atelognathus praebasalticus* complex needs to be re-examined taxonomically. There are four known subspecies, some of which may constitute new species. Some of these subspecies may be extinct.

Bibliography: Cei, J.M. (1972), Cei, J.M. (1980), Cei, J.M. and Roig, V.G. (1968), Lavilla, E.O. *et al.* (2000), Lynch, J.D. (1978)

Data Providers: Carmen Úbeda, Néstor Basso, Esteban Lavilla, Boris Blotto

EN *Atelognathus reverberii* (Cei, 1969)**Endangered B1ab(i,ii,iii)+2ab(i,ii,iii)****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Argentina**Current Population Trend:** Decreasing

© Néstor Basso



Geographic Range This species is known from five lagoons on the Somuncura Plateau, an isolated basaltic plateau in Rio Negro Province, Argentinean Patagonia, at an altitude of 1,000-1,200m asl.

Population It is a rare species.

Habitat and Ecology The species inhabits steppe tablelands that contain a number of temporary shallow lagoons scattered over the volcanic plateau. Breeding takes place in permanent pools. It is not present in modified habitats.

Major Threats It is threatened by eutrophication of its aquatic habitat, and the trampling of the shallow ponds by livestock (sheep and goats).

Conservation Measures The entire population of this species is included within the Somuncura Provincial Reserve; however, this Reserve requires better management, since it affords no real protection for the area. Further surveys are needed throughout the Somuncura Plateau area to better establish the population status of this species.

Bibliography: Cei, J.M. (1969a), Cei, J.M. (1969b), Cei, J.M. (1980), Lavilla, E.O. *et al.* (2000), Lynch, J.D. (1978)

Data Providers: Carmen Úbeda, Esteban Lavilla, Néstor Basso

VU *Atelognathus salai* Cei, 1984**Vulnerable D2**

Order, Family: Anura, Leptodactylidae
Country Distribution: Argentina
Current Population Trend: Stable



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Geographic Range This species is known only from its type locality pond, Laguna de los Gendarmes (46° 6'S; 71° 41'W; ca 1,050m asl), and other nearby ponds in south-western Argentinean Patagonia (north-west of Santa Cruz Province). It is known only from a single plateau.

Population It is a common species.

Habitat and Ecology Its habitat comprises permanent and endorreic lagoons at approximately 1,000m asl in the hilly landscape of the Patagonian steppe, and the temperate deciduous austral beech forest (*Nothofagus pumilio*). Breeding takes place in permanent ponds. It is not known if the species can occur in modified habitats.

Major Threats The region where this species occurs is relatively remote, and is not currently experiencing any threats.

Conservation Measures It is not known from any protected areas. Further surveys are necessary to determine the limits of the range of this species in this unexplored and remote area.

Bibliography: Cei, J.M. (1984), Úbeda, C.A. and Basso, N.G. (1998)

Data Providers: Carmen Úbeda, Esteban Lavilla, Néstor Basso

VU *Atelognathus solitarius* (Cei, 1970)**Vulnerable D2**

Order, Family: Anura, Leptodactylidae
Country Distribution: Argentina
Current Population Trend: Stable



Geographic Range This species is known only from the type locality, Las Bayas Creek, 48km south of Pilcaniyeu, Río Negro Province, Argentina. It is believed to have a restricted range, but further surveys are needed to confirm this. It has been collected at an altitude of 900m asl.

Population The current population status of this species is unknown.

Habitat and Ecology The species' habitat includes rocky ravines along creeks in the wasted volcanic landscape of the Pilcaniyeu steppe and tableland. The breeding habitat is not known.

Major Threats There is no information on the threats to this species. There is only some grazing of sheep in the area, though it is unclear what impact this might be having on the species.

Conservation Measures It is not recorded from any protected areas. Further surveys are needed to obtain more information on the population status and range of this poorly known species.

Bibliography: Cei, J.M. (1970b), Lavilla, E.O. *et al.* (2000), Lynch, J.D. (1978)

Data Providers: Carmen Úbeda, Esteban Lavilla, Néstor Basso, Boris Blotto

CR *Atopophrynus syntomopus* Lynch and Ruíz-Carranza, 1982**Critically Endangered B1ab(iii)+2ab(iii)**

Order, Family: Anura, Leptodactylidae
Country Distribution: Colombia
Current Population Trend: Decreasing



© John D. Lynch



Geographic Range This species is known only from the region of the type locality, 8km east of Sonsón, in the Cordillera Central, in the department of Antioquia, Colombia, at 2,780m asl. It might be more widespread, but it is difficult at present to survey in surrounding areas due to security problems.

Population It is known only from three specimens, and while there have been at least a dozen surveys of the type locality since its first description they have all failed to find the species. It has not been seen again since it was first described.

Habitat and Ecology The species was recorded on wet rocks very close to the surface of the stream in primary forest.

Major Threats Unfortunately, the habitat of the type locality has been quite degraded, largely as a result of guerrilla activities.

Conservation Measures Further survey work is needed to confirm whether or not the species still survives at the type locality or if it occurs outside the vicinity of the type locality (although it is not a safe area to conduct fieldwork at present). If the species still survives, restoration and protection of its habitat will be necessary for its survival, since the type locality is not within any protected area.

Bibliography: Lynch, J.D. and Ruíz-Carranza, P.M. (1982), Myers, C.W. and Ford, L.S. (1986)

Data Providers: Fernando Castro, John Lynch

EN *Batrachophrynus brachydactylus* Peters, 1873**Endangered A2d**

Order, Family: Anura, Leptodactylidae
Country Distribution: Peru
Current Population Trend: Decreasing



© Mikael Lundberg



Geographic Range This species' geographic range comprises the small tributaries of Lake Junin, and highlands and neighbouring cordilleras of Junin and Pasco Departments in central Peru. It occurs at an altitude of approximately 4,000m asl.

Population It can be abundant where it occurs, but appears to have declined.

Habitat and Ecology This is a semi-aquatic riparian species, found in small tributaries of Lake Junin but not in the lake itself.

Major Threats The main threat to the species is exploitation for food and medicine.

Conservation Measures It occurs in the Reserva Nacional de Junin. Measures are urgently required to control and manage the offtake of this species from the wild.

Bibliography: Czopek, J. (1983), Instituto Nacional de Recursos Naturales (INRENA) (2000), Salas, A.W. and Sinsch, U. (1996), Sinsch, U. (1986), Sinsch, U. (1990), Sinsch, U., Salas, A.W. and Canales, V. (1995)

Data Providers: Ariadne Angulo, Ulrich Sinsch, Edgar Lehr

EN *Batrachophrynus macrostomus* Peters, 1873

Endangered A2cde
Order, Family: Anura, Leptodactylidae
Country Distribution: Peru (Native and Introduced)
Current Population Trend: Decreasing



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Geographic Range This species occurs in Junin and Pasco Departments in Peru; it has also been introduced into the upper valley of the Río Mantaro, in the central Andes of Peru. It has an altitudinal range of 3,200-4,300m asl.

Population Previously common, this species has undergone a noticeable decline over the last twenty years.

Habitat and Ecology It is an exclusively aquatic species and can be found in marshy lakes such as Lake Junin and smaller, deep, isolated lakes.

Major Threats The species is threatened by introduction of trout into lakes in the high Andes, by uncontrolled exploitation as a food source, and potentially through the loss of habitat quality due to water pollution.

Conservation Measures Based on its known habitat preferences and distribution, this species occurs in the Reserva Nacional de Junin and may also occur in the Santuario Nacional Huayllay and the Santuario Histórico Chacamarca. Measures are urgently required to control and manage the offtake of this species from the wild.

Bibliography: Czopek, J. (1983), Czopek, J. (1984), Dubois, A. (1984a), Instituto Nacional de Recursos Naturales (INRENA) (2000), Leja, M. (1991), Rodríguez, L.O., Cordova, J.H. and Icochea, J. (1993), Sinsch, U. (1986), Sinsch, U. (1990), Szarski, H. (1979), Tantalean, M. and Garcia, L. (1989), Tantalean, M. and Garcia, L. (1993)

Data Providers: Ariadne Angulo, Ulrich Sinsch, César Aguilar Puntriano

VU *Batrachyla fitzroya* Basso, 1994

Vulnerable D2
Order, Family: Anura, Leptodactylidae
Country Distribution: Argentina
Current Population Trend: Stable



© Carmen Ubéda



Geographic Range This species is known only from the type locality (Isla Grande in Menendez Lake, 42° 40'S; 71° 51'W), an island completely protected in Parque Nacional Los Alerces, Chubut Province, Argentina. It occurs at 500m asl.

Population This species is locally common within its restricted range.

Habitat and Ecology It can be found in very humid temperate forest dominated by *Nothofagus*. Its breeding habitat is not known, but it may breed within small temporary pools. It is not known whether or not it can occur in modified habitats.

Major Threats There are no current threats at the type locality, but its restricted range renders it susceptible to stochastic threatening processes.

Conservation Measures The population occurs in a highly protected area in Parque Nacional Los Alerces. There is a need for close population monitoring of this species given its restricted range.

Bibliography: Basso, N.G. (1994), Lavilla, E.O. *et al.* (2000)

Data Providers: Carmen Ubéda, Néstor Basso, Esteban Lavilla, Boris Blotto

VU *Caudiverbera caudiverbera* (Linnaeus, 1758)

Vulnerable A2ad
Order, Family: Anura, Leptodactylidae
Country Distribution: Chile
Current Population Trend: Decreasing



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Geographic Range This species occurs from Coquimbo (at approx. 29°S) to Puerto Montt (40°S), in Chile. It has an altitudinal range of 0-500m asl.

Population Populations of this species are currently declining in central Chile; it is practically absent in ponds and lagoons close to towns where it was very abundant only a few years ago. However, populations are apparently common and stable in southern Chile.

Habitat and Ecology It occurs in large, deep ponds, and small reservoirs, and breeding takes place in ponds. It tolerates some minor disturbance of its habitat, but requires permanent ponds to persist.

Major Threats The main threats include harvesting as an exotic food source, and water pollution due to agriculture. Introduced trout and the drainage of ponds for development and agriculture are additional threats.

Conservation Measures It occurs in several protected areas. The harvesting of this species from the wild needs to be managed sustainably.

Bibliography: Formas, J.R. (1995), Glade, A. (1993), Servicio Agrícola Ganadero (1998), Veloso, A. and Navarro, J. (1988)

Data Providers: Alberto Veloso, Ramón Formas

VU *Ceratophrys stolzmanni* Steindachner, 1882

Vulnerable B1ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Ecuador, Peru
Current Population Trend: Decreasing



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PACIFIC HORNED FROG

Geographic Range This species is found in xeric environments of north-western Peru (Departamento Tumbes) and the Gulf of Guayaquil, Ecuador (Guayas and Manabi Provinces). Two subspecies are recognized: *C. s. scaphiopeza* in Ecuador, and *C. s. stolzmanni* in Peru. It has an altitudinal range of 0-100m asl.

Population It is a very rare species, but has been recorded in the last few years in Ecuador. There is no information on its population status in Peru.

Habitat and Ecology The habitat where some individuals have been collected can be described as tropical scrub, which is usually fairly open with a few trees, but remains green for about half the year. Other specimens have been collected in an open and sandy desert, with scattered, low, desert vegetation, and trees that are absent except in or near temporary streambeds (Peters 1967). It lives below ground when not breeding, but is an explosive breeder during good rains (with breeding taking place in water).

Major Threats The major threat is habitat loss due to agriculture (especially cattle ranching), logging, and human settlement. Soil pollution, due to agrochemicals, also represents a threat.

Conservation Measures It occurs in Parque Nacional Machililla and Reserva Ecológica Manglares Churute in Ecuador, and the Zona Reservada de Tumbes in Peru. Further survey work is needed to determine the population status of this species in Peru.

Bibliography: Lynch, J.D. (1982a), Parker III, T.A. and Carr, J.L. (1992), Peters, J.A. (1967), Rodríguez, L.O., Cordova, J.H. and Icochea, J. (1993), Steindachner, F. (1882), Tello, G. (1998)

Data Providers: Ariadne Angulo, Luis A. Coloma, Santiago Ron, Diego Cisneros-Heredia

VU *Craugastor alfredi* (Boulenger, 1898)**Vulnerable B2ab(iii)**

Order, Family: Anura, Leptodactylidae
Country Distribution: Guatemala, Mexico
Current Population Trend: Decreasing



Geographic Range This species can be found from central Veracruz in Mexico to western El Peten, Guatemala, at 0-600m asl.

Population This is a poorly known species that has not often been collected; little is known about its biology and ecology. It is locally common in Chiapas and is known from a single locality from El Peten, Guatemala.

Habitat and Ecology It is an inhabitant of lowland moist forest, and occurs in low vegetation, including under leaf sheaths of banana plants. Reproduction occurs by direct development, probably on the ground in moist leaf-litter.

Major Threats The main threat to this species is the loss of the original forest cover, in particular due to logging and agriculture.

Conservation Measures It has been recorded in the protected areas at Yaxchilan, and the El Triunfo and El Ocote Biosphere Reserves (where extensive forest remains) in Mexico. Additional fieldwork is needed to evaluate the status of the populations in the field.

Notes on taxonomy: This species was previously within the genus *Eleutherodactylus* (Crawford and Smith 2005).

Bibliography: Campbell, J.A. (2001), Campbell, J.A., Lamar, W.W. and Hillis, D.M. (1989), Crawford, A.J. and Smith, E.N. (2005)
Data Providers: Georgina Santos-Barrera, Luis Canseco-Márquez, Gunther Köhler, Antonio Muñoz Alonso

VU *Craugastor anaticipes* (Lynch and Myers, 1983)**Vulnerable B1ab(iii)**

Order, Family: Anura, Leptodactylidae
Country Distribution: Colombia, Ecuador
Current Population Trend: Decreasing



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Geographic Range This species occurs mainly in southern Colombia in the Pacific lowlands and slopes of the Cordillera Occidental in the Departments of Nariño and Valle del Cauca, south to the Río Mira in extreme northern Ecuador. Its altitudinal range is 100-1,600m asl.

Population It is a very uncommon species.

Habitat and Ecology It is a forest inhabitant, occurring from tropical lowland forest to lower cloud forest. The ability of this species to adapt to disturbed habitats is unknown, although it is probably restricted to closed forest. It is closely associated with small streams, and only rarely strays from the immediate vicinity of these; they are not found along larger rivers. It is active at night, sitting on rocks or in rocky crevices, or on very steep cliffs alongside streams. It is presumed to breed by direct development.

Major Threats The major threat is probably habitat loss, due to agricultural development (including plantations, and the planting of illegal crops), logging, and human settlement. Pollution, resulting from the spraying of illegal crops, is also a significant threat.

Conservation Measures It is present in several protected areas in Colombia, including Parque Nacional Natural Farallones de Cali.

Notes on taxonomy: This species was previously included in the genus *Eleutherodactylus* (Crawford and Smith 2005).

Bibliography: Acosta-Galvis, A.R. (2000), Crawford, A.J. and Smith, E.N. (2005), Hedges, S.B. (1989), Lynch, J.D. (1998b), Lynch, J.D. (1999), Lynch, J.D. and Ardila-Robayo, M.C. (1993), Lynch, J.D. and Duellman, W.E. (1997), Lynch, J.D. and Myers, C.W. (1983), Lynch, J.D., Ruiz-Carranza, P.M. and Ardila-Robayo, M.C. (1997), Ruiz-Carranza, P.M., Ardila-Robayo, M.C. and Lynch, J.D. (1996), Savage, J.M. (1987)

Data Providers: Fernando Castro, Santiago Ron, Luis A. Coloma

CR *Craugastor anciano* (Savage, McCranie and Wilson, 1988)**Critically Endangered B1ab(iii,v)+2ab(iii,v)**

Order, Family: Anura, Leptodactylidae
Country Distribution: Honduras
Current Population Trend: Decreasing



Geographic Range This species is known only from two sites in the Montana de Celaque, Departments of Lempira and Ocotepeque, western Honduras, at 1,400-1,840m asl.

Population It has always been extremely rare, and might now be extinct.

Habitat and Ecology It lives on the ground along mountain streams in premontane and lower montane moist forest. It presumably breeds by direct development, with eggs laid on land.

Major Threats All streamside *Craugastor* known to occur above 900m asl have disappeared in Honduras for reasons that remain unclear, although infection with chytridiomycosis is clearly a possibility. Other threats include agricultural encroachment, wood extraction, forest fires, water pollution, and landslides.

Conservation Measures One of the two recorded sites is in Parque Nacional Celaque. In view of the likely threat of chytridiomycosis, it is a very high priority to conduct surveys to relocate this species

and determine its current population status; surviving individuals might need to form the basis for the establishment of an *ex-situ* population.

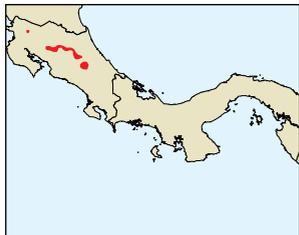
Notes on taxonomy: This species was previously included in the genus *Eleutherodactylus* (Crawford and Smith 2005).

Bibliography: Campbell, J.A. and Savage, J.M. (2000), Crawford, A.J. and Smith, E.N. (2005), McCranie, J.R. and Wilson, L.D. (2002b), Savage, J.M., McCranie, J.R. and Wilson, L.D. (1988)

Data Providers: Gustavo Cruz, Larry David Wilson, Randy McCranie

CR *Craugastor andi* (Savage, 1974)**Critically Endangered A2ace**

Order, Family: Anura, Leptodactylidae
Country Distribution: Costa Rica
Current Population Trend: Decreasing



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Geographic Range This species occurs on the Atlantic slopes of the northern and central portions of the Costa Rican cordilleras at an altitude of 1,000-1,200m asl (Savage 2002).

Population It was once common, or at least regularly seen, in Monteverde and the San Ramon Reserve, but it has not been recorded since 1990, despite searches, thus suggesting that a serious decline has taken place.

Habitat and Ecology This nocturnal arboreal frog inhabits premontane wet forest and rainforest. It usually is found close to streams, but has occasionally been collected in bromeliads as much as 5m above ground. Males call from stream banks, and females descend from trees for mating (Savage 2002). Eggs are laid out of the water on the ground, and breeding occurs by direct development.

Major Threats This species has disappeared from apparently suitable habitats, with the implication that the major threat is likely to be chytridiomycosis (perhaps in combination with the effects of climate change), leading to a catastrophic population decline, as has occurred in many other montane amphibian species that are associated with streams.

Conservation Measures Much of the known range of this species is in protected areas. However, further surveys are urgently needed to relocate this species and determine its current population status; surviving individuals might need to form the basis for the establishment of an *ex-situ* population.

Notes on taxonomy: This species was previously included in the genus *Eleutherodactylus* (Crawford and Smith 2005).

Bibliography: Crawford, A.J. and Smith, E.N. (2005), Pounds, J.A. et al. (1997), Savage, J.M. (2002)

Data Providers: Alan Pounds, Federico Bolaños

CR *Craugastor angelicus* (Savage, 1975)**Critically Endangered A2ace****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Costa Rica**Current Population Trend:** Decreasing

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Geographic Range This species occurs in the Cerro Cacao in the Cordillera de Guanacaste, Cordillera de Tilarán (1,200-1,600m asl), and on the northern (600-1,700m asl) and eastern (900-1,400m asl) slopes of Volcán Poas (Cordillera Central) in Costa Rica (Savage 2002).

Population The species has disappeared from Monteverde where it was abundant until the 1980s. There was one sighting in the northern part of the Cordillera de Tilarán in 1994, but the site has not been resurveyed since (J.A. Pounds pers. comm.). Recent surveys in Cerro Cacao (2001) and the Cordillera Central where the species was previously recorded have not turned up any individuals (F. Bolaños and G. Chaves pers. comm.).

Habitat and Ecology It inhabits tropical premontane and lower montane forest. It is nocturnal, foraging along steep sloping banks of mountain streams (Savage 2002). A female has been observed to lay her clutch of eggs in a hole and then cover it with sand (Hayes 1985).

Major Threats Since this species has disappeared from apparently suitable habitats and some parts of its original habitat remain pristine the major threat to the species is likely to be chytridiomycosis (perhaps in synergy with climate change), which has led to catastrophic population declines in many other amphibian species that are associated with high-elevation streams.

Conservation Measures Much of the known range of this species is in protected areas. However, further surveys are urgently needed to relocate this species and determine its current population status; surviving individuals might need to form the basis for the establishment of an *ex-situ* population.

Notes on taxonomy: This species was previously within the genus *Eleutherodactylus* (Crawford and Smith 2005).

Bibliography: Crawford, A.J. and Smith, E.N. (2005), Hayes, M.P. (1985), Pounds, J.A. *et al.* (1997), Savage, J.M. (2002)

Data Providers: Alan Pounds, Federico Bolaños

VU *Craugastor aphanus* (Campbell, 1994)**Vulnerable D2****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Guatemala**Current Population Trend:** Stable

Geographic Range This species occurs in the Montañas del Mico and the northern slopes of the eastern portion of the Sierra de las Minas, in the Departamento de Izabal, eastern Guatemala, at 591-786m asl.

Population It is a rare species.

Habitat and Ecology Although it is found at relatively low elevations, it lives in typical cloud forest conditions with frequent fog and drizzling rain. It is found in undisturbed forest only. It breeds by direct development and is not dependent on water.

Major Threats Small-scale wood extraction is taking place, but much of its habitat is included in a protected area.

Conservation Measures It occurs in the Montanos del Mico Catchment Reserve, and might also occur in Parque Nacional Sierra de las Minas. Close population monitoring is required given that this species is known from only a few sites.

Notes on taxonomy: This species was previously included in the genus *Eleutherodactylus* (Crawford and Smith 2005).

Bibliography: Campbell, J.A. (1994a), Campbell, J.A. (2001), Crawford, A.J. and Smith, E.N. (2005), Savage, J.M. and Myers, C.W. (2002)

Data Providers: Manuel Acevedo, Eric Smith

EN *Craugastor aurilegulus* (Savage, McCranie and Wilson, 1988)**Endangered B1ab(iii,v)+2ab(iii,v)****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Honduras**Current Population Trend:** Decreasing

Geographic Range This species occurs in the Sierra Nombre de Dios, the Montana La Muralla, and the Montana Texiguat, in the departments of Atlantida, Colon, and Yoro y Olancho in north-central Honduras, at 50-1,550m asl.

Population The lowland populations appear to be stable and common, but higher elevation populations are severely reduced above 900m asl.

Habitat and Ecology It lives on the ground, along small and medium-sized streams in lowland moist forest, and premontane and lower montane wet forest. It does not tend to survive in degraded habitats. It is a species that breeds by direct development.

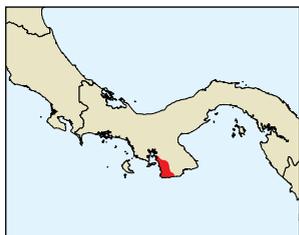
Major Threats The major threats include deforestation as a result of agricultural and livestock encroachment, human settlements, logging, fires and landslides. However, these threats do not account for the inexplicable declines at high elevations; chytridiomycosis is clearly a possibility.

Conservation Measures It occurs in several protected areas, including Parque Nacional Pico Bonito and Parque Nacional Texiguat. Further research is necessary to establish the cause of declines at high elevations, particularly to ascertain whether chytrid is a threat.

Notes on taxonomy: This species was previously included in the genus *Eleutherodactylus* (Crawford and Smith 2005).

Bibliography: Campbell, J.A. and Savage, J.M. (2000), Crawford, A.J. and Smith, E.N. (2005), McCranie, J.R. and Wilson, L.D. (2002b), Savage, J.M., McCranie, J.R. and Wilson, L.D. (1988)

Data Providers: Gustavo Cruz, Larry David Wilson, Randy McCranie

EN *Craugastor azueroensis* (Savage, 1975)**Endangered B1ab(iii)****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Panama**Current Population Trend:** Decreasing

Geographic Range This species is endemic to the Azuero Peninsula, Panama, where it has been recorded at altitudes of 61-940m asl.

Population It is apparently locally abundant.

Habitat and Ecology This is a terrestrial species associated with streams in dry lowland and montane forest. It breeds by direct development and eggs are deposited on the ground.

Major Threats General habitat loss through deforestation is a major threat. Some other species of the genus that are associated with streams have undergone dramatic declines and disappearances, possibly due to chytridiomycosis, so the status of this species should be monitored carefully.

Conservation Measures The species has been recorded from Parque Nacional Cerro Hoya, but expanded protection of habitat on the Azuero Peninsula is needed. Further research is also required to determine whether chytrid poses a real threat to this species.

Notes on taxonomy: This species was previously included in the genus *Eleutherodactylus* (Crawford and Smith 2005).

Bibliography: Campbell, J.A. and Savage, J.M. (2000), Crawford, A.J. and Smith, E.N. (2005), Ibáñez, R. *et al.* (2000), Young, B. *et al.* (1999)

Data Providers: Frank Solís, Roberto Ibáñez, César Jaramillo, Querube Fuenmayor

VU *Craugastor biporcatus* (Boettger, 1893)**Vulnerable B1ab(iii)**

Order, Family: Anura, Leptodactylidae
Country Distribution: Venezuela
Current Population Trend: Decreasing



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Geographic Range This species is known from the Venezuelan Coastal Ranges in the States of Aragua, Carabobo, Miranda, Sucre, and Yaracuy. It has been recorded from 250-1,600m asl.

Population It is a common species.

Habitat and Ecology A terrestrial and nocturnal frog that inhabits lowland humid and montane cloud forests. It breeds by direct development.

Major Threats The major threat is habitat destruction and degradation due to agriculture.

Conservation Measures Its range includes several protected areas, including Parque Nacional Guatopo, Parque Nacional Henri Pittier, and Parque Nacional San Esteban.

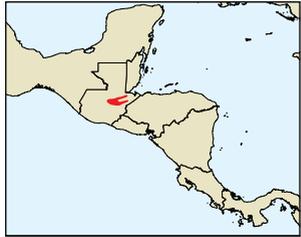
Notes on taxonomy: This species was previously included in the genus *Eleutherodactylus* (Crawford and Smith 2005).

Bibliography: Barrio Amorós, C.L. (2004), Cordero, G. (1987), Crawford, A.J. and Smith, E.N. (2005), Frost, D.R. (1985), Heatwole, H. (1962), La Marca, E. (1992), Lynch, J.D. (1975b), Manzanilla, J. *et al.* (1995), Manzanilla, J., Rivero, R. and Schmid, M. (1996), Savage, J.M. and Myers, C.W. (2002)

Data Providers: Jesús Manzanilla, Enrique La Marca

VU *Craugastor bocourti* (Brocchi, 1877)**Vulnerable B1ab(iii)**

Order, Family: Anura, Leptodactylidae
Country Distribution: Guatemala
Current Population Trend: Decreasing



Geographic Range This species occurs in the mountains of Alta Verapaz and the Sierra de las Minas, Guatemala, at 1,300-1,700m asl.

Population It is an uncommon species.

Habitat and Ecology It occurs on the forest floor in undisturbed cloud forest. It breeds by direct development, and is not dependent on water for breeding.

Major Threats The major threat is habitat loss due to agriculture (in particular leather-leaf plantations), wood extraction, and human settlement.

Conservation Measures It occurs in the Parque Nacional Sierra de las Minas and Biotopo del Quetzal.

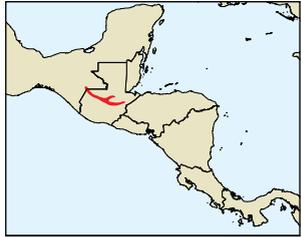
Notes on taxonomy: This species was previously included in the genus *Eleutherodactylus* (Crawford and Smith 2005).

Bibliography: Campbell, J.A. (2001), Crawford, A.J. and Smith, E.N. (2005), Stuart, L.C. (1948)

Data Providers: Manuel Acevedo, Eric Smith

VU *Craugastor brocchi* (Boulenger, 1882)**Vulnerable B1ab(iii)**

Order, Family: Anura, Leptodactylidae
Country Distribution: Guatemala, Mexico
Current Population Trend: Decreasing



Geographic Range This species is found on the Atlantic versant slopes of the northern highlands of Guatemala from Sierra de las Minas, Alta Verapaz, and Baja Verapaz, westward through Sierra de los Cuchumatanes to north-western Huehuetenango, Guatemala, then to Chiapas, Mexico, in Parque Nacional Lagunas de Montebello, at altitudes of 1,200-2,000m asl.

Population It is uncommon throughout its range; there is no recent information from Chiapas.

Habitat and Ecology This species prefers riparian habitats along streams flowing through premontane and montane wet forests, cloud forest and humid pine-oak forest. It is commonly found on the ground or beneath leaf-litter along streams, where it also breeds by direct development.

Major Threats A major threat to this species is habitat loss and disturbance due to agriculture and selective logging, particularly since it clearly does not adapt well to disturbed areas. Some other

species of *Craugastor* that are associated with streams have undergone dramatic declines and disappearances, possibly due to chytridiomycosis, so the status of this species should be monitored carefully.

Conservation Measures It occurs in a single protected area in Mexico, Parque Nacional Lagunas de Montebello, and is present in Biotopo del Quetzal and the Bisis-Cabá and Sierra de las Minas Biosphere Reserves in Guatemala. Survey work is needed to evaluate the status of this species in Chiapas.

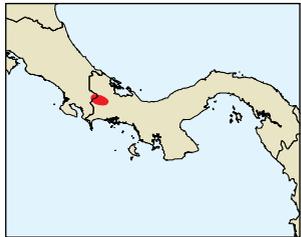
Notes on taxonomy: This species was previously included in the genus *Eleutherodactylus* (Crawford and Smith 2005).

Bibliography: Campbell, J.A. and Savage, J.M. (2000), Crawford, A.J. and Smith, E.N. (2005), Lynch, J.D. (2000b), Savage, J.M. (1987)

Data Providers: Georgina Santos-Barrera, Manuel Acevedo, Antonio Muñoz Alonso

CR *Craugastor catalinae* (Campbell and Savage, 2000)**Critically Endangered A2ace**

Order, Family: Anura, Leptodactylidae
Country Distribution: Costa Rica, Panama
Current Population Trend: Decreasing



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Geographic Range This species is found on the extreme south-western Pacific slope of Costa Rica and adjacent western Panama, at elevations of 1,219-1,800m asl (Savage 2002).

Population This species used to be common in Costa Rica; however, like many other frogs in the genus, it has disappeared from much of its known range. Likewise, populations are known to have declined in the uplands of western Panama.

Habitat and Ecology This terrestrial species occurs in streams in premontane and lower montane humid forests, and breeds by direct development.

Major Threats While the destruction of natural forests is presumably a threat to this species, the large population decline has taken place within pristine habitats, and this might well be due to chytridiomycosis.

Conservation Measures The status of this species should be closely monitored, and, given the possible threat of chytridiomycosis, some individuals might need to form the basis for the establishment of an *ex-situ* population. The species has been recorded from a few protected areas including Parque Internacional La Amistad.

Notes on taxonomy: This species was previously included in the genus *Eleutherodactylus* (Crawford and Smith 2005).

Bibliography: Campbell, J.A. and Savage, J.M. (2000), Crawford, A.J. and Smith, E.N. (2005), Savage, J.M. (2002)

Data Providers: Frank Solís, Roberto Ibáñez, Gerardo Chaves, Jay Savage, César Jaramillo, Querube Fuenmayor

EN *Craugastor charadra* (Campbell and Savage, 2000)**Endangered B1ab(iii,v)****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Guatemala, Honduras**Current Population Trend:** Decreasing

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Geographic Range This species is known from the highlands between the Río Motagua in Guatemala and the Río Chamelecón in Honduras, at 30-1,370m asl.

Population It has disappeared from above 900m asl in Honduras and much of the Honduran portion of the range is badly deforested; it was still common in 1998 in streams at 30-330m asl in extreme north-western Cortés Department in Honduras. It is uncommon in Guatemala.

Habitat and Ecology This species inhabits lowland and premontane wet forest, living along small tributaries, especially of the Río Motagua. It is often found sitting on low vegetation, sometimes on the banks of streams. It breeds by direct development and is not dependent on water for breeding. It probably tolerates some habitat disturbance because one individual was found in a coffee plantation.

Major Threats Serious habitat degradation is taking place due to agriculture, livestock, logging, and human settlement. However, these threats do not account for the high-altitude declines seen in this species, which could be due to chytridiomycosis.

Conservation Measures One locality in Honduras is on the edge of Parque Nacional Cerro Azul. Surveys are needed to determine where other remnant populations survive and how these could be better protected. Further research is necessary to determine whether chytrid is a real threat.

Notes on taxonomy: This species was previously included in the genus *Eleutherodactylus* (Crawford and Smith 2005).

Bibliography: Campbell, J.A. (2001), Campbell, J.A. and Savage, J.M. (2000), Crawford, A.J. and Smith, E.N. (2005), McCranie, J.R. and Wilson, L.D. (2002b)

Data Providers: Manuel Acevedo, Larry David Wilson, Gustavo Cruz, Randy McCranie

VU *Craugastor cheiroplethus* (Lynch, 1990)**Vulnerable B1ab(iii)****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Colombia**Current Population Trend:** Decreasing

Geographic Range This species is known from the departments of Antioquia, Chocó, Risaralda and Valle del Cauca, on the western slopes of the northern half of the Cordillera Occidental in Colombia, at moderate elevations (800-1,540m asl).

Population It is a relatively abundant species.

Habitat and Ecology An inhabitant of rainforest, it can be found along streams, on medium to low perches on vegetation, although adults are usually too heavy to be supported by the leaves so they are commonly found on rocks. Provided there is gallery forest present over streams, it is able to tolerate considerable habitat modification. Breeding takes place by direct development.

Major Threats Although there are no major threats to the species overall at present, some localized habitat loss is taking place due to agricultural development (including the planting of illegal crops). Some other species of *Craugastor* that are associated with streams have undergone dramatic declines and disappearances, possibly due

to chytridiomycosis, so the status of this species should be monitored carefully.

Conservation Measures There are several protected areas within the range of the species, including Parque Nacional Natural Farallones de Cali.

Notes on taxonomy: This species was previously included in the genus *Eleutherodactylus* (Crawford and Smith 2005).

Bibliography: Acosta-Galvis, A.R. (2000), Crawford, A.J. and Smith, E.N. (2005), Lynch, J.D. (1990a), Lynch, J.D. (1998b), Lynch, J.D. and Duellman, W.E. (1997), Lynch, J.D., Ruiz-Carranza, P.M. and Ardila-Robayo, M.C. (1997), Paez, V.P. et al. (2002), Ruiz-Carranza, P.M., Ardila-Robayo, M.C. and Lynch, J.D. (1996), Ruiz-Carranza, P.M., Lynch, J.D. and Ardila-Robayo, M.C. (1997)

Data Providers: Fernando Castro, Maria Isabel Herrera, John Lynch

CR *Craugastor coffeus* (McCranie and Köhler, 1999)**Critically Endangered B1ab(iii)+2ab(iii)****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Honduras**Current Population Trend:** Decreasing

Geographic Range This species is known only from between Laguna del Cerro and Quebrada Grande in the Department of Copán, in the extreme west of Honduras, at 1,000m asl, close to the Guatemala border.

Population It is known only from a single specimen.

Habitat and Ecology Very little is known of the habitat and ecology of this species, but it is believed to occur in premontane wet forest, although the holotype was found on the ground in a coffee plantation, which might suggest some ability to adapt to secondary habitats. It presumably breeds by direct development and is not dependent on water for breeding.

Major Threats Primary threats probably include deforestation as a result of agricultural and livestock encroachment, human settlements, logging, fires and landslides.

Conservation Measures The only known locality is right on edge of Parque Nacional Cerro Azul, so the species might well

occur within the protected area although there are no records to date. Further survey work is required to determine the biology and population status of this species and to determine whether or not it is indeed present in Parque Nacional Cerro Azul.

Notes on taxonomy: This species was previously included in the genus *Eleutherodactylus* (Crawford and Smith 2005).

Bibliography: Crawford, A.J. and Smith, E.N. (2005), McCranie, J.R. and Köhler, G. (1999a), McCranie, J.R. and Wilson, L.D. (2002b)

Data Providers: Gustavo Cruz, Larry David Wilson, Randy McCranie

CR *Craugastor cruzi* (McCranie, Savage and Wilson, 1989)**Critically Endangered A2ace;****B1ab(iii,v)+2ab(iii,v)****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Honduras**Current Population Trend:** Decreasing

Geographic Range This species is known only from the type locality, the Cordillera Nombre de Dios on the Atlantic slope south of La Ceiba in northern Honduras at 1,520m asl.

Population A landslide destroyed the stream where the type specimen was collected in 1988. Visits to the area in 1995 and 1996 turned up no additional specimens.

Habitat and Ecology The two known specimens were collected along a very small stream in lower montane wet forest.

Major Threats The major threat is likely to be chytridiomycosis, leading to a catastrophic population decline, as has occurred in many other high-elevation amphibian species that are associated with streams. Considering that all streamside *Craugastor* above 900m asl in Honduras have disappeared recently, this species might well be extinct.

Conservation Measures The type locality of this species is within Parque Nacional Pico Bonito. Surveys to determine whether or not there are surviving populations of this species are needed;

given the threat of chytridiomycosis, surviving individuals might need to form the basis for the establishment of an *ex-situ* population.

Notes on taxonomy: This species was previously included in the genus *Eleutherodactylus* (Crawford and Smith 2005).

Bibliography: Crawford, A.J. and Smith, E.N. (2005), McCranie, J.R. and Wilson, L.D. (2002b), McCranie, J.R., Savage, J.M. and Wilson, L.D. (1989), Wilson, L.D. and McCranie, J.R. (1998)

Data Providers: Larry David Wilson, Randy McCranie, Gustavo Cruz

EN *Craugastor daryi* (Ford and Savage, 1984)**Endangered B1ab(iii)****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Guatemala**Current Population Trend:** Decreasing

Geographic Range This species can be found in the cloud forest of the Sierra Xucaneb and the Sierra de las Minas, central Guatemala, at 1,500-2,290m asl.

Population It is uncommon but still regularly seen in appropriate habitat.

Habitat and Ecology This species can be found along streams in cloud forest. Reproduction occurs via direct development. It can persist in reduced numbers in moderately disturbed areas.

Major Threats A major threat to this species is habitat destruction, and more than 50% of its habitat has been lost in the last 10 years due to conversion of forest to ornamental plant farms. Some other species of the genus that are associated with high-elevation streams have undergone dramatic declines and disappearances, possibly due to chytridiomycosis, so the status of this species should be monitored carefully.

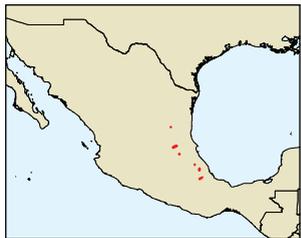
Conservation Measures This species has been collected within

Biotopo del Quetzal and the Reserva de la Biósfera Sierra de las Minas. Further research is necessary to determine whether chytrid poses a real threat.

Notes on taxonomy: This species was previously included in the genus *Eleutherodactylus* (Crawford and Smith 2005).

Bibliography: Campbell, J.A. (2001), Crawford, A.J. and Smith, E.N. (2005), Ford, L.S. and Savage, J.M. (1984)

Data Providers: Manuel Acevedo, Bruce Young

VU *Craugastor decoratus* (Taylor, 1942)**Vulnerable B1ab(iii)****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Mexico**Current Population Trend:** Decreasing

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Geographic Range This species is found in southern Tamaulipas, southern San Luis Potosi and adjacent north Querétaro, and northern Hidalgo to central Veracruz and adjacent northern Puebla, Mexico.

Population This is a rare species.

Habitat and Ecology It inhabits montane cloud forest and several individuals have been found on trees and bushes in cultivated land, suggesting that it is tolerant of a degree of habitat modification. It breeds by direct development.

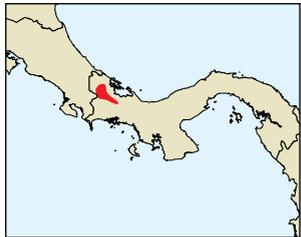
Major Threats The major threat is habitat loss and degradation due to logging, as well as some agricultural activities.

Conservation Measures The range of this species includes the El Cido Biosphere Reserve and Parque Nacional Cofre de Perote. Improved protection of the montane forests along the Huasteca region in Mexico is needed. It is protected by Mexican law under the "Special Protection" category (Pr).

Notes on taxonomy: This species was previously included in the genus *Eleutherodactylus* (Crawford and Smith 2005).

Bibliography: Campbell, J.A., Lamar, W.W. and Hillis, D.M. (1989), Crawford, A.J. and Smith, E.N. (2005)

Data Providers: Georgina Santos-Barrera, Luis Canseco-Márquez

CR *Craugastor emcelae* (Lynch, 1985)**Critically Endangered A3ce****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Panama**Current Population Trend:** Decreasing

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Geographic Range This species is endemic to the western central cordillera of Panama. It has been recorded from altitudes of between 910 and 1,450m asl.

Population While there is little information available on the population status of this species, it is known to have declined in the Reserva Forestal Fortuna, Chiriquí.

Habitat and Ecology This is a terrestrial species of humid lowland and montane forest. It breeds by direct development, with eggs deposited on the forest floor.

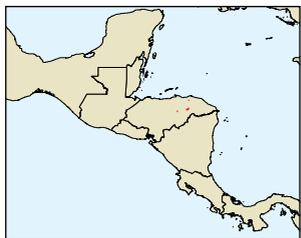
Major Threats The major threat to the species is general habitat loss as a result of smallholder farming activities, logging and human settlement, although the current observed population decline is thought to be due to chytridiomycosis (Lips 1999).

Conservation Measures The species has been recorded from the protected areas of Parque Internacional La Amistad, Bosque Protector Palo Seco, and Reserva Forestal Fortuna. In view of the threat of chytridiomycosis, the status of this species should be closely monitored, and *ex-situ* populations should be established.

Notes on taxonomy: This species was previously included in the genus *Eleutherodactylus* (Crawford and Smith 2005).

Bibliography: Crawford, A.J. and Smith, E.N. (2005), Ibáñez, R. *et al.* (2000), Lips, K.R. (1999), Lynch, J.D. (1985), Young, B. *et al.* (1999)

Data Providers: Frank Solís, Roberto Ibáñez, César Jaramillo, Querube Fuenmayor

CR *Craugastor epochthidius* (McCranie and Wilson, 1997)**Critically Endangered A3ce****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Honduras**Current Population Trend:** Decreasing

Geographic Range This species can be found in Sierra de Agalta and Sierra Punta Piedra in the departments of Olancho and Colon east-central and north-eastern Honduras, at elevations of 150-1,459m asl.

Population Formerly, this species was relatively common, but now is apparently in decline. Substantial habitat has been lost in recent years, and a recent survey conducted in appropriate habitat turned up no records of this species.

Habitat and Ecology It occurs and breeds (by direct development) in leaf-litter on the ground in lowland and premontane moist forest. It is often found near streams.

Major Threats The major threat is habitat loss due to agriculture (crops and cattle ranching), logging, human settlement, and forest fires. However, since the observed decline has also taken place in suitable habitat this could be suggestive of chytridiomycosis as a significant threat (at least to higher-altitude populations).

Conservation Measures It has been collected within the Reserve de la Biosfera Río Platano and on the edge of Parque Nacional Agalta. In view of the threat of chytridiomycosis, the status of this species should be closely monitored, and *ex-situ* populations should be established.

Notes on taxonomy: This species was previously included in the genus *Eleutherodactylus* (Crawford and Smith 2005).

Bibliography: Crawford, A.J. and Smith, E.N. (2005), McCranie, J.R. and Wilson, L.D. (1997a), McCranie, J.R. and Wilson, L.D. (2002b)

Data Providers: Gustavo Cruz, Larry David Wilson

CR *Craugastor escoces* (Savage, 1975)**Critically Endangered A2ace****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Costa Rica**Current Population Trend:** Decreasing

© Wayne Van Devender

**Geographic Range** This species occurs on the volcanoes Barva, Irazú, and Turrialba, of the Cordillera Central of Costa Rica, at elevations of 1,100-2,100m asl (Savage 2002).**Population** Although it has been well studied and collected extensively, and was formerly abundant throughout its range, it has not been recorded since 1986. A serious decline appears to have taken place.**Habitat and Ecology** It has been found along streams in premontane and lower montane rainforest; breeding takes place on land by direct development along stream margins.**Major Threats** The most likely cause of its disappearance in suitable habitats is chytridiomycosis, perhaps in combination with climate change.**Conservation Measures** Further survey work is required to determine whether or not this species still survives in the wild and the reasons for its decline. It is well protected in Parque Nacional Braulio Carrillo, but in view of the likely threat of chytridiomycosis, any surviving individuals might need to form the basis for the establishment of a captive-breeding programme.**Notes on taxonomy:** This species was previously included in the genus *Eleutherodactylus* (Crawford and Smith 2005).**Bibliography:** Campbell, J.A. and Savage, J.M. (2000), Crawford, A.J. and Smith, E.N. (2005), Savage, J.M. (2002)**Data Providers:** Federico Bolaños, Gerardo Chaves**CR** *Craugastor fecundus* (McCranie and Wilson, 1997)**Critically Endangered A2ace****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Honduras**Current Population Trend:** Decreasing**Geographic Range** This species can be found in Quebrada de Oro and Cerro Calentura in the Sierra Nombre de Dios in the Departments of Atlantica and Colon, northern Honduras, at elevations of 200-1,260m asl.**Population** Although once relatively common, it is now in decline: it was not recorded once during a total of 20 days of searching during 1995 and 1996 in suitable habitat.**Habitat and Ecology** The species is known to occur in leaf-litter in undisturbed lowland moist forest and premontane wet forest, and breeds by direct development.**Major Threats** The most likely cause of the apparent disappearance of this species is chytridiomycosis.**Conservation Measures** There are records of this species from Parque Nacional Pico Bonito, Parque Nacional Capiro and Parque Nacional Calentura. Surveys to relocate this species and to determine its current population status are urgently required; survivingindividuals might need to form the basis for the establishment of an *ex-situ* population.**Notes on taxonomy:** This species was previously included in the genus *Eleutherodactylus* (Crawford and Smith 2005).**Bibliography:** Crawford, A.J. and Smith, E.N. (2005), McCranie, J.R. and Wilson, L.D. (1997a), McCranie, J.R. and Wilson, L.D. (2002b)**Data Providers:** Gustavo Cruz, Larry David Wilson**CR** *Craugastor fleischmanni* (Boettger, 1892)**Critically Endangered A2ace****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Costa Rica**Current Population Trend:** Decreasing**Geographic Range** This species is found in Costa Rica on the Meseta Central Oriental and Occidental, on the Pacific slopes of the volcanoes Poás and Barva, on the Atlantic slopes of the volcanoes Irazú, Turrialba, and on the slopes of the Cordillera de Talamanca, at elevations of 1,050-2,286m asl.**Population** It has not been seen since the 1980s despite extensive searches in sites from which it was known. It appears that a serious decline has taken place.**Habitat and Ecology** It is a nocturnal species that has been found along streams in premontane and lower montane wet forest at both pristine and moderately disturbed sites. It reproduces in stream margins by direct development.**Major Threats** The most likely cause of the apparent disappearance of this species is chytridiomycosis, possibly in synergy with the effects of climate change.**Conservation Measures** Its range includes Parque Nacional Tapantí as well as other protected areas. It is a high priority to conduct surveys to relocate this species and determine whether or not it survives in the wild; in view of the threat of chytridiomycosis, surviving individuals might need to form the basis for the establishment of an *ex-situ* population.**Notes on taxonomy:** This species was previously included in the genus *Eleutherodactylus* (Crawford and Smith 2005).**Bibliography:** Campbell, J.A. and Savage, J.M. (2000), Crawford, A.J. and Smith, E.N. (2005), Savage, J.M. (2002)**Data Providers:** Federico Bolaños, Gerardo Chaves, Jay Savage**CR** *Craugastor glaucus* (Lynch, 1967)**Critically Endangered B1ab(iii)****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Mexico**Current Population Trend:** Decreasing

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**Geographic Range** This species is known from the areas surrounding San Cristobal de las Casas, Chiapas, Mexico, at 2,100m asl.**Population** It is a rare species.**Habitat and Ecology** The primary habitat is pine and pine-oak forests at intermediate elevations. It breeds by direct development.**Major Threats** Most of its range has been dramatically transformed in the past few years by an increased rate of logging and urbanization.**Conservation Measures** It is not known to occur in any protected areas, and restoration and protection of the remaining habitat of this species is urgently required. This species is protected by Mexican law under the "Special Protection" category (Pr).**Notes on taxonomy:** This species was previously included in the genus *Eleutherodactylus* (Crawford and Smith 2005).**Bibliography:** Campbell, J.A., Lamar, W.W. and Hillis, D.M. (1989), Crawford, A.J. and Smith, E.N. (2005)**Data Providers:** Georgina Santos-Barrera, Luis Canseco-Márquez

CR *Craugastor greggi* (Bumzahem, 1955)**Critically Endangered A3e**

Order, Family: Anura, Leptodactylidae
Country Distribution: Guatemala, Mexico
Current Population Trend: Decreasing



Geographic Range This species occurs in the Soconusco region and slopes of Volcán Tacana, southern Chiapas, Mexico, and adjacent western Guatemala at Volcán Tejumulco, at elevations of 1,500-2,700m asl.

Population It is uncommon and is known only from few localities. The population in Guatemala is known to be declining, and there have been no records from Mexico since 1997 (recent surveys in Chiapas have not been successful in locating it).

Habitat and Ecology The primary habitat is montane cloud forests, and it breeds near streams and does so via direct development.

Major Threats It is likely that this species is declining because of chytridiomycosis, which has heavily impacted some other streamside *Craugastor* species. Habitat loss is also a threat to the species, particularly in Mexico where the population occurs in a continuously altered forest.

Conservation Measures It is not found within any protected areas, and protection of the forested areas along the Soconusco region in Mexico is clearly necessary. In view of the threat of chytridiomycosis, the status of this species should be closely monitored, and *ex-situ* populations should be established. This species is protected by Mexican law under the "Special Protection" category (Pr).

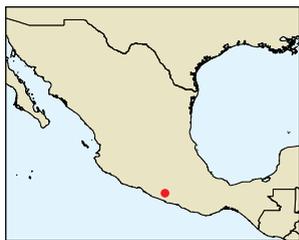
Notes on taxonomy: This species was previously included in the genus *Eleutherodactylus* (Crawford and Smith 2005).

Bibliography: Campbell, J.A. (2001), Crawford, A.J. and Smith, E.N. (2005), Lips, K.R. *et al.* (2004)

Data Providers: Georgina Santos-Barrera, Manuel Acevedo, Antonio Muñoz Alonso

CR *Craugastor guerreroensis* (Lynch, 1967)**Critically Endangered A2ace**

Order, Family: Anura, Leptodactylidae
Country Distribution: Mexico
Current Population Trend: Decreasing



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Geographic Range This species is known only from Agua del Obispo at 980m asl, central Guerrero, Mexico, although it is likely to occur a little more widely.

Population This has always been a rare species, but it appears to have gone into serious decline, and has not been recorded since 1984. Recent surveys to locate it have been unsuccessful, and it might now be extinct.

Habitat and Ecology It has been recorded inhabiting pine-oak forests, and breeds by direct development.

Major Threats Loss of original forest cover due to conversion to agricultural land, and as a result of excessive logging, has had an impact of this species. However, it has also disappeared in suitable habitat, probably due to chytridiomycosis.

Conservation Measures This species is a priority for further survey work to determine whether or not it might still survive in the wild, and surviving populations might need to form the basis for a captive-breeding programme. The range of this species does not include any protected areas, and protection of the Agua del Obispo forests is urgent since there are many threatened amphibians known to occur in this area. It is protected by Mexican law under the "Special Protection" category (Pr).

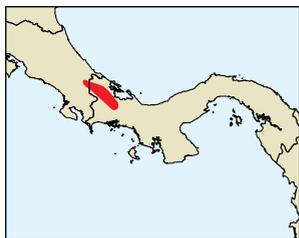
Notes on taxonomy: This species was previously included in the genus *Eleutherodactylus* (Crawford and Smith 2005).

Bibliography: Campbell, J.A., Lamar, W.W. and Hillis, D.M. (1989), Crawford, A.J. and Smith, E.N. (2005), Lips, K.R. *et al.* (2004)

Data Providers: Georgina Santos-Barrera, Luis Canseco-Márquez

EN *Craugastor gulosus* (Cope, 1875)**Endangered B1ab(iii)**

Order, Family: Anura, Leptodactylidae
Country Distribution: Costa Rica, Panama
Current Population Trend: Decreasing



Geographic Range This species can be found in the southern Cordillera de Talamanca of Costa Rica and western Panama, at elevations of 1,000-1,873m asl (Savage 2002).

Population It is generally a rare species.

Habitat and Ecology It inhabits humid premontane forest. Little is known about the species' biology, but it is presumed to breed by direct development.

Major Threats The main threat is general habitat loss primarily due to agriculture and logging.

Conservation Measures The species has been recorded from the protected areas of Parque Internacional La Amistad and the Reserva Forestal Fortuna. Further research is needed into the range and breeding ecology of this species.

Notes on taxonomy: This species was previously included in the genus *Eleutherodactylus* (Crawford and Smith 2005). The rediscovery of this species showed it to be a largely montane frog, occupying an apparently small range in

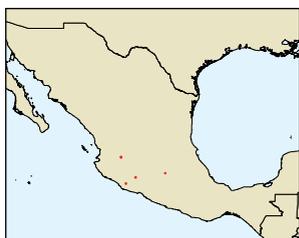
the borderland of Costa Rica and Panama (Savage and Myers 2002).

Bibliography: Crawford, A.J. and Smith, E.N. (2005), Savage, J.M. (2002), Savage, J.M. and Myers, C.W. (2002)

Data Providers: Frank Solís, Roberto Ibáñez, Gerardo Chaves, Jay Savage, César Jaramillo, Querube Fuenmayor

EN *Craugastor hobartsmithi* (Taylor, 1936)**Endangered B1ab(iii)**

Order, Family: Anura, Leptodactylidae
Country Distribution: Mexico
Current Population Trend: Decreasing



Geographic Range This Mexican endemic is known from the south-western portion of the Mexican plateau, from Nayarit and Jalisco westward into Michoacán and the adjacent eastern state of Mexico.

Population There is no information on its population status, but it is believed to be declining.

Habitat and Ecology This species occurs in lowland deciduous seasonal forest and even in lowland dry mixed forests. It breeds by direct development.

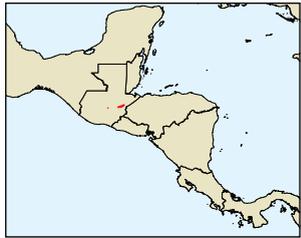
Major Threats The major threat is habitat loss and disturbance due to smallholder farming, logging, and human settlement.

Conservation Measures There is a need for improved and expanded protection of the seasonal forest areas along Pacific coastal Mexico as well as the inland mixed forests. Further survey work is also necessary to determine the current population status of this species.

Notes on taxonomy: This species was previously included in the genus *Eleutherodactylus* (Crawford and Smith 2005).

Bibliography: Crawford, A.J. and Smith, E.N. (2005), Flores-Villela, O.A., Mendoza-Quijano, F. and Gonzalez-Porter, G. (1995), Taylor, E.H. (1939)

Data Providers: Georgina Santos-Barrera, Oscar Flores-Villela

EN *Craugastor inachus* (Campbell and Savage, 2000)**Endangered B1ab(iii)****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Guatemala**Current Population Trend:** Decreasing

Geographic Range This species can be found in mid Motagua Valley and associated areas in central and eastern Guatemala and the slopes of the Salamá Basin in Baja Verapaz, at elevations of 500-1,400m asl. It is likely to occur somewhat more widely.

Population It is an uncommon species, but it is still seen regularly.

Habitat and Ecology It is restricted to narrow riparian corridors in premontane dry forest. No other member of the genus occurs in such dry areas in this part of Central America. Reproduction occurs via direct development.

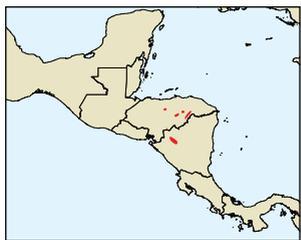
Major Threats The main threat to this species is habitat loss due to agricultural activities and extraction of wood. Some other species of the genus that are associated with high-elevation streams have undergone dramatic declines and disappearances, possibly due to chytridiomycosis, so the status of this species should be monitored carefully.

Conservation Measures It occurs outside any protected areas although the Motagua Valley has been proposed for a new national park. There is an urgent need to expand the protected areas network to include additional tracts of suitable remaining habitat in the range of this species. Further research is necessary to determine whether chytrid poses a threat.

Notes on taxonomy: This species was previously included in the genus *Eleutherodactylus* (Crawford and Smith 2005).

Bibliography: Campbell, J.A. and Savage, J.M. (2000), Crawford, A.J. and Smith, E.N. (2005)

Data Providers: Manuel Acevedo, Bruce Young

EN *Craugastor lauraster* (Savage, McCranie and Espinal, 1996)**Endangered B1ab(iii,v)****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Honduras, Nicaragua**Current Population Trend:** Decreasing

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Geographic Range This species occurs from central and eastern Honduras on the Atlantic versant to northern Nicaragua, at 40-1,200m asl.

Population It can be very common, but it is undergoing severe declines in Nicaragua at higher elevations.

Habitat and Ecology It lives on the ground of lowland moist forest and premontane wet forest, and can survive in somewhat degraded habitats providing there is shade over leaf-litter. It presumably breeds by direct development and is not dependent on water for breeding.

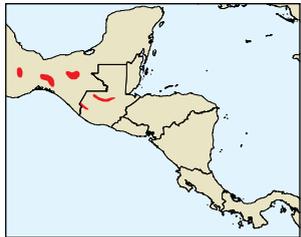
Major Threats The main threats to its habitat come from agriculture, cattle ranching, logging, forest fires, and severe dry seasons. The causes of the declines at high altitudes are not understood.

Conservation Measures It occurs in several protected areas in both countries, although improved and strengthened management of these is needed. Further research is needed to investigate the reason for this species' decline at higher elevations.

Notes on taxonomy: This species was previously included in the genus *Eleutherodactylus* (Crawford and Smith 2005).

Bibliography: Campbell, J.A. (2001), Crawford, A.J. and Smith, E.N. (2005), Köhler, G. (1998), Köhler, G. (2001), McCranie, J.R. and Wilson, L.D. (2002b), Savage, J.M., McCranie, J.R. and Espinal, M. (1996)

Data Providers: Gustavo Cruz, Larry David Wilson, Randy McCranie, Gunther Köhler

CR *Craugastor lineatus* (Brocchi, 1879)**Critically Endangered A3c****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Guatemala, Mexico**Current Population Trend:** Decreasing

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Geographic Range This species can be found on the Atlantic versant of Guerrero, Oaxaca and Chiapas, Mexico, southeast to Guatemala. It also occurs on the Pacific versant, from eastern Oaxaca through Chiapas to the south-western highlands of Guatemala, at elevations of 300-2,000m asl.

Population There are very few records of this species and it appears to be uncommon. In Chiapas, it is currently known only from a single site. Recent surveys in Guerrero and Oaxaca indicate that it has disappeared from all sites surveyed, suggesting a serious decrease.

Habitat and Ecology It can be found in lower montane evergreen forest, and it occurs and breeds by direct development near streams.

Major Threats The declines witnessed in Mexico are probably due to chytridiomycosis, since some other species of *Craugastor* that are associated with streams have undergone dramatic declines and disappearances, possibly due to chytridiomycosis. Habitat loss due to agriculture, logging, and human settlement is also a threat.

Conservation Measures This species is known to occur in Biotope del Quetzal and the Reserva de la Biosfera Bisbis Cabá. In view of the severe risk of chytridiomycosis, the status of this species should be closely monitored, and *ex-situ* populations should be established. It is protected by Mexican law under the "Special Protection" category (Pr).

Notes on taxonomy: This species was previously included in the genus *Eleutherodactylus* (Crawford and Smith 2005).

Bibliography: Crawford, A.J. and Smith, E.N. (2005), Hoogmoed, M.S. (1986), Lips, K.R. *et al.* (2004), Regos, J. and Schluter, A. (1984), Savage, J.M. (1987), Schluter, A. and Regos, J. (1981)

Data Providers: Georgina Santos-Barrera, Manuel Acevedo, Antonio Muñoz Alonso

VU *Craugastor matudai* (Taylor, 1941)**Vulnerable D2****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Guatemala, Mexico**Current Population Trend:** Stable

Geographic Range This species is known from Cerro Ovando, south-western Chiapas, Mexico, and from one location in the Pacific versant at Aldea Fraternidad, northern Guatemala. It occurs from 1,500-2,000m asl.

Population This is a rare species.

Habitat and Ecology It is a terrestrial species inhabiting pine-oak forest at moderate elevations. It breeds by direct development.

Major Threats At present, the pine-oak habitat in the only two locations where this species occurs is still intact. However, logging represents a potential threat.

Conservation Measures The range of this species does not include any protected areas, and protection of the montane forests at Cerro Ovando is needed. It is protected by Mexican law under the "Special Protection" category (Pr).

Notes on taxonomy: This species was previously included in the genus *Eleutherodactylus* (Crawford and Smith 2005).

Bibliography: Crawford, A.J. and Smith, E.N. (2005), Taylor, E.H. (1941)

Data Providers: Georgina Santos-Barrera, Luis Canseco-Márquez

CR *Craugastor megalotympanum* (Shannon and Werler, 1955)**Critically Endangered B1ab(iii)****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Mexico**Current Population Trend:** Decreasing

Geographic Range This species is known only from Sierra de Los Tuxtlas, southern Veracruz, Mexico. The type locality is recorded as 900-1,200m asl.

Population It is an uncommon species.

Habitat and Ecology The primary habitat is lowland tropical humid rainforest; it seems to live on the ground and under leaf-litter. Breeding takes place by direct development.

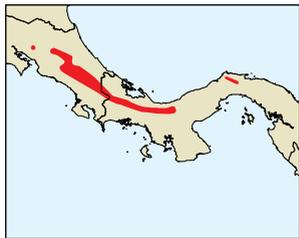
Major Threats The high rate of transformation of original forest habitat in this area is notorious, and deforestation for the cultivation of coffee, fruits and tobacco is rapidly increasing.

Conservation Measures The range of this species is wholly within Reserva de la Biósfera Sierra de Los Tuxtlas, although logging is taking place within this area. A survey to evaluate the population status of this population in Los Tuxtlas is needed, and real protection of the Sierra de Los Tuxtlas and the surrounding areas is urgent. This species is protected by Mexican law under the "Special Protection" category (Pr).

Notes on taxonomy: This species was previously included in the genus *Eleutherodactylus* (Crawford and Smith 2005).

Bibliography: Campbell, J.A., Lamar, W.W. and Hillis, D.M. (1989), Crawford, A.J. and Smith, E.N. (2005)

Data Providers: Georgina Santos-Barrera, Oscar Flores-Villela

VU *Craugastor melanostictus* (Cope, 1875)**Vulnerable B1ab(iii)****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Costa Rica, Panama**Current Population Trend:** Decreasing

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Geographic Range This species is found in the cordilleras of Costa Rica and the highlands of central Panama, at elevations of 1,150-2,700m asl (Savage 2002).

Population In Costa Rica, this species is rarely seen and there is little information on its population status. Lips (1998) reported a sharp decline at Las Tablas (Panama), but populations have persisted at Monteverde (Costa Rica) (Pounds *et al.* 1997).

Habitat and Ecology It inhabits relatively undisturbed, dense, primary humid montane forest. Breeding takes place by direct development.

Major Threats In Panama, the major threat is logging. The cause of the decline at Las Tablas has not been determined, but chytridiomycosis is probable, as it was detected in this species at this location.

Conservation Measures It has been recorded from a number of protected areas in Costa Rica (including Parque Nacional Braulio Carrillo, and Parque Internacional La Amistad) and Panama (Parque Nacional Chagres and Parque Nacional Volcán Barú).

Notes on taxonomy: This species was previously included in the genus *Eleutherodactylus* (Crawford and Smith 2005). Populations in Panama might belong to a different species.

Bibliography: Crawford, A.J. and Smith, E.N. (2005), Ibáñez, R. *et al.* (2000), Lips, K.R. (1998), Lips, K.R., Green, D.E. and Papendick, R. (2003), Lips, K.R., Reeve, J.D. and Witters, L.R. (2003), Miyamoto, M.M. and Tennant, M.R. (1984), Pounds, J.A. *et al.* (1997), Savage, J.M. (2002), Savage, J.M. and DeWeese, J.E. (1981)

Data Providers: Frank Solís, Roberto Ibáñez, Gerardo Chaves, Jay Savage, César Jaramillo, Querube Fuenmayor

CR *Craugastor merendonensis* (K. Schmidt, 1933)**Critically Endangered A2ace; B1ab(v)+2ab(v)****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Honduras**Current Population Trend:** Decreasing

Geographic Range This species is known only from Montañas del Merendon on the Sierra de Omoa, west of San Pedro Sula in the Department of Cortes, Honduras, at elevations of 150-200m asl.

Population It was formerly relatively common but is now in precipitous decline. It was not recorded in the course of visits to the known range of the species in 1996 and 1998 where the habitat remains relatively intact.

Habitat and Ecology It occurs and reproduces by direct development in leaf-litter on the ground of lowland moist forest, and is often found in the vicinity of streams.

Major Threats Since the range of this species is well protected from obvious human disturbance (the area from which it is known has been managed and protected for the last 30 years), the cause of its decline is unclear. Some other species of *Craugastor* that are associated with streams have undergone dramatic declines and disappearances, possibly due to chytridiomycosis, and so this might

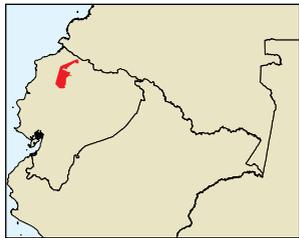
be a major threat to this species. On the other hand, this species occurs at a much lower altitude than most frog species that have been affected by such unexplained declines.

Conservation Measures Further survey work is required to determine the current population status of this species (including whether or not it even still survives in the wild), and particularly to establish the reasons for its decline.

Notes on taxonomy: This species was previously included in the genus *Eleutherodactylus* (Crawford and Smith 2005).

Bibliography: Campbell, J.A. and Savage, J.M. (2000), Crawford, A.J. and Smith, E.N. (2005), McCranie, J.R. and Wilson, L.D. (2002b), Schmidt, K.P. (1933)

Data Providers: Gustavo Cruz, Larry David Wilson

VU *Craugastor necerus* (Lynch, 1975)**Vulnerable B1ab(iii)****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Ecuador**Current Population Trend:** Decreasing

Geographic Range This species is known from more than ten localities on the lower Pacific slopes of the Andes, from the province of Cotopaxi northwards to the province of Carchi in Ecuador. It is also likely to occur in adjacent Colombia, although there are, as yet, no confirmed records. It ranges from 600-1,540m asl.

Population It is a rare species.

Habitat and Ecology An inhabitant of humid premontane forest; most individuals have been observed in the immediate vicinity of streams (Lynch and Duellman 1997). Breeding takes place by direct development.

Major Threats The major threat to this species is habitat loss and degradation, which has been particularly severe in the last few years due to agriculture (both crops and livestock) and logging; pollution due to agriculture is also a threat. It should be noted that some other species of *Craugastor* that are associated with streams have undergone dramatic declines and disappearances, possibly due to

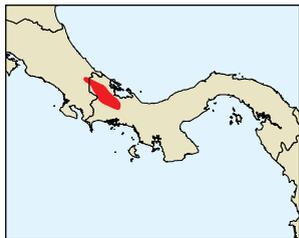
chytridiomycosis, so the status of this species should be monitored carefully.

Conservation Measures Its range overlaps slightly with Reserva Ecológica Cotacachi-Cayapas and Reserva Ecológica Los Illinizas.

Notes on taxonomy: This species was previously included in the genus *Eleutherodactylus* (Crawford and Smith 2005).

Bibliography: Crawford, A.J. and Smith, E.N. (2005), Hedges, S.B. (1989), Lynch, J.D. (1975b), Lynch, J.D. and Duellman, W.E. (1997)

Data Providers: Luis A. Coloma, Santiago Ron, Diego Cisneros-Heredia, Ana Almandáriz

EN *Craugastor obesus* (Barbour, 1928)**Endangered B1ab(iii,v)****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Costa Rica, Panama**Current Population Trend:** Decreasing

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**Geographic Range** This species occurs on the Atlantic slopes of south-eastern Costa Rica and north-western Panama at an altitude of 400-1,450m asl.**Population** It is rare in Costa Rica and is believed to have declined in the Reserva Forestal Fortuna, Chiriquí, Panama.**Habitat and Ecology** This species can be found in the spray zone on rocks, boulders, and cliff faces in the middle of moderate-sized cascading streams in lowland moist forest, premontane and lower montane wet forest and rainforest. It does not occur in modified habitats. It presumably breeds by direct development.**Major Threats** The main threat to this species is believed to be chytridiomycosis, and it has already disappeared from one site where chytrid fungus was found.**Conservation Measures** It has been recorded from Parque Internacional La Amistad (Costa Rica and Panama) and two protected areas in Panama, and subpopulations within these seem relatively secure. Further research is needed into the range and ecology of this species, as well as the impact of chytridiomycosis.**Notes on taxonomy:** This species was previously included in the genus *Eleutherodactylus* (Crawford and Smith 2005). This species was removed from synonymy of *Craugastor punctariolus* (Campbell and Savage 2000).**Bibliography:** Campbell, J.A. and Savage, J.M. (2000), Crawford, A.J. and Smith, E.N. (2005), Savage, J.M. (2002)**Data Providers:** Frank Solís, Roberto Ibáñez, Gerardo Chaves, Jay Savage, César Jaramillo, Querube Fuenmayor, Federico Bolaños**EN** *Craugastor omiltemanus* (Günther, 1901)**Endangered B1ab(iii)****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Mexico**Current Population Trend:** Decreasing**Geographic Range** This species is known only from the Sierra Madre del Sur, central Guerrero, Mexico, at altitudes of 2,200-2,600m asl.**Population** This is a relatively common species.**Habitat and Ecology** It inhabits pine, oak and pine-oak forests, and requires an abundance of leaf-litter on the ground. It breeds by direct development.**Major Threats** Habitat loss and disturbance due to smallholder farming activities, livestock and removal of wood through logging and subsistence collection, is having a negative impact on the microhabitat of this species.**Conservation Measures** A survey to determine the presence of this species in the only protected area within its range, Omiltemi Park, is required. No records have been reported recently, even when the park was under state protection. Recently, the park has been subject to human activities that jeopardize the survival of the

native fauna and flora. This species is in urgent need of habitat protection. It is protected by Mexican law under the "Special Protection" category (Pr).

Notes on taxonomy: This species was previously included in the genus *Eleutherodactylus* (Crawford and Smith 2005).**Bibliography:** Crawford, A.J. and Smith, E.N. (2005), Lynch, J.D. (2000b)**Data Providers:** Georgina Santos-Barrera, Oscar Flores-Villela**CR** *Craugastor omoaensis* (McCranie and Wilson, 1997)**Critically Endangered A2ace; B1ab(iii)****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Honduras**Current Population Trend:** Decreasing**Geographic Range** This species can be found at moderate elevations of the Sierra de Omoa west-south-west of San Pedro Sula on the Atlantic versant of north-western Honduras, at elevations of 760-1,150m asl.**Population** It is known from 24 specimens. Formerly, it was moderately common, but is now undergoing a precipitous decline. A visit to the area of the type locality in 1996 failed to turn up individuals of this or any other amphibian.**Habitat and Ecology** The species occurs in, and breeds by direct development along, streams in premontane wet forest.**Major Threats** Although habitat loss is certainly affecting this species, this does not explain the dramatic decline that has taken place. Some other species of *Craugastor* that are associated with streams have undergone dramatic declines and disappearances at higher elevations, possibly due to chytridiomycosis, and so this might be a major threat to this species.**Conservation Measures** It is not known to occur in any protected areas. It is a very high priority to conduct surveys to relocate this species and determine its current population status; in view of the risk of chytridiomycosis, surviving individuals might need to form the basis for the establishment of an *ex-situ* population.**Notes on taxonomy:** This species was previously included in the genus *Eleutherodactylus* (Crawford and Smith 2005).**Bibliography:** Crawford, A.J. and Smith, E.N. (2005), McCranie, J.R. and Wilson, L.D. (1997a)**Data Providers:** Gustavo Cruz, Larry David Wilson**VU** *Craugastor persimilis* (Barbour, 1926)**Vulnerable B1ab(iii)****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Costa Rica**Current Population Trend:** Decreasing

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**Geographic Range** This species ranges from central to south-eastern Costa Rica, on the Atlantic slopes at elevations of 39-1,200m asl.**Population** It is collected occasionally. It can experience marked population fluctuations from year to year.**Habitat and Ecology** It occurs in leaf-litter of lowland and premontane moist rainforest. It persists in moderately disturbed areas and breeds on the forest floor.**Major Threats** Habitat destruction, due to agriculture and logging, is the major threat to this species.**Conservation Measures** It is present in several protected areas, including Parque Nacional Barbilla.**Notes on taxonomy:** This species was previously included in the genus *Eleutherodactylus* (Crawford and Smith 2005). It was recently separated from *Eleutherodactylus bransfordii*.**Bibliography:** Crawford, A.J. (2003), Crawford, A.J. and Smith, E.N. (2005), Savage, J.M. (2002)**Data Providers:** Federico Bolaños, Gerardo Chaves, Jay Savage

VU *Craugastor podiciferus* (Cope, 1876)**Vulnerable B1ab(iii)**

Order, Family: Anura, Leptodactylidae
Country Distribution: Costa Rica, Panama
Current Population Trend: Decreasing



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Geographic Range This species is fairly widespread on both slopes of the cordilleras of Costa Rica and adjacent western Panama, at elevations of 1,089-2,650m asl (Savage 2002).

Population It is generally common and regularly recorded in Costa Rica (Pounds *et al.* 1997; Lips 1998), although there are indications that it has undergone declines at several sites at which it was formerly common, such as the Reserva Forestal Fortuna, Chiriquí, in Panama.

Habitat and Ecology It is a diurnal species inhabiting leaf-litter in primary humid premontane and montane forest. It presumably breeds by direct development.

Major Threats Declines of this species have been recorded in both Panama and Costa Rica. For example, in Panama a massive die-off of amphibians has been observed at the Reserva Forestal Fortuna, with chytridiomycosis suspected as the major causal factor (Lips 1999), and they are now no longer common at Las Tablas in Costa Rica where they were formerly abundant (K. Lips pers. comm.). On the other hand, museum specimens of this species collected from La Selva-Volcán Barva (now in the Parque Nacional Braulio Carrillo) in 1986 have been found infected with chytrid fungi (Puschendorf, Bolaños and Chaves 2006), yet the species appears to have persisted in this area, where strong declines have taken place amongst other species (R. Puschendorf pers. comm.).

Conservation Measures The species has been recorded from many protected areas in Costa Rica and Panama, including Parque Internacional La Amistad and Parque Nacional Braulio Carrillo. Further research is needed into the possible decline of the species at Reserva Forestal Fortuna, and the potential impacts of the chytrid pathogen on this species.

Notes on taxonomy: This species was previously included in the genus *Eleutherodactylus* (Crawford and Smith 2005). This form might represent a complex of several species.

Bibliography: Crawford, A.J. and Smith, E.N. (2005), Ibáñez, R. *et al.* (2000), Lips, K.R. (1998), Lips, K.R. (1999), Pounds, J.A. *et al.* (1997), Puschendorf, R., Bolaños, F. and Chaves, G. (2006), Savage, J.M. (2002), Schlaepfer, M.A. (1998), Schlaepfer, M.A. and Figeoia-Sandi, R. (1998), Schlaepfer, M.A. and Gavin, T.A. (2001)

Data Providers: Frank Solís, Roberto Ibáñez, Gerardo Chaves, Jay Savage, César Jaramillo, Querube Fuenmayor

CR *Craugastor polymniae* (Campbell, Lamar and Hillis, 1989)**Critically Endangered A2ace**

Order, Family: Anura, Leptodactylidae
Country Distribution: Mexico
Current Population Trend: Decreasing



Geographic Range This species is known only from Vista Hermosa town, Sierra de Juárez, north-central Oaxaca, Mexico, at about 1,500m asl.

Population This has always been a rare species, but it appears to have gone into serious decline, and has not been recorded since 1983. Recent surveys to locate it have been unsuccessful, and it might now be extinct.

Habitat and Ecology This species inhabits cloud forest; it appears to have arboreal habits and breeds by direct development.

Major Threats Although disturbance and clear cutting of montane cloud forest habitats in Sierra de Juárez (primarily for agriculture) represent a threat to this species, it has disappeared even in suitable habitat, probably due to chytridiomycosis.

Conservation Measures This species is an urgent priority for survey work in order to determine whether or not it still survives in the wild, and any surviving populations might need to be maintained in captiv-

ity if the risk of chytridiomycosis proves genuine. The range of this species does not include any protected areas, and protection and restoration of the remaining cloud forest is urgently needed in the Sierra de Juárez where no protected areas currently exist. This species is protected by Mexican law under the "Special Protection" category (Pr).

Notes on taxonomy: This species was previously included in the genus *Eleutherodactylus* (Crawford and Smith 2005).

Bibliography: Campbell, J.A., Lamar, W.W. and Hillis, D.M. (1989), Crawford, A.J. and Smith, E.N. (2005), Lips, K.R. *et al.* (2004)

Data Providers: Georgina Santos-Barrera, Gabriela Parra-Olea

CR *Craugastor pozo* (Johnson and Savage, 1995)**Critically Endangered B1ab(iii)**

Order, Family: Anura, Leptodactylidae
Country Distribution: Mexico
Current Population Trend: Decreasing



Geographic Range This species is known only from the western foothills and highlands of Chiapas, Mexico, at 760-1,100m asl, in an area bordered by Cintalapa, Berriozabal and Presa Nezuahualcoyotl.

Population This is a rare species.

Habitat and Ecology It is associated with wet forest areas, and inhabits the forest floor under leaf-litter among limestone boulders and limestone caves. It breeds by direct development.

Major Threats The primary threat to this species is reduction of original forest cover, since it occurs in an area of high human-induced disturbance, and its only known habitat covers a very small area.

Conservation Measures Currently, the species is not known to occur in any protected area, and so protection of the only highland forest where this species is found is essential to ensure its persistence.

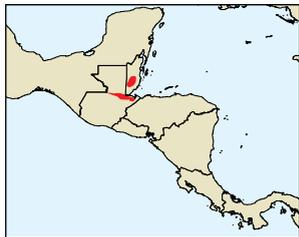
Notes on taxonomy: This species was previously included in the genus *Eleutherodactylus* (Crawford and Smith 2005).

Bibliography: Campbell, J.A. and Savage, J.M. (2000), Crawford, A.J. and Smith, E.N. (2005), Johnson, J.D. and Savage, J.M. (1995)

Data Providers: Georgina Santos-Barrera, Gabriela Parra-Olea

VU *Craugastor psephosypharus* (Campbell, Savage and Meyer, 1994)**Vulnerable B1ab(iii)**

Order, Family: Anura, Leptodactylidae
Country Distribution: Belize, Guatemala
Current Population Trend: Decreasing



Geographic Range This species is known only from central and eastern Guatemala, and adjacent southern Belize, at 150-1,170m asl. It might occur in Honduras, but has not yet been recorded.

Population It is rarely encountered, but is sometimes locally common.

Habitat and Ecology It inhabits undisturbed lowland and pre-montane moist and wet forests, and is often found far from streams. It is sometimes found in limestone outcrops and caves. It presumably breeds by direct development and is not dependent on water for breeding.

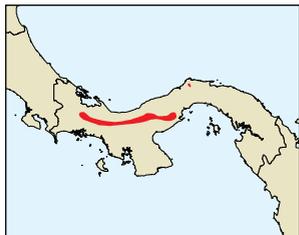
Major Threats The major threat is habitat loss and degradation due to agriculture and logging.

Conservation Measures It occurs in the Columbia River Forest Reserve, and possibly in the Bladen Nature Preserve and the Chiquipul Forest Reserve, in Belize. It has not been recorded from any protected areas in Guatemala, but might occur in Parque Nacional Río Dulce.

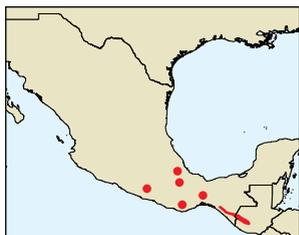
Notes on taxonomy: This species was previously included in the genus *Eleutherodactylus* (Crawford and Smith 2005).

Bibliography: Campbell, J.A. (1998), Campbell, J.A. (2001), Campbell, J.A. and Savage, J.M. (2000), Campbell, J.A., Savage, J.M. and Meyer, J.R. (1994), Crawford, A.J. and Smith, E.N. (2005), Lee, J.C. (1996), Lee, J.C. (2000)

Data Providers: Julian Lee, Paul Walker, Manuel Acevedo

EN *Craugastor punctariolus* (Peters, 1863)**Endangered B1ab(iii)****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Panama**Current Population Trend:** Decreasing

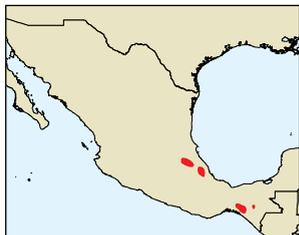
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**Geographic Range** This species is endemic to the western and central cordilleras of Panama, and is present at altitudes of between 560 and 1,000m asl.**Population** It is reported to be common where it occurs.**Habitat and Ecology** It is a semi-aquatic species associated with humid montane forest streams. It breeds by direct development, although the site of egg deposition is not known.**Major Threats** Although general habitat loss through deforestation is a recognized threat, pathogens, possibly including the chytrid fungus, are also considered to be a threat.**Conservation Measures** It has been recorded from several protected areas; further research is urgently required into the possible ongoing impact of pathogens on populations of this species.**Notes on taxonomy:** This species was previously included in the genus *Eleutherodactylus* (Crawford and Smith 2005).**Bibliography:** Campbell, J.A. and Savage, J.M. (2000), Crawford, A.J. and Smith, E.N. (2005), Ibáñez, R. *et al.* (2000)**Data Providers:** Frank Solís, Roberto Ibáñez, César Jaramillo, Querube Fuenmayor**VU** *Craugastor pygmaeus* (Taylor, 1937)**Vulnerable B1ab(iii)****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Guatemala, Mexico**Current Population Trend:** Decreasing

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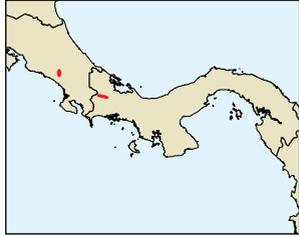
**Geographic Range** This species is known from extreme southern Michoacán and México (state) in Mexico, south and east along the Pacific slope to western Guatemala. It also occurs in Veracruz and eastern Oaxaca, Mexico, on the Atlantic slope. In Guatemala it is known from above 2,000m asl.**Population** It is a common species.**Habitat and Ecology** It occurs in a great variety of habitats, from lowland forests (tropical rainforest, tropical semi-deciduous forest) to montane pine and pine-oak forests, and cloud forests. It can survive in secondary forests, but not in open habitats. It breeds by direct development.**Major Threats** The major threat is the clearance of forest habitat for agriculture and as a result of logging, which is probably leading to the disappearance of shade, humidity and leaf-litter microhabitats on which the species depends.**Conservation Measures** This species occurs in Reserva de la Biósfera El Triunfo in Mexico.**Notes on taxonomy:** This species was previously included in the genus *Eleutherodactylus* (Crawford and Smith 2005).**Bibliography:** Crawford, A.J. and Smith, E.N. (2005), Taylor, E.H. (1939)**Data Providers:** Georgina Santos-Barrera, Luis Canseco-Márquez**CR** *Craugastor ranoides* (Cope, 1886)**Critically Endangered A2ace****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Costa Rica, Nicaragua, Panama**Current Population Trend:** Decreasing

© Robert Puschendorf

**Geographic Range** This species can be found from the lowlands and premontane slopes from eastern Nicaragua on the Atlantic slope and north-western Costa Rica on the Pacific versant to extreme western Panama (including Isla Escudo de Veraguas), exclusive of the Golfo Dulce region of south-western Costa Rica, at elevations from sea level up to 1,220m asl (Savage 2002).**Population** It was formerly widespread in Costa Rica but has not been seen in much of its range since 1986. Siteswhere it was formerly common, such as Volcán Cacao, have been searched repeatedly in the last decade without success. A small population persists in the Río Murciélago, in the Guanacaste Conservation Area, where several individuals were recorded in 1994, 1995, and 2003 (Sasa and Solórzano 1995; M. Sasa unpubl.; Puschendorf *et al.* 2005). There is nothing known about the populations in Panama, and only a few specimens are known from Nicaragua (though this might well be due to a lack of survey effort).**Habitat and Ecology** The species is associated with small streams principally in lowland and premontane wet forests, although also dry forest with perennial streams, and is often found on rocks and under boulders in the stream. The only known remaining site in Costa Rica is dry forest that has a constant flowing stream (even through the dry season) and has a water temperature higher than other sights in Costa Rica from which it has disappeared. It presumably breeds by direct development.**Major Threats** It is generally affected by the destruction of natural forests for agriculture and timber, but this does not explain its disappearance from pristine habitats. Some other species of *Craugastor* that are associated with streams have undergone dramatic declines and disappearances, possibly due to chytridiomycosis, and so this might be a threat to this species.**Conservation Measures** In view of the threat of chytridiomycosis, the status of this species, and particularly the surviving population at Río Murciélago, should be closely monitored, and *ex-situ* populations might need to be established. The species has been recorded from several protected areas in the past.**Notes on taxonomy:** This species was previously included in the genus *Eleutherodactylus* (Crawford and Smith 2005). It was removed from the synonymy of *Eleutherodactylus rugulosus* (Campbell and Savage 2000).**Bibliography:** Campbell, J.A. and Savage, J.M. (2000), Crawford, A.J. and Smith, E.N. (2005), Puschendorf, R. *et al.* (2005), Sasa, M. and Solórzano, A. (1995), Savage, J.M. (2002)**Data Providers:** Frank Solís, Roberto Ibáñez, Alan Pounds, Federico Bolaños, Gerardo Chaves, César Jaramillo, Jay Savage, Gunther Köhler**VU** *Craugastor rhodopsis* (Cope, 1867)**Vulnerable B1ab(iii)****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Mexico**Current Population Trend:** Decreasing

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**Geographic Range** This species is largely restricted to western Veracruz and adjacent Hidalgo and Puebla in Mexico between 1,200 and 2,100m asl. There is an apparently disjunct population in central and south-eastern Chiapas (and adjacent Oaxaca) (Lynch 2000b). It probably occurs more widely than current records suggest.**Population** There is no information on the population status of this species.**Habitat and Ecology** This species inhabits tropical montane forest, and it is not known if it can survive in disturbed habitats. Breeding takes place by direct development.**Major Threats** The main threat is forest loss due to logging, human settlement, and some agricultural activities.**Conservation Measures** It occurs in Reserva de la Biósfera La Sepultura.**Notes on taxonomy:** This species was previously included in the genus *Eleutherodactylus* (Crawford and Smith 2005). We follow Lynch (2000b) in separating *Eleutherodactylus loki* from *E. rhodopsis*.**Bibliography:** Crawford, A.J. and Smith, E.N. (2005), Goldberg, S.R. *et al.* (2002), Lynch, J.D. (2000b), Savage, J.M., McCranie, J.R. and Espinal, M. (1996)**Data Providers:** John Lynch, Georgina Santos Barrera

EN *Craugastor rhyacobatrachus* (Campbell and Savage, 2000)**Endangered B1ab(iii,v)****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Costa Rica, Panama**Current Population Trend:** Decreasing

Geographic Range This species can be found in premontane and lower montane southern slopes of the Cordillera Talamanca-Barú of Costa Rica and western Panama, at elevations of 950-1,800m asl (Savage 2002).

Population It is generally quite common where it occurs. However, it is believed to have declined in upland western Panama, though this requires further investigation.

Habitat and Ecology It is associated with rocks and waterfalls in streams within humid montane forest. It presumably breeds by direct development.

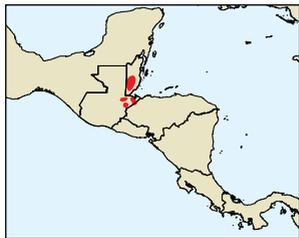
Major Threats It is generally affected by the destruction of natural forests for agriculture and timber, but this does not explain its apparent decline in pristine habitats in western Panama. Other species of the genus that are associated with streams have undergone dramatic declines and disappearances, possibly due to chytridiomycosis, and so this might be a major threat to this species.

Conservation Measures The species has been recorded from at least two parks in Panama, but there is clearly a need for additional protection of its montane forest habitat. Further research is needed into the potential impacts of the chytrid pathogen on this species.

Notes on taxonomy: This species was previously included in the genus *Eleutherodactylus* (Crawford and Smith 2005).

Bibliography: Campbell, J.A. and Savage, J.M. (2000), Crawford, A.J. and Smith, E.N. (2005), Lips, K.R. (1998), Savage, J.M. (2002)

Data Providers: Frank Solís, Roberto Ibáñez, Gerardo Chaves, Jay Savage, César Jaramillo, Querube Fuenmayor

EN *Craugastor sabrinus* (Campbell and Savage, 2000)**Endangered A2ace****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Belize, Guatemala**Current Population Trend:** Decreasing

Geographic Range This species is known from the foothills of eastern Guatemala, including the Montañas del Mico, the eastern portion of the Sierra de las Minas, and the northern portion of the Sierra de Merendón. It is also known from the Maya Mountains of Belize. It ranges from near sea level to about 900m asl.

Population Although still common in Belize, it has suffered serious population reductions since the 1990s in Guatemala, where it was formerly common.

Habitat and Ecology It inhabits lowland and premontane wet and moist forest, living in and alongside streams. It is not found in degraded forest. It breeds by direct development and the eggs are laid on land.

Major Threats Habitat loss is taking place due to agriculture, wood extraction, and human settlement. However, it is declining even in suitable habitat in Guatemala. Other species of the genus that are associated with streams have undergone dramatic declines and

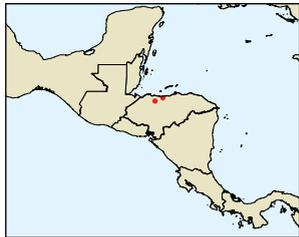
disappearances, possibly due to chytridiomycosis, so the status of this species should be monitored carefully.

Conservation Measures It occurs in several protected areas, including the Columbia River Forest Reserve and probably in the Bladen Forest Reserve in Belize; and in the Montañas del Mico Catchment Reserve and the Reserva de la Biosfera Sierra de las Minas in Guatemala. Further research is necessary to establish the reasons for the declines witnessed in this species in undisturbed habitat.

Notes on taxonomy: This species was previously included in the genus *Eleutherodactylus* (Crawford and Smith 2005).

Bibliography: Campbell, J.A. (1998), Campbell, J.A. (2001), Campbell, J.A. and Savage, J.M. (2000), Crawford, A.J. and Smith, E.N. (2005), Lee, J.C. (1996), Lee, J.C. (2000)

Data Providers: Julian Lee, Paul Walker, Manuel Acevedo

CR *Craugastor saltuarius* (McCranie and Wilson, 1997)**Critically Endangered A2ace****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Honduras**Current Population Trend:** Decreasing

Geographic Range This species is found in Cerro Bufalo in the Dept. of Atlantida and Montaña La Fortuna in the Department of Yoro, Honduras, at elevations of 1,550-1,800m asl.

Population Although always rare, the species is now in precipitous decline. Visits to the sites, both in 1995 and 1996, failed to turn up any individuals.

Habitat and Ecology It occurs in leaf-litter in lower montane wet forest. Breeding takes place by direct development.

Major Threats Habitat destruction caused by subsistence agriculture and landslides are the major threats. However, these threats do not account for its decline in pristine habitats. Rather, its disappearance is likely to be as a result of disease (such as chytridiomycosis), although it is perhaps surprising for this to be the case in such a species since it is not associated with streams.

Conservation Measures The species occurs in Parque Nacional Pico Bonito and in the Reserva de Vida Silvestre Texiguat. Further

survey work is required to determine the population status of this species and the reasons for its decline in pristine habitat. If disease is shown to be a major threat, then surviving individuals might need to form the basis for the establishment of an *ex-situ* population.

Notes on taxonomy: This species was previously included in the genus *Eleutherodactylus* (Crawford and Smith 2005).

Bibliography: Crawford, A.J. and Smith, E.N. (2005), McCranie, J.R. and Wilson, L.D. (1997a), McCranie, J.R. and Wilson, L.D. (2002b), Wilson, L.D. and McCranie, J.R. (1998)

Data Providers: Gustavo Cruz, Larry David Wilson

EN *Craugastor sartori* (Lynch, 1965)**Endangered B1ab(iii)****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Mexico**Current Population Trend:** Decreasing

Geographic Range This species is known only from Cerro Ovando and surrounding areas, in the Sierra Madre de Chiapas, Mexico, at 1,200-1,900 m asl.

Population The current population status is unknown.

Habitat and Ecology It inhabits montane cloud and mixed forests, and breeds by direct development.

Major Threats The main threat to this species is habitat loss and degradation due, in particular, to logging.

Conservation Measures The range of this species includes the Reserva de la Biosfera El Triunfo. Further survey work is necessary to evaluate the current population status of this species. This species is protected by Mexican law under the "Special Protection" category (Pr).

Notes on taxonomy: This species was previously included in the genus *Eleutherodactylus* (Crawford and Smith 2005).

Bibliography: Crawford, A.J. and Smith, E.N. (2005), Lynch, J.D. (2000b)

Data Providers: Georgina Santos-Barrera, Oscar Flores-Villela

EN *Craugastor silvicola* (Lynch, 1967)**Endangered B1ab(iii)****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Mexico**Current Population Trend:** Decreasing

Geographic Range This species is known only from Zanatepec, Isthmus of Tehuantepec, in southern Oaxaca, Mexico, at 1,450-1,600m asl.

Population It is a very rare species.

Habitat and Ecology It inhabits pine-oak forest and breeds by direct development.

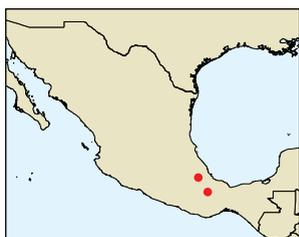
Major Threats The major threat is habitat disturbance and degradation due to logging and the creation of agricultural land. The area where this species occurs is still relatively undisturbed, due to the lack of roads and towns; however, logging is expected to increase in the next few years.

Conservation Measures The range of this species does not include any protected areas, and there is an urgent need for protection of montane pine-oak forest habitat in this part of the state of Oaxaca. This species is protected by Mexican law under the "Special Protection" category (Pr).

Notes on taxonomy: This species was previously included in the genus *Eleutherodactylus* (Crawford and Smith 2005).

Bibliography: Campbell, J.A., Lamar, W.W. and Hillis, D.M. (1989), Crawford, A.J. and Smith, E.N. (2005)

Data Providers: Georgina Santos-Barrera, Luis Canseco-Márquez

EN *Craugastor spatulatus* (Smith, 1939)**Endangered B1ab(iii,v)****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Mexico**Current Population Trend:** Decreasing

Geographic Range This species is known from Cuautlapan, central Veracruz, and Vista Hermosa in the Sierra de Juárez, north-central Oaxaca, Mexico, above 1,800m asl.

Population Formerly an abundant species (E. Smith pers. comm.), at present it is hard to find more than one or two specimens during the course of an evening's fieldwork suggesting a recent population decline.

Habitat and Ecology Individuals of this species have been found in rainforest (cloud forest). It breeds by direct development.

Major Threats The accelerated rate of transformation of the original forests in northern Oaxaca is certainly the cause of the decline of amphibian populations in the Sierra de Juárez region. Both regions where the species is found are under extreme pressure from local human populations with some parts completely transformed by agriculture and logging. However, it is not clear whether the recent decline reported in this species is solely due to habitat degradation,

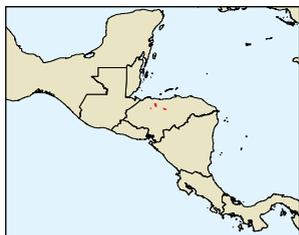
or whether some other factors might also be at play.

Conservation Measures Urgent protection of the Sierra de Juárez forests is needed. There are no federal protected areas in this region, and those that do exist are "ejidal", meaning they belong to several local owners with no legal and continuous protection. This species is protected by Mexican law under the "Special Protection" category (Pr).

Notes on taxonomy: This species was previously included in the genus *Eleutherodactylus* (Crawford and Smith 2005).

Bibliography: Campbell, J.A., Lamar, W.W. and Hillis, D.M. (1989), Crawford, A.J. and Smith, E.N. (2005)

Data Providers: Georgina Santos-Barrera, Gabriela Parra-Olea

CR *Craugastor stadelmani* (K. Schmidt, 1936)**Critically Endangered A2ace****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Honduras**Current Population Trend:** Decreasing

Geographic Range This species is known from three localities in north-central Honduras: Parque Nacional La Muralla, in north-western Olancho Department; Montañas La Fortuna, in Parque Nacional Pico Pijol, near Portillo Grande in Yoro Department; and Cerro San Francisco, in Atlántida Department. It has been recorded at 1,125-1,900m asl.

Population Although formerly relatively common, this species is now in precipitous decline. Recent surveys indicate that it has disappeared from at least two of its three known localities (last seen in Tegucigalpa in 1993), with no recent information from the third locality (Parque Nacional Pico Pijol).

Habitat and Ecology It occurs and reproduces by direct development on the ground along streams in premontane and lower montane wet forest.

Major Threats Although habitat destruction caused by subsistence agriculture is a major threat, the species' decline in pristine areas is

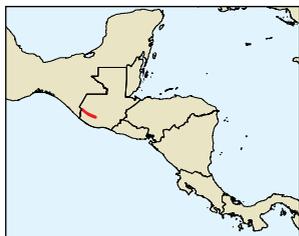
not entirely understood. However, it should be noted that many other species of *Craugastor* that are associated with streams have undergone dramatic declines and disappearances at higher elevations due to chytridiomycosis, and so this is presumably a major threat to this species.

Conservation Measures Further survey work is required to determine the population status of this species and the reasons for its decline within pristine habitats. If disease is shown to be a major threat, then surviving individuals might need to form the basis for the establishment of an *ex-situ* population. It occurs in Parque Nacional La Muralla and Parque Nacional Pico Pijol and the Reserva de Vida Silvestre Tegucigalpa.

Notes on taxonomy: This species was previously included in the genus *Eleutherodactylus* (Crawford and Smith 2005).

Bibliography: Campbell, J.A. (1994b), Crawford, A.J. and Smith, E.N. (2005), Holm, P.A. and Cruz, G.A. (1994), McCranie, J.R. and Wilson, L.D. (1997a), McCranie, J.R. and Wilson, L.D. (2002b), Schmidt, K.P. (1936b)

Data Providers: Gustavo Cruz, Larry David Wilson

EN *Craugastor stuarti* (Lynch, 1967)**Endangered B1ab(iii)****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Guatemala, Mexico**Current Population Trend:** Decreasing

Geographic Range This species can be found from San Marcos and Sololá, Guatemala, and adjacent eastern Chiapas, Mexico, at elevations of 1,300-2,200m asl.

Population There are no recent records from Chiapas and the species is uncommon in its small range in Guatemala.

Habitat and Ecology It inhabits tropical humid cloud forests. It is a terrestrial species that can also be found in small bushes. Reproduction occurs by direct development.

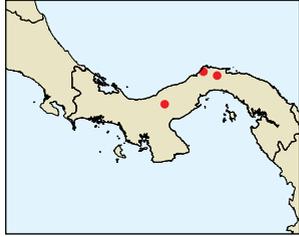
Major Threats Loss and disturbance of the original forest habitat, primarily due to agriculture and logging, is the major threat.

Conservation Measures This species is not found in any protected area, and protection of the remaining montane forest habitat is urgently needed. It is protected by Mexican law under the "Special Protection" category (Pr).

Notes on taxonomy: This species was previously included in the genus *Eleutherodactylus* (Crawford and Smith 2005).

Bibliography: Campbell, J.A., Lamar, W.W. and Hillis, D.M. (1989), Crawford, A.J. and Smith, E.N. (2005)

Data Providers: Georgina Santos-Barrera, Manuel Acevedo

CR *Craugastor tabasarae* (Savage, Hollingsworth, Lips and Jaslow, 2004)**Critically Endangered A4ae****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Panama**Current Population Trend:** Decreasing

© Karen Lips



Geographic Range This species is known from Coclé Province, west-central Panama (at 600-800 m asl in the Serranía de Tabasará above El Copé), and Colon and Panama Provinces, east-central Panama (730-910 m asl) near Cerro Bruja in the Parque Nacional G. D. Omar Torrijos H. and the Serranía Piedras-Pacora in the Parque Nacional Chagres, respectively.

Population There is little information available on population status, but it is quite rare. A population crash took place at El Copé in 2004, and it might now be extinct there.

Habitat and Ecology It has been recorded from premontane forest, and is not likely to be tolerant of significant habitat alteration. Most individuals have been found at night up to 2m above the ground on vegetation overhanging or near streams, and it is presumed to breed by direct development.

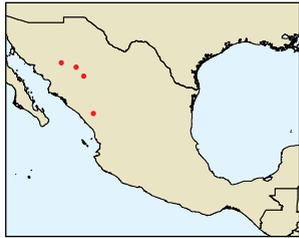
Major Threats Selective logging has occurred in the Serranía de Tabasará. It appears that chytrid fungus has caused the loss of this species from El Copé, and it is likely to be similarly lost from other sites as the fungus continues to spread (K. Lips in litt. 2005). The long-term survival of the species in the wild is, therefore, very much in doubt.

Conservation Measures Further survey work is required to determine the population status and, given the threat of chytridiomycosis, some surviving individuals might need to form the basis for the establishment of an *ex-situ* captive breeding programme. This species is known from two national parks: G. D. Omar Torrijos H. and Chagres.

Notes on taxonomy: This species was previously included in the genus *Eleutherodactylus* (Crawford and Smith 2005).

Bibliography: Crawford, A.J. and Smith, E.N. (2005), Savage, J.M. *et al.* (2004)

Data Providers: Roberto Ibanez, Karen Lips

VU *Craugastor tarahumaraensis* (Taylor, 1940)**Vulnerable B1ab(iii)****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Mexico**Current Population Trend:** Decreasing

Geographic Range This species is known from eastern Sonora and western Chihuahua (Tarahumara mountains), to Jalisco, Mexico, in the Sierra Madre Occidental, at elevations of around 2,400m asl. It probably occurs more widely than current records suggest.

Population This is a rare species.

Habitat and Ecology It inhabits pine forest and lives under bark and leaves on the ground. Breeding is by direct development.

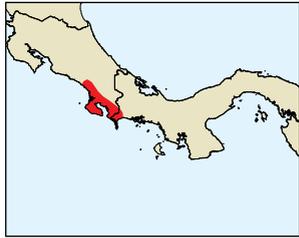
Major Threats The main causes of habitat loss and disturbance in the Tarahumara forests are logging and agriculture (both for crops and livestock).

Conservation Measures The range of this species does not include any protected areas, and urgent protection and restoration of the original native forests in the Tarahumara Mountains is necessary. This species is protected by Mexican law under the "Special Protection" category (Pr).

Notes on taxonomy: This species was previously included in the genus *Eleutherodactylus* (Crawford and Smith 2005).

Bibliography: Crawford, A.J. and Smith, E.N. (2005), Taylor, E.H. (1940)

Data Providers: Georgina Santos-Barra, Luis Canseco-Márquez

VU *Craugastor taurus* (Taylor, 1958)**Vulnerable B1ab(iii)****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Costa Rica, Panama**Current Population Trend:** Decreasing

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Geographic Range This species is known from south-western Costa Rica and extreme south-western Panama, at elevations of 25-525m asl (Savage 2002).

Population It is a common species.

Habitat and Ecology A nocturnal species associated with rocky areas of streams in humid lowland forest. It breeds via direct development.

Major Threats Outside protected areas, the main threat is habitat loss due to logging. A number of other species of the genus *Craugastor* have suffered serious recent declines, perhaps due to chytridiomycosis; as this species occurs at lower elevations than some of these affected congeners, it might be at lower risk of infection.

Conservation Measures Within Costa Rica this species has been recorded from Parque Nacional Corcovado and the Reserva Biológica el Naranjal; it is not recorded from any protected areas in Panama. Close population monitoring is required given the potential threat of chytridiomycosis.

Notes on taxonomy: This species was previously included in the genus *Eleutherodactylus* (Crawford and Smith 2005).

Bibliography: Campbell, J.A. and Savage, J.M. (2000), Crawford, A.J. and Smith, E.N. (2005), Ibáñez, R. *et al.* (2000), Savage, J.M. (2002)

Data Providers: Frank Solís, Roberto Ibáñez, Gerardo Chaves, Jay Savage, César Jaramillo, Querube Fuenmayor

CR *Craugastor trachydermus* (Campbell, 1994)**Critically Endangered A3ce****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Guatemala**Current Population Trend:** Decreasing

Geographic Range This species is known only from the type locality in the Sierra de Santa Cruz, Izabal, Guatemala, at 900m asl. Recent specimens collected 10km from the type locality might belong to this species.

Population There is no information on population status, but congeners inhabiting similar habitats and elevations have declined significantly.

Habitat and Ecology It is known to inhabit old-growth premontane wet forest, and is unlikely to be able to adapt to degraded habitats. Individuals have been seen at night along streams. They presumably breed by direct development and are not dependent on water for breeding.

Major Threats Habitat destruction is taking place due to recent human settlement, as well as agricultural encroachment and wood extraction. Some other species of *Craugastor* that are associated with streams have undergone dramatic declines and disappearances,

possibly due to chytridiomycosis, so the status of this species should be monitored carefully.

Conservation Measures There are no protected areas near where this species has been found, but one has been proposed for the Sierra de Danta Cruz. Given the likely threat of chytridiomycosis, recommended conservation measures likely should include the establishment of a captive-breeding programme.

Notes on taxonomy: This species was previously included in the genus *Eleutherodactylus* (Crawford and Smith 2005).

Bibliography: Campbell, J.A. (1994b), Campbell, J.A. (2001), Crawford, A.J. and Smith, E.N. (2005)

Data Providers: Manuel Acevedo, Eric Smith

EN *Craugastor uno* (Savage, 1984)**Endangered B1ab(iii)****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Mexico**Current Population Trend:** Decreasing

© Tim Burkhardt



Geographic Range This species is known from Puerto del Gallo, north-central Guerrero, and the Sierra del Sur de Oaxaca, Mexico. The recent record from Oaxaca is probably in error and is currently under taxonomic revision. The type locality in Guerrero is at 2,034m asl.

Population It is a rare species.

Habitat and Ecology It inhabits pine-oak and montane cloud forest remnants, and breeds by direct development.

Major Threats The main threat to this species is deforestation due to logging and the cultivation of crops.

Conservation Measures The range of this species does not include any protected areas, and protection of the fragments of cloud forest and pine-oak forests that still remain in the Guerrero area is urgently needed. This species is protected by Mexican law under the "Special Protection" category (Pr).

Notes on taxonomy: This species was previously included in the genus *Eleutherodactylus* (Crawford and Smith 2005).

Bibliography: Crawford, A.J. and Smith, E.N. (2005), Savage, J.M. (1984), Smith, H. and Chiszar, D. (2000)

Data Providers: Georgina Santos-Barrera, Luis Canseco-Márquez

VU *Craugastor xucanebi* (Stuart, 1941)**Vulnerable B1ab(iii)****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Guatemala**Current Population Trend:** Decreasing

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Geographic Range This species occurs in the central highlands of Guatemala, including the Sierra de Los Cuchumatanes, the Sierra de Xucaneb, and the Sierra de las Minas. It lives at 600-1,300m asl.

Population It is an uncommon species.

Habitat and Ecology It lives in cloud forest, including slightly degraded forest, and is usually found on bushes and undergrowth. Breeding takes place by direct development, and it is not dependent on water for breeding.

Major Threats The major threat is habitat loss due to agricultural encroachment, extraction of wood, and human settlement.

Conservation Measures It occurs in Parque Nacional Sierra de las Minas, Biotopo del Quetzal, and the proposed Parque Nacional Cuchumatanes.

Notes on taxonomy: This species was previously included in the genus *Eleutherodactylus* (Crawford and Smith 2005).

Bibliography: Campbell, J.A. (2001), Crawford, A.J. and Smith, E.N. (2005), Stuart, L.C. (1941)

Data Providers: Manuel Acevedo, Eric Smith

EN *Cryptobatrachus boulengeri* Ruthven, 1916**Endangered B1ab(iii)****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Colombia**Current Population Trend:** Decreasing

© Taran Grant



Geographic Range This species is known from the northern slopes of the Sierra Nevada de Santa Marta, in the department of Magdalena, in northern Colombia, where it has been recorded from 1,230-2,700m asl.

Population It is a common species.

Habitat and Ecology It is found on rocks within fast-flowing streams near waterfalls in montane forest. The female puts her eggs on her back and the young develop directly.

Major Threats Agriculture, as well as logging and infrastructure development for human settlement, are major threats to the species' habitat. In particular, deforestation around streams is a major threat.

Conservation Measures Its range includes Parque Nacional Natural Sierra Nevada de Santa Marta. ProAves, a Colombian NGO, in partnership with international conservation NGOs, has recently purchased an additional 1,560 acres of land to the north-west of the park, thereby expanding the current area under protection.

Notes on taxonomy: This genus has recently been moved from the family Hylidae (Faivovich *et al.* 2005).

Bibliography: Cochran, D.M. and Goin, C.J. (1970), de Perez, G.R., Ruiz-Carranza, P.M. and Ramirez-Pinilla, M.P. (1992), Faivovich, J. *et al.* (2005), Ramirez-Pinilla, M.P. and Jerez, A. (2000), Ruiz-Carranza, P.M., Ardila-Robayo, M.C. and Lynch, J.D. (1996), Ruthven, A.G. (1922)

Data Providers: Martha Patricia Ramirez Pinilla, Mariela Osorno-Muñoz, Jose Vicente Rueda, Adolfo Amézquita, María Cristina Ardila-Robayo

VU *Cryptobatrachus fuhrmanni* (Peracca, 1914)**Vulnerable B1ab(iii)****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Colombia**Current Population Trend:** Decreasing

© Conservación Internacional-Colombia



Geographic Range This species is known from the western flank of the central Andes, in south Antioquia and Caldas departments, the north and south-eastern flank of the central Andes (in Antioquia and southern Tolima departments), and the western slope of the eastern Andes, in Santander and Cundinamarca departments, in Colombia. It has been recorded from 900-2,000m asl.

Population It is a common species.

Habitat and Ecology It is found on rocks in fast-flowing mountain streams in transition and montane forest. The eggs are carried on the back of the female, and the young develop directly.

Major Threats Major threats to the species' habitat include agriculture (both crops and livestock) and logging; agricultural pollution is also a threat.

Conservation Measures Its range includes Reserva Regional Bosque de Florencia in Caldas department.

Notes on taxonomy: This genus has recently been removed from the family Hylidae (Faivovich *et al.* 2005).

Bibliography: de Perez, G.R., Ruiz-Carranza, P.M. and Ramirez-Pinilla, M.P. (1992), Faivovich, J. *et al.* (2005), Ramirez-Pinilla, M.P. and Jerez, A. (2000), Ruiz-Carranza, P.M., Ardila-Robayo, M.C. and Lynch, J.D. (1996)

Data Providers: Martha Patricia Ramirez Pinilla, Mariela Osorno-Muñoz, Jose Vicente Rueda, Adolfo Amézquita, María Cristina Ardila-Robayo

CR *Cryptobatrachus nicefori* Cochran and Goin, 1970

Critically Endangered B1ab(iii)+2ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Colombia
Current Population Trend: Decreasing



Geographic Range This species is known only from the type locality: La Salina, Boyacá Department, Colombia, at 1,450m asl.

Population There is no information on the population status of this species; it is known only from the single type specimen. Surveys in the region of the type locality have not produced any individuals.

Habitat and Ecology There is no information on the habitat and ecology of this species. However, like other members of its genus, it is probably associated with streams and waterfalls in montane forest. The eggs are carried on the back of the female, where they develop directly without a larval stage.

Major Threats The region where this species occurs has been severely affected by mining for salt production, and all possible suitable remaining habitat for this taxon has been destroyed at the type locality.

Conservation Measures Additional survey work is urgently required to determine whether or not it still survives in the wild,

although further taxonomic research is also needed to ascertain whether or not it is a valid species or not.

Notes on taxonomy: Many researchers doubt the validity of this species. The single specimen might belong in the genus *Hyla*. This genus has recently been moved from the family Hylidae (Faivovich *et al.* 2005).

Bibliography: Cochran, D.M. and Goin, C.J. (1970), Faivovich, J. *et al.* (2005), Ruiz-Carranza, P.M., Ardila-Robayo, M.C. and Lynch, J.D. (1996)

Data Providers: María Cristina Ardila-Robayo, Jose Vicente Rueda

VU *Cycloramphus acangatan* Verdade and Rodrigues, 2003

Vulnerable B1ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Brazil
Current Population Trend: Decreasing



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Geographic Range This species is known from Cotia, Ibiúna, Jquitiba, Piedade, Pilar do Sul, Ribeirão Grande, and São Bernardo do Campo Municipalities, Reserva Biológica de Paranapiacaba, Santo André municipality, and Parque Estadual Intervales, in São Paulo State, south-east Brazil. It is likely to occur throughout the Serra de Paranapiacaba.

Population This species is common in suitable habitat, being the second most abundantly collected species in Reserva Biológica do Morro Grande (Dixo and Verdade 2006).

Habitat and Ecology This species is found in Atlantic Forest remnants. Individuals are usually found on the forest floor, far from water bodies. Breeding takes place by larval development, with terrestrial larvae. It seems to prefer pristine areas, but is also present in forest fragments (Dixo and Verdade 2006).

Major Threats The Atlantic Forest has been subject to substantial deforestation and fragmentation due to historical logging and ongoing large-scale clearance for cattle pasture, and crops such as sugar cane, coffee, and exotic trees, as well as for smallholder agriculture.

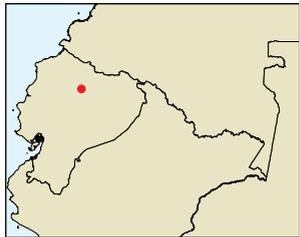
Conservation Measures It is known from Parque Estadual Intervales and Reservas Biológica de Paranapiacaba and Morro Grande.

Bibliography: Dixo, M. and Verdade, V.K. (2006), Verdade, V.K. and Rodrigues, M.T. (2003)

Data Providers: Vanessa Verdade

EN *Eleutherodactylus acerus* Lynch and Duellman, 1980

Endangered B1ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Ecuador
Current Population Trend: Decreasing



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Geographic Range This species is known only from the type locality and its vicinity between Papallacta and Cuyuja in Napo Province, Ecuador, at 2,660-2,750m asl. It probably occurs elsewhere, though it is unlikely to be a widespread species.

Population There is no recent information on the population status of this species.

Habitat and Ecology It occurs in upper montane cloud forest, and presumably breeds by direct development. There is no information on its adaptability to disturbed habitats.

Major Threats The major threats are likely to be deforestation due to agricultural development, creation of plantations, logging, and human settlement.

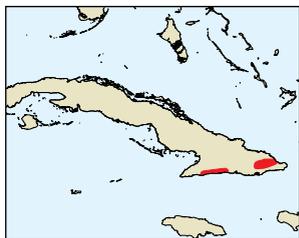
Conservation Measures It is not known to occur in any protected areas, and habitat protection is urgently needed.

Bibliography: Lynch, J.D. and Duellman, W.E. (1980), Lynch, J.D. and Duellman, W.E. (1997)

Data Providers: John Lynch, Luis A. Coloma, Santiago Ron

EN *Eleutherodactylus acmonis* Schwartz, 1960

Endangered B1ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Cuba
Current Population Trend: Decreasing



Geographic Range This species occurs in Guantanamo Province, Cuba, with an altitudinal range of 30-1,150m asl.

Population It is uncommon even in suitable habitat.

Habitat and Ecology It is found in mesic hardwood forests on the ground and in rock crevices. Eggs are laid on the ground and it breeds by direct development.

Major Threats It is threatened by habitat degradation and deforestation due to agriculture, subsistence farming, charcoaling, and tourism (both because of infrastructure development and the impact from tourists).

Conservation Measures It occurs in several protected areas, although these are in need of improved and strengthened management.

Bibliography: Centro Nacional de Areas Protegidas (CNAP) (2002), Hedges, S.B. (1993), Hedges, S.B. (1999), Hedges, S.B. (2001), Henderson, R.W. and Powell, R. (1999), Henderson, R.W. and Powell, R. (2001), Schwartz, A. (1960a), Schwartz, A. and Henderson, R.W. (1991)

Data Providers: Blair Hedges, Luis Diaz

EN *Eleutherodactylus actinolaimus* Lynch and Rueda-Almonacid, 1998**Endangered B1ab(iii)****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Colombia**Current Population Trend:** Decreasing

Geographic Range This species is known only from the vicinity of the type locality, El Estadero, in Caldas Department, Colombia, from 2,000m asl.

Population It is not thought to be a rare species, but it is a difficult and dangerous area in which to conduct survey work.

Habitat and Ecology It is an inhabitant of the understorey of very wet primary forest, and it breeds by direct development with eggs laid on the ground. It has not been recorded outside primary forest, suggesting that it is very sensitive to habitat disturbance.

Major Threats The main threat is habitat loss and destruction due to logging, agriculture and the planting of illegal crops.

Conservation Measures The range of the species is not within any protected area, and there is an urgent need for the establishment of a protected area to safeguard the primary forest remaining at the type locality. Further survey work is needed to determine the population status of this species, and to determine if it occurs outside the vicinity of the type locality.

Bibliography: Lynch, J.D. and Rueda-Almonacid, J.V. (1998a), Lynch, J.D. and Rueda-Almonacid, J.V. (1998b)

Data Providers: John Lynch, Fernando Castro

VU *Eleutherodactylus actites* Lynch, 1979**Vulnerable D2****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Ecuador**Current Population Trend:** Stable

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Geographic Range This species is known only from the vicinity of Pilalo on the Pacific slope of the Cordillera Occidental in central Ecuador, at 760-2,486m asl. It is not likely to occur anywhere else.

Population It is extremely common in its tiny area of distribution.

Habitat and Ecology It inhabits a region of cool cloud forest, but it is rarely observed within the forest, and is more often seen in exceedingly moist microhabitats in cleared areas near forest. It presumably breeds by direct development.

Major Threats Ongoing habitat destruction and degradation might impact this species, though it seems to adapt relatively well to degraded areas. However, its restricted range means that it might not be able to withstand extremely severe habitat alteration that leads to a drying out of its moist microhabitats.

Conservation Measures It is not known from any protected areas, but might occur in the Reserva Ecológica Los Illinizas. This species is in need of close population monitoring given its very restricted range.

Bibliography: Lynch, J.D. (1979a), Lynch, J.D. and Duellman, W.E. (1997)

Data Providers: John Lynch, Luis A. Coloma, Santiago Ron

EN *Eleutherodactylus acutirostris* Lynch, 1984**Endangered B1ab(iii,v)****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Colombia**Current Population Trend:** Decreasing

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Geographic Range This species is known only from a tiny area on the western slopes of the Cordillera Oriental of the Colombian Andes, near Virolín, in the department of Santander, Colombia, at 1,740-2,400m asl.

Population It is a very uncommon species that has declined dramatically since it was first discovered. In 2001, only two individuals were recorded in the entire year.

Habitat and Ecology It occurs on vegetation in the undergrowth of cloud forests, and can only be found in old-growth forest. It reproduces by direct development.

Major Threats The major threat to the species is habitat loss and degradation due to agriculture and livestock ranching.

Conservation Measures It occurs in the Santuario de Fauna y Flora Guanentá Alto Río Fonce and the Cachalú private reserve.

Bibliography: Lynch, J.D. (1984b), Ruiz-Carranza, P.M., Ardila-Robayo, M.C. and Lynch, J.D. (1996)

Data Providers: Martha Patricia Ramírez Pinilla, Jose Vicente Rueda

EN *Eleutherodactylus adelus* Diaz, Cadiz and Hedges, 2003**Endangered B1ab(iii)****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Cuba**Current Population Trend:** Decreasing

Geographic Range This species is currently known only from the type locality: Loma del Espejo, Alturas de Pizarras del Sur, Sabanas Llanas, Pinar del Río, in western Cuba. It was collected at 130m asl.

Population It is moderately common but is a very cryptic species.

Habitat and Ecology It occurs in open, secondary pine forest, with a herbaceous vegetation layer primarily comprising *Lycopodiella* sp., ferns (*Pteris* sp.), and grass (*Eleocharis* sp.). The soil is acidic and is derived from sandstone. It is found on the ground under leaf-litter and other cover. It has not been recorded outside forest habitat. Eggs are laid on the ground, and it breeds by direct development.

Major Threats The major threat to this species is habitat loss due to fires and clear-cut logging of the forest.

Conservation Measures Its range includes a forest reserve, but there is no management of this area for conservation. There is an urgent need for effective and expanded protection of the pine forest habitat of this species.

Bibliography: Díaz, L.M., Cadiz, A. and Hedges, S.B. (2003)

Data Providers: Blair Hedges, Luis Diaz

VU *Eleutherodactylus affinis* (Werner, 1899)**Vulnerable D2**

Order, Family: Anura, Leptodactylidae
Country Distribution: Colombia
Current Population Trend: Stable



© John D. Lynch



Geographic Range This species' geographic range is from the Paramos de Chingaza, Guerrero, and Sumapaz, Cundinamarca Department, Colombia. Its altitudinal range is 2,600-3,300m asl.

Population It was recorded as abundant in appropriate habitat in 2001.

Habitat and Ecology It occurs in low shrubs in páramo habitat, and is able to tolerate some habitat disturbance. It breeds by direct development.

Major Threats Habitat loss caused by fires and cattle ranching is a major threat.

Conservation Measures It occurs in Parque Nacional Natural Chingaza and Parque Nacional Natural Sumapaz.

Bibliography: Acosta-Galvis, A.R. (2000), Cochran, D.M. and Goin, C.J. (1970), Duellman, W.E. (1972), Lynch, J.D. and Duellman, W.E. (1997), Lynch, J.D., Ruiz-Carranza, P.M. and Ardila-Robayo, M.C. (1997), Ruiz-Carranza, P.M., Ardila-Robayo, M.C. and Lynch, J.D. (1996)

Data Providers: Fernando Castro, Maria Isabel Herrera, Mariela Osorno-Muñoz, Jose Vicente Rueda

CR *Eleutherodactylus albericoi* Lynch and Ruíz-Carranza, 1996**Critically Endangered B1ab(iii)+2ab(iii)**

Order, Family: Anura, Leptodactylidae
Country Distribution: Colombia
Current Population Trend: Decreasing



Geographic Range This species is known from only one stream in Alta de Oso, on the western flank of the Cordillera Occidental, in Chocó department, Colombia, at 950m asl.

Population It has only been collected once and was observed to be uncommon. There have been numerous surveys of the type locality and surrounding areas since its original discovery, but the species has not been rediscovered.

Habitat and Ecology This species occurs next to waterfalls and in channelled crevices, or on vegetation on the sides of the waterfalls. It breeds by direct development.

Major Threats Habitat loss and degradation caused by subsistence wood collecting, agriculture (illegal crops), as well as pollution from the spraying of illegal crops, are all potential threats. Other species of *Eleutherodactylus* that are associated with streams have undergone dramatic declines and disappearances, possibly due to chytridiomycosis, so the status of this species should be monitored carefully.

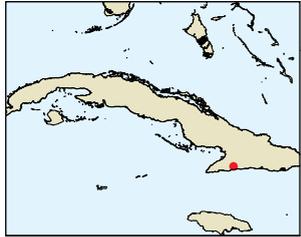
Conservation Measures The only known locality is not within a protected area. Further survey work is needed to confirm the persistence of the species at the type locality, and any surviving individuals might need to form the basis for the establishment of an *ex-situ* population.

Bibliography: Acosta-Galvis, A.R. (2000), Lynch, J.D. (1998b), Lynch, J.D. and Ruiz-Carranza, P.M. (1996b), Lynch, J.D., Ruiz-Carranza, P.M. and Ardila-Robayo, M.C. (1997), Ruiz-Carranza, P.M., Ardila-Robayo, M.C. and Lynch, J.D. (1996), Ruiz-Carranza, P.M., Lynch, J.D. and Ardila-Robayo, M.C. (1997)

Data Providers: Fernando Castro, Maria Isabel Herrera, John Lynch

CR *Eleutherodactylus albipes* Barbour and Shreve, 1937**Critically Endangered B1ab(iii)**

Order, Family: Anura, Leptodactylidae
Country Distribution: Cuba
Current Population Trend: Decreasing



© S. Blair Hedges, Penn State



Geographic Range This species occurs on Turquino Peak, Sierra Maestra, in Cuba, at 1,700-1,974m asl.

Population It is an uncommon species.

Habitat and Ecology It occurs in high-elevation closed-canopy moist forest, and has not been recorded from disturbed forest. Eggs are laid on the ground, and it breeds by direct development.

Major Threats Severe habitat destruction is taking place as a result of clear-cutting, charcoaling, agricultural expansion, disturbance from touristic activities, and infrastructure development for human settlement.

Conservation Measures Although its range is wholly within Parque Nacional Turquino and Parque Nacional la Bayamesa, these protected areas are in need of improved management.

Bibliography: Centro Nacional de Areas Protegidas (CNAP) (2002), Hedges, S.B. (1993), Hedges, S.B. (1999), Hedges, S.B. (2001), Henderson, R.W. and Powell, R. (1999), Henderson, R.W. and Powell, R. (2001), Schwartz, A. and Henderson, R.W. (1991)

Data Providers: Blair Hedges, Luis Díaz

EN *Eleutherodactylus alcoae* Schwartz, 1971**Endangered B1ab(iii)**

Order, Family: Anura, Leptodactylidae
Country Distribution: Dominican Republic, Haiti
Current Population Trend: Decreasing



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Geographic Range This species occurs on the Peninsula de Barahona, in Hispaniola, from sea level up to 600m asl.

Population It is a very common species in suitable habitat.

Habitat and Ecology It is found in dry scrub forest, and retreats by day into caves and rock crevices. Eggs are laid on the ground, and it breeds by direct development.

Major Threats The main threat is habitat loss from charcoaling and infrastructure development for human settlement. There is also a cement mine within the range of the species.

Conservation Measures It occurs in Parque Nacional Jaragua, but this park is not well managed and significant habitat destruction is ongoing within the park's limits; this protected area is in need of improved and strengthened management for biodiversity conservation. The species is also present in the Reserva Científica Via Panamámica Acetitillar.

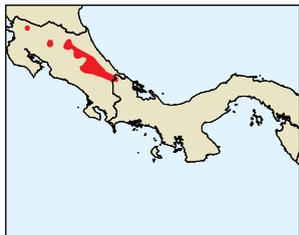
Bibliography: Hedges, S.B. (1993), Hedges, S.B. (1999), Hedges, S.B. (2001), Henderson, R.W. and Powell, R. (1999), Henderson, R.W. and Powell, R. (2001), Schwartz, A. (1971), Schwartz, A. (1977a), Schwartz, A. and Henderson, R.W. (1991)

Data Providers: Blair Hedges, Sixto Inchaustegui, Richard Thomas, Robert Powell

VU *Eleutherodactylus altae* Dunn, 1942

Vulnerable B1ab(iii)

Order, Family: Anura, Leptodactylidae
Country Distribution: Costa Rica, Panama
Current Population Trend: Decreasing



© Andrew Crawford



Geographic Range This species occurs on the Atlantic slope of northern and central Costa Rica, south to extreme north-western Panama. Its altitudinal range is 60-1,245m asl (Savage 2002).

Population This species is rarely seen and continues to appear occasionally on censuses at the San Ramon Reserve and at Monteverde, Costa Rica. It has always been a rare species for which there is little information on population trends.

Habitat and Ecology This species is found in lowland and premontane wet forest and rainforest areas. It has been found active on low vegetation at night, and in bromeliads and leaf-litter during the day (Savage 2002). Breeding takes place by direct development, with the eggs possibly deposited on vegetation. It does not adapt well to modified habitats.

Major Threats The major threat to this species is habitat loss due to agriculture and logging.

Conservation Measures The species has been recorded from many protected areas including the San Ramon, Monteverde, and Braulio Carrillo protected areas of Costa Rica, and Parque Internacional La Amistad (Costa Rica and Panama).

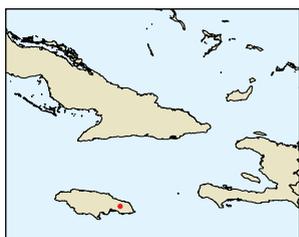
Bibliography: Savage, J.M. (2002)

Data Providers: Alan Pounds, Federico Bolaños, Frank Solís, Roberto Ibáñez, Gerardo Chaves, Jay Savage, César Jaramillo, Querube Fuenmayor

CR *Eleutherodactylus alticola* Lynn, 1937

Critically Endangered B1ab(iii)

Order, Family: Anura, Leptodactylidae
Country Distribution: Jamaica
Current Population Trend: Decreasing



© S. Blair Hedges, Penn State



Geographic Range This species has a very small range in the Blue Mountain Peak, Jamaica, at 1,650-2,250m asl.

Population It was once a common species within its restricted range. However, it was last collected in the 1980s, and there have been no surveys of the area since then.

Habitat and Ecology It is a terrestrial species, found hiding under rocks in closed-canopy forest, and is not tolerant of habitat disturbance. Eggs are laid on the ground and it breeds by direct development.

Major Threats Although this species occurs in the Blue and John Crow Mountain National Park, the primary threat remains habitat destruction (even within the National Park where there are coffee plantations). Disturbance as a result of touristic activities is also a threat, since visitors to the park have a marked influence on the habitat and leave a great deal of litter behind.

Conservation Measures Recommended conservation measures include improved management of the existing protected area and habitat maintenance within the national park.

Bibliography: Hedges, S.B. (1993), Hedges, S.B. (1999), Hedges, S.B. (2001), Henderson, R.W. and Powell, R. (1999), Henderson, R.W. and Powell, R. (2001), Schwartz, A. and Henderson, R.W. (1991)

Data Providers: Blair Hedges, Susan Koenig, Byron Wilson

CR *Eleutherodactylus amadeus* Hedges, Thomas and Franz, 1987

Critically Endangered A3c

Order, Family: Anura, Leptodactylidae
Country Distribution: Haiti
Current Population Trend: Decreasing



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Geographic Range This species has a small range in the Massif de la Hotte, Haiti, where it has been recorded from 1,000-2,340m asl.

Population It is a very common species within its restricted range.

Habitat and Ecology It is found in closed-canopy forest under rocks and logs in the daytime, and calls in the early evening from low herbaceous vegetation. It has been recorded from disturbed forest, but only in very recently disturbed forest suggesting that it might only be hanging on and not persisting in this habitat. Eggs are laid on the ground, and it breeds by direct development.

Major Threats Severe habitat destruction is taking place in its range, primarily due to logging by local people (charcoaling) and slash-and-burn agriculture.

Conservation Measures The species occurs in the Parc National Macaya, but there is no management of this area for conservation, and the habitat continues to be destroyed. Urgent site-based action is required in the Massif de la Hotte to conserve the remaining habitat in the area, to ensure the persistence of this species, as well as other threatened amphibians known only from this area.

Bibliography: Hedges, S.B. (1993), Hedges, S.B. (1999), Hedges, S.B. (2001), Hedges, S.B. and Powell, R. (1998a), Hedges, S.B., Thomas, R. and Franz, R. (1987), Henderson, R.W. and Powell, R. (1999), Henderson, R.W. and Powell, R. (2001), Schwartz, A. and Henderson, R.W. (1991)

Data Providers: Blair Hedges, Richard Thomas, Robert Powell

EN *Eleutherodactylus amplinympha* Kaiser, Green and Schmidt, 1994

Endangered B1ab(iii)

Order, Family: Anura, Leptodactylidae
Country Distribution: Dominica
Current Population Trend: Decreasing



© Alejandro Sanchez



Geographic Range This species has a small range in the interior of Dominica, where it has been recorded from 300-1,200m asl.

Population It is generally abundant, and fills the ecological niche occupied by *Eleutherodactylus martinicensis* at lower elevations.

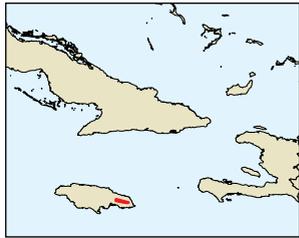
Habitat and Ecology Although a habitat generalist, it is an arboreal species with a preference for higher elevation rainforests, where the forest becomes a little more open. The eggs develop directly without a larval stage. It has been found in disturbed areas, such as along access roads created to support the hydroelectric project in Parque Nacional Morne Trois Pitons.

Major Threats On Dominica, the montane forests are largely inaccessible and secure due to the rugged topography of the area. However, there is some degradation taking place in the south of the island due to small-scale farming and selective logging.

Conservation Measures This species occurs in several protected areas, but improved protection of habitat at lower elevations, particularly in the south, is needed.

Bibliography: Hedges, S.B. (1999), Hedges, S.B. (2001), Kaiser, H. and Henderson, R.W. (1994), Kaiser, H., Green, D.M. and Schmid, M. (1994)

Data Providers: Blair Hedges, Robert Powell

EN *Eleutherodactylus andrewsi* Lynn, 1937**Endangered B1ab(iii)****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Jamaica**Current Population Trend:** Decreasing**Geographic Range** This species occurs in the Blue and John Crow Mountains, Jamaica, at an altitude of 545-1,970m asl.**Population** It is common in old-growth forests.**Habitat and Ecology** It is found in deep woods on streamside rocks and among ground litter; the males call from concealed terrestrial sites. It can only tolerate very temporary habitat disturbance. It breeds by direct development and the eggs are laid on the ground.**Major Threats** The main threat to the species is habitat loss and destruction, primarily due to smallholder farming activities, the removal of woody vegetation, and the impact of tourist activities.**Conservation Measures** It occurs in the Blue and John Crow Mountains National Park, although coffee plantations have been expanding within the park's limits. Improved management of this important protected area is needed.**Bibliography:** Hedges, S.B. (1993), Hedges, S.B. (1999), Hedges, S.B. (2001), Henderson, R.W. and Powell, R. (1999), Henderson, R.W. and Powell, R. (2001),

Schwartz, A. and Henderson, R.W. (1991)

Data Providers: Blair Hedges, Susan Koenig, Byron Wilson**VU** *Eleutherodactylus angustidigitum* (Taylor, 1940)**Vulnerable B1ab(iii)****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Mexico**Current Population Trend:** Decreasing

© Thomas Billie

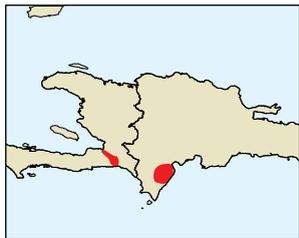
**Geographic Range** Historically, this species ranged in a wide area in Michoacán, Mexico, but it is now restricted to north-western and central Michoacán at around 1,500m asl.**Population** There is no information regarding the population status of this species.**Habitat and Ecology** This species inhabits pine-oak forest. It is clearly a terrestrial species that prefers to live under stones and on the ground. It breeds by direct development.**Major Threats** The major threat is habitat loss due to logging and infrastructure development for human settlements.**Conservation Measures** It is not recorded from any protected areas, but might occur in Parque Nacional Pico de Tancitaro. There is a need for improved habitat protection at sites where the species is known to occur. Further survey work is also needed to determine the current population status of the species. This species is protected by Mexican law under the "Special Protection" category (Pr).**Bibliography:** Dixon, J.R. (1957)**Data Providers:** Georgina Santos-Barrera, Luis Canseco-Márquez**EN** *Eleutherodactylus angustilineata* Lynch, 1998**Endangered B1ab(iii)****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Colombia**Current Population Trend:** Decreasing

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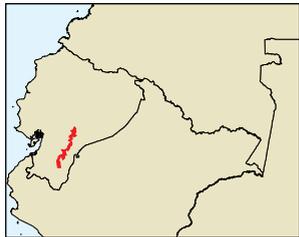
**Geographic Range** This species is known from Chicoral in Valle del Cauca Department, northwards to Pueblo Rico in Risaralda Department, in the Cordillera Occidental, Colombia, from 1,880-2,500m asl.**Population** It is a locally common species.**Habitat and Ecology** It is found on low herbaceous vegetation or on epiphytic vegetation in forest habitats, and has not been recorded outside primary forest. It breeds by direct development.**Major Threats** The major threat to this species is habitat loss due to expanding agricultural activities, including the planting of illegal crops.**Conservation Measures** The range of the species includes Parque Nacional Natural Tatama. Continued protection of primary forest habitat is essential to ensure the survival of this species.**Bibliography:** Acosta-Galvis, A.R. (2000), Lynch, J.D. (1998b), Lynch, J.D. (1999)**Data Providers:** Fernando Castro, Maria Isabel Herrera, John Lynch**CR** *Eleutherodactylus apostates* Schwartz, 1973**Critically Endangered A3c****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Haiti**Current Population Trend:** Decreasing

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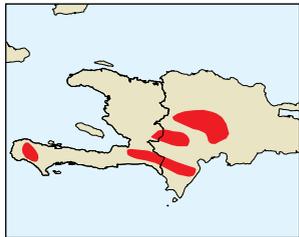
**Geographic Range** This species is confined to the Massif de la Hotte, Haiti. Its altitudinal range is from 333-1,640m asl, although it occurs at lower altitudes only on the northern slope.**Population** This species was formerly common in good habitat, which probably no longer exists. It was last recorded in 1991, although no one has looked for the species since.**Habitat and Ecology** It lives in closed-canopy forest. Males call near water, and it breeds by direct development with the eggs laid on the ground.**Major Threats** Severe habitat destruction is taking place in its range, primarily due to logging by local people (charcoaling) and slash-and-burn agriculture.**Conservation Measures** The species occurs in the Parc National Macaya, but there is no management of this area for conservation, and the habitat continues to be destroyed. Urgent site-based action is required in the Massif de la Hotte to conserve the remaining habitat in the area, to ensure the persistence of this species, as well as other threatened amphibians known only from this area. Survey work in the region is required to determine the population status of this species.**Bibliography:** Hedges, S.B. (1993), Hedges, S.B. (1999), Hedges, S.B. (2001), Henderson, R.W. and Powell, R. (1999), Henderson, R.W. and Powell, R. (2001), Schwartz, A. (1973), Schwartz, A. (1977b), Schwartz, A. and Henderson, R.W. (1991)**Data Providers:** Blair Hedges, Richard Thomas, Robert Powell

EN *Eleutherodactylus armstrongi* Noble and Hassler, 1933**Endangered B1ab(iii)****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Dominican Republic, Haiti**Current Population Trend:** Decreasing**Geographic Range** This species occurs on the Massif de la Selle in Haiti and the Sierra de Baoruco in the Dominican Republic, Hispaniola, at an altitude of 152-1,697m asl.**Population** It is common within suitable habitat.**Habitat and Ecology** It is arboreal in closed pine and hardwood forests. Eggs are laid in bromeliads and on the ground under rocks. Habitat quality is declining and the species has been found in degraded habitats.**Major Threats** Habitat destruction due to small-scale agriculture, cattle grazing, mining and charcoal collecting is taking place at a rapid rate in both Massif de la Selle and the Sierra de Baoruco.**Conservation Measures** In the Dominican Republic, this species occurs in Parque Nacional Sierra Baoruco Oriental. There is an urgent need for strengthened and expanded protection of forest habitats in the Massif de la Selle in Haiti.**Bibliography:** Hedges, S.B. (1993), Hedges, S.B. (1999), Hedges, S.B. (2001), Henderson, R.W. and Powell, R. (1999), Henderson, R.W. and Powell, R. (2001), Schwartz, A. (1978), Schwartz, A. and Henderson, R.W. (1991)**Data Providers:** Blair Hedges, Sixto Inchaustegui, Marcelino Hernandez, Robert Powell**VU** *Eleutherodactylus ashkapara* Köhler, 2000**Vulnerable D2****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Bolivia**Current Population Trend:** Stable

© Jim Köhler

Geographic Range This species is known from the type locality: the province of Chapare, in the department of Cochabamba, Bolivia, at 2,100m asl, and from a very nearby locality at 1,700m asl.**Population** It is a common species at the type locality.**Habitat and Ecology** This is an arboreal species that inhabits moist montane forest. It appears to be dependent on the presence of epiphytes. There is no information known about breeding habits, but it probably breeds by direct development, like other species of the genus.**Major Threats** Logging might be a threat in the future, but at present there are no major threats, and the population is stable.**Conservation Measures** The type locality is within Parque Nacional Carrasco. This species requires close population monitoring given that it has a very restricted range.**Bibliography:** Köhler, J. (2000a), Köhler, J. (2000b)**Data Providers:** Claudia Cortez, Steffen Reichle, Ignacio De la Riva, Jörn Köhler**EN** *Eleutherodactylus atratus* Lynch, 1979**Endangered B1ab(iii)****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Ecuador**Current Population Trend:** Decreasing

© Mario Humberto Yáñez-Muñoz

Geographic Range This species is known from the Amazonian slopes of the eastern Andean Cordillera (Cordillera de Matanga to the Abra de Zamora) in southern Ecuador from 2,195-2,850m asl. It has also been reported from 3,400m asl at Río Mazan, Azuay. It is recorded from six localities.**Population** There is very little information available on the current population status of this species. Four individuals were collected in 1985, but there appear to be no subsequent records, though this is probably due to a lack of survey work within its range.**Habitat and Ecology** It inhabits páramo grassland, sub-páramo shrubland and cloud forests (Lynch and Duellman 1980). Breeding is by direct development.**Major Threats** The habitat of this species is under threat from agricultural activities and dam construction.**Conservation Measures** Its range overlaps Parque Nacional Sangay, and also Parque Nacional Cajas.**Bibliography:** Lynch, J.D. (1979c), Lynch, J.D. and Duellman, W.E. (1980), Lynch, J.D. and Duellman, W.E. (1997)**Data Providers:** Luis A. Coloma, Santiago Ron, Mario Yáñez-Muñoz, Diego Almeida**VU** *Eleutherodactylus audanti* Cochran, 1934**Vulnerable B1ab(iii)****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Dominican Republic, Haiti**Current Population Trend:** Decreasing

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Geographic Range This species occurs on the Massif de la Hotte, Massif de la Selle, Sierra de Baoruco, Cordillera Central, and Sierra de Neiba, in Hispaniola. It has been recorded from 800-2,500m asl.**Population** It is moderately common in suitable habitat.**Habitat and Ecology** It is found in upland closed-canopy forest and forest edge, under rocks and debris. Eggs are laid under rocks, and it breeds by direct development. It has not been recorded outside forest habitat.**Major Threats** The cloud forest habitat of this species is being destroyed at a rapid rate, even in protected areas, as a result of logging by local people (charcoaling) and slash-and-burn agriculture.**Conservation Measures** It occurs in the protected areas of Parques Nacionales Sierra de Bahoruco, Parques Sierra de Bahoruco Oriental and in the Reserva Científica Laguna Rincón in the Dominican Republic, and also in protected areas in Haiti, but there is a need for improved management of these areas for conservation.**Bibliography:** Hedges, S.B. (1993), Hedges, S.B. (1999), Hedges, S.B. (2001), Henderson, R.W. and Powell, R. (1999), Henderson, R.W. and Powell, R. (2001), Schwartz, A. (1979b), Schwartz, A. and Henderson, R.W. (1991)**Data Providers:** Blair Hedges, Sixto Inchaustegui, Marcelino Hernandez, Robert Powell

EN *Eleutherodactylus auriculatoides* Noble, 1923**Endangered B1ab(iii)**

Order, Family: Anura, Leptodactylidae
Country Distribution: Dominican Republic
Current Population Trend: Decreasing



Geographic Range This species has a patchy distribution in the Cordillera Central, Dominican Republic, from 788-1,879m asl.

Population It is relatively uncommon even within suitable habitat.

Habitat and Ecology It is an arboreal species, inhabiting montane closed forest where it is often found in bromeliads. The males guard eggs laid in bromeliads.

Major Threats The major threat to the species is habitat destruction due to agriculture and charcoal production.

Conservation Measures It occurs in several protected areas, including the Valle Nuevo Natural Scientific Reserve.

Bibliography: Hedges, S.B. (1993), Hedges, S.B. (1999), Hedges, S.B. (2001), Henderson, R.W. and Powell, R. (1999), Henderson, R.W. and Powell, R. (2001), Schwartz, A. (1980a), Schwartz, A. and Henderson, R.W. (1991)

Data Providers: Blair Hedges, Sixto Inchaustegui, Marcelino Hernandez, Robert Powell

EN *Eleutherodactylus bacchus* Lynch, 1984**Endangered B1ab(iii)**

Order, Family: Anura, Leptodactylidae
Country Distribution: Colombia
Current Population Trend: Decreasing



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Geographic Range This species can be found on the western slopes of the Cordillera Oriental in the Department of Santander, Colombia, 1,740-2,300m asl.

Population This is a rare species that was last recorded in 2002.

Habitat and Ecology It occurs on vegetation in the undergrowth of cloud forests. It can also be found at forest edges and shrubs in pastures, so it can tolerate some level of disturbance, but probably cannot tolerate the complete opening up of its habitat. It breeds by direct development.

Major Threats Major threats include habitat loss and degradation due to agriculture and cattle ranching.

Conservation Measures It occurs in the Santuario de Fauna y Flora Guanentá Alto Río Fonce. Additional survey work is needed to determine the current population status of this species.

Bibliography: Lynch, J.D. (1984b), Lynch, J.D. and Duellman, W.E. (1997), Lynch, J.D., Ruiz-Carranza, P.M. and Ardila-Robayo, M.C. (1997), Ruiz-Carranza, P.M., Ardila-Robayo, M.C. and Lynch, J.D. (1996)

Data Providers: Fernando Castro, Maria Isabel Herrera, Martha Patricia Ramirez Pinilla, Jose Vicente Rueda

CR *Eleutherodactylus bakeri* Cochran, 1935**Critically Endangered A3c**

Order, Family: Anura, Leptodactylidae
Country Distribution: Haiti
Current Population Trend: Decreasing



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Geographic Range This species is restricted to the Massif de la Hotte, Haiti, at an altitude of 890-2,325m asl.

Population This species was common within its original habitat, which has now largely been destroyed.

Habitat and Ecology It is an arboreal species dependent on closed-canopy forest, retreating by day into bromeliads. Eggs are laid inside the bromeliads and the species breeds by direct development.

Major Threats The habitat of this species is being destroyed at a high rate throughout the Tiburon Peninsula, as a result of logging (charcoal collection) by local people and slash-and-burn agriculture. Only small pockets of intact habitat remain.

Conservation Measures Although it occurs in the Parc National Macaya, there is no active management of this area for conservation, and the habitat continues to be destroyed. Urgent site-based action is required in the Massif de la Hotte to conserve the remaining habitat in the area, to ensure the persistence of this species, as well as other threatened amphibians known only from this area.

Bibliography: Hedges, S.B. (1993), Hedges, S.B. (1999), Hedges, S.B. (2001), Henderson, R.W. and Powell, R. (1999), Henderson, R.W. and Powell, R. (2001), Schwartz, A. (1980b), Schwartz, A. and Henderson, R.W. (1991)

Data Providers: Blair Hedges, Richard Thomas, Robert Powell

EN *Eleutherodactylus balionotus* Lynch, 1979**Endangered B1ab(iii)**

Order, Family: Anura, Leptodactylidae
Country Distribution: Ecuador
Current Population Trend: Decreasing



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Geographic Range This species is known only from the type locality, 13.5km east of Loja, at the crest of the Cordillera (Abra de Zamora) between Loja Province and Zamora-Chinchipe Province, Ecuador, at 2,800m asl. It might occur elsewhere, though it is unlikely to have a very wide distribution.

Population It is a moderately common species.

Habitat and Ecology It lives in high-altitude sub-páramo bushland habitats. Specimens have been collected during the day from terrestrial bromeliads. It is presumed to breed by direct development.

Major Threats Habitat destruction and degradation is ongoing within its range, with the expansion of both agricultural activities and pine plantations.

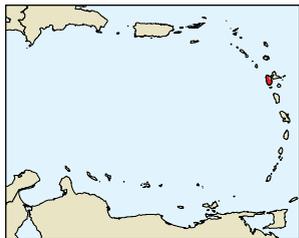
Conservation Measures It is not known to occur in any protected areas, but it is found close to the northern limit of Parque Nacional Podocarpus. There is a definite need for expanded and improved protection of the sub-páramo habitat of this species.

Bibliography: Lynch, J.D. (1979c), Lynch, J.D. and Duellman, W.E. (1997)

Data Providers: John Lynch, Luis A. Coloma, Santiago Ron

EN *Eleutherodactylus barlagnei* Lynch, 1965

Endangered B1ab(iii)+2ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Guadeloupe
Current Population Trend: Decreasing



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Geographic Range This species occurs on the Basse-Terre portion of Guadeloupe, from sea level up to 1,400m asl.

Population It is moderately common in suitable habitats within its small range.

Habitat and Ecology It is aquatic, living in large and small streams, preferring boulders in reasonably fast-moving waters. It is usually found in rainforest, and also grassy savannahs. It only occurs in disturbed habitats where there are trees along rivers. The eggs are laid on vegetation and in rock crevices, where they develop directly without a larval stage.

Major Threats The stream habitat on Guadeloupe is fragile, small in extent, and the habitat continues to decline. The forest is being cleared for agriculture, especially banana plantations, and also for the construction of human settlements; the activities of local fishermen also lead to habitat disturbance. Another major threat is pollution from pesticides used in banana plantations, as well as from domestic sources. Predation from introduced predators, such as rats, cats and mongooses, may also be having an impact on numbers, while the introduced congener *Eleutherodactylus johnstonei* might be a competitor. Chytridiomycosis has also been recorded as present in some amphibian species on Dominica, and is a serious potential threat to this species.

Conservation Measures It occurs in Parc National de la Guadeloupe, but the area is not well managed for biodiversity conservation. There is a need to expand and strengthen the existing protected area coverage of Guadeloupe. Furthermore, the species requires careful population monitoring, particularly given the combined likely impact of introduced predators and the potential threat of chytridiomycosis; it may be necessary to establish a captive-breeding programme for this species.

Bibliography: Breuil, M. (2002), Breuil, M. (2004), Hedges, S.B. (1993), Hedges, S.B. (1999), Hedges, S.B. (2001), Henderson, R.W. and Powell, R. (1999), Henderson, R.W. and Powell, R. (2001), Kaiser, H. and Henderson, R.W. (1994), Kaiser, H., Green, D.M. and Schmid, M. (1994), Lynch, J.D. (1965), Schwartz, A. (1967), Schwartz, A. and Henderson, R.W. (1991)

Data Providers: Blair Hedges, Beatrice Ibéné, Michel Breuil, Robert Powell

CR *Eleutherodactylus bartonsmithi* Schwartz, 1960

Critically Endangered B1ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Cuba
Current Population Trend: Decreasing



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Geographic Range This species has an extremely restricted range in two locations in eastern Cuba: the mouth and lower reaches of the Río Yumuri; and the Parque Nacional Alejandro de Humboldt (though the taxonomic status of this population has been questioned). The altitudinal range is from 30-212m asl.

Population There are only a few records of this species, despite extensive survey efforts to locate it. However, the species appears to be locally common when heard calling.

Habitat and Ecology It is arboreal, found at low elevations in closed forest. They call from shrubs, and are also found in rock crevices. Breeding takes place by direct development. Although they can occur in coffee plantations, they are not found in open habitats.

Major Threats This species is threatened by habitat degradation and deforestation due to subsistence wood collecting, and smallholder farming activities, as well as moderate impacts from touristic activities.

Conservation Measures Besides the Parque Nacional Alejandro de Humboldt, this species also occurs in the Protected Landscape Maisí-Yumuri. Habitat maintenance within the range of this species is an essential requirement.

Notes on taxonomy: The taxonomic allocation of the western population to this species has been questioned (S.B. Hedges and L. Diaz pers. comm.).

Bibliography: Centro Nacional de Areas Protegidas (CNAP) (2002), Hedges, S.B. (1993), Hedges, S.B. (1999), Hedges, S.B. (2001), Henderson, R.W. and Powell, R. (1999), Henderson, R.W. and Powell, R. (2001), Schwartz, A. (1960a), Schwartz, A. and Henderson, R.W. (1991)

Data Providers: Blair Hedges, Luis Diaz

EN *Eleutherodactylus baryecus* Lynch, 1979

Endangered B1ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Ecuador
Current Population Trend: Decreasing



Geographic Range This species is known only from eight localities on the eastern face of the Cordillera Oriental, east of Cuenca, in Morono-Santiago Province, Ecuador, at 2,195-2,988m asl.

Population It is a reasonably common species.

Habitat and Ecology It inhabits high-altitude sub-páramo bushland and cloud forests, but can survive in somewhat degraded forest. It is presumed to breed by direct development.

Major Threats Habitat destruction and degradation is ongoing within its range, with the expansion of both agricultural activities and pine plantations.

Conservation Measures Its geographic range overlaps Parque Nacional Sangay. There is a need for expanded and improved protection of the sub-páramo habitat of this species.

Bibliography: Lynch, J.D. (1979c), Lynch, J.D. and Duellman, W.E. (1980), Lynch, J.D. and Duellman, W.E. (1997)

Data Providers: John Lynch, Luis A. Coloma, Santiago Ron

EN *Eleutherodactylus bellona* Lynch, 1992

Endangered B1ab(iii)+2ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Colombia
Current Population Trend: Decreasing



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Geographic Range This species is known from the type locality (Murri) and from Parque Nacional Natural Las Orquideas, both in the municipality of Frontino, in Antioquia Department, on the western flank of the Cordillera Occidental, in Colombia, from 1,100-2,000m asl.

Population It is more common at Murri than at Parque Nacional Natural Las Orquideas.

Habitat and Ecology It is usually found on low vegetation and in leaf-litter, inside cloud forests and very humid forest; it has not been recorded outside forest habitat. It breeds by direct development.

Major Threats Outside the national park, there is increasing pressure on the remaining habitat from agricultural development, including the planting of illegal crops.

Conservation Measures Although this species occurs in Parque Nacional Natural Las Orquideas, the type locality remains unprotected. Further research is needed to determine whether this species occurs outside the two known localities.

Bibliography: Acosta-Galvis, A.R. (2000), Lynch, J.D. (1992a), Lynch, J.D. (1998b), Lynch, J.D. and Duellman, W.E. (1997), Lynch, J.D., Ruiz-Carranza, P.M. and Ardila-Robayo, M.C. (1997), Paez, V.P. et al. (2002), Ruiz-Carranza, P.M., Ardila-Robayo, M.C. and Lynch, J.D. (1996), Ruiz-Carranza, P.M., Lynch, J.D. and Ardila-Robayo, M.C. (1997)

Data Providers: Fernando Castro, Maria Isabel Herrera, John Lynch

CR *Eleutherodactylus bernali* Lynch, 1986

Critically Endangered B2ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Colombia
Current Population Trend: Decreasing



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Geographic Range This species is only known from the type locality: 4km south of the junction of the Sonsón-Dorada and Argelia roads, Municipality of Sonsón, Departamento of Antioquia, in the northern part of the Central Cordillera of the Colombian Andes, at 2,350m asl.

Population It is uncommon; two specimens were collected in 1978 and a further four in 1981. Since then, repeated searches of the type locality have not found any individuals, and surveys in the surrounding areas have not recorded this species.

Habitat and Ecology It has been recorded from primary cloud forest on herbaceous vegetation and fallen leaves, and breeds by direct development.

Major Threats Habitat loss caused by logging and agricultural development (illegal crops) is the major threat at the type locality.

Conservation Measures The type locality does not fall within a protected area, and the habitat has been so badly disturbed that it might not even be suitable for protection. Further survey work is required to determine whether or not the species still survives at the type locality; any surviving individuals might need to form the basis for the establishment of an *ex-situ* population.

Bibliography: Acosta-Galvis, A.R. (2000), Lynch, J.D. (1986a), Lynch, J.D. and Duellman, W.E. (1997), Lynch, J.D., Ruiz-Carranza, P.M. and Ardila-Robayo, M.C. (1997), Paez, V.P. *et al.* (2002), Ruiz-Carranza, P.M., Ardila-Robayo, M.C. and Lynch, J.D. (1996)

Data Providers: Fernando Castro, Maria Isabel Herrera, John Lynch

VU *Eleutherodactylus bicolor* Rueda-Almonacid and Lynch, 1983

Vulnerable B1ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Colombia
Current Population Trend: Decreasing



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Geographic Range This species can be found from the western slope of the Cordillera Oriental in Colombia (departments of Cundinamarca, Boyaca, and Santander) at elevations of 1,750-2,400m asl.

Population This is a common species.

Habitat and Ecology It occurs in under storey vegetation near watercourses in cloud forest, and also occurs in secondary forest. Reproduction is by direct development.

Major Threats Habitat loss and degradation due to agriculture, both crops and cattle ranching, is a major threat. Some other species of *Eleutherodactylus* that are associated with streams at high elevations have undergone dramatic declines and disappearances, possibly due to chytridiomycosis, so the status of this species should be monitored carefully.

Conservation Measures It occurs in Santuario de Fauna y Flora Guanentá Alto Río Fonce and the Estacion Demostrativa El Rasgon.

Bibliography: Lynch, J.D. and Duellman, W.E. (1997), Lynch, J.D., Ruiz-Carranza, P.M. and Ardila-Robayo, M.C. (1997), Rueda-Almonacid, J.V. and Lynch, J.D. (1983), Ruiz-Carranza, P.M., Ardila-Robayo, M.C. and Lynch, J.D. (1996)

Data Providers: Fernando Castro, Maria Isabel Herrera, Mariela Osorno-Muñoz, Jose Vicente Rueda

VU *Eleutherodactylus bicumulus* (Peters, 1863)

Vulnerable B1ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Venezuela
Current Population Trend: Decreasing



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Geographic Range This species is known from the Venezuelan Coastal Range in the states of Aragua, Distrito Federal and Sucre. It has been recorded from 577-2,060m asl.

Population It is a common species.

Habitat and Ecology It is an inhabitant of upland montane cloud forests; its ability to adapt to secondary habitats is not known. It presumably breeds by direct development.

Major Threats Habitat loss, due to agriculture and logging, is a major threat.

Conservation Measures This species occurs in several protected areas, including the national parks of Henri Pittier, San Esteban, Macarao, and El Avila.

Bibliography: Barrio Amorós, C.L. (2004), Frost, D.R. (1985), La Marca, E. (1992), La Marca, E. (1995b), La Marca, E. (1997), Lynch, J.D. and La Marca, E. (1993), Manzanilla, J. (2001), Manzanilla, J. *et al.* (1995)

Data Providers: Jesús Manzanilla, Enrique La Marca

EN *Eleutherodactylus bisignatus* (Werner, 1899)

Endangered B1ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Bolivia
Current Population Trend: Decreasing



Geographic Range This species is known only from the type locality, Chaco, Bolivia, and from the nearby surroundings. The type locality might actually be "Chaco in the Unduavi valley, Yungass de La Paz, 16° 21'S; 67° 49'W, at approximately 1,850m." Its altitudinal range is around 1,850-2,700m asl.

Population It is an abundant species at the type locality. However, although it is currently common, it is feared that the species will undergo a steep population decline in the near future, especially as the quality of its habitat declines.

Habitat and Ecology This species is a diurnal inhabitant of montane cloud forest. There is no information on breeding, but it probably breeds by direct development like other species of the genus.

Major Threats Agriculture and logging are the major threats to its habitat.

Conservation Measures It occurs in Parque Nacional Cotapata, and the ecological needs of this species should be incorporated as part of the management plan of this protected area.

Notes on taxonomy: This species was formerly considered a synonym of *Eleutherodactylus fenestratus* by Lynch (1980), but it was elevated to species status by Köhler (2000a).

Bibliography: Cortez, C. (2000), Köhler, J. (2000a), Reichle, S. (1999)

Data Providers: Claudia Cortez, Steffen Reichle, Ignacio De la Riva, Jörn Köhler

CR *Eleutherodactylus blairhedgesi* Estrada, Diaz and Rodriguez, 1997**Critically Endangered B1ab(iii)+2ab(iii)****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Cuba**Current Population Trend:** Decreasing

Geographic Range This species is only known from two small nearby sites, near Santa Cruz del Norte, La Havana Province, in Cuba. It has been recorded from around sea level.

Population It is a very common species within its restricted range.

Habitat and Ecology It is found on limestone rocks and cliffs in open areas just beside the coast. The eggs are laid on the ground, and it breeds by direct development.

Major Threats The species is restricted to an unprotected site close to an area of high human population density. Canadian tourist companies are planning the development of this part of the coast in the near future, and oil extraction activities are also taking place in this area.

Conservation Measures The species is not currently found within any protected area and, although a proposed local protected area (Managed Flora Reserve of Canasi) will include its habitat, it is

unclear whether or not this area, if designated, will be well managed.

Bibliography: Estrada, A.R., Diaz, L.M. and Rodriguez, A. (1997), Hedges, S.B. (1999), Hedges, S.B. (2001), Henderson, R.W. and Powell, R. (1999), Henderson, R.W. and Powell, R. (2001), Schwartz, A. and Henderson, R.W. (1991)

Data Providers: Blair Hedges, Luis Díaz

CR *Eleutherodactylus boconoensis* Rivero and Mayorga, 1973**Critically Endangered B1ab(iii)****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Venezuela**Current Population Trend:** Decreasing

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Geographic Range This species is known from the Páramo de Guaramacal, at an elevation of 2,700-3,150m asl, near the town of Boconó, in Trujillo State, Venezuela.

Population It is an uncommon species.

Habitat and Ecology It occurs in páramo grassland, cloud forests, and high-altitude forest. It breeds by direct development.

Major Threats The primary threat to the species is habitat loss due to infrastructure development (primarily the construction of power lines) and fire.

Conservation Measures The species' range includes Parque Nacional Guaramacal, but this area is not sufficiently managed to counter the threats to this species.

Bibliography: Barrio Amorós, C.L. (2004), Frost, D.R. (1985), García-Pérez, J.E. (1999), La Marca, E. (1992), La Marca, E. (1997), Rivero, J.A. and Mayorga, H. (1973)

Data Providers: Enrique La Marca, Juan Elías García-Pérez

CR *Eleutherodactylus bresslerae* Schwartz, 1960**Critically Endangered B1ab(iii)****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Cuba**Current Population Trend:** Decreasing

© Luis M. Díaz



Geographic Range This species is known only from two isolated locations on the Maisi Peninsular in extreme eastern Cuba, including from the mouth of the Río Yumuri. Its altitudinal range is from 30-221m asl.

Population There are only a few records of this species, despite extensive efforts to locate it.

Habitat and Ecology It is found on rocks and cliffs in closed hardwood forest, habitat within which it is moderately common. It breeds by direct development.

Major Threats The primary threats to the species include habitat degradation and loss due to subsistence agriculture and wood collecting, and moderate impacts from touristic activities.

Conservation Measures This species occurs in the Protected Landscape Maisi-Yumuri, but maintenance of other existing habitat within the range of this species is required.

Bibliography: Centro Nacional de Areas Protegidas (CNAP) (2002), Hedges, S.B. (1993), Hedges, S.B. (1999), Hedges, S.B. (2001), Henderson, R.W. and Powell, R. (1999), Henderson, R.W. and Powell, R. (2001), Schwartz, A. (1960a), Schwartz, A. and Henderson, R.W. (1991)

Data Providers: Blair Hedges, Luis Díaz

CR *Eleutherodactylus breviostris* Shreve, 1936**Critically Endangered A3c****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Haiti**Current Population Trend:** Decreasing

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Geographic Range This species is restricted to a very small area on the Massif de la Hotte, in Haiti, where it has been recorded at elevations of 575-2,375m asl.

Population It was formerly common in good habitat in the past, but due to habitat loss the species is now considered to be an extremely rare species. It has not been recorded since 1991, although there have been no subsequent surveys in the region for the species.

Habitat and Ecology It is found under ground cover in dwarf cloud forest, and also in clearings (although the latter is not its main habitat, and it is not known whether or not the species can persist outside forest). Eggs are laid on the ground and it breeds by direct development.

Major Threats Severe habitat destruction is taking place in its range, primarily due to logging by local people (charcoaling) and slash-and-burn agriculture.

Conservation Measures Although it occurs in the Parc National Macaya, there is no active management of this area for conservation, and the habitat continues to be destroyed. Urgent site-based action is required in the Massif de la Hotte to conserve the remaining habitat in the area, in order to ensure the persistence of this species as well as other threatened amphibians known only from this area. Survey work in the region is required to determine the population status of this species, and whether or not it still survives in the wild.

Bibliography: Hedges, S.B. (1993), Hedges, S.B. (1999), Hedges, S.B. (2001), Henderson, R.W. and Powell, R. (1999), Henderson, R.W. and Powell, R. (2001), Schwartz, A. (1980c), Schwartz, A. and Henderson, R.W. (1991)

Data Providers: Blair Hedges, Richard Thomas, Robert Powell

VU *Eleutherodactylus briceni* Boulenger, 1903**Vulnerable D2**

Order, Family: Anura, Leptodactylidae
Country Distribution: Venezuela
Current Population Trend: Stable



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Geographic Range This species is known from the mountains near Mérida City, in the Cordillera de Mérida, Venezuela. It has been recorded from 1,600-3,300m asl.

Population It is an uncommon species.

Habitat and Ecology It is terrestrial and normally found under rocks in páramo and the ecotone of páramo/cloud forest. It breeds by direct development.

Major Threats There are no known threats to the species' habitat at present, but its restricted range renders it susceptible to stochastic threatening processes.

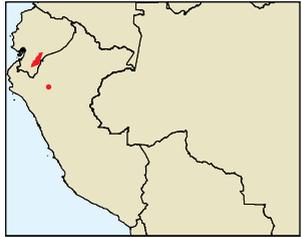
Conservation Measures Populations are found within Parque Nacional Sierra de la Culata and possibly Parque Nacional Sierra Nevada.

Bibliography: Barrio Amorós, C.L. (2004), Frost, D.R. (1985), La Marca, E. (1992), La Marca, E. (1997)

Data Providers: Enrique La Marca, Juan Elias Garcia-Pérez

VU *Eleutherodactylus bromeliaceus* Lynch, 1979**Vulnerable B1ab(iii)**

Order, Family: Anura, Leptodactylidae
Country Distribution: Ecuador, Peru
Current Population Trend: Decreasing



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Geographic Range This species is known from the Amazonian slopes of the Cordillera Oriental (1,707-2,622m asl), northern (1,500-1,600m asl) and western (1,830m asl) slopes of the Cordillera del Cóndor, province of Zamora-Chinipe, Loja, and the Cordillera de Cutucú (1,700m asl), province of Morona-Santiago in southern Ecuador. Also recorded from Abra Pardo Miguel (2,180m asl) in the northern part of the Cordillera Central, in the department of San Martín, Peru (05° 46'S; 77° 42'W).

Population This is an uncommon species. In Peru, only two specimens have ever been recorded.

Habitat and Ecology It is present within humid montane forests. Individuals occur on low vegetation at night and in bromeliads by day (Duellman and Pramuk 1999). Breeding takes place by direct development although the egg deposition site is not known. The ability of this species to adapt to modified habitats is unknown.

Major Threats The major threat to this species is habitat loss and degradation due to agriculture and human settlement.

Conservation Measures It is recorded from the Bosque de Protección Alto Mayo, Peru, and the Parque Nacional Podocarpus in Ecuador.

Bibliography: Almendariz, A. (1997), Duellman, W.E. and Pramuk, J.B. (1999), Lynch, J.D. (1979c), Lynch, J.D. and Duellman, W.E. (1980), Lynch, J.D. and Duellman, W.E. (1997)

Data Providers: Lily Rodríguez, Jorge Luis Martínez, Luis A. Coloma, Santiago Ron, Diego Almeida

EN *Eleutherodactylus cabrerai* Cochran and Goin, 1970**Endangered B1ab(iii)**

Order, Family: Anura, Leptodactylidae
Country Distribution: Colombia
Current Population Trend: Decreasing



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Geographic Range This species is known from the departments of Antioquia and Caldas on the Cordillera Occidental of the Colombian Andes from 1,140-1,940m asl. Cochran (1970) recorded one individual from Valle de Cauca Cisneros below 500m asl, but Lynch (1997, 1998b) and Ruiz-Carranza, Ardila-Robayo, and Lynch (1996) did not consider this to be a valid record. Probably by mistake, Acosta-Galvis (2000) included Valle del Cauca in its distribution.

Population It is not a common species.

Habitat and Ecology It is found among fallen leaves, and branches and leaves of low herbaceous vegetation in secondary montane forest and mature forests. It breeds by direct development. It has not been recorded outside forest habitat.

Major Threats Habitat loss due to agricultural development (including the planting of illegal crops) is the main threat to the species outside protected areas.

Conservation Measures It occurs in Parque Nacional Natural Orquideas, but there is a need to strengthen and expand the existing coverage of protected areas in the Colombian Andes.

Notes on taxonomy: Mention of this species by Kattan (1984) refers to *E. capitonis*.

Bibliography: Acosta-Galvis, A.R. (2000), Cochran, D.M. and Goin, C.J. (1970), Kattan, G. (1984), Lynch, J.D. (1998b), Lynch, J.D. and Duellman, W.E. (1997), Lynch, J.D., Ruiz-Carranza, P.M. and Ardila-Robayo, M.C. (1997), Paez, V.P. *et al.* (2002), Rueda-Almonacid, J.V. (2000), Ruiz-Carranza, P.M., Ardila-Robayo, M.C. and Lynch, J.D. (1996), Ruiz-Carranza, P.M., Lynch, J.D. and Ardila-Robayo, M.C. (1997)

Data Providers: Fernando Castro, Maria Isabel Herrera, John Lynch

EN *Eleutherodactylus cacao* Lynch, 1992**Endangered B1ab(iii)**

Order, Family: Anura, Leptodactylidae
Country Distribution: Colombia
Current Population Trend: Decreasing



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Geographic Range This species is known only from a few localities within Parque Nacional Natural Munchique in the department of Cauca, in the cloud forests on the western slopes of the western Andes in south-western Colombia, from 2,200-2,440m asl. However, it may be more widely distributed than is currently known.

Population It is not a common species. Recent fieldwork has failed to find the species at any of the known localities (but the species has always been rare so no conclusions can be drawn yet).

Habitat and Ecology It occurs on the ground among logs and rocks inside cloud forests, and has not thus far been recorded outside forest habitat. It breeds by direct development.

Major Threats A major threat to the species is habitat loss within the park, due to the planting of illegal crops.

Conservation Measures Although the known distribution of the species is wholly within Parque Nacional Natural Munchique, this protected area is in need of improved and strengthened management. Further survey work is necessary to determine the current population status of the species.

Bibliography: Acosta-Galvis, A.R. (2000), Lynch, J.D. (1992b), Lynch, J.D. (1998b), Lynch, J.D. and Duellman, W.E. (1997), Lynch, J.D. and Ruiz-Carranza, P.M. (1996b), Lynch, J.D., Ruiz-Carranza, P.M. and Ardila-Robayo, M.C. (1997), Ruiz-Carranza, P.M., Ardila-Robayo, M.C. and Lynch, J.D. (1996)

Data Providers: Fernando Castro, Maria Isabel Herrera, John Lynch

EN *Eleutherodactylus calcaratus* (Boulenger, 1908)**Endangered B1ab(iii)****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Colombia**Current Population Trend:** Decreasing

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Geographic Range This species occurs in the cloud forests of the western flank of the Cordillera Occidental, from the department of Risaralda to the department of Valle del Cauca, in Colombia, from 1,400-2,700m asl.**Population** It is a common species.**Habitat and Ecology** It is found on the ground in primary and secondary cloud forests, but has not been recorded outside forest. It breeds by direct development.**Major Threats** The main threat to the species is habitat loss caused by agricultural development, including the planting of illegal crops.**Conservation Measures** It occurs in Parque Nacional Natural Farallones de Cali, but there is an urgent need for the expansion and strengthening of the existing protected areas network in Colombia's Cordillera Occidental.**Notes on taxonomy:** Lynch (1996b) notes misidentifications in earlier accounts.**Bibliography:** Acosta-Galvis, A.R. (2000), Cochran, D.M. and Goin, C.J. (1970), Lynch, J.D. (1996b), Lynch, J.D. (1998b), Lynch, J.D. (1999), Lynch, J.D. and Duellman, W.E. (1997), Lynch, J.D., Ruiz-Carranza, P.M. and Ardila-Robayo, M.C. (1997), Ruiz-Carranza, P.M., Ardila-Robayo, M.C. and Lynch, J.D. (1996), Ruiz-Carranza, P.M., Lynch, J.D. and Ardila-Robayo, M.C. (1997)**Data Providers:** Fernando Castro, Maria Isabel Herrera, John Lynch**VU** *Eleutherodactylus calcarulatus* Lynch, 1976**Vulnerable B1ab(iii)****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Colombia, Ecuador**Current Population Trend:** Decreasing

© John D. Lynch

Geographic Range This Andean species ranges along the western flank of the Cordillera Occidental from La Planada in the department of Nariño in extreme southern Colombia, south to Cotopaxi Province in Ecuador. Its altitudinal range is 1,140-3,000m asl. It might occur a little more widely.**Population** It is a very common species.**Habitat and Ecology** It inhabits primary and secondary forest, and does not occur in open areas. It is arboreal in bushes and trees, and is associated with epiphytes in high vegetation. It is especially abundant along trails through cloud forest, particularly in the proximity of small streams. It breeds by direct development, and the eggs are deposited in leaf-litter.**Major Threats** The major threats are likely to be deforestation for agricultural development (including plantations, and the planting of illegal crops), logging, and human settlement, and pollution resulting from the spraying of illegal crops. Some other species of *Eleutherodactylus* that are associated with streams at high elevations have undergone dramatic declines and disappearances, possibly due to chytridiomycosis, so the status of this species should be monitored carefully.**Conservation Measures** In Ecuador, its geographic range overlaps with the Reserva Ecológica Cotacachi-Cayapas and the Reserva Ecológica Los Illinizas. In Colombia it occurs in the La Planda private reserve.**Bibliography:** Acosta-Galvis, A.R. (2000), Lynch, J.D. (1976a), Lynch, J.D. (1998b), Lynch, J.D. and Duellman, W.E. (1997), Lynch, J.D., Ruiz-Carranza, P.M. and Ardila-Robayo, M.C. (1997), Ruiz-Carranza, P.M., Ardila-Robayo, M.C. and Lynch, J.D. (1996)**Data Providers:** Fernando Castro, Santiago Ron, Luis A. Coloma, Mario Yáñez-Muñoz, Diego Cisneros-Heredia**EN** *Eleutherodactylus capitonis* Lynch, 1998**Endangered B1ab(iii)****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Colombia**Current Population Trend:** Decreasing

© Martha Silva-Velasco

Geographic Range This species is known from three localities in the departments of Cauca and Valle del Cauca, on the western flank of the Cordillera Occidental, in Colombia, and most likely occurs in suitable habitat in between. It has been recorded from 2,440-2,800m asl.**Population** It is a reasonably common species, and is very common in Munchique.**Habitat and Ecology** It is found on low vegetation or in leaf-litter in primary and secondary forest or forest edge, but has not been recorded outside forest habitat. It breeds by direct development.**Major Threats** Habitat loss caused by deforestation for agricultural development (including the planting of illegal crops) are the main threats to the species.**Conservation Measures** The range of this species includes Parque Nacional Natural Munchique and Parque Nacional Natural Farallones de Cali.**Notes on taxonomy:** This species was mistakenly reported as *E. cabrerai* by Kattan (1984).**Bibliography:** Acosta-Galvis, A.R. (2000), Kattan, G. (1984), Lynch, J.D. (1998b), Lynch, J.D. (1999)**Data Providers:** Fernando Castro, Maria Isabel Herrera, John Lynch**CR** *Eleutherodactylus caribe* Hedges and Thomas, 1992**Critically Endangered A3c; B2ab(iii)****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Haiti**Current Population Trend:** Decreasing**Geographic Range** This species is only known from one site (1ha), south-west of Dame-Marie, Département de la Grand 'Anse, on the Tiburon Peninsula, Haiti. It occurs at sea level.**Population** There is very little information available on the population status of this species.**Habitat and Ecology** This amphibian is confined entirely to coastal mangrove marshes. Its breeding habits and requirements are unknown, although it presumably breeds by direct development.**Major Threats** The fragile mangrove marsh in which it occurs is in an area of severe habitat destruction, and the mangroves are probably being cut for charcoal.**Conservation Measures** It is not known to occur in any protected areas. Protection and maintenance of the existing mangrove habitat of this species is essential, and further survey work is needed to determine whether or not the species might occur in other marshes nearby.**Bibliography:** Hedges, S.B. (1993), Hedges, S.B. (1999), Hedges, S.B. (2001), Hedges, S.B. and Thomas, R. (1992a), Henderson, R.W. and Powell, R. (1999), Henderson, R.W. and Powell, R. (2001), Schwartz, A. and Henderson, R.W. (1991)**Data Providers:** Blair Hedges, Richard Thomas

EN *Eleutherodactylus casparii* Dunn, 1926**Endangered B1ab(iii)****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Cuba**Current Population Trend:** Decreasing

Geographic Range This species is restricted to Cienfuegos Province, in Cuba, where it has been recorded from sea level up to 830m asl.

Population It is a very common species.

Habitat and Ecology It inhabits a wide variety of mesic situations, including natural forest and some anthropogenic habitats such as plantations, as well as introduced vegetation. This suggests that it is able to tolerate some alteration of its habitat, although it does require large trees. Eggs are laid on the ground, and it breeds by direct development.

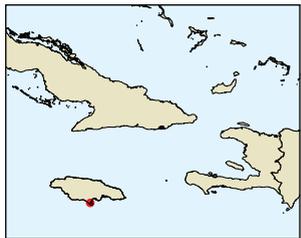
Major Threats The main threat to this species is habitat loss and degradation as a result of deforestation for agriculture, the development of tourism infrastructure, and the subsequent disturbance of the habitat due to tourist activities.

Conservation Measures It is known from a few protected areas, although these areas do not provide sufficient protection for the

species, and are in need of expansion and improved management.

Bibliography: Centro Nacional de Areas Protegidas (CNAP) (2002), Hedges, S.B. (1993), Hedges, S.B. (1999), Hedges, S.B. (2001), Henderson, R.W. and Powell, R. (1999), Henderson, R.W. and Powell, R. (2001), Schwartz, A. and Henderson, R.W. (1991)

Data Providers: Blair Hedges, Luis Díaz

CR *Eleutherodactylus cavernicola* Lynn, 1954**Critically Endangered B1ab(iii)+2ab(iii)****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Jamaica**Current Population Trend:** Decreasing

© S. Blair Hedges, Penn State



Geographic Range This species is only known from two caves near Jackson's Bay, on the Portland Ridge Peninsula, very close to sea level (10-15m asl), in Jamaica.

Population It is a very rare species and is difficult to find. It was last seen in the 1990s, but there have been no surveys for the species since.

Habitat and Ecology It has only been recorded inhabiting caves in moderately well-forested areas. Eggs are laid among rocks and it breeds by direct development.

Major Threats The caves in which it occurs on the Portland Ridge Peninsula are being disturbed by humans, including by people occupying caves illegally. There is also significant disturbance of the habitat from agriculture, the nearby lighthouse, and from touristic activities.

Conservation Measures It is not known to occur in any protected areas, but both caves are currently within an area designated as a national park for the future (although this is not yet confirmed). One cave is currently within the Jackson Bay Hunting Club.

Bibliography: Hedges, S.B. (1993), Hedges, S.B. (1999), Hedges, S.B. (2001), Henderson, R.W. and Powell, R. (1999), Henderson, R.W. and Powell, R. (2001), Schwartz, A. and Henderson, R.W. (1991)

Data Providers: Blair Hedges, Susan Koenig, Byron Wilson

VU *Eleutherodactylus ceuthospilus* Duellman and Wild, 1993**Vulnerable B1ab(iii)****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Peru**Current Population Trend:** Decreasing

© German Chávez



Geographic Range This species is known from elevations of 1,735-1,840m asl on the western slopes of the Cordillera de Huancabamba (the Huancabamba depression is a complex system of relatively low ridges, basins, and valleys), and at 1,500m asl on the Pacific slope of the Cordillera Occidental in the province of Piura, northern Peru. The range of this species is not completely known, and it could occur more widely.

Population It is a common species where it occurs.

Habitat and Ecology An inhabitant of montane forest. Males have been found calling from leaves and stems of herbaceous vegetation 14-40cm above the ground along a road cut in cloud forest. Adults of both sexes were found in bromeliads by day. Breeding occurs by direct development.

Major Threats The major threat is the destruction and loss of habitat for livestock ranching and as a result of selective logging.

Conservation Measures It does not occur in any protected areas, and there is a need for improved habitat protection at sites where the species is known to occur.

Bibliography: Duellman, W.E. and Pramuk, J.B. (1999), Duellman, W.E. and Wild, E.R. (1993), Rodríguez, L.O., Cordova, J.H. and Icochea, J. (1993)

Data Providers: Lily Rodríguez, Jorge Luis Martínez, Erik Wild

VU *Eleutherodactylus charlottevillensis* Kaiser, Dwyer, Feichtinger and Schmidt, 1995**Vulnerable D2****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Trinidad and Tobago**Current Population Trend:** Stable

© Adrian Hailley



Geographic Range This species is restricted to north-eastern Tobago Island, Trinidad and Tobago, from sea level to approximately 550m asl.

Population This species is quite common.

Habitat and Ecology It is often found in forest leaf-litter and is more rarely encountered close to forest streams. The males call from low bushes. It is a species that breeds by direct development, and the eggs are deposited in leaf-litter.

Major Threats There are no known threats to this species other than its rather restricted range which renders it susceptible to stochastic threatening processes.

Conservation Measures The forests on Tobago in which the species is found are protected in the Little Tobago Wildlife Sanctuary. This species requires close population monitoring given its very restricted range.

Bibliography: Goldberg, S.R., Bursley, C.R. and Kaiser, H. (1998), Hardy, Jr, J.D. (1982), Kaiser, H. et al. (1995), Murphy, J.C. (1997)

Data Providers: Jerry Hardy

CR *Eleutherodactylus chlorophenax* Schwartz, 1976**Critically Endangered A3c****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Haiti**Current Population Trend:** Decreasing

Geographic Range This species has a very restricted range on the Massif de la Hotte, in Haiti, where it has been recorded from 990-1,290m asl.

Population Relatively few specimens of this species are known, and there is no information on its current population status.

Habitat and Ecology It has been found in upland hardwood forests and ravine pinelands. It prefers to hide under rocks, in sinkholes or in vertical rock crevices. Eggs are laid on the ground, and it breeds by direct development.

Major Threats Severe habitat destruction is taking place in its range, primarily due to logging by local people (charcoaling) and slash-and-burn agriculture.

Conservation Measures Although it occurs in the Parc National Macaya, there is no management of this area for conservation, and the habitat continues to be destroyed. Urgent site-based action is required in the Massif de la Hotte to conserve the remaining habitat

in the area, in order to ensure the persistence of this species as well as other threatened amphibians known only from this area. Survey work in the region is required to determine the population status of this species.

Bibliography: Cunningham, C.A., Powell, R. and Hedges, S.B. (1998), Hedges, S.B. (1993), Hedges, S.B. (1999), Hedges, S.B. (2001), Henderson, R.W. and Powell, R. (1999), Henderson, R.W. and Powell, R. (2001), Schwartz, A. (1976a), Schwartz, A. and Henderson, R.W. (1991)

Data Providers: Blair Hedges, Richard Thomas, Robert Powell

EN *Eleutherodactylus chrysops* Lynch and Ruíz-Carranza, 1996**Endangered B1ab(iii)****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Colombia**Current Population Trend:** Decreasing

© John D. Lynch

Geographic Range This species is known from Valle del Cauca and Choco Departments in the cloud forests of the western flank of the Cordillera Occidental in Colombia, from 900-2,200m asl.

Population It is a rare species.

Habitat and Ecology The species is found mainly in the forest canopy and is mostly active in vegetation 1.5m above the ground in primary and secondary forest; it has not been recorded outside forest. It breeds by direct development.

Major Threats Forest clearance for agricultural development and cattle ranching has already destroyed some of the habitat within the range of the species.

Conservation Measures It occurs in Parque Nacional Natural Los Farallones de Cali, but there remains a need for improved protection of its remaining forest habitat in the Cordillera Occidental. Further survey work is necessary to establish the current population status of this species.

Bibliography: Acosta-Galvis, A.R. (2000), Lynch, J.D. (1998b), Lynch, J.D. (1999), Lynch, J.D. and Ruiz-Carranza, P.M. (1996b), Ruiz-Carranza, P.M., Ardila-Robayo, M.C. and Lynch, J.D. (1996)

Data Providers: Fernando Castro, Maria Isabel Herrera, John Lynch

VU *Eleutherodactylus colodactylus* Lynch, 1979**Vulnerable B1ab(iii)****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Ecuador, Peru**Current Population Trend:** Decreasing

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Geographic Range This species is known from two disjunct regions: the Amazonian slopes (2,195-3,140m asl) of the Cordillera Oriental in the province of Morona-Santiago and Amazonian slopes (2,710-2,800m asl) of the Abra Zamora, Zamora-Chinchipe Province in the southern Cordillera Oriental, Ecuador (in southern Ecuador it is known from at least 12 localities); and the crest and upper eastern slopes of the Cordillera de Huancabamba in northern Peru (around 05° 28' S; 79° 17' W). It probably occurs in intervening areas between the currently known Ecuadorian and Peruvian distributions.

Population It is a common species.

Habitat and Ecology This species can be found in the cloud forest and sub-páramo of the high Amazonian slopes of the Andes (Lynch and Duellman 1980). The Huancabamba depression is a complex system of relatively low ridges, basins, and valleys. All individuals for which habitat data are available were found in terrestrial and arboreal bromeliads by day (Duellman and Pramuk 1999). Breeding takes place by direct development, but the site of egg deposition is not known. The ability of this species to adapt to modified habitats is unknown.

Major Threats In Peru, this species is threatened by habitat loss as a result of livestock farming and selective logging.

Conservation Measures In Peru, this species might occur in one small-protected area in the north-west, the Tabaconas Namballe National Sanctuary. In Ecuador, its geographic range overlaps with Parque Nacional Sangay.

Bibliography: Duellman, W.E. and Pramuk, J.B. (1999), Duellman, W.E. and Wild, E.R. (1993), Lynch, J.D. (1979c), Lynch, J.D. and Duellman, W.E. (1980), Lynch, J.D. and Duellman, W.E. (1997), Rodríguez, L.O., Cordova, J.H. and Icochea, J. (1993)

Data Providers: Lily Rodríguez, Jorge Luis Martínez, Luis A. Coloma, Santiago Ron

EN *Eleutherodactylus colomai* Lynch and Duellman, 1997**Endangered B1ab(iii)****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Colombia, Ecuador**Current Population Trend:** Decreasing

© Mario Humberto Yáñez-Muniz

Geographic Range This species is known from three localities in the foothills of the Andes in north-western Ecuador and south-western Colombia: Pote, Río Santiago, in Esmeraldas Province, Ecuador; Alto Tambo, in Esmeraldas Province, Ecuador; and the Altaquer-Tumaco Road, department of Nariño, Colombia. Its known altitudinal range is 360-1,200m asl.

Population It is an extremely rare species.

Habitat and Ecology It inhabits mature and secondary moist forest, but it is not found in open areas. Specimens have been found on leaves of bushes 50-60cm above the ground at night. It is presumed to breed by direct development, although the site of egg deposition is not known.

Major Threats The major threats are habitat loss -- most likely due to deforestation for agricultural development, plantations, illegal crops, logging, and human settlement -- and pollution (resulting from the spraying of illegal crops).

Conservation Measures It is not known from any protected areas, but it occurs on the border of the Reserva Ecológica Cotacachi-Cayapas in Ecuador. It may be worth investigating the possible expansion of this reserve to include part of the range of this species.

Bibliography: Acosta-Galvis, A.R. (2000), Lynch, J.D. (1998b), Lynch, J.D. and Duellman, W.E. (1997), Morales, M. et al. (2002), Ruiz-Carranza, P.M., Ardila-Robayo, M.C. and Lynch, J.D. (1996)

Data Providers: Fernando Castro, Santiago Ron, Luis A. Coloma, Manuel Morales

VU *Eleutherodactylus colostichos* La Marca and Smith, 1982**Vulnerable D2**

Order, Family: Anura, Leptodactylidae
Country Distribution: Venezuela
Current Population Trend: Stable



Geographic Range This species is known only from a single, very restricted locality in the Páramo de Los Conejos, in the Sierra de la Culata, in the state of Mérida, Venezuela. It has been recorded from 3,000-3,600m asl.

Population It is an uncommon species.

Habitat and Ecology It is a terrestrial species that inhabits páramo grassland. It breeds by direct development.

Major Threats Agriculture and habitat disturbance by tourists are major threats.

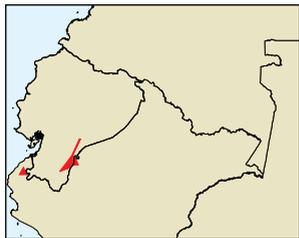
Conservation Measures The population is protected within the Parque Nacional Sierra de la Culata. Close population monitoring of this species is required given that it is known only from a single locality.

Bibliography: Barrio Amorós, C.L. (2004), Frost, D.R. (1985), La Marca, E. (1992), La Marca, E. (1995b), La Marca, E. (1997), La Marca, E. and Smith, H.M. (1982)

Data Providers: Enrique La Marca, Juan Elías García-Pérez

VU *Eleutherodactylus condor* Lynch and Duellman, 1980**Vulnerable B1ab(iii)**

Order, Family: Anura, Leptodactylidae
Country Distribution: Ecuador, Peru
Current Population Trend: Decreasing



Geographic Range This species is known from 1,975m asl in the Cordillera de Cutucú and Coangos at 1,500-1,600m asl on the western slope of Cordillera del Cóndor, Morona-Santiago Province, Ecuador, and from 1,750m asl on the eastern slope of the Cordillera del Cóndor, in the department of Amazonas, Peru. This species is also observed in the department of Tumbes. It might occur more widely, especially in areas between known locations.

Population There is limited information on the population status of this species. In Ecuador, this species is rare although it was recorded in 2003 in two localities in the Cordillera del Cóndor. The Peruvian locality is the first record, and based on an adult female.

Habitat and Ecology All individuals have been collected in humid montane cloud forest. Adults have been found perched on low vegetation at night; juveniles and adults were on the forest floor by day. This species breeds by direct development, but the site of egg deposition is not known. It has not been found outside old growth forest.

Major Threats The major threat is habitat loss and degradation through agriculture (especially livestock ranching), logging, and mining. The Cordillera del Cóndor region is not currently threatened because of land mines remaining there from the 1995 border war.

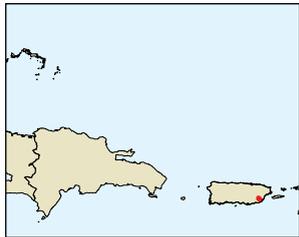
Conservation Measures The range of this species overlaps with Tumbes Reserve Zone in the department of Tumbes and Santiago Comainas Reserve Zone in the department of Amazonas, both in northern Peru. In Ecuador, it occurs in Parque Nacional Podocarpus.

Bibliography: Almendariz, A. (1997), Duellman, W.E. and Pramuk, J.B. (1999), Lynch, J.D. and Duellman, W.E. (1980), Lynch, J.D. and Duellman, W.E. (1997), Morales, M. (2003), Reynolds, R. and Icochea, J. (1997), Tello, G. (1998), Wust, W.H. (1998)

Data Providers: Lily Rodríguez, Jorge Luis Martínez, Luis A. Coloma, Santiago Ron, Diego Almeida

EN *Eleutherodactylus cooki* Grant, 1932**Endangered B1ab(iii)**

Order, Family: Anura, Leptodactylidae
Country Distribution: Puerto Rico
Current Population Trend: Decreasing



© Aljandiro Sanchez

Geographic Range This species has a restricted range at Cuchilla de Pandura, Puerto Rico. Its altitudinal range is 91-303m asl.

Population The current population status is not clear, but it is not currently believed to be declining.

Habitat and Ecology It lives in humid forests where it is found among large boulder clusters; the eggs are laid on damp boulder surfaces in grottoes and develop directly.

Major Threats Major threats include habitat destruction and disturbance from agriculture and urbanization (since the boulder areas in which it occurs are close to human habitation).

Conservation Measures It is not known to occur in any protected areas, and protection of the habitat of this species is urgently needed.

Bibliography: Burrowes, P.A. (2000), Burrowes, P.A. and Joglar, R.L. (1999), Hedges, S.B. (1993), Henderson, R.W. and Powell, R. (1999), Henderson, R.W. and Powell, R. (2001), Joglar, R.L. (1999), Joglar, R.L., Burrowes, P.A. and Rios, N. (1996), Rivero, J.A. (1998), Vega-Castillo, S.I. (2000)

Data Providers: Blair Hedges, Rafael Joglar, Richard Thomas, Luis J. Villanueva-Rivera, Neftalí Rios-Lopez

VU *Eleutherodactylus cornutus* (Jiménez de la Espada, 1871)**Vulnerable B1ab(iii)**

Order, Family: Anura, Leptodactylidae
Country Distribution: Colombia, Ecuador
Current Population Trend: Unknown



© Natural History Museum and Biodiversity Research Center, University of Kansas

Geographic Range This species can be found at moderate elevations (1,150-1,800m asl) along the eastern face of the Cordillera Oriental from southern Colombia (Cauquetá) to southern Ecuador.

Population This is a rare species across its range; it has not been seen since 1990 in Colombia, although there has been little survey work.

Habitat and Ecology This species occurs in cloud forest. One individual was found on the forest floor by day, while others were found on the ground at night; some individuals have been found on stream banks (Lynch and Duellman 1980). Reproduction occurs by direct development.

Major Threats Habitat destruction and degradation due to agriculture (including the planting of illegal crops), human settlement, and logging is the main threat. Some other species of *Eleutherodactylus* that are associated with streams have undergone dramatic declines and disappearances, possibly due to chytridiomycosis, so the status of this species should be monitored carefully.

Conservation Measures In Ecuador, it occurs in Parque Nacional Podocarpus, and its range overlaps with Reserva Ecológica Cayamabe-Coca, and Parque Nacional Sumaco Napo-Galeras. In Colombia, it occurs in Parque Nacional Natural Alto Fragua-Indi Wasa.

Bibliography: Jiménez de la Espada, M. (1871), Lynch, J.D. (1975b), Lynch, J.D. (1997), Lynch, J.D. and Duellman, W.E. (1980), Lynch, J.D. and Duellman, W.E. (1997)

Data Providers: Luis A. Coloma, Santiago Ron, John Lynch, Diego Almeida

CR *Eleutherodactylus corona* Hedges and Thomas, 1992

Critically Endangered A3c; B1ab(iii)+2ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Haiti
Current Population Trend: Decreasing



© S. Blair Hedges, Penn State



Geographic Range This species is known from only one site on the Massif de la Hotte, in Haiti, at 1,120m asl.

Population It is known from fewer than 10 specimens, and is probably very rare.

Habitat and Ecology It is an arboreal species, occurring in high-elevation cloud forest. It has been recorded only from forest edge but this is probably not suitable habitat. Males call from bromeliads or orchids, which they appear to require for reproduction. The species breeds by direct development.

Major Threats Severe habitat destruction is taking place in its range, primarily due to logging by local people (charcoaling) and slash-and-burn agriculture.

Conservation Measures The species occurs only in the Parc National Macaya, but there is no management of this area for conservation, and the habitat continues to be destroyed. Urgent site-based action is required in the Massif de la Hotte to conserve the remaining habitat in the area, in order to ensure the persistence of this species as well as other threatened amphibians known only from this area. Survey work is required to determine the population status of this species.

Bibliography: Hedges, S.B. (1993), Hedges, S.B. (1999), Hedges, S.B. (2001), Hedges, S.B. and Thomas, R. (1992b), Henderson, R.W. and Powell, R. (1999), Henderson, R.W. and Powell, R. (2001), Schwartz, A. and Henderson, R.W. (1991)

Data Providers: Blair Hedges, Richard Thomas

EN *Eleutherodactylus cosnipatae* Duellman, 1978

Endangered B1ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Peru
Current Population Trend: Decreasing



© Alessandro Catenazzi



Geographic Range This species is believed to be entirely restricted to the Cosñipata Valley (1,580-1,700m asl), on the north-eastern slopes of the Cadena de Paucartambo, a frontal range of the Andean Cordillera Oriental in Cuzco Department, Peru.

Population It is a rare species.

Habitat and Ecology It can be found in tall forest with some tree ferns and bromeliads and luxuriant undergrowth of mosses and ferns. Except for a single individual that was collected under a rock, all specimens have been recorded calling from low vegetation in cloud forest at night. It is not known from modified habitats. This species breeds by direct development.

Major Threats The major threat is small-scale agriculture (involving both crops and livestock) taking place within the valley.

Conservation Measures Part of the range is well protected within Parque Nacional Manu. Further survey work is necessary to determine the species' current population status and whether it is indeed confined to the Cosñipata Valley.

Bibliography: Duellman, W.E. (1978), Rodriguez, L.O., Cordova, J.H. and Icochea, J. (1993)

Data Providers: Lily Rodriguez, Jorge Luis Martinez, Wilfredo Arizabal

EN *Eleutherodactylus counouspeus* Schwartz, 1964

Endangered B1ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Haiti
Current Population Trend: Decreasing



Geographic Range This species is restricted to the Massif de la Hotte, Haiti, from 303-760m asl.

Population It is moderately common.

Habitat and Ecology It inhabits limestone caves and crevices in closed, humid forest; males call from well within the caves, where the eggs are laid. It breeds by direct development.

Major Threats Severe habitat destruction is taking place in the Formon-Macaya region, including throughout Parc National Macaya, due to logging (charcoal collection) by locals and slash and burn agriculture.

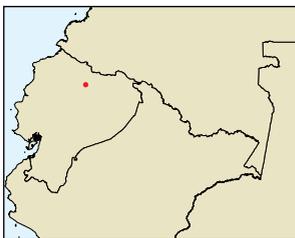
Conservation Measures It occurs in Parc National Macaya, but there is no management of this area for conservation, and the habitat continues to be destroyed. Urgent site-based action is required in the Massif de la Hotte to conserve the remaining existing habitat in the area, to ensure the persistence of this species, as well as other threatened amphibians known only from this area.

Bibliography: Hedges, S.B. (1993), Hedges, S.B. (1999), Hedges, S.B. (2001), Henderson, R.W. and Powell, R. (1999), Henderson, R.W. and Powell, R. (2001), Schwartz, A. (1964a), Schwartz, A. (1981), Schwartz, A. and Henderson, R.W. (1991)

Data Providers: Blair Hedges, Richard Thomas, Robert Powell

EN *Eleutherodactylus cremnobates* Lynch and Duellman, 1980

Endangered B1ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Ecuador
Current Population Trend: Decreasing



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Geographic Range This species is only known from five localities on the Amazonian slopes of the Andes in Ecuador, at 1,410-1,700m asl, in the Rio Quijos Valley. It may have a slightly wider distribution.

Population It is reasonably common in its small range.

Habitat and Ecology It is a nocturnal cloud forest species, found among moss, ferns or herbaceous plants on cliffs over streams. It is not known whether or not it can adapt to disturbed habitats. It is presumed to breed by direct development, but the site of egg deposition is not known.

Major Threats Habitat destruction and degradation are taking place due to agricultural development, plantations, logging, and human settlement. About 60% of the natural vegetation had been removed from within its known range by 1996. Some other species of *Eleutherodactylus* that are associated with high-elevation streams have undergone dramatic declines and disappearances, possibly due to chytridiomycosis, so the status of this species should be monitored carefully.

Conservation Measures Its range possibly overlaps with the Reserva Ecológica Cayambe-Coca. There is a need for improved protection of the cloud forest habitat of this species.

Bibliography: Lynch, J.D. and Duellman, W.E. (1980), Lynch, J.D. and Duellman, W.E. (1997)

Data Providers: John Lynch, Luis A. Coloma, Santiago Ron

EN *Eleutherodactylus crenunguis* Lynch, 1976**Endangered B1ab(iii)****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Ecuador**Current Population Trend:** Decreasing

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Geographic Range This species is known from more than ten locations in the vicinity of Pilalo on the Pacific slope of the Cordillera Occidental in central Ecuador, where it has been recorded from 760-2,486m asl.

Population It is not an uncommon species.

Habitat and Ecology Individuals have been found on low vegetation along, or on banks of, streams at night (Lynch and Duellman 1997) in montane forest. It breeds by direct development, and the eggs are laid in leaf-litter.

Major Threats Agriculture, both crops and livestock, as well as logging, are major threats to the species' habitat. Some other species of *Eleutherodactylus* that are associated with montane streams have undergone dramatic declines and disappearances, possibly due to chytridiomycosis, so the status of this species should be monitored carefully.

Conservation Measures Its range is not included in any protected areas, and there is an urgent need for the protection of the montane forest habitat of this species.

Bibliography: Lynch, J.D. (1976a), Lynch, J.D. and Duellman, W.E. (1997)

Data Providers: Luis A. Coloma, Santiago Ron, Diego Cisneros-Heredia, Ana Almandáriz

VU *Eleutherodactylus crucifer* (Boulenger, 1899)**Vulnerable B1ab(iii)****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Ecuador**Current Population Trend:** Decreasing

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Geographic Range This species occurs at 1,200-1,800m asl on the Pacific slopes of the Cordillera Occidental in Ecuador, from the provinces of Imbabura and Esmeraldas, south to Bolivar. It has been recorded from around ten localities.

Population It appears to be an uncommon species, but it is hard to find, and so it might not be as rare as it seems.

Habitat and Ecology It is a cloud forest species that lives in bromeliads by day. At night, individuals have been found on ferns and leaves up to 2m above the ground, in dense forest, and along streams. It is not known whether or not it can adapt to disturbed habitats. It is presumed to breed by direct development, but the site of egg deposition is not known.

Major Threats Habitat destruction and degradation are taking place due to agricultural development, plantations, logging, and human settlement. Some other species of *Eleutherodactylus* that are associated with streams have undergone dramatic declines and disappearances, possibly due to chytridiomycosis, so the status of this species should be monitored carefully.

Conservation Measures Its geographic range overlaps the Reservas Ecológica Cotacachi-Cayapas and the Reserva Ecológica Los Illinizas.

Bibliography: Boulenger, G.A. (1899), Lynch, J.D. and Duellman, W.E. (1997)

Data Providers: John Lynch, Luis A. Coloma, Santiago Ron

EN *Eleutherodactylus cryophilus* Lynch, 1979**Endangered B1ab(iii)****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Ecuador**Current Population Trend:** Decreasing

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Geographic Range This species is known from five localities east and west of Cuenca, Morona-Santiago Province, Ecuador, from 2,835-3,384m asl. It is also known from the Protected Forest of Mazan, within Parque Nacional Cajas.

Population There is no information on the current population status of this species.

Habitat and Ecology Individuals have been found beneath rocks and logs in sub-páramo shrubland and páramo grassland habitats. It breeds by direct development.

Major Threats Habitat destruction and degradation, primarily due to agriculture, is the major threat.

Conservation Measures Its range overlaps Parque Nacional Cajas and Parque Nacional Sangay. Further survey work is needed to determine the current population status of this species.

Bibliography: Lynch, J.D. (1976a), Lynch, J.D. (1979c), Lynch, J.D. and Duellman, W.E. (1997)

Data Providers: Luis A. Coloma, Santiago Ron, Mario Yáñez-Muñoz

EN *Eleutherodactylus cryptomelas* Lynch, 1979**Endangered B1ab(iii)****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Ecuador, Peru**Current Population Trend:** Decreasing

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Geographic Range This Andean species is known from elevations of 2,470-2,710m asl on the Amazonian slopes of the Cordillera Oriental and at 3,000-3,100m asl on the the ridges north of the Cuenca de Loja, in southern Ecuador, and at elevations of 2,770-2,820m asl on the western slope of the Cordillera de Huacabamba in Piura Province in northern Peru.

Population It is a rare species.

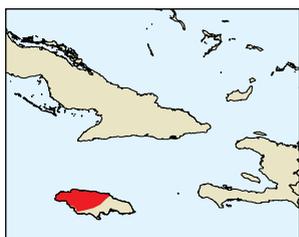
Habitat and Ecology It inhabits páramo, sub-páramo and humid cloud forests (Lynch 1979c; Duellman and Pramuk 1999). Specimens have been found in terrestrial bromeliads or under rocks; one individual from Peru was found in a tree at night (Duellman and Pramuk 1999). The ability of this species to adapt to modified habitats is unknown. It is presumed to breed by direct development, although the site of egg deposition is not known.

Major Threats General habitat loss through deforestation for livestock ranching and selective wood extraction is the main threat to this species, including even in protected areas.

Conservation Measures In Peru, this species might occur in one small-protected area (Tabaconas Namballe National Sanctuary). In Ecuador, its geographic range overlaps with Parque Nacional Podocarpus. Improved and expanded protection of the habitat of this species is needed.

Bibliography: Duellman, W.E. and Pramuk, J.B. (1999), Duellman, W.E. and Wild, E.R. (1993), Lynch, J.D. (1979c), Lynch, J.D. and Duellman, W.E. (1980), Lynch, J.D. and Duellman, W.E. (1997), Rodríguez, L.O., Cordova, J.H. and Icochea, J. (1993)

Data Providers: Lily Rodríguez, Jorge Luis Martínez, Luis A. Coloma, Santiago Ron

CR *Eleutherodactylus cubanus* Barbour and Shreve, 1937**Critically Endangered B2ab(iii)****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Cuba**Current Population Trend:** Decreasing**Geographic Range** This species is restricted to the Sierra Maestra, Cuba, at an altitude of 800-1,400m asl.**Population** It is a common species within suitable habitat.**Habitat and Ecology** It is restricted to closed humid forest at high elevations, and breeds by direct development.**Major Threats** The primary threat to this species is habitat destruction due to agriculture, woodcutting, and disturbance from touristic activities, as well as infrastructure development for human settlement.**Conservation Measures** The range of this species is wholly within Parque Nacional Turquino and Parque Nacional La Bayamesa, but there is no management of these specific areas for conservation, and the habitat continues to be destroyed. Improved management of these areas, and maintenance of the existing habitat, is urgently needed.**Bibliography:** Centro Nacional de Areas Protegidas (CNAIP) (2002), Díaz, L.M. (1998b), Hedges, S.B. (1993), Hedges, S.B. (1999), Hedges, S.B. (2001), Hedges, S.B., González, L. and Estrada, A.R. (1995), Henderson, R.W. and Powell, R. (1999), Henderson, R.W. and Powell, R. (2001), Schwartz, A. and Henderson, R.W. (1991)**Data Providers:** Blair Hedges, Luis Díaz**VU** *Eleutherodactylus cundalli* Dunn, 1926**Vulnerable B1ab(iii)****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Jamaica**Current Population Trend:** Decreasing**Geographic Range** This species is widely, but patchily, distributed in western Jamaica from sea level to 635m asl.**Population** It is more abundant than many other species of *Eleutherodactylus* on Jamaica and is moderately common.**Habitat and Ecology** It is found in association with rocks and caves and requires closed-canopy moist forest. This species breeds by direct development, and eggs are laid on the ground. It does not occur in open habitats.**Major Threats** The main threat is habitat degradation and loss due to agriculture, human settlements, tourism development, and logging.**Conservation Measures** This species occurs in several forest reserves, but many of these are in need of improved management.**Bibliography:** Diesel, R., Baurle, G. and Vogel, P. (1995), Hedges, S.B. (1993), Hedges, S.B. (1999), Hedges, S.B. (2001), Henderson, R.W. and Powell, R. (1999), Henderson, R.W. and Powell, R. (2001), Schwartz, A. and Henderson, R.W. (1991)**Data Providers:** Blair Hedges, Susan Koenig, Byron Wilson**CR** *Eleutherodactylus darlingtoni* Cochran, 1935**Critically Endangered A3c; B1ab(iii)+2ab(iii)****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Haiti**Current Population Trend:** Decreasing**Geographic Range** This species is restricted to the Massif de la Selle, in Haiti, where it has been recorded from 1,720-2,200m asl.**Population** It is very rare, and only a few specimens have ever been found. It was last recorded in the mid 1980s, but there have been few subsequent surveys.**Habitat and Ecology** The species is known to occur in high-elevation pine forest, and has not been recorded from disturbed habitats. Eggs are laid on the ground, and it breeds by direct development.**Major Threats** Severe habitat destruction is the primary threat to this species, largely as a result of logging by local people (charcoal-ing) and slash-and-burn agriculture.**Conservation Measures** The species occurs in the Parc National Morne La Visite, but there is no active management of this area for conservation, and the habitat continues to be destroyed. Improved management of this protected area, and maintenance of the existing habitat, is urgently needed.**Bibliography:** Hedges, S.B. (1992), Hedges, S.B. (1993), Hedges, S.B. (1999), Hedges, S.B. (2001), Henderson, R.W. and Powell, R. (1999), Henderson, R.W. and Powell, R. (2001), Schwartz, A. (1982a), Schwartz, A. and Henderson, R.W. (1991)**Data Providers:** Blair Hedges, Richard Thomas, Robert Powell**EN** *Eleutherodactylus degener* Lynch and Duellman, 1997**Endangered B1ab(iii)****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Colombia, Ecuador**Current Population Trend:** Decreasing**Geographic Range** This species is known from three localities in the foothills of the Andes in north-western Ecuador and south-western Colombia: El Cristal, in Esmeraldas Province, Ecuador; Alto Tambo, in Esmeraldas Province, Ecuador; and the Altaquer-Tumaco Road, department of Nariño, Colombia. Its known altitudinal range is 830-1,200m asl.**Population** It is a very rare species.**Habitat and Ecology** It lives in humid montane and submontane forests, and also in disturbed forest, but not in open areas. It is generally active on low vegetation at night. It is presumed to breed by direct development, but the site of egg deposition is not known.**Major Threats** The major threats are habitat loss -- most likely due to deforestation for agricultural development, plantations, illegal crops, logging, and human settlement -- and pollution (resulting from the spraying of illegal crops).**Conservation Measures** It occurs in the Reserva Ecológica

Cotacachi-Cayapas in Ecuador and in La Planada private reserve in Colombia.

Bibliography: Acosta-Galvis, A.R. (2000), Lynch, J.D. and Duellman, W.E. (1997), Lynch, J.D. and Duellman, W.E. (1997)**Data Providers:** Fernando Castro, Santiago Ron, Luis A. Coloma

EN *Eleutherodactylus deinops* Lynch, 1996**Endangered B1ab(iii)**

Order, Family: Anura, Leptodactylidae
Country Distribution: Colombia
Current Population Trend: Decreasing



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Geographic Range This species is known from Valle del Cauca Department on the western flank of the Cordillera Occidental in Colombia, from 1,750-2,600m asl.

Population It is not a rare species, but it is not common either.

Habitat and Ecology It is usually active in the medium-high canopy inside primary and good quality secondary forest. It breeds by direct development.

Major Threats The major threat to the species is habitat loss caused by deforestation for agricultural development (including the planting of illegal crops).

Conservation Measures It occurs in Parque Nacional Natural Los Farallones de Cali.

Bibliography: Acosta-Galvis, A.R. (2000), Lynch, J.D. (1996b), Lynch, J.D. (1998b), Lynch, J.D. (1999), Lynch, J.D., Ruiz-Carranza, P.M. and Ardila-Robayo, M.C. (1997), Ruiz-Carranza, P.M., Ardila-Robayo, M.C. and Lynch, J.D. (1996), Ruiz-Carranza, P.M., Lynch, J.D. and Ardila-Robayo, M.C. (1997)

Data Providers: Fernando Castro, Maria Isabel Herrera, John Lynch

EN *Eleutherodactylus dennisi* (Lynch, 1970)**Endangered B1ab(iii)**

Order, Family: Anura, Leptodactylidae
Country Distribution: Mexico
Current Population Trend: Unknown



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Geographic Range This species is known only from the type locality in Antiguo Morelos, southern Tamaulipas, Mexico at 250m asl.

Population It is a rare species.

Habitat and Ecology It has been collected in caves and lowland forest. Breeding is by direct development.

Major Threats The major threat to this species is habitat loss, particularly due to logging.

Conservation Measures Its range does not include any protected areas. A systematic survey to corroborate the presence of this species in the type locality is required. This species is protected by Mexican law under the "Special Protection" category (Pr).

Bibliography: Lynch, J.D. (1970)

Data Providers: Georgina Santos-Barrera, Luis Canseco-Márquez

EN *Eleutherodactylus devillei* (Boulenger, 1880)**Endangered B1ab(iii)**

Order, Family: Anura, Leptodactylidae
Country Distribution: Ecuador
Current Population Trend: Decreasing



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Geographic Range This species occurs on the eastern slopes of the Andes in Napo Province, Ecuador, at 2,350-3,155m asl. It has been recorded from nine localities and probably occurs somewhat more widely.

Population It is a common species within its small known range.

Habitat and Ecology It inhabits upper montane forests and clearings and is tolerant of some limited habitat degradation. It is found beneath rocks and logs by day and on low vegetation at night. It is presumed to breed by direct development, but the site of egg deposition is not known.

Major Threats The major threat is habitat destruction and degradation due to deforestation for agricultural development, logging, and human settlement.

Conservation Measures Its geographic range overlaps with Parque Nacional Sumaco, and slightly with the Reserva Ecológica Antisana. Improved protection of the montane forest habitat of this species is needed.

Bibliography: Boulenger, G.A. (1880), Flores, G. (1987), Flores, G. (1988a), Lynch, J.D. (1983), Lynch, J.D. and Duellman, W.E. (1980), Lynch, J.D. and Duellman, W.E. (1997)

Data Providers: John Lynch, Luis A. Coloma, Santiago Ron

VU *Eleutherodactylus diaphonus* Lynch, 1986**Vulnerable D2**

Order, Family: Anura, Leptodactylidae
Country Distribution: Colombia
Current Population Trend: Stable



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Geographic Range This species is only known from the type locality (over about 1km) of the Alto Río Calima in the Valle del Cauca department on the western slopes of the Cordillera Occidental, Colombia, from 1,230-1,250m asl. Surveys of the surrounding area have not recorded the species indicating that it is most likely a very restricted range species.

Population It is quite common at the type locality.

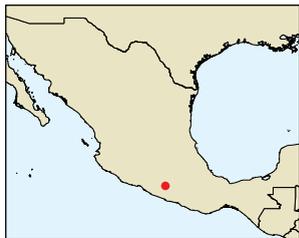
Habitat and Ecology It is found in vegetation along the stream and on rocks inside and immediately adjacent to the stream in low cloud forest. It breeds by direct development. It is only known from this one stream and is thought to be a microhabitat specialist, like other species of the group.

Major Threats The main threat to this species is potentially the hydroelectric power dam only a few kilometres upstream, but there is no access to the species' habitat as it is part of the dam property. Its habitat does not appear to be otherwise threatened. Some other species of *Eleutherodactylus* that are associated with streams have undergone dramatic declines and disappearances, possibly due to chytridiomycosis, so the status of this species should be monitored carefully.

Conservation Measures The type locality is not within a protected area, although it lies just outside the Parque Nacional Natural Farallones de Cali. This locality is within a "protected" area where the Corporación del Valle del Cauca (CVC) generates electricity as waters leave Lago Calima.

Bibliography: Acosta-Galvis, A.R. (2000), Lynch, J.D. (1986a), Lynch, J.D. (1998b), Lynch, J.D. (1999), Lynch, J.D. and Duellman, W.E. (1997), Lynch, J.D. and Ruiz-Carranza, P.M. (1996b), Lynch, J.D., Ruiz-Carranza, P.M. and Ardila-Robayo, M.C. (1997), Ruiz-Carranza, P.M., Ardila-Robayo, M.C. and Lynch, J.D. (1996)

Data Providers: Fernando Castro, Maria Isabel Herrera, John Lynch

EN *Eleutherodactylus dilatatus* (Davis and Dixon, 1955)**Endangered B1ab(iii)+2ab(iii)****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Mexico**Current Population Trend:** Decreasing

Geographic Range This species is found in Omiltemi, Mazatlan and the surrounding areas of Chilpancingo, in north-central Guerrero, Mexico. The type locality is at about 2,250m asl. It might occur a little more widely.

Population This is not a common species.

Habitat and Ecology It inhabits pine-oak forest and crops in the forest, and is commonly found under logs and rocks during the day. During the mating season males climb on rocks and bushes, and breeding is by direct development.

Major Threats Disturbance and/or loss of the forests north of Chilpancingo are the main threat for this species since it is restricted to high-elevation forests in the Omiltemi area.

Conservation Measures The Omiltemi Park is under protection by the local people, although it no longer has any formal protection status and is subject to increasing anthropogenic disturbance. There is a need to protect the montane forest habitat of this species. A new survey to evaluate the current status of the populations in Guerrero is required.

Bibliography: Dixon, J.R. (1957)**Data Providers:** Georgina Santos-Barrera, Luis Canseco-Márquez**VU** *Eleutherodactylus diogenes* Lynch and Ruíz-Carranza, 1996**Vulnerable D2****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Colombia**Current Population Trend:** Stable

Geographic Range This species is known from two localities close together; one in Parque Nacional Natural Munchique and the other just outside the park, both in Cauca department, on the western slope of the Cordillera Occidental in Colombia, from 1,470-1,600m asl.

Population It is not thought to be a rare species.

Habitat and Ecology This species is a microhabitat specialist, found on rocks near waterfalls in streams in primary forests. It has not been recorded outside primary forest. It breeds by direct development.

Major Threats There are no major threats to the species' habitat at present, as its habitat is relatively well protected. Some other species of *Eleutherodactylus* that are associated with streams at high elevations have undergone dramatic declines and disappearances, possibly due to chytridiomycosis, so the status of this species should be monitored carefully.

Conservation Measures One locality is within Parque Nacional Natural Munchique, and the other is in a private reserve that has

well-protected primary forest. The maintenance of these protected areas is essential for the long-term survival of this restricted-range, microhabitat specialist.

Bibliography: Acosta-Galvis, A.R. (2000), Lynch, J.D. (1998b), Lynch, J.D. and Ruiz-Carranza, P.M. (1996b), Lynch, J.D., Ruiz-Carranza, P.M. and Ardila-Robayo, M.C. (1997), Ruiz-Carranza, P.M., Ardila-Robayo, M.C. and Lynch, J.D. (1996)**Data Providers:** Fernando Castro, Maria Isabel Herrera, John Lynch**EN** *Eleutherodactylus dissimulatus* Lynch and Duellman, 1997**Endangered B1ab(iii)****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Ecuador**Current Population Trend:** Decreasing

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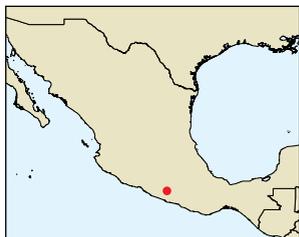
Geographic Range This species is known from two localities on the western slopes of the Andes in Pichincha Province, north-western Ecuador: Quebrada Zapadores, near Chiriboga, at 2,020m asl; and from San Ignacio, at 1,920m asl. Reports from Colombia are in error (J. Lynch pers. comm.).

Population It is not a common species.

Habitat and Ecology It inhabits montane cloud forest, although its ability to adapt to modified habitats is unknown. Specimens have been found on low vegetation along streams at night. It is presumed to breed by direct development, but the site of egg deposition is not known.

Major Threats Habitat destruction and degradation is ongoing within its range, due to expanding agricultural activities (including the rearing of livestock) and human settlements.

Conservation Measures It is not known from any protected areas, and there is an urgent need for the protection of the montane cloud forest habitat of this species.

Bibliography: Lynch, J.D. and Duellman, W.E. (1997)**Data Providers:** John Lynch, Luis A. Coloma, Santiago Ron**CR** *Eleutherodactylus dixonii* Lynch, 1991**Critically Endangered B1ab(iii)+2ab(iii)****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Mexico**Current Population Trend:** Decreasing

Geographic Range This species is known only from Agua del Obispo, central Guerrero, Mexico.

Population This is a rare species.

Habitat and Ecology It inhabits a small area of pine-oak forest at moderate elevations. Individuals are frequently found perched on the branches of trees from which they usually call. It breeds by direct development.

Major Threats The primary threat is habitat loss and degradation, as the forested areas surrounding Agua del Obispo have been severely disturbed or transformed by human activities.

Conservation Measures The range of this species does not include any protected areas, and an urgent programme of protection and restoration of the Agua del Obispo area is required. Further survey work to evaluate the population status of this species is also necessary. It is protected by Mexican law under the "Special Protection" category (Pr).

Bibliography: Hedges, S.B. (1989), Lynch, J.D. (1991b)**Data Providers:** Georgina Santos-Barrera, Luis Canseco-Márquez

CR *Eleutherodactylus dolomedes* Hedges and Thomas, 1992

Critically Endangered A3c; B1ab(iii)+2ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Haiti
Current Population Trend: Decreasing



© S. Blair Hedges, Penn State



Geographic Range This species is restricted to one site on the Massif de la Hotte, in Haiti, at 1,120m asl.

Population It is known only from a few specimens.

Habitat and Ecology It is an arboreal species, occurring in high-elevation cloud forest. While it has been recorded from forest edge, this is probably not suitable habitat. Eggs are laid on the ground, and it breeds by direct development.

Major Threats The primary threat to the species is severe habitat destruction, which is taking place as a result of logging by local people (charcoaling) and slash-and-burn agriculture.

Conservation Measures This species is known only from the Parc National Macaya; there is no active management of this area for conservation, and the habitat continues to be destroyed. Urgent site-based action is required in the Massif de la Hotte to conserve the remaining habitat in the area, in order to ensure the persistence of this species as well as other threatened amphibians known only from this area. Survey work is required to determine the population status of this species.

Bibliography: Hedges, S.B. (1993), Hedges, S.B. (1999), Hedges, S.B. (2001), Hedges, S.B. and Thomas, R. (1992b), Henderson, R.W. and Powell, R. (1999), Henderson, R.W. and Powell, R. (2001), Schwartz, A. and Henderson, R.W. (1991)

Data Providers: Blair Hedges, Richard Thomas

VU *Eleutherodactylus dolops* Lynch and Duellman, 1980

Vulnerable B1ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Colombia, Ecuador
Current Population Trend: Unknown



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Geographic Range This species occurs at an elevation of 1,440-1,950m asl on the eastern face of the Andes in Putumayo and Cauqueta (Colombia) and Napo (Ecuador). In Ecuador it is only known from three nearby localities.

Population Generally, this is not a common frog anywhere in its range, although a good-sized series was collected in Colombia in 1990 in Parque Nacional Natural Alto Fragua.

Habitat and Ecology This species occurs in cloud forest, and is associated with stream habitats (Lynch and Duellman 1980). It is presumed to breed by direct development, but the site of egg deposition is not known. The ability of this species to adapt to modified habitats is unknown.

Major Threats The major threat is habitat loss due to agriculture (including the planting of illegal crops) and logging. Some other species of *Eleutherodactylus* that are associated with streams have undergone dramatic declines and disappearances, possibly due to chytridiomycosis, so the status of this species should be monitored carefully.

Conservation Measures This species occurs in Parque Nacional Natural Alto Fragua-Indi Wasa, in Colombia. Its range overlaps with the Reserva Ecológica Cayambe-Coca in Ecuador.

Bibliography: Acosta-Galvis, A.R. (2000), Lynch, J.D. (1989), Lynch, J.D. and Duellman, W.E. (1980), Lynch, J.D. and Duellman, W.E. (1997), Lynch, J.D., Ruiz-Carranza, P.M. and Ardila-Robayo, M.C. (1997), Ruiz-Carranza, P.M., Ardila-Robayo, M.C. and Lynch, J.D. (1996), Suarez, A.M. (1999)

Data Providers: Fernando Castro, Maria Isabel Herrera, Luis A. Coloma, Santiago Ron, John Lynch

EN *Eleutherodactylus dorsipictus* Rivero and Serna, 1988 "1987"

Endangered B1ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Colombia
Current Population Trend: Decreasing



Geographic Range This species is known from Páramo Sonsón, in southern Antioquia and eastern Caldas Departments, in the northern part of the Cordillera Central in Colombia, from 2,400-3,000m asl.

Population It is a reasonably common species.

Habitat and Ecology An inhabitant of sub-páramo, it is usually active among vegetation in the low stratum and is often found sheltering in epiphytes, in forested areas, but it can also be found in open areas. It has not been recorded from disturbed forest or from anthropogenic habitats, although it may occur in these areas. It breeds by direct development.

Major Threats The major threat to this species is habitat loss caused by deforestation for agricultural development (including the planting of illegal crops).

Conservation Measures It is not known to occur in any protected areas, and formal habitat protection is urgently needed to secure the future survival of this species.

Bibliography: Acosta-Galvis, A.R. (2000), Ardila-Robayo, M.C. and Acosta-Galvis, A. (2000a), Lynch, J.D. and Duellman, W.E. (1997), Lynch, J.D., Ruiz-Carranza, P.M. and Ardila-Robayo, M.C. (1997), Paez, V.P. *et al.* (2002), Rivero, J.A. and Serna, M.A. (1987), Rueda-Almonacid, J.V. (2000), Ruiz-Carranza, P.M., Ardila-Robayo, M.C. and Lynch, J.D. (1996)

Data Providers: Fernando Castro, Maria Isabel Herrera, John Lynch

VU *Eleutherodactylus douglasi* Lynch, 1996

Vulnerable B1ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Colombia
Current Population Trend: Decreasing



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Geographic Range This species can be found on the eastern and western flanks of the Cordillera Oriental in Santander and Norte de Santander, Colombia, at 1,800-2,550m asl. It might occur a little more widely.

Population It is a common species.

Habitat and Ecology It occurs in the understorey of cloud forests, sometimes near streams. It also occurs in secondary forest, but has not been found outside forested areas. Reproduction takes place by direct development.

Major Threats Habitat loss due to agricultural crops and cattle ranching is the main threat to this species.

Conservation Measures It occurs in the Estación El Rasgón.

Bibliography: Acosta-Galvis, A.R. (2000), Lynch, J.D. (1996a), Lynch, J.D. and Duellman, W.E. (1997), Lynch, J.D., Ruiz-Carranza, P.M. and Ardila-Robayo, M.C. (1997), Ruiz-Carranza, P.M., Ardila-Robayo, M.C. and Lynch, J.D. (1996)

Data Providers: Fernando Castro, Maria Isabel Herrera, Martha Patricia Ramirez Pinilla

VU *Eleutherodactylus duellmani* Lynch, 1980**Vulnerable B1ab(iii)**

Order, Family: Anura, Leptodactylidae
Country Distribution: Colombia, Ecuador
Current Population Trend: Decreasing



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Geographic Range This species occurs on the Pacific slopes of the western Andes in northern Ecuador (Carchi, Imabura, Pichincha Province) and southern Colombia (departments of Cauca and Nariño), from 1,780-2,700m asl.

Population In 1977, this species was recorded as abundant in Carchi and Imbabura in Ecuador. However, during surveys conducted between 1997 and 2003, it was found to be rare at many localities.

Habitat and Ecology This is a montane tropical cloud forest species, and is present in humid microhabitats. At night, it perches on branches and herbaceous vegetation immediately above small streams and sits on rock faces in the spray zones of waterfalls; some have been found in crevices or between rocks in small streams (Lynch and Duellman 1997). It is presumed to be a species that breeds by direct development, but the site of egg deposition is not known. The ability of this species to adapt to modified habitats is unknown.

Major Threats Habitat loss due to logging and agricultural development (including the planting of illegal crops) is a major threat. Some other species of *Eleutherodactylus* that are associated with streams have undergone dramatic declines and disappearances, possibly due to chytridiomycosis, so the status of this species should be monitored carefully.

Conservation Measures In Colombia, it is recorded from Parque Nacional Natural Munchique (Cauca) and La Planada (Nariño). In Ecuador, its range overlaps with Reserva Geobotánica Pululahua.

Bibliography: Acosta-Galvis, A.R. (2000), Lynch, J.D. (1980d), Lynch, J.D. (1998b), Lynch, J.D. and Burrowes, P.A. (1990), Lynch, J.D. and Duellman, W.E. (1997), Lynch, J.D., Ruiz-Carranza, P.M. and Ardila-Robayo, M.C. (1997), Ruiz-Carranza, P.M., Ardila-Robayo, M.C. and Lynch, J.D. (1996)

Data Providers: Fernando Castro, Maria Isabel Herrera, Santiago Ron, Luis A. Coloma, Diego Almeida, John Lynch

EN *Eleutherodactylus elassodiscus* Lynch, 1973**Endangered B1ab(iii)**

Order, Family: Anura, Leptodactylidae
Country Distribution: Colombia, Ecuador
Current Population Trend: Decreasing



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Geographic Range This species is found at intermediate elevations (from 2,300-2,900m asl) on the Amazonian slopes of the Andes in northern Ecuador (Sucumbios and Napo Provinces) and southern Colombia (Putumayo Province, eastern flank of the Nudo de Pasto). It is known from relatively few localities.

Population It has never been a common species but is regularly encountered in appropriate habitat. The last records might be from the 1970s in Ecuador, but there have been no known recent attempts to find it.

Habitat and Ecology This terrestrial species occurs in sloping areas of upper humid montane forest, but can also be found in forest edges. Specimens were found under rocks and logs, and on areas of humid grass by day (Lynch and Duellman 1980). Reproduction occurs by direct development.

Major Threats The major threats to this species are general habitat loss, caused by agricultural development (including the planting of illegal crops), and pollution (from the spraying of illegal crops).

Conservation Measures In Ecuador, its geographic range overlaps with the Reserva Ecológica Cayambe-Coca; however, it does not occur in any protected areas in Colombia. There is a need for improved protection of the montane forest habitat of this species. Further survey work is also necessary to determine the current population status of this species.

Bibliography: Acosta-Galvis, A.R. (2000), Lynch, J.D. (1973a), Lynch, J.D. (1989), Lynch, J.D. and Duellman, W.E. (1980), Lynch, J.D. and Duellman, W.E. (1997), Lynch, J.D., Ruiz-Carranza, P.M. and Ardila-Robayo, M.C. (1997), Ruiz-Carranza, P.M., Ardila-Robayo, M.C. and Lynch, J.D. (1996)

Data Providers: Fernando Castro, Maria Isabel Herrera, Luis A. Coloma, Santiago Ron, John Lynch

VU *Eleutherodactylus elegans* (Peters, 1863)**Vulnerable B1ab(iii)**

Order, Family: Anura, Leptodactylidae
Country Distribution: Colombia
Current Population Trend: Decreasing



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Geographic Range This species can be found on the eastern slopes of the Cordillera Oriental in the páramos of Chingaza, Sumapaz, and La Rusia, in the departments of Cundinamarca and Boyacá, Colombia, from 2,600-3,300m asl.

Population It is an abundant species.

Habitat and Ecology This species occurs in páramo areas, and also in cloud forest. It is associated with herbaceous vegetation, and very small bushes.

Major Threats The major threat is habitat loss and degradation due to crop agriculture and cattle ranching.

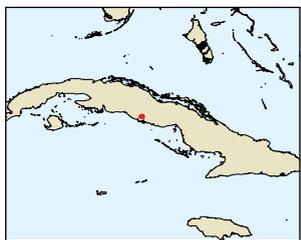
Conservation Measures It occurs in Parque Nacional Natural Chingaza and Parque Nacional Natural Sumapaz.

Bibliography: Acosta-Galvis, A.R. (2000), Bernal, X. and Guzman, F. (2000), Cochran, D.M. and Goin, C.J. (1970), Luddecke, H. *et al.* (1997), Luddecke, H. *et al.* (2000), Lynch, J.D. and Duellman, W.E. (1997), Lynch, J.D., Ruiz-Carranza, P.M. and Ardila-Robayo, M.C. (1997), Ruiz-Carranza, P.M., Ardila-Robayo, M.C. and Lynch, J.D. (1996)

Data Providers: Fernando Castro, Maria Isabel Herrera, Adolfo Amézquita, Jose Vicente Rueda

EN *Eleutherodactylus emiliae* Dunn, 1926**Endangered B1ab(iii)+2ab(iii)**

Order, Family: Anura, Leptodactylidae
Country Distribution: Cuba
Current Population Trend: Decreasing



Geographic Range This species is restricted to the Sierra de Trinidad, Cuba, from 350-830m asl.

Population It is an uncommon species.

Habitat and Ecology It is a terrestrial inhabitant of closed-canopy, humid forests, and has not been recorded outside forest habitat. Eggs are laid on the ground, and it breeds by direct development.

Major Threats The major threat to this species is habitat loss due to agricultural expansion, the development of tourism infrastructure, and the disturbance of the habitat from tourist activities.

Conservation Measures It is known from a few protected areas, although these areas do not provide sufficient protection for the species, and there is a need to provide more adequate protection of the remaining forest habitat.

Bibliography: Díaz, L.M. (1999), Hedges, S.B. (1993), Hedges, S.B. (1999), Hedges, S.B. (2001), Henderson, R.W. and Powell, R. (1999), Henderson, R.W. and Powell, R. (2001), Schwartz, A. and Henderson, R.W. (1991)

Data Providers: Blair Hedges, Luis Díaz

CR *Eleutherodactylus emleni* Dunn and Emlen, 1932

Critically Endangered A2ace; B2ab(v)
Order, Family: Anura, Leptodactylidae
Country Distribution: Honduras
Current Population Trend: Decreasing



Geographic Range This species is known from the Río Choluteca watershed from Cerro La Tigra and Cerro Uyuca to El Zamorano in south-central Honduras at elevations of 800-2,000m asl.

Population There have been no sightings of this species since 1985 despite one targeted effort to look for this species. Considering that all streamside *Eleutherodactylus* occurring above 900m asl in Honduras have disappeared recently, this species might be extinct.

Habitat and Ecology The preferred habitat of this species is pre-montane and lower montane moist forest. It occurs in leaf-litter, and has been collected along streams and in a citrus grove away from streams. Reproduction occurs by direct development.

Major Threats Although the precise reasons for the declines seen in this species are unclear, it is possible that the apparent disappearance might be due to chytridiomycosis.

Conservation Measures Survey work is urgently needed to determine the population status of this species, and the reasons for its

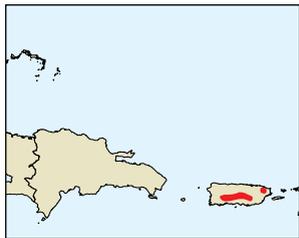
decline. It is known to occur in the Parque Nacional La Tigra and the Reserva Biológica Cerro Uyuca.

Bibliography: Campbell, J.A. and Savage, J.M. (2000), McCranie, J.R. and Wilson, L.D. (2002b)

Data Providers: Larry David Wilson, Randy McCranie

CR *Eleutherodactylus eneidae* Rivero, 1959

Critically Endangered A2ae
Order, Family: Anura, Leptodactylidae
Country Distribution: Puerto Rico
Current Population Trend: Decreasing



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Geographic Range This species formerly occurred in the interior uplands of Puerto Rico, at an altitude of 300-1,150m asl.

Population Formerly uncommon even in the 1980s, this species was last recorded in 1990 and subsequent extensive searches have failed to locate this species. It is now believed to be most probably extinct.

Habitat and Ecology A terrestrial species that breeds by direct development, it is known from extremely humid closed-canopy forest.

Major Threats The cause of its disappearance is most likely chytridiomycosis linked to climate change, although invasive rats and other predators have also been suggested.

Conservation Measures This species was known to occur in Luquillo National Forest in the El Yunque area. In view of the risk of chytridiomycosis, it is a very high priority to conduct surveys to determine whether or not this species could still survive in the wild; surviving individuals might need to form the basis for the establishment of an *ex-situ* population.

Bibliography: Burrowes, P.A., Joglar, R.L. and Green, D.E. (2004), Hedges, S.B. (1993), Henderson, R.W. and Powell, R. (1999), Henderson, R.W. and Powell, R. (2001), Joglar, R.L. (1999), Rivero, J.A. (1998)

Data Providers: Blair Hedges, Rafael Joglar, Luis J. Villanueva-Rivera, Neftali Rios-Lopez

ELEGANT COQUI**VU** *Eleutherodactylus eremitus* Lynch, 1980

Vulnerable B1ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Colombia, Ecuador
Current Population Trend: Decreasing



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Geographic Range This species is found at elevations of 1,540-2,100m asl on the Pacific slopes of the western Andes in Ecuador (Saloya Valley, Pichincha Province) and extreme south-western Colombia (La Planada, Nariño Department). It probably occurs more widely than current records suggest.

Population It was abundant in suitable habitat in La Planada, Colombia, in the late 1980s, and has been recorded during the course of recent surveys in Ecuador.

Habitat and Ecology It is a montane cloud forest species. It occurs in old growth and secondary forest, but not outside forest habitats. During the day, it can be found in epiphytic bromeliads as much as 7m off the ground. It is presumed to breed by direct development, but the site of egg deposition is not known.

Major Threats General habitat loss due to logging and agricultural development (including the planting of illegal crops) is a major threat.

Conservation Measures In Colombia, the species occurs in Reserva La Planada (department of Nariño), and in Ecuador its range overlaps with Reserva Ecológica Los Illinizas.

Bibliography: Acosta-Galvis, A.R. (2000), Lynch, J.D. (1980a), Lynch, J.D. (1980b), Lynch, J.D. and Burrowes, P.A. (1990), Lynch, J.D. and Duellman, W.E. (1997), Lynch, J.D., Ruiz-Carranza, P.M. and Ardila-Robayo, M.C. (1997), Ruiz-Carranza, P.M., Ardila-Robayo, M.C. and Lynch, J.D. (1996)

Data Providers: Fernando Castro, Maria Isabel Herrera, Santiago Ron, Luis A. Coloma, Diego Cisneros-Heredia, John Lynch, Mario Yáñez-Muñoz

VU *Eleutherodactylus eriphus* Lynch and Duellman, 1980

Vulnerable B1ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Colombia, Ecuador
Current Population Trend: Decreasing



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Geographic Range This species can be found in the valley of the Río Papallacta on the eastern face of the Andes in Napo Province, Ecuador, and Putumayo Department, Colombia, at elevations of 2,160-2,630m asl. In Ecuador, the species is only known from four localities. It probably occurs more widely.

Population This species was recorded as common in Guacamayos, La Sofia, Cosanga, and Reventador, Ecuador, in 2003.

Habitat and Ecology This species has been found in partially cleared and old growth cloud forest. It is active at night on top of low herbaceous vegetation. It is presumed to breed by direct development, but the site of egg deposition is not known.

Major Threats General habitat loss due to logging and agricultural development (including the planting of illegal crops) is a major threat.

Conservation Measures It occurs in Reserva Ecológica Cayambe-Coca and Reserva Ecológica Antisana in Ecuador.

Bibliography: Acosta-Galvis, A.R. (2000), Funk, C.W. *et al.* (2003), Lynch, J.D. and Duellman, W.E. (1980), Lynch, J.D. and Duellman, W.E. (1997), Lynch, J.D., Ruiz-Carranza, P.M. and Ardila-Robayo, M.C. (1997), Ruiz-Carranza, P.M., Ardila-Robayo, M.C. and Lynch, J.D. (1996)

Data Providers: Fernando Castro, Maria Isabel Herrera, Santiago Ron, Luis A. Coloma, Diego Almeida, John Lynch, Mario Yáñez-Muñoz, Ana Almandáriz

VU *Eleutherodactylus ernesti* Flores, 1987**Vulnerable D2****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Ecuador**Current Population Trend:** Stable**Geographic Range** This species is restricted to the peak of Volcán Sumaco, in Napo Province, Ecuador, at around 3,900m asl. It is not likely to occur elsewhere.**Population** The population status of this species is unknown.**Habitat and Ecology** It lives in high-elevation grassland and bushland habitats on the Volcán Sumaco. It is presumed to breed by direct development, but the site of egg deposition is not known.**Major Threats** There is no recent information on threats in its only known locality. Its highly restricted range renders it susceptible to stochastic threatening processes.**Conservation Measures** It is not known from any protected areas. There is a need for further survey work to investigate the current population status of this species, and to determine whether or not there are any immediate threats at present. Close population monitoring is required given that it is known only from the Volcán Sumaco.**Bibliography:** Flores, G. (1987), Lynch, J.D. and Duellman, W.E. (1997)**Data Providers:** John Lynch, Luis A. Coloma, Santiago Ron**EN** *Eleutherodactylus etheridgei* Schwartz, 1958**Endangered B1ab(iii)+2ab(iii)****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Cuba**Current Population Trend:** Decreasing**Geographic Range** This species occurs in Santiago de Cuba and Guantanamo Province, in Cuba, from sea level up to 151m asl. It occurs on Guantanamo Naval Station and has only rarely been encountered outside this site.**Population** It is moderately common in suitable habitat.**Habitat and Ecology** This species is found in xeric rocky regions at low elevations in mesic tropical forest, and has not been recorded outside forest habitat. It breeds by direct development.**Major Threats** Infrastructure development for human settlement and tourist facilities, as well as the disturbance of the habitat by tourists, is the major threat to this species.**Conservation Measures** It is known from two protected areas, and the naval station affords the species some level of protection.**Bibliography:** Hedges, S.B. (1993), Hedges, S.B. (1999), Hedges, S.B. (2001), Henderson, R.W. and Powell, R. (1999), Henderson, R.W. and Powell, R. (2001), Schwartz, A. (1958c), Schwartz, A. and Henderson, R.W. (1991)**Data Providers:** Blair Hedges, Luis Díaz**EN** *Eleutherodactylus eugeniae* Lynch and Duellman, 1997**Endangered B1ab(iii)****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Ecuador**Current Population Trend:** Decreasing

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Geographic Range This species occurs in four localities in a limited area of cloud forest in the upper valley of the Río Pilatón in the province of Pichincha, Ecuador, at elevations of 1,700-2,010m asl.**Population** It is an uncommon species. It has been recorded as recently as December 2002 in Pichincha.**Habitat and Ecology** It is an inhabitant of cloud forest, in humid subtropical and humid temperate regimes, and is usually found away from streams. It occurs in bromeliads in the sub canopy. It breeds by direct development, which takes place in bromeliads.**Major Threats** Habitat loss, due to logging, is the major threat to the species.**Conservation Measures** It is not known to occur in any protected areas, and protection of the cloud forest habitat of this species is urgently needed.**Bibliography:** Guayasamin, J.M. *et al.* (2004), Lynch, J.D. and Duellman, W.E. (1997)**Data Providers:** Luis A. Coloma, Santiago Ron, Mario Yáñez-Muñoz**CR** *Eleutherodactylus eunaster* Schwartz, 1973**Critically Endangered A3c****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Haiti**Current Population Trend:** Decreasing

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Geographic Range This species is restricted to the Massif de la Hotte, in Haiti, at 575-1,300m asl.**Population** It is known to be a moderately common species in suitable habitat; however, it was last recorded in 1991, but there have been no surveys for the species in subsequent years.**Habitat and Ecology** It is an arboreal species, occurring in mesic hardwood closed-canopy forests, and has not been recorded from disturbed forest. Eggs are laid on the ground, and it breeds by direct development.**Major Threats** The primary threat to the species is severe habitat destruction, which is taking place as a result of logging by local people (charcoaling) and slash-and-burn agriculture.**Conservation Measures** Although it occurs in the Parc National Macaya, there is no management of this area for conservation, and the habitat continues to be destroyed. Urgent site-based action is required in the Massif de la Hotte to conserve the remaining habitat in the area, in order to ensure the persistence of this species as well as other threatened amphibians known only from this area. Survey work is also required to determine the population status of this species.**Bibliography:** Hedges, S.B. (1993), Hedges, S.B. (1999), Hedges, S.B. (2001), Henderson, R.W. and Powell, R. (1999), Henderson, R.W. and Powell, R. (2001), Schwartz, A. (1973), Schwartz, A. (1982b), Schwartz, A. and Henderson, R.W. (1991)**Data Providers:** Blair Hedges, Richard Thomas, Robert Powell

EN *Eleutherodactylus euphronides* Schwartz, 1967**Endangered B1ab(iii)****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Grenada**Current Population Trend:** Decreasing

Geographic Range This species is restricted to central and south-eastern Grenada, Lesser Antilles, where it has been recorded from 300–840m asl.

Population This species is poorly known, but it appears to be moderately common in suitable habitat.

Habitat and Ecology It inhabits rainforests and forest edge and montane meadows surrounded by agriculture. It lives on the ground and on vegetation. The eggs are laid on the ground, and it breeds by direct development.

Major Threats Habitat loss and destruction is the major threat to this species, primarily due to urbanization and tourism development, as well as agriculture.

Conservation Measures This species is present in the Grand Etang Forest Reserve. Increased protection of its remaining rainforest habitat is needed.

Bibliography: Germano, J.M. *et al.* (2003), Hedges, S.B. (1993), Hedges, S.B. (1999), Hedges, S.B. (2001), Henderson, R.W. and Powell, R. (1999), Henderson, R.W. and Powell, R. (2001), Kaiser, H., Green, D.M. and Schmid, M. (1994), Kaiser, H., Hardy, Jr., J.D. and Green, D.M. (1994), Sander, J.M., Kaiser, H. and Powell, R. (2003), Schwartz, A. (1967), Schwartz, A. and Henderson, R.W. (1991)

Data Providers: Blair Hedges, Robert Powell

EN *Eleutherodactylus fallax* Lynch and Rueda, 1999**Endangered B1ab(iii)****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Colombia**Current Population Trend:** Decreasing

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Geographic Range This species is found along forested streams in Antioquia, Tolima, and Caldas Departments, on the eastern flank of the Cordillera Central, in Colombia, from 1,100–1,850m asl. The type locality is in San Carlos (Lynch and Rueda-Almonacid 1999).

Population There is no information on its current population status.

Habitat and Ecology This is a forest species usually found along the edge of streams that is associated with naturally occurring open areas in primary and secondary forests. Gallery forest cover is needed to keep humidity high; hence, it is very sensitive to any disturbance of its habitat. It breeds by direct development.

Major Threats The main threat to this species is habitat loss due to deforestation for agricultural development and the planting of illegal crops, although these activities are mainly localized at present. Some other species of *Eleutherodactylus* that are associated with high-elevation streams have undergone dramatic declines and disappearances, possibly due to chytridiomycosis, so the status of this species should be monitored carefully.

Conservation Measures There are no protected areas within the range of the species, and its habitat is in need of urgent protection (particularly given its dependence on gallery forest to maintain humidity levels). Further survey work is needed to determine the current population status of this species.

Bibliography: Acosta-Galvis, A.R. (2000), Kaiser, H. (1995), Lescure, J. (2000), Lynch, J.D. and Rueda-Almonacid, J.V. (1999), Paez, V.P. *et al.* (2002), Rueda-Almonacid, J.V. (2000)

Data Providers: Fernando Castro, Maria Isabel Herrera

EN *Eleutherodactylus fetosus* Lynch and Rueda-Almonacid, 1998**Endangered B1ab(iii)****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Colombia**Current Population Trend:** Decreasing

Geographic Range This species is known only from a few localities within the vicinity of the type locality, Puerto Suárez, on the Cordillera Occidental in Caldas Department, Colombia, from 1,800–2,650m asl.

Population It is not a common species.

Habitat and Ecology It is found in primary and secondary forests, and is very dependent on humid conditions and streamside conditions. It can be found on rocks and low vegetation. It needs gallery forest to maintain the humid conditions, and hence is not tolerant of any disturbance of its habitat. It breeds by direct development.

Major Threats Habitat loss, as a result of deforestation for agricultural development (including the planting of illegal crops), is the major threat to this species. Some other species of *Eleutherodactylus* associated with montane streams have undergone dramatic declines and disappearances, possibly due to chytridiomycosis, so the status of this species should be monitored carefully.

Conservation Measures There are no protected areas within the range of the species, and there is a need for the protection of remaining tracts of montane forest in this region.

Bibliography: Acosta-Galvis, A.R. (2000), Lynch, J.D. and Rueda-Almonacid, J.V. (1998a), Rueda-Almonacid, J.V. (2000)

Data Providers: Fernando Castro, Maria Isabel Herrera, John Lynch

VU *Eleutherodactylus floridus* Lynch and Duellman, 1997**Vulnerable B1ab(iii)****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Ecuador**Current Population Trend:** Decreasing

Geographic Range This species occurs on the western flanks of the Andes in the Ecuadorian provinces of Cotopaxi, Imbabura, and Pichincha, at 700–2,000m asl.

Population It is a reasonably common species.

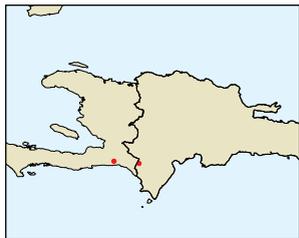
Habitat and Ecology It inhabits humid lowland tropical forest and cloud forest. Its ability to adapt to modified habitats is unknown. It is presumed to breed by direct development, but the site of egg deposition is not known.

Major Threats Habitat destruction and degradation are taking place due to agricultural development, logging, and human settlement.

Conservation Measures Its range overlaps with the Reserva Ecológica Cotacachi-Cayapas and Reserva Ecológica Los Illinizas.

Bibliography: Lynch, J.D. and Duellman, W.E. (1997)

Data Providers: John Lynch, Luis A. Coloma, Santiago Ron

CR *Eleutherodactylus fowleri* Schwartz, 1973**Critically Endangered B1ab(iii)+2ab(iii)****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Dominican Republic, Haiti**Current Population Trend:** Decreasing

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Geographic Range This species has a restricted range on the Massif de la Selle, Hispaniola (Haiti and Dominican Republic) where it is known from only two isolated sites, one in Haiti, and one in the Dominican Republic. Its altitudinal range is 1,045-1,303m asl.

Population This species is probably very rare; very few specimens have ever been collected and few individuals have been heard calling.

Habitat and Ecology It inhabits high-elevation mesic forests, occurring in bromeliads in tall trees (which it uses as diurnal retreats, and for calling sites and breeding). It breeds by direct development.

Major Threats The primary threat to the species is habitat destruction due to small-scale agriculture and charcoaling, a particular threat to the tall trees that are its favoured habitat.

Conservation Measures The species occurs in the Parque Nacional Sierra de Baoruco in the Dominican Republic, but is not known to occur in a protected area in Haiti. Maintenance of the existing habitat is urgently needed, and further survey work is required to determine the current population status of the species.

Bibliography: Hedges, S.B. (1993), Hedges, S.B. (1999), Hedges, S.B. (2001), Henderson, R.W. and Powell, R. (1999), Henderson, R.W. and Powell, R. (2001), Schwartz, A. (1973), Schwartz, A. (1982d), Schwartz, A. and Henderson, R.W. (1991)

Data Providers: Blair Hedges, Sixto Inchaustegui, Marcelino Hernandez, Robert Powell

VU *Eleutherodactylus frater* (Werner, 1899)**Vulnerable B1ab(iii)****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Colombia**Current Population Trend:** Decreasing

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Geographic Range This species can be found on the eastern slopes of the Cordillera Oriental in the departments of Cundinamarca and Meta, and from the Serranía de la Macarena, in Colombia. Its altitudinal range is from 1,000-1,600m asl. It might be more widely distributed than existing records indicate.

Population It is a common species, and was last collected in 1993 when the last surveys took place.

Habitat and Ecology This species inhabits premontane humid forests, and is found on low vegetation. It has been recorded from secondary forest. Reproduction occurs by direct development.

Major Threats Habitat loss and degradation due to agriculture (crops and cattle ranching) is the main threat to this species.

Conservation Measures It has been recorded from Parque Nacional Natural Serranía de la Macarena.

Bibliography: Acosta-Galvis, A.R. (2000), Cochran, D.M. and Goin, C.J. (1970), Flores, G. and Vigle, G.O. (1994), Lynch, J.D. and Duellman, W.E. (1997), Lynch, J.D., Ruiz-Carranza, P.M. and Ardila-Robayo, M.C. (1997), Pyburn, W.F. and Lynch, J.D. (1981), Ruiz-Carranza, P.M., Ardila-Robayo, M.C. and Lynch, J.D. (1996)

Data Providers: Fernando Castro, Maria Isabel Herrera, Jose Vicente Rueda

CR *Eleutherodactylus furcyensis* Shreve and Williams, 1963**Critically Endangered A3c****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Dominican Republic, Haiti**Current Population Trend:** Decreasing

Geographic Range This species is restricted to the Massif de la Selle in Haiti, and the Sierra de Bahoruco in the Dominican Republic, in Hispaniola. It has been recorded from 803-2,100m asl.

Population Known to be moderately common in suitable habitat, it was last collected in 1990 in the Dominican Republic, although there have been no surveys of the region since then.

Habitat and Ecology It occurs in upland mesic pine forests, usually under rocks and logs. It has been recorded from recently disturbed forest, although this is probably not suitable habitat. Eggs are laid on the ground, and it breeds by direct development.

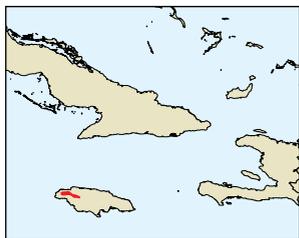
Major Threats Severe habitat destruction, as a result of charcoaling and slash-and-burn agriculture, is the primary threat to this species, and is taking place even in the protected areas of La Selle and Bahoruco.

Conservation Measures This species occurs in the Parque Nacional Sierra de Bahoruco in the Dominican Republic and the Parc National

Morne La Visite in Haiti. However, there is little or no management of this area for conservation, and the habitat is being destroyed. Improved management of these protected areas, and maintenance of the existing habitat is urgently needed, while further survey work is required to determine the current population status of the species.

Bibliography: Hedges, S.B. (1993), Hedges, S.B. (1999), Hedges, S.B. (2001), Henderson, R.W. and Powell, R. (1999), Henderson, R.W. and Powell, R. (2001), Schwartz, A. (1983a), Schwartz, A. and Henderson, R.W. (1991)

Data Providers: Blair Hedges, Sixto Inchaustegui, Robert Powell

CR *Eleutherodactylus fuscus* Lynn and Dent, 1943**Critically Endangered B2ab(iii)****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Jamaica**Current Population Trend:** Decreasing

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Geographic Range This species has a restricted range in western Jamaica, and has been recorded from 120-680m asl.

Population It can be locally abundant within its restricted range, but it has a very fragmented and restricted distribution. It has not been recorded for many decades in the eastern part of the range.

Habitat and Ecology This is a terrestrial species found in mesic closed-canopy forests, where it calls from bare ground or rocks. Eggs are laid on the ground, and it breeds by direct development.

Major Threats The primary threat to the species is habitat loss and degradation, in particular due to agriculture, selective logging, and infrastructure development for ecotourism. Invasive bamboo is also becoming a problem in regenerating areas.

Conservation Measures There are at least two forest reserves in the area where this species occurs, as well as a proposed National Park (Dolphin Head National Park). Ensuring the gazettement of this new protected area, and maintenance of the existing habitat is essential, and further survey work is necessary to determine the current population status of the species.

Bibliography: Hedges, S.B. (1993), Hedges, S.B. (1999), Hedges, S.B. (2001), Henderson, R.W. and Powell, R. (1999), Henderson, R.W. and Powell, R. (2001), Koenig, S.E. (2001), Schwartz, A. and Henderson, R.W. (1991)

Data Providers: Blair Hedges, Susan Koenig, Byron Wilson

EN *Eleutherodactylus gentryi* Lynch and Duellman, 1997**Endangered B1ab(iii)****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Ecuador**Current Population Trend:** Decreasing

© John D. Lynch

**Geographic Range** This species occurs at elevations of 2,850-3,380m asl in a small part of the Ecuadorian Andes, west of the Páramo de Apagua, in the province of Cotopaxi.**Population** It is a common species within its small known range.**Habitat and Ecology** It is a high-altitude cloud forest species, where individuals have been found under rocks by day. It has apparently also been found in high-altitude bush land and grassland. Its ability to adapt to modified habitats is unknown. It is presumed to breed by direct development, but the site of egg deposition is not known.**Major Threats** Habitat destruction and degradation are taking place due to deforestation for agricultural development and human settlement.**Conservation Measures** It is not known from any protected areas, and there is therefore a need for urgent habitat protection in the range of this species.**Bibliography:** Lynch, J.D. and Duellman, W.E. (1997)**Data Providers:** John Lynch, Luis A. Coloma, Santiago Ron**EN** *Eleutherodactylus ginesi* Rivero, 1964**Endangered B1ab(v)****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Venezuela**Current Population Trend:** Decreasing

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**Geographic Range** This species has a very restricted distribution near and within the Páramo de Mucubají, in the Venezuelan Andes, in the state of Mérida. It has been recorded from 2,800-4,100m asl. Reports from the tepui region in Bolívar and Amazonas States are in error.**Population** It is rare and in decline. Populations of this frog are undergoing declines in areas where it was previously abundant, such as the Páramo de Mucubají, although it is still common in less surveyed areas.**Habitat and Ecology** It is a terrestrial species found in páramo grassland. It breeds by direct development.**Major Threats** Although most of the populations are in protected areas, agriculture (involving both crops and livestock), as well as fires, are threats to the species' habitat. However, the cause of the current declines is not known, and chytridiomycosis cannot be ruled out.**Conservation Measures** Part of the species' range is protected within Parque Nacional Sierra Nevada. Further research is needed to establish the reasons for the decline of this species, even within protected areas; if chytridiomycosis is proved to be a genuine threat, then a captive assurance colony may need to be established.**Bibliography:** Barrio Amorós, C.L. (2001), Barrio Amorós, C.L. (2004), La Marca, E. (1992), Péfaur, J.E. and Rivero, J.A. (2000), Rivero, J.A. (1964), Vial, J.L. and Saylor, L. (1993)**Data Providers:** Enrique La Marca, Juan Elias García-Pérez**EN** *Eleutherodactylus gladiator* Lynch, 1976**Endangered B1ab(iii)****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Ecuador**Current Population Trend:** Decreasing

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**Geographic Range** This species is known from two localities: Papallacta Valley near Cuyuja, in Napo Province, and Monte Ollivo, in Imbabura Province, Ecuador, from 2,350-2,910m asl, on the Amazonian slopes of the Andes. It probably occurs more widely but this requires confirmation.**Population** This species was rare at Monte Ollivo, where it was last collected in the year 2000.**Habitat and Ecology** This is a fossorial species of páramo grassland, cloud forest, and clearings (Lynch and Duellman 1980). It breeds by direct development.**Major Threats** Habitat loss and degradation, due to agriculture development and agricultural pollution, are the major threats.**Conservation Measures** It is not known to occur in any protected areas, making the protection of habitat within its range an urgent priority.**Bibliography:** Frolich, L.M. *et al.* (2003), Lynch, J.D. (1976c), Lynch, J.D. and Duellman, W.E. (1980), Lynch, J.D. and Duellman, W.E. (1997)**Data Providers:** Luis A. Coloma, Santiago Ron, Diego Almeida, Fernando Nogales**EN** *Eleutherodactylus glamyrus* Estrada and Hedges, 1997**Endangered B1ab(iii)****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Cuba**Current Population Trend:** Decreasing

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**Geographic Range** This species has a restricted range on the Sierra del Turquino in Cuba, from 800-1,974m asl.**Population** It is common in suitable habitat.**Habitat and Ecology** It is arboreal and requires closed mesic cloud forests. It breeds by direct development, and the eggs are laid on the ground.**Major Threats** The major threat to the species is habitat loss and degradation, as a result of deforestation due to agriculture, woodcutting, disturbance from tourist activities, and infrastructure development for human settlement. Although it may occur in the core of the Sierra Maestra, it is restricted to high-elevation cloud forest, which is declining rapidly.**Conservation Measures** It occurs in Parque Nacional Turquino and Parque Nacional La Bayamesa, but there is no management of these areas for conservation, and the habitat continues to be destroyed. Improved management and protection of these areas is necessary.**Bibliography:** Centro Nacional de Areas Protegidas (CNAP) (2002), Estrada, A.R. and Hedges, S.B. (1997b), Hedges, S.B. (1993), Hedges, S.B. (1999), Hedges, S.B. (2001), Henderson, R.W. and Powell, R. (1999), Henderson, R.W. and Powell, R. (2001), Schwartz, A. and Henderson, R.W. (1991)**Data Providers:** Blair Hedges, Luis Diaz

CR *Eleutherodactylus glandulifer* Cochran, 1935

Critically Endangered A3c
Order, Family: Anura, Leptodactylidae
Country Distribution: Haiti
Current Population Trend: Decreasing



© S. Blair Hedges, Penn State



Geographic Range This species is restricted to the Massif de la Hotte, Haiti, at an altitude of 300-1,886m asl.
Population At the time of the last survey in 1991 it was known to be moderately common.
Habitat and Ecology It is a terrestrial species, found in closed-canopy forests, and appears to be associated with streamside habitats. Eggs are laid on the ground and it breeds by direct development.
Major Threats Severe habitat destruction is taking place in its range, primarily due to logging by local people (charcoaling) and slash-and-burn agriculture.
Conservation Measures It is known to occur in the Parc National Macaya, but there is no management of this area for conservation, and the habitat continues to be destroyed. Urgent site-based action is required in the Massif de la Hotte to conserve the remaining habitat in the area, in order to ensure the persistence of this species as well as other threatened amphibians known only from this area. Survey work is also necessary to determine the population status of this species.
Bibliography: Hedges, S.B. (1993), Hedges, S.B. (1999), Hedges, S.B. (2001), Henderson, R.W. and Powell, R. (1999), Henderson, R.W. and Powell, R. (2001), Schwartz, A. (1983b), Schwartz, A. and Henderson, R.W. (1991)
Data Providers: Blair Hedges, Richard Thomas

CR *Eleutherodactylus glanduliferoides* Shreve, 1936

Critically Endangered B1ab(iii)+2ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Haiti
Current Population Trend: Decreasing



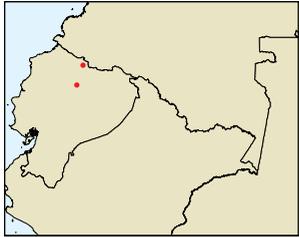
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Geographic Range This species is restricted to one small locality in the Massif de la Selle, in Haiti, where it has been recorded from 1,515-2,121m asl.
Population It is very rare, and possibly already extinct. It has been seen only a few times, most recently in 1985 although there have been few herpetological surveys in the region since.
Habitat and Ecology It occurs only at high elevations in moist forest, calling from the ground or from low grasses in the forest. Eggs are laid on the ground, and it breeds by direct development.
Major Threats The primary threat to the species is severe habitat destruction, due to charcoaling and slash-and-burn agriculture.
Conservation Measures The known range of the species is just outside Parc National Morne La Visite, although there is no management of this area for conservation, and the habitat within the park is being destroyed. This is clearly a species requiring urgent site-based conservation action specifically to conserve the remaining habitat in the area. Survey work is also needed to determine the current population status of this species.
Bibliography: Hedges, S.B. (1993), Hedges, S.B. (1999), Hedges, S.B. (2001), Henderson, R.W. and Powell, R. (1999), Henderson, R.W. and Powell, R. (2001), Schwartz, A. (1983c), Schwartz, A. and Henderson, R.W. (1991)
Data Providers: Blair Hedges, Richard Thomas, Robert Powell

EN *Eleutherodactylus glandulosus* (Boulenger, 1880)

Endangered B1ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Ecuador
Current Population Trend: Decreasing



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Geographic Range This species has been recorded from five localities on the eastern slopes of the Andes in the upper Río Papallacta Valley, in Napo Province, and Playon de San Francisco, in Sucumbios Province, Ecuador. It has been recorded from 2,105-2,890m asl.
Population The species is rare at Playon de San Francisco, where one individual was collected in the year 2000.
Habitat and Ecology This is an inhabitant of páramo, cloud forest, and clearings by day, and at night it has been found on rocks, on the ground and on low vegetation (Lynch and Duellman 1980). It breeds by direct development.
Major Threats The major threats to the species are habitat loss and degradation, due to livestock farming, fires and agricultural pollution.
Conservation Measures Its range includes the Reserva Ecológica Antisana. Increased protection of the habitat of this species in the Ecuadorian Andes is necessary.
Bibliography: Boulenger, G.A. (1880), Frolich, L.M. *et al.* (2003), Lynch, J.D. and Duellman, W.E. (1980), Lynch, J.D. and Duellman, W.E. (1997)
Data Providers: Luis A. Coloma, Santiago Ron, Diego Almeida, Fernando Nogales

EN *Eleutherodactylus glaphycompus* Schwartz, 1973

Endangered B1ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Haiti
Current Population Trend: Decreasing



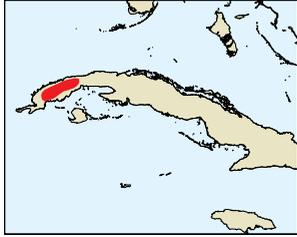
© Eledio Fernandez 2006



Geographic Range This species is restricted to the Tiburon Peninsula, Haiti, at an altitudinal range of 576-1,480m asl.
Population It is moderately common in suitable habitat.
Habitat and Ecology It is found in crevices of exposed limestone in closed moist forest, and calls from low vegetation. Eggs are laid on the ground and it breeds by direct development.
Major Threats This species is sensitive to habitat destruction (which is ongoing), although perhaps less so than other frog species. Logging (charcoal collection) by locals and slash and burn agriculture are major threats.
Conservation Measures It occurs in Parc National Macaya, but there is no management of this area for conservation, and the habitat continues to be destroyed. There is a need for urgent site-based conservation action to ensure the formal protection of remaining habitat on the Tiburon Peninsula and thereby the persistence of this and several other species of threatened amphibians in the region.
Bibliography: Hedges, S.B. (1991), Hedges, S.B. (1993), Hedges, S.B. (1999), Hedges, S.B. (2001), Henderson, R.W. and Powell, R. (1999), Henderson, R.W. and Powell, R. (2001), Schwartz, A. (1973), Schwartz, A. (1983d), Schwartz, A. and Henderson, R.W. (1991)
Data Providers: Blair Hedges, Richard Thomas

VU *Eleutherodactylus goini* Schwartz, 1960**Vulnerable B1ab(iii)**

Order, Family: Anura, Leptodactylidae
Country Distribution: Cuba
Current Population Trend: Decreasing



Geographic Range This species is restricted to Pinar del Río Province, in western Cuba. It has been recorded from sea level up to at least 700m asl.

Population It is common and abundant.

Habitat and Ecology It is found in rocky habitats and in the leaf-litter of moist forest, but has not been recorded outside forest habitat. It breeds by direct development.

Major Threats Major threats include habitat loss due to agriculture and infrastructure development for human settlement and tourism, and agricultural pollution.

Conservation Measures It is known from several protected areas, including Parque Nacional Viñales, but most are in need of improved management and protection.

Notes on taxonomy: This species was elevated from subspecies status under *Eleutherodactylus planirostris* by Estrada and Hedges (1997a).

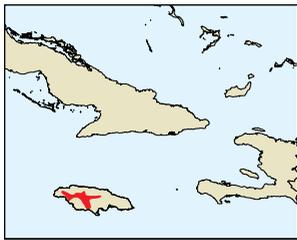
Bibliography: Estrada, A.R. and Hedges, S.B. (1997a), Hedges, S.B. (1993),

Hedges, S.B. (1999), Hedges, S.B. (2001), Henderson, R.W. and Powell, R. (1999), Henderson, R.W. and Powell, R. (2001), Schwartz, A. (1960a), Schwartz, A. and Henderson, R.W. (1991)

Data Providers: Blair Hedges, Luis Díaz

EN *Eleutherodactylus grabhami* Dunn, 1926**Endangered B1ab(iii)**

Order, Family: Anura, Leptodactylidae
Country Distribution: Jamaica
Current Population Trend: Decreasing



Geographic Range This species has a restricted range in western and central Jamaica, with an altitudinal range of 150-670m asl. Much of the mapped range includes many historical localities, and it is unclear whether the species still occurs throughout this range.

Population It is very rare, with only a few records in the last decade.

Habitat and Ecology It is found in terrestrial and arboreal bromeliads or on rocks in wet limestone forests, and appears to be intolerant of any disturbance to its habitat. Eggs are laid on the ground and it breeds by direct development.

Major Threats It is threatened by habitat degradation and deforestation due to agriculture, human settlements, logging, and bauxite mining.

Conservation Measures Although recorded from several forest reserves, these do not guarantee the species' long-term protection, and there is a need to strengthen and improve the management of these reserves for biodiversity.

Bibliography: Hedges, S.B. (1993), Hedges, S.B. (1999), Hedges, S.B. (2001), Henderson, R.W. and Powell, R. (1999), Henderson, R.W. and Powell, R. (2001), Schwartz, A. and Henderson, R.W. (1991)

Data Providers: Blair Hedges, Susan Koenig, Byron Wilson

VU *Eleutherodactylus gracilis* Lynch, 1986**Vulnerable B1ab(iii)**

Order, Family: Anura, Leptodactylidae
Country Distribution: Colombia
Current Population Trend: Decreasing



© John D. Lynch

Geographic Range This species is known from the eastern slopes of the Cordillera Occidental in the departments of Valle del Cauca, Risaralda and Antioquia, and from the western slopes north of the Cordillera Central in the departments of Caldas and Antioquia, Colombia. It has been recorded from 1,680-2,320m asl.

Population It is a common species.

Habitat and Ecology It occurs mostly on leaves or branches along streams in cloud forest. It can also survive in secondary forests, but not in open areas outside forest. It breeds by direct development.

Major Threats Major threats included habitat loss due to agriculture (both crops and livestock), and pollution as a result of the fumigation of crops. Some other species of *Eleutherodactylus* that are associated with streams at high-elevations have undergone dramatic declines and disappearances, possibly due to chytridiomycosis, so the status of this species should be monitored carefully.

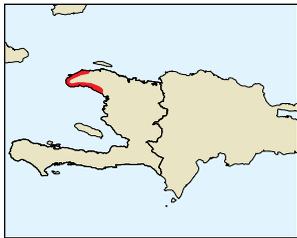
Conservation Measures Its range includes Parque Nacional Natural Tatama, Parque Nacional Natural Farallones de Cali and Regional Reserve Ucumari.

Bibliography: Acosta-Galvis, A.R. (2000), Lynch, J.D. (1986a), Lynch, J.D. (1998b), Lynch, J.D. (1999), Lynch, J.D. and Duellman, W.E. (1997), Lynch, J.D., Ruiz-Carranza, P.M. and Ardila-Robayo, M.C. (1997), Ruiz-Carranza, P.M., Ardila-Robayo, M.C. and Lynch, J.D. (1996), Ruiz-Carranza, P.M., Lynch, J.D. and Ardila-Robayo, M.C. (1997)

Data Providers: Martha Patricia Ramírez Pinilla, Mariela Osorno-Muñoz, Jose Vicente Rueda, Adolfo Amézquita, María Cristina Ardila-Robayo

EN *Eleutherodactylus grahami* Schwartz, 1979**Endangered B1ab(iii)**

Order, Family: Anura, Leptodactylidae
Country Distribution: Haiti
Current Population Trend: Decreasing



Geographic Range This species is restricted to the north-west of Haiti, ranging from 20-330m asl.

Population It is relatively common in suitable habitats.

Habitat and Ecology It is found on limestone ridges with boulders and xerophytic vegetation. Eggs are laid on the ground and it breeds by direct development.

Major Threats Extremely severe habitat destruction due to charcoaling and small-scale agriculture is taking place on the north-western peninsula of Haiti, which now looks like a lunar landscape, devoid of vegetation, although some pockets remain where this species might occur.

Conservation Measures It is not known to occur in any protected areas. There is an urgent need for effective protection of remaining suitable habitat in the range of this species.

Bibliography: Hedges, S.B. (1993), Hedges, S.B. (1999), Hedges, S.B. (2001), Henderson, R.W. and Powell, R. (1999), Henderson, R.W. and Powell, R. (2001), Schwartz, A. (1979a), Schwartz, A. and Henderson, R.W. (1991)

Data Providers: Blair Hedges, Richard Thomas

CR *Eleutherodactylus grandis* (Dixon, 1957)

Critically Endangered B1ab(iii)+2ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Mexico
Current Population Trend: Decreasing



Geographic Range This species is known from a single locality (El Pedregal Reserve) in the Southern Distrito Federal, central Mexico, in the lava fields of Volcán Xitle, in the southern part of Mexico City.

Population This is not a very common species and it is difficult to collect.

Habitat and Ecology It inhabits dry shrubland, and breeds by direct development.

Major Threats The extension of Mexico City has resulted in the disappearance of most of the available suitable habitat for this species, with the result that it is now believed to be restricted to a very small protected area, the Pedregal Reserve. The Pedregal has been subject to long-term disturbance (fragmentation and isolation), and is now little more than an isolated vegetation fragment of 160 ha with no natural corridors.

Conservation Measures Survey work is urgently needed to establish the current population status of this species, subsequent to

which a recovery program and strict protection of the species in the Pedregal Reserve and surroundings areas might need to be implemented. It is protected by Mexican law under the "Special Protection" category (Pr).

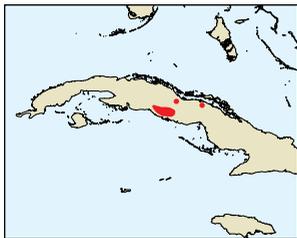
Notes on taxonomy: The taxonomic status of this species is uncertain.

Bibliography: Dixon, J.R. (1957)

Data Providers: Georgina Santos-Barrera, Oscar Flores-Villela

EN *Eleutherodactylus greyi* Dunn, 1926

Endangered B1ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Cuba
Current Population Trend: Decreasing



Geographic Range This species has a restricted range in central Cuba, where it has been recorded from sea level up to 820m asl.

Population It is common in suitable habitat, but is patchily distributed.

Habitat and Ecology It is associated with rocky areas in mesic, closed-canopy forests. It is restricted to these forest habitats and breeds by direct development.

Major Threats The major threat to this species is habitat loss and degradation, as a result of deforestation for agriculture, the development of tourism infrastructure, and the disturbance of habitat by tourist activities.

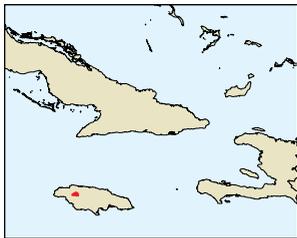
Conservation Measures It occurs in a few protected areas, but these are not well managed for biodiversity conservation and the habitat within them continues to be degraded. The existing protected areas network is in need of more effective and strengthened management.

Bibliography: Hedges, S.B. (1993), Hedges, S.B. (1999), Hedges, S.B. (2001), Henderson, R.W. and Powell, R. (1999), Henderson, R.W. and Powell, R. (2001), Schwartz, A. and Henderson, R.W. (1991)

Data Providers: Blair Hedges, Luis Diaz

CR *Eleutherodactylus grifhus* Crombie, 1986

Critically Endangered B2ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Jamaica
Current Population Trend: Decreasing



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Geographic Range This species is known presently from only three localities in Cockpit Country, central-western Jamaica. It has been recorded from 250-640m asl.

Population It is a rare species.

Habitat and Ecology It is terrestrial, and is found only in pristine closed-canopy forests, and does not tolerate habitat disturbance. Eggs are laid on the ground, and it breeds by direct development.

Major Threats The primary threat to the species is habitat destruction, due to agriculture development, expansion of human settlements, cutting of timber for firewood, and selective logging. Improved access to previously inaccessible parts of the interior by means of the building of roads has led to increased deforestation and selective logging.

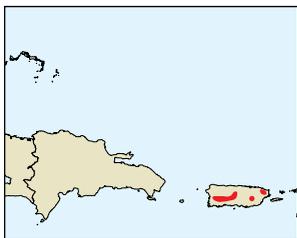
Conservation Measures The majority of the Cockpit Country is government-owned Forest Reserve, although it has not yet been formally declared a protected area. Maintenance of the existing habitat is urgently required.

Bibliography: Crombie, R.I. (1986), Hedges, S.B. (1993), Hedges, S.B. (1999), Hedges, S.B. (2001), Henderson, R.W. and Powell, R. (1999), Henderson, R.W. and Powell, R. (2001), Schwartz, A. and Henderson, R.W. (1991)

Data Providers: Blair Hedges

EN *Eleutherodactylus gryllus* Schmidt, 1920

Endangered B1ab(v)
Order, Family: Anura, Leptodactylidae
Country Distribution: Puerto Rico
Current Population Trend: Decreasing



© Alejandro Sanchez



Geographic Range This species has a restricted range in the interior uplands in Puerto Rico, having been recorded from 300-1,182m asl.

Population It is known to have undergone recent population declines, and is now known only from cloud forest above 700m asl.

Habitat and Ecology It occurs in forest and along forest edges or openings, retreating by day into bromeliads or under moss and rocks. It has not been recorded outside forest habitats. Eggs are laid in bromeliads, and it breeds by direct development.

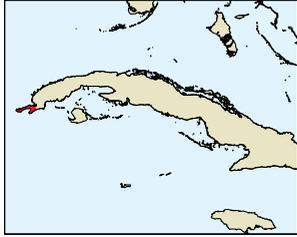
Major Threats There is a high abundance of introduced predators such as *Rattus rattus*, even in the protected areas on El Yunque, which may pose a threat. It is also possible that chytridiomycosis, in combination with climate change, may be a threat to this species.

Conservation Measures It occurs in a few protected areas, which are well managed. However, there is a need for the control of invasive predators within these protected areas, and the species requires careful population monitoring, particularly in light of the potential threat posed by chytridiomycosis.

Bibliography: Burrowes, P.A., Joglar, R.L. and Green, D.E. (2004), Hedges, S.B. (1993), Henderson, R.W. and Powell, R. (1999), Henderson, R.W. and Powell, R. (2001), Joglar, R.L. (1999), Joglar, R.L. and Burrowes, P.A. (1996), Rivero, J.A. (1998)

Data Providers: Blair Hedges, Rafael Joglar, Luis J. Villanueva-Rivera, Neftalí Ríos-López

GREEN COQUI

EN *Eleutherodactylus guanahacabibes* Estrada and Rodríguez, 1985**Endangered B1ab(iii)****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Cuba**Current Population Trend:** Decreasing

Geographic Range This species has a restricted range in the Peninsula de Guanahacabibes, in extreme western Cuba. It has been recorded from sea level up to 20m asl.

Population It is moderately common in suitable habitat.

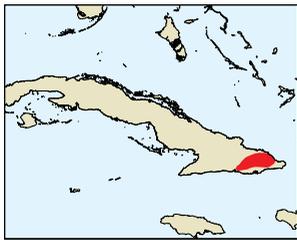
Habitat and Ecology It occurs in rocky areas and caves with high humidity in moist forest areas; it has not been recorded outside forest habitat. Eggs are laid on the ground, and it breeds by direct development.

Major Threats The major threat to this species is habitat loss and degradation due to infrastructure development; a road has recently been built directly through the habitat of the species, and the peninsula may become a landing point for cruise ships in the future.

Conservation Measures It occurs in Parque Nacional Guanahacabibes, which is a well-protected area in Cuba. Protection of other tracts of suitable forest habitat where the species occurs is recommended.

Bibliography: Estrada, A.R. and Rodríguez, J.N. (1985b), Hedges, S.B. (1993), Hedges, S.B. (1999), Hedges, S.B. (2001), Henderson, R.W. and Powell, R. (1999), Henderson, R.W. and Powell, R. (2001), Schwartz, A. and Henderson, R.W. (1991)

Data Providers: Blair Hedges, Luis Díaz

VU *Eleutherodactylus quantanamera* Hedges, Estrada and Thomas, 1992**Vulnerable B1ab(iii)****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Cuba**Current Population Trend:** Decreasing

Geographic Range This species has a restricted range in the upland areas (60-1,150m asl) of south-eastern Cuba.

Population This species is moderately common in suitable habitat.

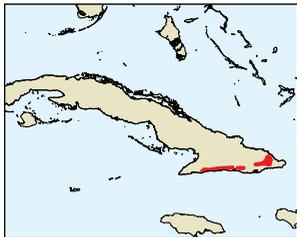
Habitat and Ecology It is arboreal in closed moist forest. Eggs are laid in bromeliads and breeding takes place by direct development.

Major Threats The main threat is habitat loss and degradation due to agriculture, woodcutting, disturbance from tourists, and human settlement.

Conservation Measures It occurs in several protected areas, but these are in need of improved protection and management.

Bibliography: Centro Nacional de Areas Protegidas (CNAP) (2002), Hedges, S.B. (1993), Hedges, S.B. (1999), Hedges, S.B. (2001), Hedges, S.B., Estrada, A.R. and Thomas, R. (1992), Henderson, R.W. and Powell, R. (1999), Henderson, R.W. and Powell, R. (2001), Schwartz, A. and Henderson, R.W. (1991)

Data Providers: Blair Hedges, Luis Díaz

EN *Eleutherodactylus gundlachi* Schmidt, 1920**Endangered B1ab(iii)****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Cuba**Current Population Trend:** Decreasing

Geographic Range This species has a restricted range in the Sierra Maestra, the Sierra del Cobre, and the Sierra de la Gran Piedra, Cuba. The altitudinal range is 650-1,375m asl.

Population It is common in suitable habitat.

Habitat and Ecology It is terrestrial and requires closed mesic forest. The species calls from the ground, and breeds by direct development.

Major Threats The major threat is habitat destruction and loss due to agriculture, woodcutting, disturbance from tourist activities, and infrastructure development for human settlement.

Conservation Measures Although occurring in several protected areas, several of these are not well managed for biodiversity conservation and habitat loss is proceeding within the boundaries of these reserves. There is a clear need to improve and strengthen the management of these existing protected areas.

Bibliography: Centro Nacional de Areas Protegidas (CNAP) (2002), Hedges, S.B. (1993), Hedges, S.B. (1999), Hedges, S.B. (2001), Henderson, R.W. and Powell, R. (1999), Henderson, R.W. and Powell, R. (2001), Schwartz, A. and Henderson, R.W. (1991)

Data Providers: Blair Hedges, Luis Díaz

EN *Eleutherodactylus haitianus* Barbour, 1942**Endangered B1ab(iii)+2ab(iii)****Order, Family:** Anura, Leptodactylidae**Country Distribution:** Dominican Republic**Current Population Trend:** Decreasing

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Geographic Range This species has a restricted range in the Cordillera Central, Dominican Republic, where it has been recorded from 1,545-2,455m asl.

Population It can be locally common, but it is patchily distributed.

Habitat and Ecology It is terrestrial in high-elevation pine forests, and has not been recorded outside forested regions. It calls from low vegetation, the eggs are laid on the ground, and it breeds by direct development.

Major Threats Disturbance from ecotourism is a major threat, as is habitat destruction due to agricultural activities.

Conservation Measures Its range includes several protected areas, although these are often not well managed and habitat disturbance is ongoing within the parks' limits. Improved and strengthened management of these existing protected areas is recommended.

Bibliography: Hedges, S.B. (1993), Hedges, S.B. (1999), Hedges, S.B. (2001), Henderson, R.W. and Powell, R. (1999), Henderson, R.W. and Powell, R. (2001), Schwartz, A. (1983e), Schwartz, A. and Henderson, R.W. (1991)

Data Providers: Blair Hedges, Sixto Inchaustegui, Robert Powell