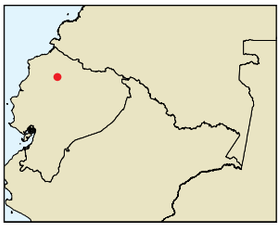
CR *Eleutherodactylus hamiotae* Flores, 1993

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

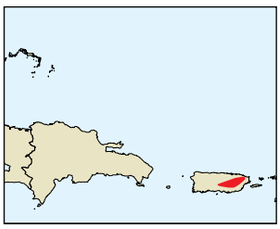


Geographic Range This species is known only from a very small area north-west of Nono at 2,140m asl on the western slope of the Andes in Pichincha Province, Ecuador.
Population It is a very rare species, and only five specimens have ever been collected.
Habitat and Ecology It is found in cloud forest, where it is a highly specialized species, living on wet rock faces. It is unlikely to be very adaptable to modified habitats in view of its specialized microhabitat requirements. It is presumed to breed by direct development, but the site of egg deposition is not known.
Major Threats The primary threat to the species is deforestation as a result of agricultural development (crops and livestock), and human settlement.
Conservation Measures This species is not known from any protected areas, and maintenance of the existing habitat is urgently needed. Further survey work is required to determine the biology and population status of this species.
Bibliography: Flores, G. (1993), Lynch, J.D. and Duellman, W.E. (1997)
Data Providers: John Lynch, Luis A. Coloma, Santiago Ron

EN *Eleutherodactylus hedricki* Rivero, 1963

TREEHOLE COQUI

Endangered B1ab(v)
Order, Family: Anura, Leptodactylidae
Country Distribution: Puerto Rico
Current Population Trend: Decreasing

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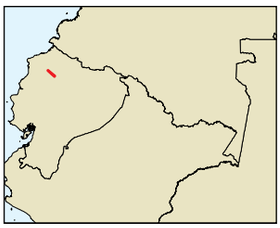
Geographic Range This species has a patchy distribution in the interior uplands of Puerto Rico, and has an altitudinal range of 455-1,152m asl.
Population There are indications that populations have declined over the last three decades, even in suitable habitat (R. Joglar pers. comm.).
Habitat and Ecology It is arboreal in mesic broadleaf forests. Males call from tree trunks and the canopy, eggs are laid in tree trunk cavities, and breeding is by direct development.
Major Threats The major threat to this species is chytridiomycosis (linked to climate change), which is suspected to be causing the observed declines in this species.
Conservation Measures It occurs in several protected areas. In view of the threat of chytridiomycosis, ex-situ populations may need to be established.
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. (1963a), Rivero, J.A. (1998)
Data Providers: Blair Hedges, Rafael Joglar, Richard Thomas, Luis J. Villanueva-Rivera, Neftalí Ríos-Lopez

CR *Eleutherodactylus helonotus* (Lynch, 1975)

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



Geographic Range This species is known only from two localities in the vicinity of Río Pitzara, Pichincha Province, on the Pacific slopes of the Andes in Ecuador, at 1,000-2,000m asl.
Population It is a very rare species.
Habitat and Ecology The species is terrestrial, restricted to primary cloud forest, and cannot tolerate any disturbance of its habitat. It is presumed to breed by direct development, but the site of egg deposition is not known.
Major Threats The major threat to the species is habitat loss due to agricultural development (crops and livestock), logging, and human settlement.
Conservation Measures This species is not known from any protected areas, and maintenance of the existing habitat is urgently needed. Further survey work is required to determine the biology and population status of this species.
Bibliography: Lynch, J.D. (1975b), Lynch, J.D. (1981c), Lynch, J.D. and Duellman, W.E. (1997)
Data Providers: John Lynch, Luis A. Coloma, Santiago Ron

EN *Eleutherodactylus helvolus* Lynch and Rueda-Almonacid, 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 cloud forest in the municipalities of Pensilvania and Samaná, in the department of Caldas, and from the municipalities of Guatepé and Anorí, in Antioquia Department, on the eastern flank of the Cordillera Central, in Colombia. It has been recorded from 1,800-2,000m asl.
Population It is not a common species.
Habitat and Ecology It is restricted to primary forest and breeds by direct development and is not associated with streams. It is very small (at most 23mm long) and is very sensitive to any variation in humidity. It is not tolerant of any habitat disturbance.
Major Threats The major threat to this species is habitat loss caused by agricultural development (including the planting of illegal crops).
Conservation Measures Its range does not include any protected areas; given the species' sensitivity to any habitat disturbance, protection of remaining primary forest habitat within the range of the species is essential.
Bibliography: Acosta-Galvis, A.R. (2000), Lynch, J.D. and Rueda-Almonacid, J.V. (1998b), Paez, V.P. *et al.* (2002), Rueda-Almonacid, J.V. (2000)
Data Providers: Fernando Castro, Maria Isabel Herrera, John Lynch

EN *Eleutherodactylus heminota* Shreve and Williams, 1963

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

Geographic Range This species is restricted to the Tiburon Peninsula and eastern Sierra de Baoruca, Hispaniola (Haiti and Dominican Republic). Its altitudinal range is from sea level up to 1,697m asl.
Population Although this species can be moderately common in suitable habitat, it is declining and rarely encountered in much of its range.
Habitat and Ecology This species requires closed-canopy forest and frequents bromeliads. The eggs are laid in bromeliads and it breeds by direct development.
Major Threats It is rapidly declining throughout its range due to severe habitat destruction, even in protected areas. In the Dominican Republic much habitat destruction has taken place in the last 10 years due to agriculture and cattle grazing. In Haiti, severe habitat destruction has occurred in the Formon-Macaya region, including throughout Parc National Macaya, mainly due to logging (charcoal collection) by locals and slash and burn agriculture.
Conservation Measures It occurs in Parc Naturel Morne La Visite and Parc National Macaya in Haiti, and also in Parque Nacional Sierra de Bahoruca and Parque Nacional Sierra Bahoruca Oriental in the Dominican Republic. There is an urgent need for strengthened management and protection of these reserves, particularly on the Tiburon Peninsula.
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. (1983f), Schwartz, A. and Henderson, R.W. (1991)
Data Providers: Blair Hedges, Sixto Inchaustegui, Richard Thomas, Robert Powell

EN *Eleutherodactylus hernandezi* Lynch and Ruíz-Carranza, 1983

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

Geographic Range This species is known from two localities: one on the Oriental slope from the Cordillera Central in Huila Department, and the other on the eastern slope of the Cordillera Central in Caquetá Department, Colombia, from 2,300-2,600m asl.
Population It is an uncommon species, and is known only from six specimens.
Habitat and Ecology This species inhabits intermediate strata in primary forest. As only a few individuals have been recorded, not much information is known regarding its exact habitat requirements, but it is believed to be extremely moisture dependent. It breeds by direct development.
Major Threats Habitat loss caused by agricultural development (including the planting of illegal crops) is the main threat to the species.
Conservation Measures One known locality is within Parque Nacional Natural Purace, and the second locality will soon be protected within the newly created Parque Nacional Natural Fragua. Further survey work is necessary to establish the current population status of this species, its ecological requirements, and to determine whether it occurs outside the two known localities.
Bibliography: Acosta-Galvis, A.R. (2000), Lynch, J.D. and Duellman, W.E. (1997), Lynch, J.D. and Ruiz-Carranza, P.M. (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)
Data Providers: Fernando Castro, Maria Isabel Herrera, John Lynch

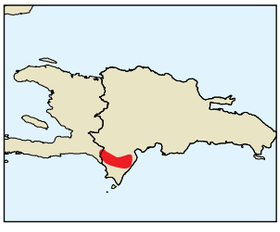
VU *Eleutherodactylus hybotragus* Lynch, 1992

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

Geographic Range This species is known from Valle del Cauca department in the Pacific lowlands of Colombia, from 10-920m asl. It probably occurs more widely than records suggest.
Population It is an uncommon species.
Habitat and Ecology An arboreal species found on middle and low strata on sloping terrain, inside or alongside small streams wherever there is suitable forest cover. It breeds by direct development.
Major Threats Although this species occurs in an area of low human population density, its habitat remains at risk from logging.
Conservation Measures The range includes Parque Nacional Natural Farallones de Cali.
Bibliography: Acosta-Galvis, A.R. (2000), Lynch, J.D. (1992c), 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)
Data Providers: Fernando Castro, Maria Isabel Herrera, John Lynch

EN *Eleutherodactylus hypostenor* Schwartz, 1965

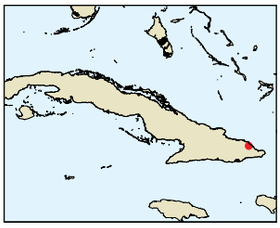
Endangered B1ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Dominican Republic, Haiti
Current Population Trend: Decreasing



Geographic Range This species has a restricted range in the western Massif de la Selle in Haiti and the Sierra de Baoruco in the Dominican Republic, Hispaniola. Its altitudinal range is from sea level up to 1,061m asl.
Population It can be locally uncommon and is patchily distributed.
Habitat and Ecology An inhabitant of closed mesic broadleaf forests, as well as shade-grown coffee and cacao plantations, this is a very specialized burrowing species, with males calling from constructed underground chambers and the eggs being laid underground.
Major Threats The main threat to this species is habitat loss: the forest of Baoruco is severely threatened by expanding agriculture and cattle grazing, even within Parque Nacional Sierra de Baoruco.
Conservation Measures Although it occurs in Parque Nacional Sierra de Bahoruca and Parque Nacional Sierra Bahoruca Oriental in the Dominican Republic, there is a need to greatly strengthen and improve the management of these protected areas to ensure more effective protection of the broad-leaf forest habitat within these areas.
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. (1965b), Schwartz, A. (1984), Schwartz, A. and Henderson, R.W. (1991)
Data Providers: Blair Hedges, Sixto Inchaustegui, Richard Thomas, Robert Powell

CR *Eleutherodactylus iberia* Estrada and Hedges, 1996

Critically Endangered B1ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Cuba
Current Population Trend: Decreasing



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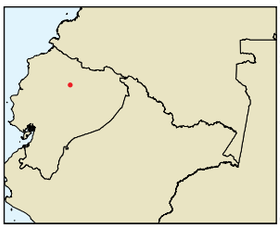
Geographic Range The smallest frog in world, this species occurs only in Holguin Province in eastern Cuba from sea level up to 600m asl.
Population The species is common in suitable habitat.
Habitat and Ecology It is found in closed rainforest on poorly drained soil, and maintenance of local humidity is critically important for its survival. It breeds by direct development.
Major Threats This species is threatened mainly by habitat loss as a result of the deforestation taking place from subsistence farming and wood collecting.
Conservation Measures It occurs in the Parque Nacional Alejandro de Humboldt, but even this protected area is subject to the effects of habitat loss. Maintenance of the remaining suitable habitat and improved protection of existing protected areas is essential.
Bibliography: Centro Nacional de Areas Protegidas (CNAP) (2002), Estrada, A.R. and Hedges, S.B. (1996b), 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 ignicolor* Lynch and Duellman, 1980

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

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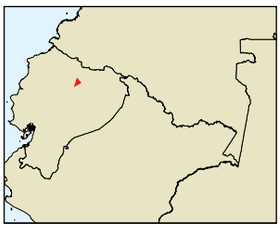
Geographic Range This species is known from only three localities in the upper Río Papallacta Valley, in Napo Province, Ecuador, from 2,160-2,750m asl. It probably occurs a little more widely.
Population Very little is known of this species' current population status, but it is a rare species at the Estacion Biólogica Yanayacu (where it was collected as recently as 2003).
Habitat and Ecology Individuals have been found on bushes, and in bamboo at the edges of small cascading streams at night in upper humid montane forest. It has not been recorded from secondary forest. It breeds by direct development.
Major Threats The major threat to the species is habitat loss due to agricultural activities and logging. Some other species of *Eleutherodactylus* that are associated with streams have undergone dramatic declines and disappearances, possibly due to chytridiomycosis.
Conservation Measures It is not known from any protected areas in Ecuador, although it has recently been collected from the Estacion Biólogica Yanayacu near Cusunga. Protection of montane forest habitat in the range of this species is recommended, and further survey work is needed to monitor the population status of this species, particularly given the potential of chytrid.
Bibliography: 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 incanus* Lynch and Duellman, 1980

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

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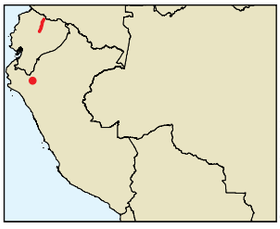
Geographic Range This species is known from only three localities on the eastern face of the Andes in Cocodrillos, Napo Province, Ecuador. It has been recorded from 1,700-2,200m asl.
Population It is a rare species (only three specimens were collected in 2001).
Habitat and Ecology It is found in well-shaded cloud forest, and most individuals have been recorded perched on bushes or low trees at night (Lynch and Duellman 1980). It has also been found above small streams. Breeding is by direct development.
Major Threats The major threat is habitat loss due to agricultural activities, involving both crops and livestock, as well as 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 It has been recorded from the Reserva Ecológica Cayambe-Coca, the Reserva Ecológica Antisana, and Parque Nacional Sumaco Napo-Galeras.
Bibliography: 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

VU *Eleutherodactylus incomptus* Lynch and Duellman, 1980

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




© Natural History Museum and Biodiversity Research Center, University of Kansas

Geographic Range This species has been reported from elevations of 1,370-1,910m asl on the Amazonian slopes of the Cordillera Oriental in Napo and Sucumbios Provinces, Ecuador, and from about 1,300m asl on the southern slopes of the Cordillera del Cóndor in Departmento Cajamarca, Peru (06° 05'S; 78° 43'W). It is likely to occur more widely.
Population In Ecuador, it is an uncommon species. In Peru, it has only been reported from two specimens (both sub-adult females).
Habitat and Ecology This species occurs in cloud forest. They are most frequently encountered at night on leaves of herbaceous vegetation or low bushes in clearings or at the forest edge (Lynch and Duellman 1980). It breeds by direct development, but the site of egg deposition is not known. It occurs in old and second growth forest.
Major Threats The major threat is habitat loss due to livestock ranching, agro-industry, and selective logging.
Conservation Measures In Ecuador, its distribution range overlaps with Reserva Ecológica Antisana, and Reserva Ecológica Cayambe-Coca; it might also overlap with Parque Nacional Llanganatis and Parque Nacional Sumaco Napo-Galeras. It is not recorded from any protected areas in Peru. Further survey work is needed to determine if the species is more continuously distributed between records in Ecuador and Peru.
Notes on taxonomy: We follow Lynch and Duellman (1997) in regarding *Eleutherodactylus kirklandi* as a synonym of *E. incomptus*.
Bibliography: Duellman, W.E. and Pramuk, J.B. (1999), Flores, G. (1985b), Lynch, J.D. and Duellman, W.E. (1980), Lynch, J.D. and Duellman, W.E. (1997), Ortiz, A. and Morales, M. (2000)
Data Providers: Lily Rodríguez, Jorge Luis Martinez, Luis A. Coloma, Santiago Ron, Diego Almeida

VU *Eleutherodactylus ingeri* (Cochran and Goin, 1961)

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

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Geographic Range This species has a discontinuous distribution on both slopes of the Cordillera Oriental of Colombia, where it is found from 1,550-2,350m asl, in the departments of Cundinamarca (Laguna Pedro Palo), Boyacá, Santander, and Norte de Santander. It probably occurs more widely, in particular between known localities.
Population This is a rare species that was last collected in 1991, but there has been no survey work since.
Habitat and Ecology This species is a cloud forest inhabitant, and occurs in leaf-litter and disturbed areas provided that small patches of forest remain nearby. Reproduction is by direct development.
Major Threats Habitat loss caused by logging and agricultural development (including planting of illegal crops) is the main threat.
Conservation Measures It occurs in Santuario de Fauna y Flora Guanentá Alto Río Fonce and in the Parque Nacional Natural Tamá.
Bibliography: Acosta-Galvis, A.R. (2000), Cochran, D.M. and Goin, C.J. (1970), Lynch, J.D. (1981c), Lynch, J.D. (1997), 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, Jose Vicente Rueda

EN *Eleutherodactylus insignitus* Ruthven, 1917

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

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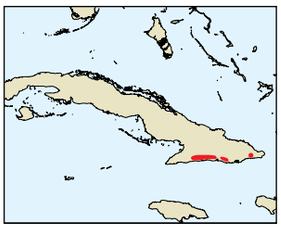
Geographic Range This species is known from the northern and north-western flank of the Sierra Nevada de Santa Marta, in the departments of Magdalena and Guajira, Colombia. It has been recorded from 1,530-2,130m asl.
Population It is an uncommon species.
Habitat and Ecology A terrestrial frog, individuals have been found under logs or rocks on roadsides. When active, they occur on top of rocks, logs or low vegetation, beside streams. It breeds by direct development.
Major Threats Major threats include habitat loss, due to agricultural activities (involving both crops and livestock), as well as pollution due to the fumigation of crops.
Conservation Measures Its range includes Parque Nacional Natural Sierra Nevada de Santa Marta, and the adjacent, recently established El Dorado Nature Reserve.
Bibliography: Acosta-Galvis, A.R. (2000), Cochran, D.M. and Goin, C.J. (1970), Lynch, J.D. and Duellman, W.E. (1997), Lynch, J.D. and Ruiz-Carranza, P.M. (1985a), Ruiz-Carranza, P.M., Ardila-Robayo, M.C. and Lynch, J.D. (1996), Ruthven, A.G. (1917a)
Data Providers: Martha Patricia Ramírez Pinilla, Mariela Osorno-Muñoz, Jose Vicente Rueda, Adolfo Amézquita, María Cristina Ardila-Robayo

EN *Eleutherodactylus intermedius* Barbour and Shreve, 1937

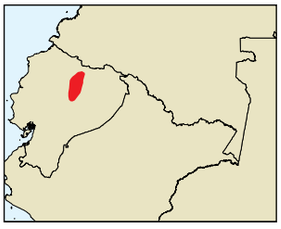
Endangered B1ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Cuba
Current Population Trend: Decreasing



Geographic Range This species has a restricted range in the Sierra Maestra and the Sierra del Cobre, Cuba. Its altitudinal range is 454-1,880m asl.
Population The species is uncommon even in suitable habitat.
Habitat and Ecology It occurs only in moist closed forest, and breeds by direct development.
Major Threats The major threat is habitat loss, due to agriculture, woodcutting, disturbance from tourists, and infrastructure development for human settlement.
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 even within the park boundaries. Improved and strengthened management of these existing protected areas is necessary.
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 Díaz

VU *Eleutherodactylus inusitatus* Lynch and Duellman, 1980

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



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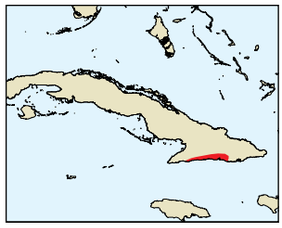
Geographic Range This species is known from scattered localities along the eastern face of the Andes in Ecuador, at low to moderate elevations from 1,300-2,160m asl. It is currently known from only five localities, but probably occurs more widely.
Population It is fairly common in some areas, such as Estación Biólogica Yanayacu, where it has been seen repeatedly from 2000-2003.
Habitat and Ecology Specimens have been found in cloud forest in low vegetation (Lynch and Duellman 1980). It does not occur outside old growth forest. It breeds by direct development.
Major Threats The main threat is habitat loss due to agriculture (both crops and livestock), logging, and human settlement.
Conservation Measures Its distribution range overlaps with Parque Nacional Sumaco Napo-Galeras, Reserva Biólogica Limoncocha, Reserva de Produccion Faunistica Cuyabeno, Reserva Ecológica Cayambe-Coca and Reserva Ecológica Antisana.
Bibliography: Funk, C.W. *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 ionthus* Schwartz, 1960

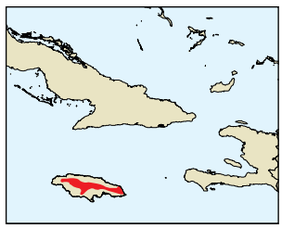
Endangered B1ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Cuba
Current Population Trend: Decreasing



Geographic Range This species has a restricted range in the Sierra Maestra, Cuba. Its altitudinal range is from sea level up to 1,230m asl.
Population It is moderately common in suitable habitat.
Habitat and Ecology It is arboreal in closed mesic forest, but appears to be less sensitive to habitat alteration than some other species in the genus. Breeding is by direct development.
Major Threats The major threat is habitat loss, due to agriculture, woodcutting, disturbance from tourists, and infrastructure development for human settlement.
Conservation Measures It occurs in Parque Nacional Turquino and Parque Nacional La Bayamesa, but there is no management of these areas for conservation, and habitat continues to be destroyed even within the park boundaries. Improved and strengthened management of these existing protected areas is necessary.
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

EN *Eleutherodactylus jamaicensis* Barbour, 1910

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

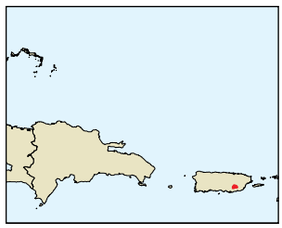


Geographic Range This species is widely, but very patchily, distributed in the Jamaican interior, ranging from 120-1,290m asl.
Population It is uncommon.
Habitat and Ecology It occurs only in lowland and montane moist old growth forests, and is almost always associated with arboreal or terrestrial bromeliads. Males call from, and eggs are laid in, bromeliads.
Major Threats Its dependence upon bromeliads in mostly undisturbed forest makes it especially susceptible to habitat loss. Unfortunately, habitat degradation and deforestation is taking place in much of its range (such as the Blue Mountains) due to agricultural activities, human settlements, and logging.
Conservation Measures It occurs in the Blue and John Crow Mountains National Park and several forest reserves; however, there are coffee plantations even within the park's limits and habitat disturbance resulting from tourist activities in the park remains an issue. There is clearly a need for more effective and strengthened management of the existing protected areas in the region.
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 jasperi* Drewry and Jones, 1976

GOLDEN COQUI

Critically Endangered A2ae; B2ab(i,ii,iv,v)
Order, Family: Anura, Leptodactylidae
Country Distribution: Puerto Rico
Current Population Trend: Decreasing

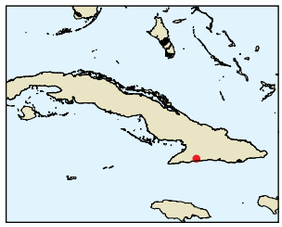


© Erik Wild, Proyecto Coquí

Geographic Range This species is found in the Sierra de Cayey, Puerto Rico, where it has been recorded from 647-785m asl.
Population This species has not been seen since 1981, and it is now possibly extinct. Extensive surveys of suitable habitat have failed to find any individuals. It has clearly undergone a catastrophic decline.
Habitat and Ecology This species has been recorded from bromeliads (terrestrial and arboreal) in forests and open and rocky areas. It is known to be a live-bearing species, giving birth to 1-3 young, unique amongst members of the genus.
Major Threats The primary reason for the decline of this species is thought to be chytridiomycosis in combination with climate change. Introduced predators might also be a contributing factor.
Conservation Measures The range of this species includes Carite Forest Reserve, which is a well-managed protected area. Further surveys are needed to relocate this species and determine whether or not it might still survive in the wild. In view of the severe risk of chytridiomycosis, 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), Drewry, G.E. and Jones, K. (1976), 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-Lopez

CR *Eleutherodactylus jaumei* Estrada and Alonso, 1997

Critically Endangered B1ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Cuba
Current Population Trend: Decreasing



© Nils Navarro, courtesy of Luis Diaz

Geographic Range This species is known from only a single locality in the Sierra Maestra, Cuba, at an altitudinal range of 200-950m asl.
Population This is a common species in suitable habitat.
Habitat and Ecology It occurs in closed mesic forest, but also occurs in secondary forests. It is usually found in leaf-litter and it breeds by direct development.
Major Threats The main threat to this species is habitat destruction due to agricultural expansion, woodcutting, disturbance from tourists, and infrastructure development.
Conservation Measures The species does occur in the lower elevations of the Parque Nacional La Bayamesa, but there is no management of this area for conservation, and the habitat continues to be destroyed. Maintenance of the remaining suitable habitat and improved protection of existing protected areas is essential.
Bibliography: Estrada, A.R. and Alonso, R. (1997), 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 johannesdei* 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 Antioquia to Risaralda Departments on the western flank of the Cordillera Occidental in Colombia, at elevations of 1,500-1,800m asl.
Population It is an uncommon species.
Habitat and Ecology It is active on low vegetation in primary montane forests, and has not been recorded outside forest habitat. Breeding is by direct development.
Major Threats The major threat to the species is habitat loss, as a result of the expansion of agriculture and livestock farming in the region.
Conservation Measures Populations of this species occur within three national parks, including Parque Nacional Natural Paramillo and Parque Nacional de Las Orquídeas; the maintenance of these protected areas is essential to ensure the long-term survival of this species, particularly given its association with primary forest.

Bibliography: Acosta-Galvis, A.R. (2000), 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), Rivero, J.A. and Serna, M.A. (1987), 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 jorgevelosai* Lynch, 1994

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


© John D. Lynch

Geographic Range This species is known from the region of the type locality on the western slope of the Cordillera Occidental, in the department of Santander, Colombia. It has been recorded from 1,900-2,400m asl.
Population It is a rare species, and appears to be in decline.
Habitat and Ecology It lives on rocks and vegetation up to3m above the ground along streams in mature forests (and is found only in the forest interior). It breeds by direct development.
Major Threats The major threat to this species is habitat loss, due to agriculture, involving both crops and livestock, as well as wood plantations. Some other species of *Eleutherodactylus* that are associated with streams have undergone dramatic declines and disappearances, possibly due to chytridiomycosis, so the population status of this species should be monitored carefully.
Conservation Measures Its range includes the Estacion Demostrativa El Rasgón. Additional protection of forest habitat in the range of this species is necessary.
Bibliography: Acosta-Galvis, A.R. (2000), Lynch, J.D. (1994a), 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: Martha Patricia Ramírez Pinilla, María Cristina Ardila-Robayo, Fernando Castro, Maria Isabel Herrera

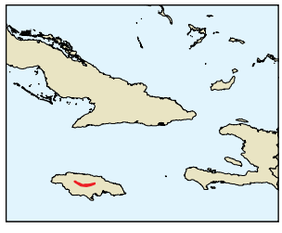
CR *Eleutherodactylus jugans* (Cochran, 1937)

Critically Endangered A3c
Order, Family: Anura, Leptodactylidae
Country Distribution: Dominican Republic, Haiti
Current Population Trend: Decreasing

Geographic Range This species has a restricted range on the Massif de la Selle, in Hispaniola (Haiti and Dominican Republic). It has been recorded from 1,242-2,146m asl.
Population It is moderately common in suitable habitat, which is rapidly disappearing.
Habitat and Ecology It is a terrestrial species, occurring in mesic pine and broadleaf 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 this species is severe habitat destruction (even in the protected areas of Parc National Morne La Visite and Parque Nacional Sierra de Baoruco) as a result of logging by local people (charcoaling), and slash-and-burn agriculture.
Conservation Measures Although the species does occur in the Parc National Morne La Visite in Haiti, there is no management of this area for conservation, and the habitat continues to be lost. It is also known from Parque Nacional Sierra de Baoruco in the Dominican Republic, which is better-managed, but is nonetheless still suffering from significant habitat degradation. The maintenance of remaining suitable habitat across the range of the species and improved protection of existing protected areas 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, Sixto Inchaustegui, Robert Powell

CR *Eleutherodactylus junori* Dunn, 1926

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



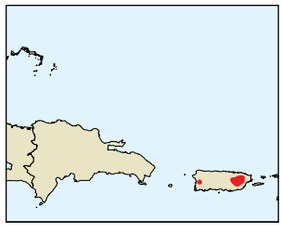

© S. Blair Hedges, Penn State

Geographic Range This species is known from only four localities in the central uplands of Jamaica. It has been recorded from 600-835m asl.
Population It is known to be extremely rare and has only been seen or heard on a few occasions since it was first described in 1926. Two specimens were collected in the mid 1980s, and one individual was heard in the late 1990s. A series of specimens was collected in the 1960s, suggesting that it might have been more common in the past. Although there has been no recent survey work for this species, it does appear to have declined significantly.
Habitat and Ecology This is a terrestrial species that has only been found on the edge of forest in banana groves and pastures. It calls from rock and earthen crevices, but can it be quite a difficult species to locate, mainly because its call is drowned out by that of the invasive *Eleutherodactylus johnstonei*. It presumably breeds by direct development.
Major Threats The primary threat is habitat destruction, due to agriculture, logging, and infrastructure development. Their range has now been completely invaded by the introduced *Eleutherodactylus johnstonei*, which has a much louder call (and is more locally abundant), and which is quite possibly out-competing this species ecologically, and resulting in noise interference in mating calls (S.B. Hedges pers. obs.).
Conservation Measures This species is not known to occur in any formally protected areas. Although its range includes Cockpit Country Forest Reserve, this does not guarantee long-term protection for the remaining habitat. The maintenance and protection of remaining suitable habitat across the range of the species 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 Fowler, D.C. (1973), Schwartz, A. and Henderson, R.W. (1991)
Data Providers: Blair Hedges

CR *Eleutherodactylus karlschmidti* Grant, 1931

STREAM COQUI

Critically Endangered A2ae
Order, Family: Anura, Leptodactylidae
Country Distribution: Puerto Rico
Current Population Trend: Decreasing



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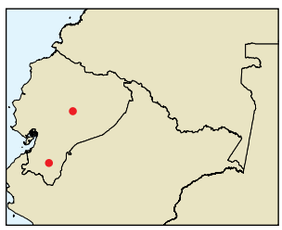
Geographic Range This species is known from eastern Puerto Rico as well as the western mountains, at an altitudinal range of 45-630m asl.
Population Formerly known to be abundant in eastern Puerto Rico as well as the western mountains, it has not been seen since 1976. Habitats where it once occurred have been surveyed repeatedly by experts at different times of year (including the rainy season), without success, and it is now considered to be almost certainly extinct.
Habitat and Ecology It is an aquatic species, restricted to mountain streams, with a preference for rocky torrents in closed mesic forest. It is known to call from boulders, banks, and waterfalls, and to breed by direct development.
Major Threats The main cause of the decline of this species appears to be related to the synergistic effects of chytridiomycosis and climate change, although invasive predators might also have had an impact.
Conservation Measures This species formerly occurred in El Yunque National Forest, but it has not been recorded recently from this area. Further survey work is required to determine the population status of this species and 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 the establishment of an *ex-situ* population.
Bibliography: Burrowes, P.A., Joglar, R.L. and Green, D.E. (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), Joglar, R.L. (1999), Joglar, R.L. and Burrowes, P.A. (1996), Schwartz, A. and Henderson, R.W. (1991)
Data Providers: Blair Hedges, Rafael Joglar, Richard Thomas

EN *Eleutherodactylus katoptroides* Flores, 1988

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



Geographic Range This species is known from the type locality near Puyo, in the province of Pastaza, in Ecuador, and also from the upper watershed of Curintza in Parque Nacional Podocarpus at 2,700m asl. It is likely to occur more widely, at least in the area between the two currently known sites.
Population It is a very rare species. In two years of study in Parque Nacional Podocarpus, only two individuals were collected.
Habitat and Ecology This species is an inhabitant of montane cloud forest, occurring in the understorey herbaceous layer. The type locality consists of a mixture of heavily disturbed forest, a cutover and cultivated hillside, and less-disturbed, secondary growth forest. It breeds by direct development.
Major Threats The major threat is habitat loss due to agriculture (involving both crops and livestock), as well as logging and infrastructure development for human settlement.
Conservation Measures It is known to occur in the 145,000-ha Parque Nacional Podocarpus, although the population at the type locality remains unprotected. Further survey work is necessary to better determine the current population status of this species, and to determine whether it might occur more widely than currently known.
Bibliography: Almeida, D. and Nogales, F. (2003), Flores, G. (1988b), Lynch, J.D. and Duellman, W.E. (1997)
Data Providers: Luis A. Coloma, Santiago Ron, Diego Almeida, Fernando Nogales

VU *Eleutherodactylus kelephas* Lynch, 1998

Vulnerable D2
Order, Family: Anura, Leptodactylidae
Country Distribution: Colombia
Current Population Trend: Stable

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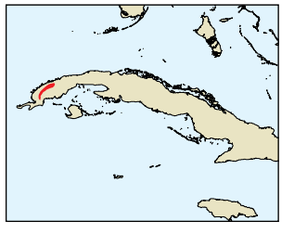
Geographic Range This species is only known from the region of the type locality in the municipality of El Cairo, in Valle del Cauca and Chocó departments, Colombia, from 1,900-2,250m asl. It is unlikely to have a much wider distribution, as surveys of nearby areas have not found the species.
Population It is a common species.
Habitat and Ecology It is usually abundant on vegetation along small streams in primary and secondary cloud forests; it has not been recorded outside forest. It breeds by direct development.
Major Threats There are no known threats to the species at present, as its known distribution is currently conserved within a protected area.
Conservation Measures The type locality is within Regional Reserve Serrania de los Paraguas. Maintenance of the species' habitat is essential to its long-term survival given its restriction to forest habitats. There is a need for close population monitoring of this species.
Notes on taxonomy: This taxon has previously been confused with *Eleutherodactylus calcaratus* (Lynch 1998).
Bibliography: Acosta-Galvis, A.R. (2000), Lynch, J.D. (1996b), Lynch, J.D. (1998b)
Data Providers: Fernando Castro, Maria Isabel Herrera, John Lynch

EN *Eleutherodactylus klinikowskii* Schwartz, 1959

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



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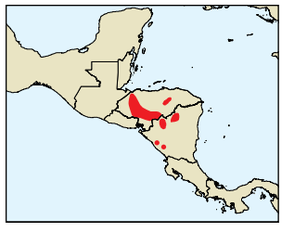
Geographic Range This species has a restricted range in the Sierra de los Organos and the Sierra del Rosario, Cuba. It has been recorded from 75-182m asl.
Population It is moderately common in suitable habitat.
Habitat and Ecology It occurs in rocky areas, and sometimes retreats to terrestrial bromeliads in closed-canopy mesic forest; it has not been recorded outside forest habitat. It calls from rock crevices, or sometimes on vegetation. Eggs are laid on the ground, and it breeds by direct development.
Major Threats The major threat to the species is disturbance of its habitat by tourists.
Conservation Measures Its range includes Parque Nacional Viñales, which is a well-managed protected area, and several nearby reserves.
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), Schwartz, A.E. (1959)
Data Providers: Blair Hedges, Luis Díaz

EN *Eleutherodactylus laevissimus* (Werner, 1896)

Endangered A2ace
Order, Family: Anura, Leptodactylidae
Country Distribution: Honduras, Nicaragua
Current Population Trend: Decreasing



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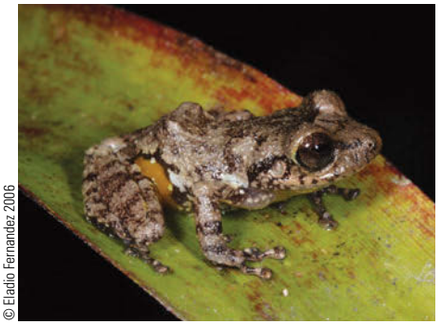
Geographic Range This species occurs from the Atlantic and Pacific slopes of Honduras to northern and south-western Nicaragua, at 100-1,640m asl.
Population It was formerly common, but has declined, and seems to have disappeared above 900m asl in Honduras, along with several other stream-dwelling *Eleutherodactylus* species. Lowland populations survive, but, overall, the species is now relatively uncommon.
Habitat and Ecology It inhabits lowland and premontane wet and moist forests, and is found along streams and small rivers; it can survive in degraded forest and secondary growth. It breeds by direct development and lays its eggs on land.
Major Threats The main threat is habitat loss and degradation due to agriculture, livestock, logging, human settlement, and fire (as well as the added risk of resulting water pollution), but these do not explain the extent of the decline witnessed at higher elevations. Some other species of *Eleutherodactylus*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. Pollution, presumably due to the fumigation of crops, has also been suggested as one cause of the decline at high altitudes.
Conservation Measures It occurs in several protected areas. Further research is necessary to investigate the reasons for the apparent decline in populations of this species.
Bibliography: Campbell, J.A. and Savage, J.M. (2000), Köhler, G. (2001), McCranie, J.R. and Wilson, L.D. (2002b)
Data Providers: Larry David Wilson, Gunther Köhler, Gustavo Cruz

CR *Eleutherodactylus lamprotes* 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 a few localities in the Massif de la Hotte, Haiti, where it has been recorded from 818-1,455m asl.
Population It is moderately common in suitable habitat.
Habitat and Ecology It is found in arboreal bromeliads in mesic upland forest. The eggs are laid in bromeliads, and they breed by direct development. It has not been recorded from disturbed forest.
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 cotinues 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.
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. and Henderson, R.W. (1991)
Data Providers: Blair Hedges, Richard Thomas

EN *Eleutherodactylus lancinii* (Donoso-Barros, 1968)

Endangered B1ab(v)
Order, Family: Anura, Leptodactylidae
Country Distribution: Venezuela
Current Population Trend: Decreasing

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Geographic Range This species is known from localities in the vicinity of Páramo de Mucubají, in the state of Mérida, Venezuela. It has been recorded from 2,500-3,600m asl. Records from the tepui region in Bolivar and Amazonas States are in error.
Population It is now very difficult to find (Barrio Amorós 2001), and populations are believed to be experiencing declines (although the exact rate of decline is not known).
Habitat and Ecology It is a terrestrial inhabitant of páramo grassland that breeds by direct development.
Major Threats The major threat to the species is habitat loss, due to agriculture (involving both crops and livestock) and fires. However, most of the populations are within relatively well-managed protected areas, and the cause of the decline within these is not known, though chytridiomycosis cannot be ruled out.
Conservation Measures The most important protected area from which this species has been recorded is Parque Nacional Sierra Nevada. Further research is needed to determine the reason for the observed population declines.
Bibliography: Barrio Amorós, C.L. (2001), Barrio Amorós, C.L. (2004), Donoso-Barros, R., La Marca, E. (1992), Péfaur, J.E. and Rivero, J.A. (2000), Vial, J.L. and Saylor, L. (1993)
Data Providers: Enrique La Marca, Juan Elías García-Pérez

VU *Eleutherodactylus lasalleorum* Lynch, 1995

Vulnerable D2
Order, Family: Anura, Leptodactylidae
Country Distribution: Colombia
Current Population Trend: Stable

Geographic Range This species is known only from the type locality, Frontino Paramo, in the municipality of Urrao, in Antioquia Department, Colombia, from 3,700-3,850m asl. It is probably genuinely restricted to this area.
Population The current population status is unknown; only seven specimens are known from three separate collections.
Habitat and Ecology This is a páramo species that is usually found on vegetation and occurs among moss and axils of *Espeletia* spp. It breeds by direct development, but the site of egg deposition is not known.
Major Threats The Frontino Paramo is in a remote area and at a very high elevation, so there currently are no significant threats. However, climate change might reduce the suitable habitat available and force the species to move to higher elevations, and hence further restrict its range.
Conservation Measures The range of the species is included in the Paramo Urrao, which is a Protection Forest Reserve (IUCN category VI), but improved management and protection of this area are needed. There is also a need for close population monitoring of this species given that it is known only from the type locality.
Notes on taxonomy: Due to a typographic error on the title of the paper describing this species (Lynch 1995), the name was given as *E. lasallorum.* However, the correct spelling is *E. lasalleorum.* Lynch (1995) gives the correct spelling elsewhere in the original description.
Bibliography: Acosta-Galvis, A.R. (2000), Lynch, J.D. (1995), Lynch, J.D. (1998b), 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

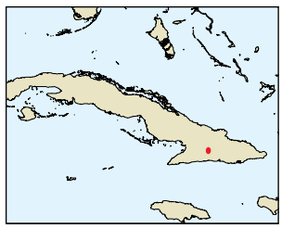
EN *Eleutherodactylus latens* Lynch, 1989

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

Geographic Range This species is known from several locations in the Cordillera Central of the Colombian Andes: the type locality ("Boqueron, Serranía Las Valdías, Municipio de Medellin"), El Yerbal (in the municipality of Belmira) and Sonson, all three in the department of Antioquia; as well as Quebrada Negra vicinity, in the county of Pensilvania, and in the Reserva Río Blanco, County of Manizales, in the department of Caldas, north of Quindio and Tolima Departments. It has been recorded from 2,600-3,200m asl. It is likely to occur more widely than currently records suggest.
Population It is a rare species, although this may be partly due to the species' cryptozoic behaviour.
Habitat and Ecology It is found on fallen leaves and grass roots in sub-páramo habitats; it is not known whether it can occur in disturbed habitats. Breeding is by direct development.
Major Threats The major threat is habitat loss caused by deforestation for agricultural development (including illegal crops).
Conservation Measures It is found in the Río Blanco Water District of the city of Manesalles (a forest protected for water catchments), which affords some protection. However, there is a need for additional protection of this species' sub-páramo habitat.
Bibliography: Acosta-Galvis, A.R. (2000), Lynch, J.D. (1989), 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

EN *Eleutherodactylus leberi* Schwartz, 1965

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




© Luis M. Diaz

Geographic Range This species has a restricted range in the northern foothills of the Sierra Maestra, Cuba, where it has a patchy distribution and ranges from 394-465m asl.
Population It is moderately common in suitable habitat.
Habitat and Ecology It is found in closed mesic forest including wet limestone forests. It calls from rock surfaces and from trees, and breeds by direct development.
Major Threats The major threat is habitat destruction from agricultural activities (mainly subsistence farming).
Conservation Measures It is included in a tiny provincial protected area, La Tabla, an "Area Protegida de Recursos Manejados".
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. (1965a), Schwartz, A. and Henderson, R.W. (1991)
Data Providers: Blair Hedges, Luis Díaz

EN *Eleutherodactylus lemur* Lynch and Rueda-Almonacid, 1998

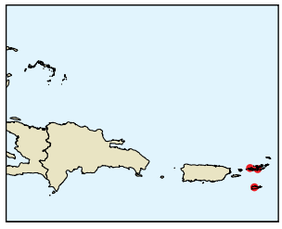
Endangered B1ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Colombia
Current Population Trend: Decreasing


© John D. Lynch

Geographic Range This species occurs in cloud forest in the municipalities of Pensilvania and Samaná, in the department of Caldas, and also in the department of Antioquia, on the eastern flank of the Cordillera Central, in Colombia, from 1,800-2,650m asl.
Population The current population status of this species is unknown.
Habitat and Ecology It is an arboreal, nocturnal species that inhabits areas covered by dense primary forest or minimally disturbed forest, and is quite sensitive to disturbance of its habitat. It breeds by direct development.
Major Threats The main threat is habitat loss caused by deforestation for agricultural development (including the cultivation of illegal crops).
Conservation Measures The species' distribution overlaps with Florencia Forest, an area that is in the process of being declared a natural reserve.
Bibliography: Acosta-Galvis, A.R. (2000), Lynch, J.D. and Rueda-Almonacid, J.V. (1998b), Paez, V.P. *et al.* (2002), Rueda-Almonacid, J.V. (2000)
Data Providers: Fernando Castro, Maria Isabel Herrera

EN *Eleutherodactylus lentus* (Cope, 1862) YELLOW MOTTLED COQUI

Endangered B1ab(iii)+2ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Virgin Islands (United States)
Current Population Trend: Decreasing




© Alejandro Sanchez

Geographic Range This species has a restricted range in St. Thomas, St. John and St. Croix in the U.S. Virgin Islands. It has been recorded from sea level up to 10m asl.
Population This species is rarely encountered, but it has been recorded recently.
Habitat and Ecology It is a terrestrial species found in dry scrub forest, 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 is habitat loss due to agriculture (involving both crops and livestock) and infrastructure development for tourism and human settlement.
Conservation Measures Almost the whole island of St. John is protected as the Virgin Islands National Park, but there is a need for improved habitat protection on St. Thomas and St. Croix.
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, Richard Thomas

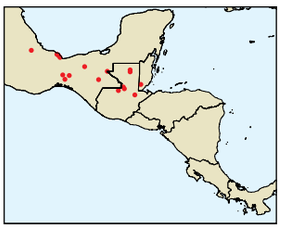
CR *Eleutherodactylus leoncei* Shreve and Williams, 1963

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 Sierra de Bahoruco in the Dominican Republic, Hispaniola. It has been recorded from 1,182-2,303m asl.
Population For unknown reasons, it has been rarely encountered in the Dominican Republic in the last two decades, despite surviving in intact forest, which suggests that it might either be a rare species or one in rapid decline.
Habitat and Ecology It is a terrestrial species found in upland pine forest, preferring sheltered sites, and calling from the ground. It does not tolerate disturbance of its habitat. The eggs are laid on the ground, and it breeds by direct development.
Major Threats The primary threat is severe habitat destruction as a result of logging by local people (charcoaling) and slash-and-burn agriculture.
Conservation Measures The species occurs in the Parque Nacional Sierra de Bahoruco in the Dominican Republic, but this area is not well-managed, and habitat degradation is ongoing. Improved management of existing protected areas and maintenance of remaining habitat are essential.
Notes on taxonomy: Schwartz and Henderson (1991) considered some populations of this species to refer to *Eleutherodactylus darlingtoni*, but Hedges (1992) redefined the range, and this definition is used here.
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. and Henderson, R.W. (1991)
Data Providers: Blair Hedges, Sixto Inchaustegui, Robert Powell

VU *Eleutherodactylus leprus* Cope, 1879

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



Geographic Range This species can be found on the Atlantic versant of Mexico from central Veracruz eastwards to the Isthmus of Tehuantepec and north-central Chiapas through northern Guatemala. One isolated population has been recorded in north-eastern Guatemala and another in south-western Belize. It also occurs on the Pacific versant in the Isthmus of Tehuantepec. It occurs at 5-500m asl. It probably occurs more widely than known records suggest.
Population There is little information on the current population status of this species across its range, but it is at best uncommon.
Habitat and Ecology It is an inhabitant of lowland tropical rainforest and evergreen forest, and is associated with terrestrial microhabitats (commonly found under rocks). Reproduction occurs by direct development.
Major Threats Habitat loss, due to logging and smallholder agricultural activities, is a major threat to this species.
Conservation Measures It is recorded from several protected areas, including Reserva de la Biósfera Los Tuxtlas. However, there is a need for improved habitat protection across its range, particularly in the Chimalapas region. Further survey work is required to better understand the range and population status of this species.
Notes on taxonomy: Included by some authors in the genus *Syrrhophus*.
Bibliography: Campbell, J.A. (1998), Lee, J.C. (1996), Lynch, J.D. (1970), Meyer, J.R. and Meerman, J. (2000)
Data Providers: Georgina Santos-Barrera, Luis Canseco-Márquez, Julian Lee, Manuel Acevedo

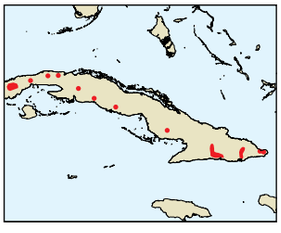
CR *Eleutherodactylus lichenoides* Lynch and Rueda-Almonacid, 1997

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 vicinity of the Florencia Forest, Samaná municipality, in Caldas department, on the Cordillera Central in the Colombian Andes, from 2,000-2,450m asl.
Population It is not a common species.
Habitat and Ecology This species is a microhabitat specialist that occurs on top of very humid rocks in stream rapids in cloud forest. It has not been recorded away from the vicinity of rapids in forested streams. It breeds by direct development.
Major Threats The main threat to this species is habitat loss caused by subsistence wood collecting and agricultural development (the planting of illegal crops). The species is an extreme habitat specialist hence increasing its vulnerability to threatening processes. Furthermore, some other species of the genus that are associated with high-elevation streams have undergone dramatic declines and disappearances, possibly due to chytridiomycosis.
Conservation Measures The species occurs inside the recently gazetted Parque Nacional Natural Selva de Florencia. Further survey work is required to determine the population status and trends of this species and the limits of its range. In view of the possible risk of chytridiomycosis, the status of this species should be closely monitored.
Bibliography: Acosta-Galvis, A.R. (2000), Lynch, J.D. and Rueda-Almonacid, J.V. (1997), Rueda-Almonacid, J.V. (2000)
Data Providers: Fernando Castro, Maria Isabel Herrera, John Lynch

VU *Eleutherodactylus limbatus* (Cope, 1862)

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



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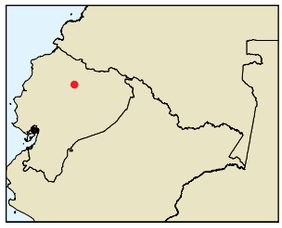
Geographic Range This species is widely, but patchily, distributed through most of Cuba, at low to moderate elevations, from 50-1,150m asl. It probably occurs more widely than current records suggest.
Population It is common in suitable habitat.
Habitat and Ecology It is a terrestrial species restricted to closed-canopy mesic and xeric forests, and is commonly heard calling from the ground. It lays a single egg under leaf-litter on the ground, and reproduction takes place by direct development.
Major Threats It is particularly susceptible to habitat disturbance due to livestock and subsistence agriculture.
Conservation Measures Its range includes several protected areas, but many of these are in need of improved 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 Díaz

EN *Eleutherodactylus lividus* Lynch and Duellman, 1980

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



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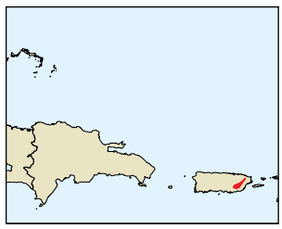
Geographic Range This species is known only from the Papallacta Valley on the eastern face of the Andes in Napo Province, Ecuador, at 2,135-2,750m asl, though it probably occurs a little more widely.
Population It is an uncommon species.
Habitat and Ecology It is an inhabitant of cloud forests; one individual has been found under a rock by day, and others were collected on the leaves of herbaceous plants and low bushes at night. It is not known whether or not it tolerates habitat degradation. Breeding is presumed to be 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, livestock farming, logging, and human settlement.
Conservation Measures It is not known from any protected areas, making the protection of cloud forest habitat in the Papallacta Valley an urgent priority.
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

CR *Eleutherodactylus locustus* Schmidt, 1920

LOCUST COQUI

Critically Endangered A4ae
Order, Family: Anura, Leptodactylidae
Country Distribution: Puerto Rico
Current Population Trend: Decreasing



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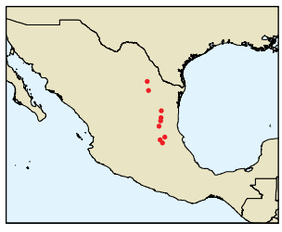
Geographic Range This species is restricted to the interior uplands of eastern Puerto Rico at elevations of 273-1,050m asl.
Population There has been an unexplained major decline in abundance in the last two decades, even in relatively undisturbed forests (such as El Yunque) and some populations have been entirely extirpated.
Habitat and Ecology It is a terrestrial species occurring in mesic broadleaf forest where the males call from low vegetation. Eggs are laid on the ground, and it breeds by direct development.
Major Threats The decline observed in the species is believed to be due to the synergistic effects of chytridiomycosis and climate change. It is possibly also affected by introduced predators (such as *Rattus rattus* and mongooses), which are abundant in the area in which it occurs.
Conservation Measures The species occurs in the Luquillo National Forest Reserve and the Carite Forest Reserve, which are well-managed protected areas. 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.
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, Richard Thomas, Luis J. Villanueva-Rivera, Neftalí Ríos-Lopez

VU *Eleutherodactylus longipes* (Baird, 1859)

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



© Tim Burkhardt

Geographic Range This species occurs from central Nuevo Leon to western Tamaulipas, San Luis Potosi, Queretaro, and extreme north-western Hidalgo, Mexico, at moderate elevations from 650-2,000m asl. It is probably more widespread within its general range.
Population Although several additional populations have been identified, this species is nowhere common.
Habitat and Ecology This species inhabits pine-oak forest habitats. On several occasions it has been collected from caves. It breeds by direct development.
Major Threats Habitat loss due to logging is the main threat to this species. 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 might occur in the Parque Nacional Cumbres de Monterrey, but this requires confirmation. There is a need for improved habitat protection at sites at which this species has been recorded in the Sierra Madre Oriental.
Bibliography: Hedges, S.B. (1989), Lynch, J.D. (1970)
Data Providers: Georgina Santos-Barrera, Luis Canseco-Márquez

EN *Eleutherodactylus loustes* Lynch, 1979

Endangered B1ab(iii)+2ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Colombia, Ecuador
Current Population Trend: Decreasing

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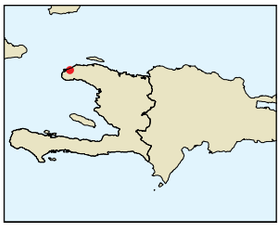
Geographic Range This species is known only from a small area in the western slopes of the Cordillera Occidental, at La Planada at 1,200m asl in the department of Nariño, extreme southern Colombia, and just across the border at Maldonado at 1,410m asl, in the province of Carchi, extreme northern Ecuador.
Population It is a rare species.
Habitat and Ecology It is an inhabitant of cloud forest, and is associated with the spray zones of waterfalls, where it lives on vegetation and rocks. Its ability to adapt to modified habitats is unknown, but it is unlikely to tolerate significant habitat alteration. It is presumed to breed by direct development, but the site of egg deposition is not known.
Major Threats The major threats are likely to be habitat loss and degradation, due to agricultural development, plantations, cultivation of illegal crops, logging, and human settlement, and pollution (resulting from the spraying of illegal crops).
Conservation Measures It occurs in the La Planada private nature reserve in Colombia, but there is a need for further protection of cloud forest habitat in the region.
Bibliography: Acosta-Galvis, A.R. (2000), Lynch, J.D. (1979b), Lynch, J.D. (1992c), 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, Santiago Ron, Luis A. Coloma

CR *Eleutherodactylus lucioi* Schwartz, 1980

Critically Endangered A3c; B1ab(iii)+2ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Haiti
Current Population Trend: Decreasing

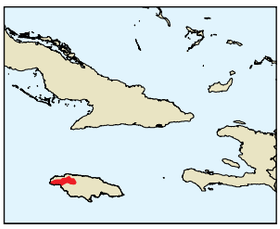


Geographic Range This species is known from a single locality in the Presquile du Nord Ouest, Haiti, at around 100m asl.
Population It has not been recorded since it was first collected. At least one survey at the type locality in 1997-the last herpetological survey of the region-failed to record the species (S.B. Hedges pers. comm.).
Habitat and Ecology The species was recorded in a rocky ravine in remnant riparian forest. Eggs are laid on the ground, and it breeds by direct development.
Major Threats Logging by local people (charcoaling) and slash-and-burn agriculture are the main threats to the species.
Conservation Measures It is not known to occur in any protected areas. Further survey work is urgently needed to determine the population status of this species and whether or not it still survives in the wild. Maintenance of existing habitat at the type locality is also required.

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. (1980d), Schwartz, A. and Henderson, R.W. (1991)
Data Providers: Blair Hedges, Richard Thomas

EN *Eleutherodactylus luteolus* (Gosse, 1851)

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




© Kelly Jones

Geographic Range This species has a restricted range in western Jamaica, ranging from sea level up to 680m asl.
Population It has rarely been encountered during the last decade, although it is commonly found in Dolphin Head in extreme western Jamaica.
Habitat and Ecology This species is an inhabitant of mesic forests on the coast and in the uplands; although associated with closed-canopy forest, it can tolerate some habitat degradation. Males call from the ground or from low vegetation. Eggs are laid on the ground and it breeds by direct development and may be associated with bromeliads.
Major Threats Although this species appears to be slightly more tolerant of habitat disturbance than some other species in the genus, such as *Eleutherodactylus sisyphodemus* and *E. griphus*, rather extensive habitat destruction and deforestation is taking place within its range, caused by agriculture, human settlement and logging.
Conservation Measures It occurs in several forest reserves, but these do not guarantee the species' long-term protection, and there is a clear need for improved and strengthened management of these existing protected areas.
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

EN *Eleutherodactylus maculosus* Lynch, 1991

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


© John D. Lynch

Geographic Range This species is known from the municipalities of Sonson and Belmira, in the high and sub-páramo areas of the department of Antioquia, and is also reported from Caldas Department, inside the Florencia forest, between Samana and Pensilvania, in Colombia, from 2,560-2,900m asl. It is unlikely that the species will be found to occur in between known localities as most of the habitat has already been degraded or destroyed.
Population It is not a common species.
Habitat and Ecology It is an inhabitant of primary forest, and is active on leaves and branches on high or medium strata. It breeds by direct development.
Major Threats The major threat to the species is habitat loss caused by deforestation for agricultural development (including the cultivation of illegal crops).
Conservation Measures The range of the species includes Florencia Forest, an area in the process of being declared a natural reserve.
Bibliography: Acosta-Galvis, A.R. (2000), Ardila-Robayo, M.C. and Acosta-Galvis, A. (2000a), Lynch, J.D. (1991a), 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)
Data Providers: Fernando Castro, Maria Isabel Herrera, John Lynch

VU *Eleutherodactylus marahuaka* Fuentes and Barrio-Amorós, 2004

Vulnerable D2
Order, Family: Anura, Leptodactylidae
Country Distribution: Venezuela
Current Population Trend: Unknown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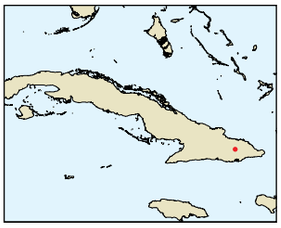
Geographic Range This species is known only from around 2,450m asl on the summit of Cerro Marahuaca, central Amazonas State, Venezuela. It is likely to be confined to the summit of this tepui.
Population The species appears to be common or abundant within its small range.
Habitat and Ecology It is known from tepui shrubland. Individuals were found in the mossy bases of *Heliamphora sarraceniaceae* plants. Breeding is presumed to be by direct development.
Major Threats There are no known threats at present. However, given its small range, it is most likely susceptible to stochastic threatening processes.
Conservation Measures The only known locality for this species is within the Parque Nacional Duida-Marahuaca. It is in need of close population monitoring given that it has such a restricted distribution.
Bibliography: Fuentes, O. and Barrio-Amorós, C.L. (2004)
Data Providers: César Luis Barrio Amorós, Oscar Fuentes-Ramos

CR *Eleutherodactylus mariposa* Hedges, Estrada and Thomas, 1992

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



© S. Blair Hedges, Penn State

Geographic Range This species is currently known only from a single locality of about one hectare in size at Maseta del Guaso, Cuba, at an elevation of 720m asl.
Population It is moderately common at its only known locality.
Habitat and Ecology It is arboreal in mesic closed-canopy forests, and breeds by direct development.
Major Threats The main threat is habitat destruction due to subsistence farming and charcoaling, as well as clear-cutting.
Conservation Measures The species is not known to occur in any protected areas, and protection of the remaining habitat at what is currently the species' only known locality is urgently needed. The surviving population requires close monitoring.
Bibliography: 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 mars* Lynch and Ruíz-Carranza, 1996

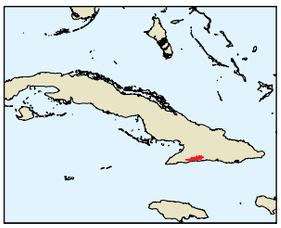
Endangered B1ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Colombia
Current Population Trend: Decreasing

Geographic Range This species is known only from the type locality: La Empalada, in the municipality of Mistrató, in the department of Risaralda, Colombia, from 1,760-1,790m asl. There has been quite extensive sampling in the neighbouring regions suggesting that it is most likely confined to this area.
Population It is a rare species.
Habitat and Ecology It is usually found on low vegetation and in leaf-litter, inside primary cloud forest, and has not been recorded outside forest habitat. It breeds by direct development.
Major Threats The major threat is habitat loss caused by agricultural development, particularly the cultivation of illegal crops.
Conservation Measures The type locality is near Parque Nacional Natural Tatama, but it has not been recorded from inside the park. Protection of the species' habitat is essential for the long-term survival of this restricted range, primary forest species.

Notes on taxonomy: This is the sister species of *Eleutherodactylus bellona* according to Lynch and Ruíz-Carranza (1996b).
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

EN *Eleutherodactylus melacara* Hedges, Estrada and Thomas, 1992

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



Geographic Range This species has a restricted range in Pico Turquino and Santiago de Cuba Province, Cuba, where it ranges from 845-1,974m asl.
Population It is moderately common in suitable habitat.
Habitat and Ecology It is arboreal in closed moist forests. The species breeds in and lays its eggs in bromeliads, and breeds by direct development.
Major Threats The major threat is habitat destruction, which is taking place as a result of deforestation for agricultural activities, woodcutting, disturbance from tourists, and infrastructure development for human settlement.
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. As such, there is a need for improved and strengthened 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), 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 merostictus* Lynch, 1984

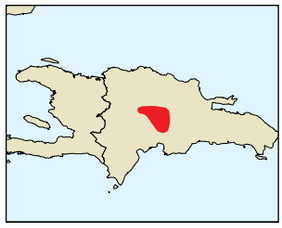
Endangered B1ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Colombia
Current Population Trend: Decreasing

© John D. Lynch

Geographic Range This species is known from two protected areas on the western slopes of the Cordillera Oriental, in the department of Santander, Colombia, from 2,400m asl.
Population It is an abundant species.
Habitat and Ecology It inhabits the interior of very humid cloud forests, and is found on vegetation on the low stratum. It is not found outside forest habitat. It breeds by direct development.
Major Threats The major threat to the species is habitat loss, as a result of agriculture, and agricultural pollution.
Conservation Measures It is so far known only from the Santuario de Fauna y Flora Guanentá Alto Río Fonce, and the Estacion Demonstrativo el Rasgon. Further survey work is recommended to ascertain whether the species might occur more widely.
Bibliography: Acosta-Galvis, A.R. (2000), Jerez, A., Arroyo, S. and Ramirez-Pinilla, M.P. (2001), Jerez, A., Arroyo, S. and Ramirez-Pinilla, M.P. (2001), 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: Martha Patricia Ramírez Pinilla, Mariela Osorno-Muñoz, Jose Vicente Rueda, Adolfo Amézquita, María Cristina Ardila-Robayo

EN *Eleutherodactylus minutus* Noble, 1923

Endangered B1ab(iii)+2ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Dominican Republic
Current Population Trend: Decreasing



Geographic Range This species has a restricted range in the Cordillera Central, Dominican Republic, with an altitudinal range of 879-2,300m asl.
Population It is moderately common in suitable habitat.
Habitat and Ecology It requires mesic upland broadleaf or pine forests. Males call from low vegetation; eggs are laid on the ground and it breeds by direct development.
Major Threats The major threat is habitat destruction due to the cultivation of crops and the rearing of livestock.
Conservation Measures It is known from several protected areas, including 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. and Henderson, R.W. (1991)
Data Providers: Blair Hedges, Sixto Inchaustegui, Marcelino Hernandez, Robert Powell

EN *Eleutherodactylus mnionaetes* Lynch, 1998

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

Geographic Range This species is known only from the type locality, between the municipalities of Ramiriqui and Zetaquira in the Cordillera Oriental, in the department of Boyaca, Colombia. It has been recorded from 3,060-3,800m asl. It probably occurs a little more widely, but this requires confirmation.
Population It is a rare species, and fewer than ten individuals have been collected.
Habitat and Ecology It inhabits cloud forest, and individuals can be found under rocks and logs during the day. At night they are active on low vegetation in open areas and inside the forest, and in areas surrounded by potato crops and cattle ranching. It breeds by direct development.
Major Threats The major threat to this species is habitat loss due to agriculture, involving both crops and livestock, and in particular potato farming.
Conservation Measures There are no protected areas within the range of this species, making the protection of cloud forest habitat at the type locality a priority. Further survey work is needed to determine whether it might occur outside the vicinity of the type locality.
Bibliography: Acosta-Galvis, A.R. (2000), Lynch, J.D. (1998a)
Data Providers: Martha Patricia Ramírez Pinilla, Mariela Osorno-Muñoz, Jose Vicente Rueda, Adolfo Amézquita, María Cristina Ardila-Robayo

VU *Eleutherodactylus modestus* (Taylor, 1942)

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

© Tim Burkhardt

Geographic Range This species is known from the lowlands (700m asl or below) of southern Jalisco and Colima, Mexico, but is perhaps more widespread.
Population It is thought to be a common species.
Habitat and Ecology It can be found in tropical deciduous forest, and requires an abundance of leaves and debris on the ground. It is terrestrial and breeds by direct development.
Major Threats Habitat loss and fragmentation, due to clear-cutting and smallholder agricultural activities, represents the main threat.
Conservation Measures The range of this species includes Reserva de la Biósfera Chamela-Cuixmala. It is protected by Mexican law under the "Special Protection" category (Pr).
Bibliography: Lynch, J.D. (1970)
Data Providers: Georgina Santos-Barrera, Oscar Flores-Villela

EN *Eleutherodactylus modipeplus* Lynch, 1981

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

© Juan Pablo Reyes Puig

Geographic Range This species is known only from eight localities on the edges of the Ambato-Riobamba Valley in central Ecuador between 2,560 and 3,700m asl.
Population It is an uncommon species.
Habitat and Ecology It lives in high-altitude páramo grassland and sub-páramo bush land. It is not known whether or not it tolerates habitat degradation. It is presumed to breed by direct development, but the site of egg deposition is not known.
Major Threats The major threat is habitat loss and degradation. At the type locality, for example, patches of natural vegetation have been cleared for agriculture, livestock farming, and pine plantations, and this is believed to be having a serious impact on the species.
Conservation Measures It is not known from any protected areas, which makes formal protection of this species' high-altitude habitat a priority.
Bibliography: Lynch, J.D. (1981a), Lynch, J.D. and Duellman, W.E. (1997)
Data Providers: John Lynch, Luis A. Coloma, Santiago Ron

VU *Eleutherodactylus monensis* (Meerwarth, 1901) MONA COQUI

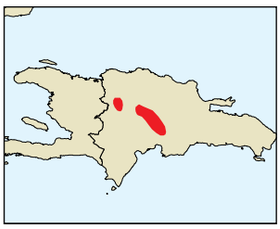
Vulnerable D2
Order, Family: Anura, Leptodactylidae
Country Distribution: Puerto Rico
Current Population Trend: Unknown

© Rafael L. Joglar

Geographic Range This species is known only from Mona Island (Puerto Rico). Its altitudinal range is from sea level up to 10m asl.
Population It is an abundant species on the island.
Habitat and Ecology It is found in limestone solution holes in dry scrub forest. It is uncommonly recorded in bromeliads. Eggs are laid on the ground and it breeds by direct development.
Major Threats This species has a very restricted range, being confined entirely to Mona Island, and is vulnerable to the impacts of introduced predators on the island.
Conservation Measures The Department of Natural Resources controls access to Mona Island, which is gazetted as a nature reserve. There is a need to control introduced predators on this island, and to monitor the population of this species closely.
Bibliography: 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, Richard Thomas, Luis J. Villanueva-Rivera, Neftalí Ríos-Lopez

EN *Eleutherodactylus montanus* Schmidt, 1919

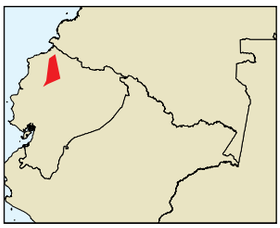
Endangered B1ab(iii)+2ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Dominican Republic
Current Population Trend: Decreasing



Geographic Range This species occurs in a limited range at high elevations on the Cordillera Central, in the Dominican Republic. It has been recorded from 1,270-2,424m asl.
Population It is common in suitable habitat at high elevations.
Habitat and Ecology This species is associated with closed-canopy forest and forest remnants, and is primarily found in the fern understorey. Males call from arboreal vegetation, including ferns. Eggs are laid on the ground, and breeding is by direct development.
Major Threats The major threat is habitat destruction from agricultural development, livestock farming, and disturbance from tourist activities.
Conservation Measures Its range includes several protected areas (including Valle Nuevo Natural Scientific Reserve). However, several of these existing protected areas are in need of more effective 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, Sixto Inchaustegui, Marcelino Hernandez, Robert Powell

VU *Eleutherodactylus muricatus* Lynch and Miyata, 1980

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

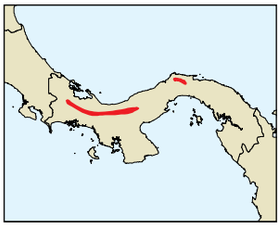


© Kenneth Miyata

Geographic Range This species has a scattered distribution in the region of the type locality, Pichincha Province, Ecuador, where it has been recorded from 800-1,380m asl. It is currently known from only six localities.
Population It is a very rare species.
Habitat and Ecology It is an inhabitant of humid tropical and subtropical primary forest and altered zones within primary forest (Lynch and Duellman 1997). Adults live in the forest canopy and breed by direct development.
Major Threats Habitat degradation and loss, mainly due to rapidly expanding banana plantations, is a serious threat.
Conservation Measures Its range includes Reserva Ecológica Cotacachi-Cayapas.
Bibliography: Lynch, J.D. and Duellman, W.E. (1997), Lynch, J.D. and Miyata, K. (1980), Morales, M. *et al.* (2002)
Data Providers: Luis A. Coloma, Santiago Ron, Manuel Morales, Diego Cisneros-Heredia

EN *Eleutherodactylus museosus* Ibáñez, Jaramillo and Arosemena, 1994

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



© Brian Kubicki

Geographic Range This species is endemic to the central cordilleras of Panama, ranging from 700-1,000m asl.
Population It is generally rare, but common in a few sites such as the head of the Río Changuinola and the Bosque Protector Palo in Bocas del Toro Province and the continental divide near Copé, Coclé Province.
Habitat and Ecology It is associated with low vegetation in humid montane forest. Breeding is by direct development, although the site of egg deposition is not known.
Major Threats The principal threat is habitat loss, mainly due to small-scale subsistence wood extraction.
Conservation Measures Much of its range is included in protected areas, including Parque Nacional Chagres.
Bibliography: Ibáñez, R. *et al.* (2000), Ibanez, R., Jaramillo, C.A. and Arosemena, F.A. (1994), Young, B. *et al.* (1999)
Data Providers: Frank Solís, Roberto Ibáñez, César Jaramillo, Querube Fuenmayor

VU *Eleutherodactylus necopinus* Lynch, 1997

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

© John D. Lynch

Geographic Range This species occurs in the northern half of the Cordillera Central in the departments of Tolima, Caldas, Quindia, Risaralda and southern Antioquia, in Colombia, at elevations of 1,800-2,200m asl. It might occur more widely.
Population It is not a common species.
Habitat and Ecology This is a diurnal and terrestrial species, restricted to primary cloud forests with abundant fallen leaves on the ground. It breeds by direct development.
Major Threats Habitat loss caused by logging and agricultural development (including the planting of illegal crops) is the major threat.
Conservation Measures This species' distribution includes Florencia Forest, an area in the process of being declared a natural reserve, and also Ucamari Regional Park.
Bibliography: Acosta-Galvis, A.R. (2000), Lynch, J.D. (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)
Data Providers: Fernando Castro, Maria Isabel Herrera, John Lynch

VU *Eleutherodactylus nephophilus* Duellman and Pramuk, 1999

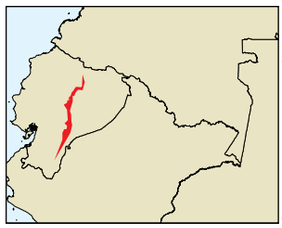
Vulnerable B1ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Ecuador, Peru
Current Population Trend: Decreasing

© German Chávez

Geographic Range This species is known from three localities in Peru between 1,080 and 2,180m asl along the road from Abra Pardo Miguel to Moyobamba, San Martin Province, on the east slope of the northern part of the Cordillera Central. It has recently been recorded from a single locality in Curintza, Zamora Chinchipe Province, Parque Nacional Podocarpus, Ecuador, at 1,800m asl.
Population There is no information on the population status of this species.
Habitat and Ecology This is a montane and cloud forest species, and is not known to occur in degraded habitats. Adults and juveniles have been found approximately 1m above the ground in humid montane forest at night; one juvenile was on the ground by day. This species breeds by direct development.
Major Threats In Peru, the major threat is loss of habitat for agriculture, selective logging, and human settlement. In Ecuador, selective logging is the primary cause for loss of habitat.
Conservation Measures It has been recorded from the Parque Nacional Podocarpus in Ecuador. In Peru, it has not been recorded from any protected areas.
Bibliography: Duellman, W.E. and Pramuk, J.B. (1999)
Data Providers: Lily Rodríguez, Jorge Luis Martinez, Wilfredo Arizabal, Daniel Neira, Diego Almeida, Fernando Nogales

VU *Eleutherodactylus nigrogriseus* (Andersson, 1945)

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



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Geographic Range This species can be found along the eastern slopes of the Ecuadorian Andes in the Río Pastaza Valley (1,180-1,800m asl), southern Ecuador (Provincia de Morona-Santiago, from 2,195-2,835m asl), Cordillera del Due (1,150-1,700m asl), and Parque Nacional Podocarpus (Curintza, 2,600m asl).
Population It is a rare species in parts of its range, for example, at Parque Nacional Podocarpus where it was last seen in 1997.
Habitat and Ecology This species inhabits cloud forests. The frogs have been found on low vegetation and rocks, usually along streams, at night (Lynch and Duellman 1980). Breeding takes place by direct development.
Major Threats Habitat destruction and degradation, due to agriculture (crops and livestock) and logging, is the main 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 Its range overlaps with several protected areas including Parque Nacional Sumaco Napo-Galeras, Parque Nacional Llanganatis, Parque Nacional Sangay, and Parque Nacional Podocarpus.
Bibliography: Andersson, L.G. (1945), Lynch, J.D. and Duellman, W.E. (1980), Lynch, J.D. and Duellman, W.E. (1997), Ortiz, A. and Morales, M. (2000)
Data Providers: Luis A. Coloma, Santiago Ron, Diego Almeida

VU *Eleutherodactylus nivicolimae* (Dixon and Webb, 1966)

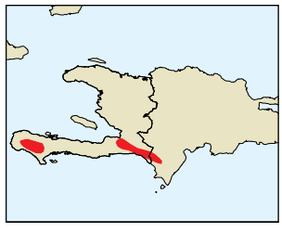
Vulnerable D2
Order, Family: Anura, Leptodactylidae
Country Distribution: Mexico
Current Population Trend: Stable

Geographic Range This species is known from eastern Colima and adjacent Jalisco, on the slopes of the Nevado de Colima, Jalisco, Mexico. It occurs from 600-2,400m asl.
Population This is a rare species.
Habitat and Ecology It is terrestrial and inhabits tropical lower montane forest, pine and oak forest. Breeding takes place by direct development.
Major Threats The major threat to this species is the eruption of the nearby Volcán de Fuego de Colima.
Conservation Measures The range of this species includes the Parque Nacional Nevado de Colima; however, there is no formal programme to protect the area. There is a need for close monitoring of the population status of this species given its limited range. This species is protected by Mexican law under the "Special Protection" category (Pr).

Bibliography: Dixon, J.R. and Webb, R.G. (1966), Lynch, J.D. (1970)
Data Providers: Georgina Santos-Barrera, Luis Canseco-Márquez

CR *Eleutherodactylus nortoni* Schwartz, 1976

Critically Endangered A3c
Order, Family: Anura, Leptodactylidae
Country Distribution: Dominican Republic, Haiti
Current Population Trend: Decreasing



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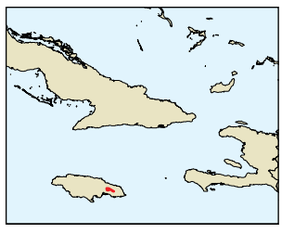
Geographic Range This species is restricted to the Massif de la Hotte and the Massif de la Selle, in Haiti, and Sierra de Bahoruco, in the Dominican Republic, Hispaniola. It has been recorded from 576-1,515m asl.
Population It is an uncommon species. It was last recorded in the Dominican Republic in 1998, although there have been no subsequent surveys for the species.
Habitat and Ecology It is usually found in sinkhole caves in upland broadleaf forest and forest remnants, and has not been recorded from disturbed habitats. Males call from tall vegetation and rocks. Eggs are laid on the ground, and it breeds by direct development.
Major Threats The primary threat is habitat destruction (due to charcoaling and agriculture), which is ongoing even in the protected areas of the Tiburon Peninsula of Haiti and the Massif de la Selle. Similarly, deforestation is taking place at the one known locality in the Dominican Republic as a result of mining, charcoaling, and agriculture.
Conservation Measures Although the species occurs in the Parc National Macaya and the Parc National Morne La Visite in Haiti, there is no management of these areas for conservation, and the habitat continues to be destroyed. It is also known from Parque Nacional Sierra de Bahoruco in the Dominican Republic, which is better managed than protected areas in Haiti; however, degradation of the habitat within the park's limits continues. Strengthening the management of the existing protected areas network is essential, as is maintenance of the remaining habitat within the range of the species. Survey work is necessary 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. (1976a), Schwartz, A. and Henderson, R.W. (1991)
Data Providers: Blair Hedges, Sixto Inchaustegui, Robert Powell

EN *Eleutherodactylus nubicola* Dunn, 1926

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

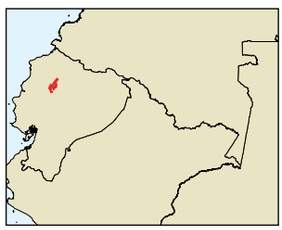


Geographic Range This species has a very restricted range in the Blue Mountains, in eastern Jamaica, and has been recorded from 1,060-1,880m asl.
Population It can be locally common in suitable habitat.
Habitat and Ecology It is a terrestrial species restricted to dense closed-canopy deciduous forest, and does not tolerate disturbance of its habitat. Males call on the ground, and eggs are laid in hollows beneath rocks. It breeds by direct development.
Major Threats The major threat is habitat loss and destruction, primarily due to smallholder farming activities, and also from introduced vegetation.
Conservation Measures It occurs in the Blue and John Crow Mountains National Park, although this is not a well-managed protected area and there are even coffee plantations within the park's limits (as well as significant disturbance of the habitat from tourist activities). There is a clear need for improved and strengthened management of this particular protected 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. and Henderson, R.W. (1991)
Data Providers: Blair Hedges, Susan Koenig, Byron Wilson

VU *Eleutherodactylus nyctophylax* Lynch, 1976

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

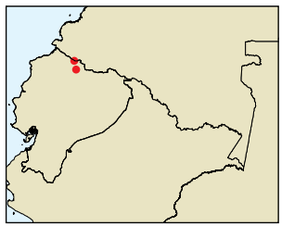


© Morley Read

Geographic Range This species is known from six localities on the western flank of the Andes in the provinces of Cotopaxi and Pichincha, Ecuador, at 1,140-2,100m asl. It might occur a little more widely.
Population It is a common species.
Habitat and Ecology It is a cloud forest inhabitant, and it is not known whether or not it tolerates minor habitat degradation. It is presumed to breed by direct development, but the site of egg deposition is not known.
Major Threats The major threat is habitat loss and degradation due to agricultural development, logging, and human settlement.
Conservation Measures Its range overlaps the Reserva Ecológica Los Illinizas.
Bibliography: Lynch, J.D. (1976a), Lynch, J.D. and Duellman, W.E. (1997)
Data Providers: John Lynch, Luis A. Coloma, Santiago Ron

EN *Eleutherodactylus ocreatus* Lynch, 1981

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



© Luis A. Coloma

Geographic Range This species is known from Páramos del Angel and Chamizo, Carchi Province, in extreme northern Ecuador, at elevations of 3,000-4,150m asl. More survey work, including in nearby Colombia, might turn up additional localities for this species.
Population In 2000, it was noted as being uncommon in Chamizo. In 2002-2003, Páramos del Angel was burned and subsequent visits have failed to find this species.
Habitat and Ecology It can be found in sub-páramo and páramo habitats, and is also found in secondary forest. It is a fossorial species that breeds by direct development.
Major Threats The major threat is habitat destruction and degradation, primarily due to agriculture and wood extraction. Severe fire damage might have extirpated this species from Páramos del Angel.
Conservation Measures It is not recorded from any protected areas, but may occur in the Reserva Ecológica El Ángel. There is a need for the protection of the high-elevation páramo habitat of this species.
Bibliography: Frolich, L.M. *et al.* (2003), Lynch, J.D. (1981a), Lynch, J.D. and Duellman, W.E. (1997)
Data Providers: Luis A. Coloma, Santiago Ron, Mario Yánez-Muñoz, Fernando Nogales

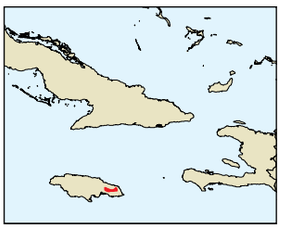
CR *Eleutherodactylus olanchano* McCranie and Wilson, 1999

Critically Endangered A2ace
Order, Family: Anura, Leptodactylidae
Country Distribution: Honduras
Current Population Trend: Decreasing

Geographic Range This species is restricted to north-western Olancho, Honduras, at elevations of 1,180-1,350m asl.
Population It used to be relatively common but it is now in decline. Fieldwork within the range of this species in 2001 failed to turn up this species.
Habitat and Ecology This species can be found in premontane moist forest, where it has been found in leaf-litter near streams. It breeds by direct development.
Major Threats The precise reasons for the decline of this species are unclear. However, some other species in the genus that are associated with high-elevation 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 entire range of this species is within Parque Nacional Muralla. Further research is needed into the reasons for the species' decline, and additional survey work is required to assess its current population status. If the risk of chytridiomycosis proves real, surviving individuals might need to form the basis for the establishment of an *ex-situ* population.
Bibliography: Campbell, J.A. and Savage, J.M. (2000), McCranie, J.R. and Wilson, L.D. (1999b), McCranie, J.R. and Wilson, L.D. (2002b)
Data Providers: Larry David Wilson, Josiah Townsend

CR *Eleutherodactylus orcutti* Dunn, 1928

Critically Endangered A2ace
Order, Family: Anura, Leptodactylidae
Country Distribution: Jamaica
Current Population Trend: Decreasing

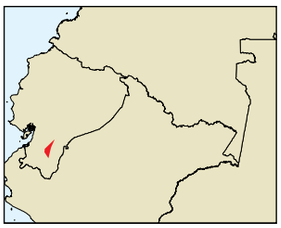


© S. Blair Hedges, Penn State

Geographic Range This species formerly occurred in eastern Jamaica at an altitudinal range of 225-1,215m asl.
Population It has not been seen since the mid-1980s and is now possibly extinct. In 1985, it was still abundant in its range but within one or two years, the species underwent a marked and rapid decline.
Habitat and Ecology This is a stream-dwelling species associated with aquatic and riparian habitats in mesic forests. Males call from rocks in streams or at waterfall bases. There is a possibility that it could have been a live-bearing species, but this is unconfirmed.
Major Threats This species has apparently disappeared from its known range, even though its range included the Blue and John Crow Mountain National Park, and some undisturbed forest still survives; this suggests that factors other than habitat loss are implicated in its disappearance, such as chytridiomycosis and introduced predators (*Rattus rattus* is abundant throughout Blue Mountains up to the highest peaks).
Conservation Measures Further survey work is required to determine whether or not this species might possibly still survive in the wild, and the reasons for its decline in pristine habitat. If disease is shown to be a major threat, then any surviving individuals might need to form the basis for the establishment of an *ex-situ* population.
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

EN *Eleutherodactylus orestes* Lynch, 1979

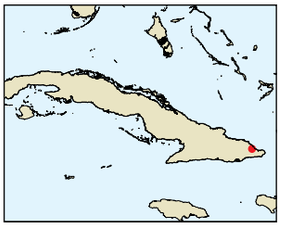
Endangered B1ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Ecuador
Current Population Trend: Decreasing



Geographic Range This species occurs on the eastern Andes from the valley of Cuenca to the Loja Basin, in southern Ecuador, where it has been recorded from five localities. Its altitudinal range is 2,720-3,120m asl.
Population It is moderately abundant, being neither rare nor common.
Habitat and Ecology It inhabits sub-páramo bushland with scattered trees, and has been found in terrestrial bromeliads under stones in dirt banks; it is not known whether it tolerates habitat degradation. 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 agricultural development, rearing of livestock, and human settlement.
Conservation Measures It is not known from any protected areas, though it may occur in Parque Nacional Podocarpus. There is a need for improved protection of the sub-páramo habitat of this species.
Bibliography: Duellman, W.E. and Pramuk, J.B. (1999), Lynch, J.D. (1979c), Lynch, J.D. and Duellman, W.E. (1997)
Data Providers: John Lynch, Luis A. Coloma, Santiago Ron

CR *Eleutherodactylus orientalis* (Barbour and Shreve, 1937)

Critically Endangered B1ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Cuba
Current Population Trend: Decreasing



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Geographic Range This species is known from a single locality around El Yunque de Baracoa, Cuba, at an altitude of about 300m asl.
Population This species is moderately common in suitable habitat.
Habitat and Ecology It requires undisturbed moist forest, and breeds by direct development.
Major Threats The main threat is habitat loss and degradation due to agriculture and disturbance from touristic activities.
Conservation Measures It occurs in the El Yunque de Baracoa Ecological Reserve, but improved protection and maintenance of the existing habitat are still 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. and Henderson, R.W. (1991)
Data Providers: Blair Hedges, Luis Díaz

VU *Eleutherodactylus ornatissimus* (Despax, 1911)

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

Geographic Range This species is known from the north-western flank of the Andes in Ecuador, from 400-1,800m asl.
Population It is an uncommon species.
Habitat and Ecology It is an inhabitant of humid temperate and subtropical primary and secondary forest (Lynch and Duellman 1997). It breeds by direct development.
Major Threats The major threat is habitat loss due to agriculture (both crops and livestock) and logging, and the habitat within its range is now severely fragmented. Agricultural pollution is also a threat to this species.
Conservation Measures Its range overlaps Reserva Ecológica Cotacachi-Cayapas and slightly with Reserva Ecológica Los Illinizas.
Bibliography: Despax, R. (1911), Lynch, J.D. and Duellman, W.E. (1997)
Data Providers: Luis A. Coloma, Santiago Ron, Diego Cisneros-Heredia, Ana Almandáriz

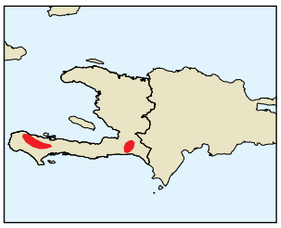
VU *Eleutherodactylus orpacobates* Lynch, Ruíz-Carranza and Ardila-Robayo, 1994

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

Geographic Range This species is known only from along the western flank of the Cordillera Occidental of Colombia from Paramillo (Antioquía Department) to Valle del Cauca Department, and from the eastern slope of the department of Caldas in the Cordillera Central. It occurs at moderate elevations from 700-2,000m asl. It might occur a little more widely, but this requires confirmation.
Population It is a common species.
Habitat and Ecology A nocturnal species that inhabits primary or secondary forests with good regeneration. It perches on branches and bushes very high above the ground. Eggs are laid on logs and moss, and breeding takes place by direct development.
Major Threats The primary threats are habitat loss, due to agriculture (both crops and livestock), and pollution, as a result of the fumigation of crops.
Conservation Measures Its range includes Parque Nacional Natural Tatama, Parque Nacional Natural Farallones de Cali, Parque Nacional Natural Las Orquideas, and Regional Reserve Bosques de Florencia.
Bibliography: Acosta-Galvis, A.R. (2000), 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. (1994), 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: Martha Patricia Ramírez Pinilla, Mariela Osorno-Muñoz, Jose Vicente Rueda, Adolfo Amézquita, María Cristina Ardila-Robayo

CR *Eleutherodactylus oxyrhyncus* (Dumeril and Bibron, 1841)

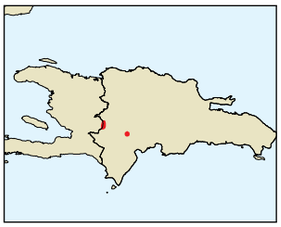
Critically Endangered A3c
Order, Family: Anura, Leptodactylidae
Country Distribution: Dominican Republic, Haiti
Current Population Trend: Decreasing



Geographic Range This species is restricted to the Massif de la Hotte and the Massif de la Selle, in Hispaniola, where it has been recorded from 333-1,212m asl.
Population It is moderately common in suitable habitat, which has now largely disappeared within its range.
Habitat and Ecology It is found under rocks in upland primary forest. Although it was collected at the edge of forest in a disturbed area, this is unlikely to be suitable habitat. Eggs are laid on the ground, and it breeds by direct development.
Major Threats The main threat to the species is habitat destruction, primarily due to logging by local people (charcoaling) and slash-and-burn agriculture, which is taking place even in the protected areas of the La Hotte and La Selle ranges.
Conservation Measures This species occurs in the Parc National Macaya and Parc National Morne La Visite, but there is no management of these areas for conservation, and the habitat continues to be destroyed. Improved management of these protected areas, and maintenance of the remaining habitat within the species' range, 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, Richard Thomas

CR *Eleutherodactylus parabates* Schwartz, 1964

Critically Endangered A3c
Order, Family: Anura, Leptodactylidae
Country Distribution: Dominican Republic, Haiti
Current Population Trend: Decreasing



Geographic Range This species is restricted to the crest of the Sierra de Neiba, along the border between the Dominican Republic and Haiti, Hispaniola. It has also been recorded from another locality in the Dominican Republic to the south-east of the Sierra de Neiba. Its altitudinal range is from 1,455-1,870m asl.
Population This species is moderately common in suitable habitat, although this habitat is declining extremely rapidly.
Habitat and Ecology It is found under rocks and logs, and in low arboreal bromeliads, in high-elevation, dense, closed hardwood forest. Eggs are laid on the ground and it breeds by direct development.
Major Threats The main threat to the species is severe habitat destruction and deforestation, primarily due to subsistence farming and charcoaling.
Conservation Measures The Sierra de Neiba was declared a protected area, but it is not effectively managed, and habitat destruction within this area has been severe. Improved protection of the remaining habitat on the Sierra de Neiba is urgently required.
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. and Henderson, R.W. (1991)
Data Providers: Blair Hedges, Sixto Inchaustegui, Richard Thomas

EN *Eleutherodactylus paramerus* Rivero, 1982

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

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Geographic Range This species is known only from a very restricted locality, the Páramo de Santo Domingo (covering less than 5km^2), in the Región de Mucuchíes, in the state of Mérida, Venezuela, at an altitude of 2,900-3,300m asl. It may occur a little more widely, but this requires confirmation. Records from the tepui region of Bolivar and Amazonas States are in error.
Population It is an uncommon species. Vial and Saylor (1993) recorded the species as undergoing population declines, but failed to provide any documented evidence to support this view. Subsequently, Barrio Amorós (2001) reported an alarming decline, to the point where it is now very difficult to find.
Habitat and Ecology It is a terrestrial inhabitant of páramo grassland, and breeding is by direct development.
Major Threats The major threat is habitat loss, due to agricultural activities (the cultivation of crops) and fire, and associated pollution.
Conservation Measures It occurs in Parque Nacional Sierra Nevada (Páramo de Mucubají).
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. (1982a), Vial, J.L. and Saylor, L. (1993)
Data Providers: Enrique La Marca, Juan Elías García-Pérez

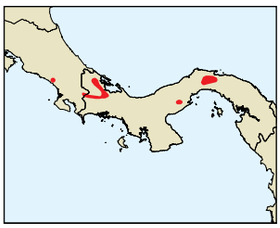
CR *Eleutherodactylus parapelates* Hedges and Thomas, 1987

Critically Endangered A3c
Order, Family: Anura, Leptodactylidae
Country Distribution: Haiti
Current Population Trend: Decreasing

Geographic Range This species is known from only two localities in the Massif de la Hotte, Haiti. Its altitudinal range is from 950-1,050m asl.
Population It was known to be moderately common in its original habitat, which has now largely disappeared from within its range.
Habitat and Ecology This is a fossorial species that inhabits closed forest; males call from shallow, underground chambers. The eggs are also laid underground and it breeds by direct development.
Major Threats The major threat is habitat loss and degradation primarily due to logging (charcoal collection) by local people 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 current population status of this species.
Bibliography: Hedges, S.B. (1993), Hedges, S.B. (1999), Hedges, S.B. (2001), Hedges, S.B. and Powell, R. (1998b), Hedges, S.B. and Thomas, 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

VU *Eleutherodactylus pardalis* (Barbour, 1928)

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



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Geographic Range This species can be found on the Pacific slopes of south-western Costa Rica (at 884-1,220m asl) and the Atlantic slopes of north-western Panama (at 365-1,450m asl), to central and eastern Panama (at 50-800m asl) (Savage 2002). It is difficult to observe, and so might have a much wider range.
Population It is uncommon, but regularly seen in Costa Rica.
Habitat and Ecology It is a nocturnal species inhabiting low vegetation within dense humid premontane and montane forest. It presumably breeds by direct development.
Major Threats The major threat is habitat loss due to agro-industry and clear-cutting of the forest.
Conservation Measures The species has been recorded from Estacion Biólogica Las Cruces in Costa Rica, and from three protected areas in Panama, including Parque Nacional Chagres.
Bibliography: Ibáñez, R. *et al.* (2000), Savage, J.M. (2002)
Data Providers: Frank Solís, Roberto Ibáñez, Gerardo Chaves, Jay Savage, César Jaramillo, Querube Fuenmayor

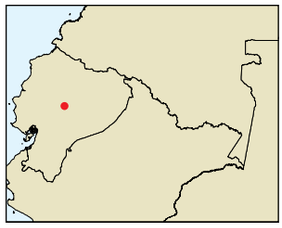
EN *Eleutherodactylus parectatus* Lynch and Rueda-Almonacid, 1998

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

Geographic Range This species is known from four localities in the municipalities of Pensilvania and Samaná, in the department of Caldas, and from the municipality of Guatepé, in Antioquia Department, on the eastern flank of the Cordillera Central, in Colombia. It has been recorded from 1,800-2,850m asl.
Population It is an uncommon species.
Habitat and Ecology It is usually found on vegetation in the intermediate and lower strata of high-altitude Andean cloud forests; it is restricted to primary forest because of its moisture needs. It breeds by direct development.
Major Threats The major threat is habitat loss due to agricultural development (including the cultivation of illegal crops).
Conservation Measures Some populations of this species are within Florencia Forest, an area in the process of being declared a natural reserve area. There is an urgent need for the protection of remaining forest habitat within the range of this species, particularly given its senstivity to habitat disturbance.
Bibliography: Acosta-Galvis, A.R. (2000), Ardila-Robayo, M.C. and Acosta-Galvis, A. (2000a), Lynch, J.D. and Rueda-Almonacid, J.V. (1998b), Lynch, J.D., Ruiz-Carranza, P.M. and Ardila-Robayo, M.C. (1997), Paez, V.P. *et al.* (2002), Rueda-Almonacid, J.V. (2000)
Data Providers: Fernando Castro, Maria Isabel Herrera

EN *Eleutherodactylus pastazensis* Andersson, 1945

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



Geographic Range This species is known only from three localities in the Upper Río Pastaza Valley in the vicinity of Yungilla and Mount Tungurahua, near Baños, in Tungurahua Province, Ecuador. Its altitudinal range is 1,800-1,840m asl. Additional survey work may reveal that the species occurs more widely than current records suggest.
Population It has always been a rare species.
Habitat and Ecology It is known only from altered, degraded montane forest, with some exotic trees. Its apparent rarity might be related to it possibly having a strong preference for pristine habitats, where it could prove to be more common. Breeding is believed to by direct development, but the site of egg deposition is not known.
Major Threats The major threat is habitat loss and degradation due to agricultural development, rearing of livestock, logging, and human settlement.
Conservation Measures It is not known from any protected areas, though it is possible it may occur in Parque Nacional Sangay. Further survey work is required to better understand the range and ecology of this species.
Bibliography: Andersson, L.G. (1945), 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

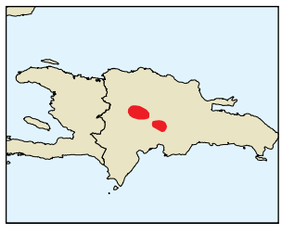
VU *Eleutherodactylus pataikos* Duellman and Pramuk, 1999

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

Geographic Range This species is currently known from a single locality at 3,470m asl on the road from Balsa to Leimebamba, near the crest of the northern part of the Cordillera Central in the department of Amazonas, Peru. Recently, it was recorded in Ecuador from a locality in Curintza, Zamora Chinchipe Province, Parque Nacional Podocarpus, at 1,800m asl.
Population There is no information on the population status of this species.
Habitat and Ecology This is a montane forest species that is not well known. It breeds by direct development and it is not known if it can tolerate modified habitats.
Major Threats The species is threatened by selective logging activities in Ecuador. Threats in Peru are unknown, but there is general deforestation as a result of an increase in livestock and other agricultural activities, and selective logging.
Conservation Measures It has been recorded in Ecuador from the Parque Nacional Podocarpus. In Peru it has not been recorded from any protected areas.
Bibliography: Duellman, W.E. and Pramuk, J.B. (1999)
Data Providers: Lily Rodríguez, Jorge Luis Martinez, Wilfredo Arizabal, Ulrich Sinsch, Diego Almeida, Fernando Nogales

EN *Eleutherodactylus patriciae* Schwartz, 1964 (1965)

Endangered B1ab(iii)+2ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Dominican Republic
Current Population Trend: Decreasing



Geographic Range This species is restricted to the highest elevations of the Cordillera Central, in the Dominican Republic, where it has been recorded from 2,000-3,050m asl.
Population It is moderately common in suitable habitat.
Habitat and Ecology It is terrestrial and found in upland closed forest and forest remnants, and has not been recorded from disturbed habitats. It calls from low vegetation, lays its eggs on the ground, and breeds by direct development.
Major Threats The major threat is habitat loss and destruction, due to agriculture, livestock farming, and disturbance from tourist activities. Chytrid fungus has been detected in this species in La Vega and Valle Nuevo in the Dominican Republic.
Conservation Measures It occurs in Parque Nacional Armando Bermudez, Parque Nacional Jose del Carmen Ramirez, and the Reservas Cientificas Valle Nuevo and Del Ebaño Verde, but there is inadequate management of these areas for biodiversity conservation, and the habitat continues to be destroyed. There is a need for improved and strengthened management of these protected areas, and for close population monitoring of the species, particularly given the threat of chytrid.
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. (1964b), Schwartz, A. and Henderson, R.W. (1991)
Data Providers: Blair Hedges, Sixto Inchaustegui, Robert Powell

CR *Eleutherodactylus paulsoni* Schwartz, 1964

Critically Endangered A3c
Order, Family: Anura, Leptodactylidae
Country Distribution: Haiti
Current Population Trend: Decreasing

Geographic Range This species is restricted to the Tiburon Peninsula, Haiti, where it ranges from sea level to 750m asl.
Population Although it was common in the 1960s, it has only been encountered at two localities during many surveys conducted over the last two decades. It was last seen in 1991, although there have been no subsequent surveys to look for the species.
Habitat and Ecology It is terrestrial, typically found in association with caves or creek beds, in closed forests. Eggs are laid on the ground and it breeds by direct development.
Major Threats The reason for the decline in the species is not known, but habitat destruction is severe throughout the Tiburon Peninsula, mainly as a result of logging (charcoal collection) by local people and slash-and-burn agriculture.
Conservation Measures It occurs in the Parc National Macaya, but there is no management of this area for conservation, and the habitat continues to be lost. Improved management of the existing protected areas, and maintenance of remaining habitat within the species' range, is urgently required.
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. and Henderson, R.W. (1991)
Data Providers: Blair Hedges, Richard Thomas

EN *Eleutherodactylus pechorum* McCranie and Wilson, 1999

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

© James McCranie

Geographic Range This species is restricted to the Atlantic versant of the north-eastern and eastern portions of the departments of Olancho and Colón, respectively, in Honduras, at elevations of 150-680m asl.
Population It is relatively common, but is likely to be decreasing due to ongoing habitat destruction within its range. The dramatic declines that have been seen in some other species of *Eleutherodactylus* in Honduras have not been observed in this species so far.
Habitat and Ecology It can be found in lowland moist and premontane wet forest. It reproduces by direct development along streams.
Major Threats Although this species occurs in the Río Plátano Biosphere Reserve, forest destruction throughout this species' range, mainly as a result of agricultural expansion, is nonetheless rampant and causing a decrease in available habitat for this species. Some other species of *Eleutherodactylus* that are associated with streams have undergone dramatic declines and disappearances, especially in Honduras, possibly due to chytridiomycosis, so the status of this species should be monitored carefully.
Conservation Measures There is a need for improved management of the Río Plátano Biosphere Reserve.
Bibliography: Campbell, J.A. and Savage, J.M. (2000), McCranie, J.R. and Wilson, L.D. (1999b), McCranie, J.R. and Wilson, L.D. (2002b)
Data Providers: Larry David Wilson, Bruce Young

VU *Eleutherodactylus penelopus* Lynch and Rueda, 1999

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

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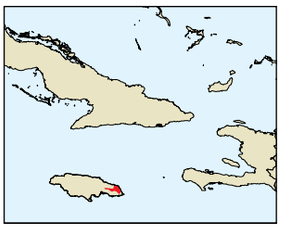
Geographic Range This species is known from the departments of Antioquia, Caldas (type locality: Samaná), and Tolima on the eastern flank of the Cordillera Central, in Colombia, from 1,180-1,500m asl.
Population It is not a common species.
Habitat and Ecology It is found mostly inside mature forests, but also occurs in areas near the forest edge (though it has not been recorded from anthropogenic habitats). It is nocturnal, and occurs on vegetation alongside small streams. It breeds via direct development.
Major Threats Habitat loss caused by logging and agricultural development (livestock, illegal crops) is the major threat to the relic patch of forest in which this species occurs. 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' range includes Florencia Forest, an area in the process of being declared a natural reserve.
Bibliography: Acosta-Galvis, A.R. (2000), Lynch, J.D. and Rueda-Almonacid, J.V. (1999), Rueda-Almonacid, J.V. (2000)
Data Providers: Fernando Castro, Maria Isabel Herrera, John Lynch

VU *Eleutherodactylus pentasyringos* Schwartz and Fowler, 1973

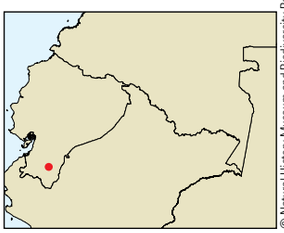
Vulnerable B1ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Jamaica
Current Population Trend: Decreasing



Geographic Range This species occurs in the north of the Blue Mountains and the John Crow Mountains, extending to the north-eastern coast of Jamaica. Its altitudinal range is from sea level to 1,275m asl.
Population This species is fairly common and more abundant than some other frog species in the Blue Mountains.
Habitat and Ecology It is found in mesic forests (montane rainforest, wet limestone forest, elfin woodland) in rocky areas. Eggs are laid on the ground and it breeds by direct development.
Major Threats Its range is limited and its forest habitat is declining rapidly due to agriculture, human settlement, and logging.
Conservation Measures It occurs in the Blue and John Crow Mountain 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 Fowler, D.C. (1973), Schwartz, A. and Henderson, R.W. (1991)
Data Providers: Blair Hedges

EN *Eleutherodactylus percultus* 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 Abra de Zamora, in the province of Zamora-Chinchipe, southern Ecuador, at 2,850m asl. It might occur a little more widely.
Population It is a rare species.
Habitat and Ecology It inhabits sub-páramo bushland with scattered trees. The holotype was found in a terrestrial bromeliad during the day, while the paratype was found on the branch of a brush at night. It is not known whether or not it tolerates habitat degradation. It is presumed to breed by direct development, but the site of egg deposition is not known.
Major Threats The major threat is habitat loss and degradation due to agricultural development, livestock farming, and human settlement.
Conservation Measures It is not known from any protected areas, although it is possible it may occur in Parque Nacional Podocarpus.
Bibliography: Lynch, J.D. (1979c), Lynch, J.D. and Duellman, W.E. (1997)
Data Providers: John Lynch, Luis A. Coloma, Santiago Ron

VU *Eleutherodactylus petersorum* Lynch, 1991

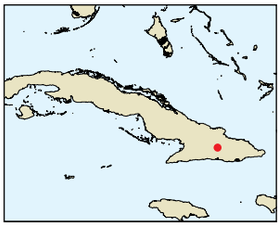
Vulnerable B1ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Colombia, Ecuador
Current Population Trend: Decreasing

© Francisco José López-López

Geographic Range This species can be found in cloud forest at 1,410-1,950m asl on the eastern face of the Andes, and on the eastern slope of the Cordillera Central in the departments of Caqueta, Huila, and Putumayo (Colombia) and Sucumbios, Napo, and Pastazos provinces (Ecuador). It probably occurs more widely, in particular in areas between known populations.
Population Historically, this species has been uncommon where collected.
Habitat and Ecology This species can be found in montane cloud forest. It has been found in old-growth forest and in adjacent altered forest. It is nocturnal and occurs on herbaceous vegetation up to 1.5m high. It is presumed to breed by direct development, but the site of egg deposition is not known.
Major Threats Habitat loss caused by logging and agricultural development (livestock and illegal crops) is a threat.
Conservation Measures In Colombia, this species occurs in the San Augustin Archaeological Park and probably also occurs in Parque Nacional Natural Alto Fragua. In Ecuador, it occurs in Parque Nacional Sumaco-Napo Galeras, Parque Nacional Llanganates, Reserva Ecológica Cayambe-Coca and Reserva Ecológica Antisana.
Bibliography: Acosta-Galvis, A.R. (2000), Lynch, J.D. (1991b), Lynch, J.D. (1996c), 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)

CR *Eleutherodactylus pezopetrus* 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 is known only from the type locality: La Cantera, Miranda, Granma Province, eastern Cuba. Its altitudinal range is from 100-270m asl.
Population Only been about 20 specimens of this species have ever collected, and despite surveys and field collections in surrounding areas, it has not been found elsewhere.
Habitat and Ecology It is found on rocks and cliff bases in closed mesic forest. Breeding is by direct development.
Major Threats The main threat to the species is habitat loss due to mining and smallholder agricultural activities.
Conservation Measures It is not known to occur in any protected areas, and immediate protection of the remaining habitat at the type locality is urgently 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

VU *Eleutherodactylus phalarus* Lynch, 1998

Vulnerable D2
Order, Family: Anura, Leptodactylidae
Country Distribution: Colombia
Current Population Trend: Stable

© John D. Lynch

Geographic Range This species is known from two localities, both in the Serrania de los Paraguas in Choco and Valle del Cauca departments, on the Cordillera Occidental, in Colombia, between 2,160 and 2,400m asl. It probably does not occur in adjacent Risaralda department (because a sister species is found there).
Population A minute frog species found on the tops of leaves in primary cloud forest. It is very difficult to collect, and relatively few specimens have been successfully collected.
Habitat and Ecology It is usually found on top of leaves in dense primary cloud forests. It is active at night, on medium to high vegetation (up to 2m above the ground), and occasionally it occurs on vegetation along streams. It has only been recorded from dense pristine forest. It breeds by direct development.
Major Threats The habitat of the type locality is relatively unthreatened at present, but there is a road proposed for this area in the future, which will present a major threat to the species if it goes ahead.
Conservation Measures Not currently known from any protected areas. Efforts are ongoing to transform the Serrania de los Paraguas into a protected area. This species requires close population monitoring given that it has such a restricted range.
Bibliography: Acosta-Galvis, A.R. (2000), Lynch, J.D. (1998b)
Data Providers: Fernando Castro, Maria Isabel Herrera, John Lynch

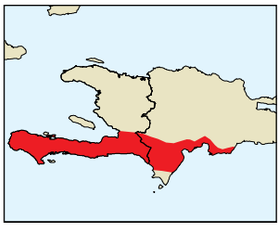
CR *Eleutherodactylus phragmipleuron* Rivero and Serna, 1988 "1987"

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

Geographic Range This species is known only from the type locality: Pan de Azúcar, in Antioquia department, Colombia, at 1,800m asl.
Population It is a rare species.
Habitat and Ecology It is usually found on vegetation in cloud forests, and is thought to be restricted to forest habitat. It breeds via direct development.
Major Threats The habitat at the type locality has been badly destroyed as a result of human settlement and the collection of firewood.
Conservation Measures There are no protected areas within the range of the species, such that the remaining habitat is in urgent need of protection, particularly considering this species' low tolerance of habitat disturbance.
Bibliography: Acosta-Galvis, A.R. (2000), 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), Ruiz-Carranza, P.M., Ardila-Robayo, M.C. and Lynch, J.D. (1996)
Data Providers: Fernando Castro, Maria Isabel Herrera, John Lynch

VU *Eleutherodactylus pictissimus* Cochran, 1935

Vulnerable B1ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Dominican Republic, Haiti
Current Population Trend: Decreasing

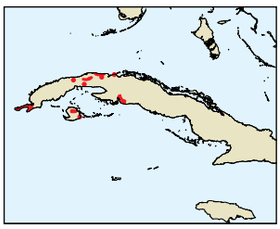


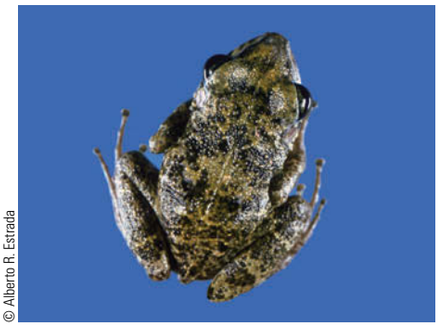
Geographic Range This species occurs on the Massif de la Hotte, Tiburon Peninsula, and Plaine de Cul de Sac-Valle de Neiba, Haiti; and along the south-western coast of the Dominican Republic, excluding the Peninsula de Barahona. Its altitudinal range is from sea level to 1,758m asl.
Population This species is moderately common in suitable habitat.
Habitat and Ecology It is terrestrial in dry scrub forest, mesic broadleaf forest, and secondary forests. Eggs are laid on the ground and it breeds by direct development.
Major Threats Forest loss due to subsistence agriculture, charcoaling, and livestock is the main threat within the range of this species.
Conservation Measures It occurs in a number of protected areas, including Parque Nacional Sierra de Bahoruco. The sites at which it is known to occur in Haiti are in need of improved management and 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. and Henderson, R.W. (1991)
Data Providers: Blair Hedges, Sixto Inchaustegui, Marcelino Hernandez

EN *Eleutherodactylus pinarensis* Dunn, 1926

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





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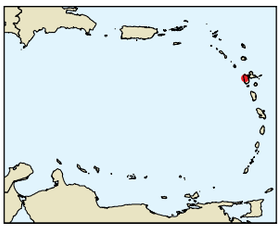
Geographic Range This species has a restricted range and patchy distribution on the Peninsula de Guanahacabibes, Alturas de la Habana-Matanzas, and Isla de Juventad, in Cuba. It has been recorded from sea level up to 381m asl.
Population It is considered to be uncommon, and is usually only seen in suitable habitat from June to October.
Habitat and Ecology It is found in rocky areas, coastal cliffs and caves in mesic forest. It has not been recorded outside forest habitat, and it breeds by direct development.
Major Threats The major threat is habitat disturbance from tourist activities and infrastructure development for tourism.
Conservation Measures It occurs in Parque Nacional Guanahacabibes, which is a well-protected area, as well as several other protected areas.
Notes on taxonomy: Some historic records of *Eleutherodactylus pinarensis* might refer to juveniles of *E. klinikowskii*, and so are not included here (L. Díaz pers. comm.).
Bibliography: Estrada, A.R. and Rodríguez, J.N. (1985a), 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 pinchoni* Schwartz, 1967

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



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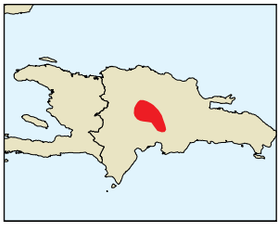
Geographic Range This species has a restricted range in the Basse-Terre portion of Guadeloupe in the Lesser Antilles, ranging from sea level to 1,250m asl.
Population It is a little more common than *Eleutherodactylus barlagnei* in suitable habitats within its small range. It has decreased in general in the north of its range, probably due to damage to its habitat. It has also decreased around the Volcán Soufriere in the south of its range since 1991, probably due to the effects of volcanic eruptions.
Habitat and Ecology It is a terrestrial species in mesic forests and rainforests, and calls from the ground or low vegetation. It can survive in secondary forest, but not outside forest. The eggs are laid on the ground and on bromeliads, and develop directly without a larval stage.
Major Threats The forest habitat on Guadeloupe is fragile, small in extent, and habitat quality continues to decline. Major threats include pollution from pesticides used in banana plantations, forest clearance for agriculture (especially banana plantations) and construction of human settlements, and introduced predators (particularly rats, cats and mongooses). The introduced *E. johnstonei* might be a competitor, and appears to be displacing this species. Some recorded declines are associated with the effects of volcanic eruptions.
Conservation Measures It occurs in Parc National de la Guadeloupe. Additional protection of the forest habitat of this species is required, and it is also necessary to control introduced predators within existing protected areas.
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), Schwartz, A. (1967), Schwartz, A. and Henderson, R.W. (1991)
Data Providers: Blair Hedges, Beatrice Ibéné, Michel Breuil, Robert Powell

EN *Eleutherodactylus pituinus* Schwartz, 1965

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 in the Dominican Republic, from 1,212-1,770m asl.
Population It is clearly rare and is known from only a few localities.
Habitat and Ecology It occurs in upland pinewoods and forests, and has not been recorded outside forest habitat. Males call from the ground or from rocks, eggs are laid on the ground, and it breeds by direct development.
Major Threats The major threat is habitat loss, in particular from agriculture, livestock farming, charcoaling, and disturbance from ecotourism. Chytrid fungus has been detected in this species in La Vega and Casabito in the Dominican Republic.
Conservation Measures It occurs in Parque Nacional Armando Berudez and in the Reservas Cientificas Valle Nuevo and Del Ebaño Verde, but there is inadequate management of several of these areas for conservation, and the habitat continues to be destroyed. There is a need for improved management and protection of these reserves, and also for close population monitoring of the species, particularly given the threat of chytrid.
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. (1965b), Schwartz, A. and Henderson, R.W. (1991)
Data Providers: Blair Hedges, Sixto Inchaustegui, Robert Powell

VU *Eleutherodactylus platychilus* Lynch, 1996

Vulnerable 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 western slope of the Cordillera Occidental from the department of Cauca northwards to the department of Antioquia, and including Risaralda, Choco and Valle del Cauca departments, in Colombia, from 1,580-2,600m asl.
Population It is usually an uncommon species, but it is a microhabitat specialist making it difficult to find. At a locality near Quernal, in Valle del Cauca, a large series was collected when collectors adapted their techniques and began searching in low trees along steep banks.
Habitat and Ecology A nocturnal species, it occurs on top of low vegetation near streams in forest. It breeds by direct development and has not been recorded outside forest.
Major Threats Habitat loss caused by agricultural development (livestock and illegal crops) is the main threat to this species.
Conservation Measures The range of the species includes several protected areas, including Parque Nacional Natural Tatamá and Parque Nacional de Las Orquídeas.
Bibliography: Acosta-Galvis, A.R. (2000), Lynch, J.D. (1998b), Lynch, J.D. (1999), 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

VU *Eleutherodactylus polemistes* Lynch and Ardila-Robayo, 2004

Vulnerable D2
Order, Family: Anura, Leptodactylidae
Country Distribution: Colombia
Current Population Trend: Unknown

Geographic Range This species is endemic to Colombia, and is known from four specimens collected at 2,300-2,320m asl in the Municipio de Urrao, vereda La Clara, quebrada Cañahonda, and from from quebrada La Penca very nearby. Both localities are on the western flank of the Cordillera Occidental in western Antioquia Department, Colombia. It is unlikely to occur more widely due to the presence of a sister species, *Eleutherodactylus bellona*, in adjacent regions.
Population There is no information on the current population status of this species.
Habitat and Ecology This species is known from patches of primary forest, and is closely associated with streams. It is suspected to be intolerant of habitat disturbance. Breeding is presumed to take place by direct development.
Major Threats No information is currently available on threats, but the presence of armed groups in the area is probably providing additional protection for the species. Nonetheless, its small range renders it susceptible to stochastic threatening processes.
Conservation Measures The Permanent Commision on National Parks (of the Academia Colombiana de Ciencias Exactas, Físicas y Naturales) has recommended to the Colombian Government that the Parque Nacional Natural Las Orquideas be expanded in size so as to incorporate the Paramo de Frontino, down to a lower altitudinal limit of 2,400m asl. If the government approves the enlargement, *Eleutherodactylus polemistes* will benefit by the inclusion of its localities within the expanded park. This species is in need of close population monitoring given its small range.
Bibliography: Lynch, J.D. and Ardila-Robayo, M.C. (2004)
Data Providers: John Lynch

EN *Eleutherodactylus polychrus* Ruíz-Carranza, Lynch and Ardila-Robayo, 1997

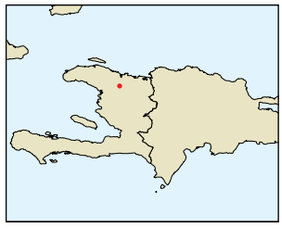
Endangered B1ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Colombia
Current Population Trend: Decreasing

Geographic Range This species occurs in the areas of Murri, Las Orquideas and San Jose del Palmar, on the Pacific slope of the Cordillera Occidental, in Colombia, from 1,140-1,540m asl.
Population It is a reasonably common species.
Habitat and Ecology It inhabits low vegetation, especially ferns next to streams in primary forest, and has not been recorded outside forest habitat. It breeds by direct development.
Major Threats The main threat to the species is habitat loss caused by agricultural development (including the cultivation of illegal crops).
Conservation Measures Some populations occur in Parque Nacional Natural Las Orquideas, but there is a need for additional protection of primary forest habitat in the range of this species.

Bibliography: Acosta-Galvis, A.R. (2000), Lynch, J.D. (1998b), Lynch, J.D., Ruiz-Carranza, P.M. and Ardila-Robayo, M.C. (1997), Paez, V.P. *et al.* (2002), Ruiz-Carranza, P.M., Lynch, J.D. and Ardila-Robayo, M.C. (1997)
Data Providers: Fernando Castro, Maria Isabel Herrera

CR *Eleutherodactylus poolei* Cochran, 1938

Critically Endangered A3c; B1ab(iii)+2ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Haiti
Current Population Trend: Decreasing



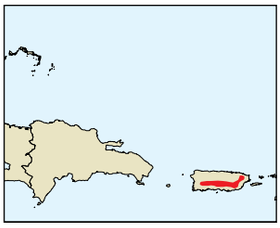
Geographic Range This species has a very restricted range, and is found only in and around the Citadel Laferriere (Citadel of King Christophe), a huge fortress built on the peak of a mountain nearly a thousand metres above the plain from which it rises, in northern Haiti. Its altitudinal range is from 550-650m asl. There is a second, albeit questionable, record from the nearby Carrefour Marmelade.
Population This species is probably rare.
Habitat and Ecology It was recorded from a moist dungeon in an old fort and probably occurs in the surrounding forest. Eggs are laid on the ground and it breeds by direct development.
Major Threats The primary threat to this species is habitat destruction due to charcoal collection and subsistence farming.
Conservation Measures The Citadel Laferriere is a World Heritage Site (designated in 1982), and is one of the most popular tourist destinations in Haiti. The current status of the species is unclear, and further survey work is needed determine its population status. Maintenance of the surrounding forest is necessary.

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, Richard Thomas

EN *Eleutherodactylus portoricensis* Schmidt, 1927

UPLAND COQUI

Endangered A4ae
Order, Family: Anura, Leptodactylidae
Country Distribution: Puerto Rico
Current Population Trend: Decreasing



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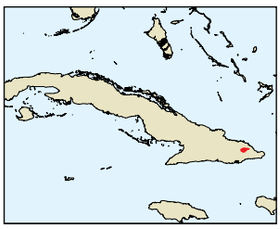
Geographic Range This species is restricted to the interior uplands of Puerto Rico, where it has been recorded from 273-1,182m asl.
Population Studies have shown that populations have been declining (R. Joglar pers. comm.).
Habitat and Ecology It is terrestrial in mesic, upland broadleaf forests, and has not been recorded outside forest habitat. It calls from bushes and tree trunks, eggs are laid in bromeliads, and it breeds by direct development.
Major Threats Although some habitat destruction is taking place, this is not sufficient to explain the extent of the observed declines. Chytridiomycosis has been confirmed in this species, and is likely to be implicated in the declines (R. Joglar pers. comm.).
Conservation Measures It occurs in several protected areas that are well managed. Further survey work is necessary to monitor the status of populations, particularly given the threat of chytrid, and it may be necessary to establish a captive-breeding programme.
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, Richard Thomas, Luis J. Villanueva-Rivera, Neftalí Ríos-Lopez

EN *Eleutherodactylus principalis* Estrada and Hedges, 1997

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



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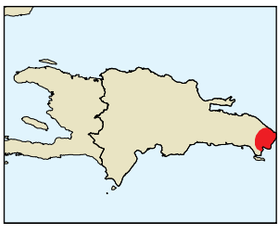
Geographic Range This species has a restricted range in the upland regions of Holguin and Guantanamo Provinces, eastern Cuba, with an altitudinal range from 300-1,000m asl.
Population It is moderately common within suitable habitat.
Habitat and Ecology It is arboreal in mesic closed forests, and breeds by direct development.
Major Threats The major threat is habitat destruction due to mining and agriculture.
Conservation Measures Although it occurs in Parque Nacional Alejandro de Humboldt, habitat loss is proceeding even within the reserve borders, and there is therefore a need for improved and strengthened management of this protected area.
Bibliography: Centro Nacional de Areas Protegidas (CNAP) (2002), Estrada, A.R. and Hedges, S.B. (1997c), 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 probolaeus* Schwartz, 1964 (1965)

Endangered B1ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Dominican Republic
Current Population Trend: Decreasing

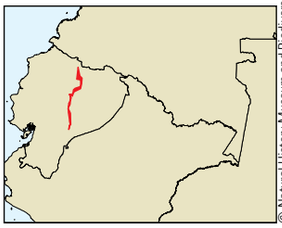


Geographic Range This species has an apparently patchy distribution within a restricted range in La Romana Province, Dominican Republic, where it ranges from sea level up to 60m asl.
Population It is moderately common in suitable habitat.
Habitat and Ecology It occurs in low elevation semi-mesic broadleaf forests. Males call from dense understorey, eggs are laid on the ground, and it breeds by direct development.
Major Threats There is severe habitat destruction taking place within its range, mainly due to tourism, slash and burn agriculture, and livestock farming.
Conservation Measures It occurs in the Laguna de Barbaro Reserve and the Punta Cana private 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. (1964b), Schwartz, A. (1965c), Schwartz, A. and Henderson, R.W. (1991)
Data Providers: Blair Hedges, Sixto Inchaustegui, Marcelino Hernandez

EN *Eleutherodactylus prolatus* Lynch and Duellman, 1980

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



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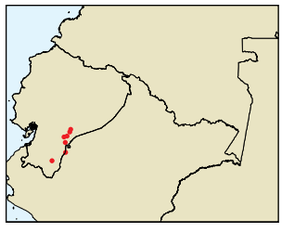
Geographic Range This species occurs in cloud forests, at elevations of 1,140-1,700m asl, on the eastern face of the Andes and the Cordillera de Cutucú in Ecuador.
Population It is generally an uncommon species.
Habitat and Ecology It inhabits cloud forests; specimens have been found on low vegetation at night, and most were found in ravines near streams (Lynch and Duellman 1980). It also occurs in secondary forest and forest edges. Breeding is by direct development.
Major Threats Habitat loss and degradation, mainly due to agricultural activities, is the main threat to this species. 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 geographic range of this species overlaps several protected areas, including Parque Nacional Sumaco, Parque Nacional Llanganates and Parque Nacional Sangay.
Bibliography: Lynch, J.D. and Duellman, W.E. (1980), Lynch, J.D. and Duellman, W.E. (1997)
Data Providers: Luis A. Coloma, Santiago Ron, Mario Yánez-Muñoz

EN *Eleutherodactylus proserpens* Lynch, 1979

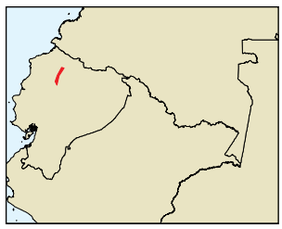
Endangered B1ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Ecuador, Peru
Current Population Trend: Decreasing



Geographic Range This species is known from elevations of 1,710-2,620m asl in the southern part of the Cordillera Oriental, in the provinces of Loja and Zamora Chinchipe, 1,700m asl in the Cordillera de Cutucù, and from 1,550m asl on the western slopes of the Cordillera del Cóndor, Morona-Santiago Province. The only Peruvian record is from the upper Río Comainas, at 1,750m asl, on the eastern slopes of the Cordillera del Cóndor, in the province of Condorcanqui, Amazonas Department. Sampling effort through the range is insufficient.
Population It is very rare in Ecuador, while in Peru only a single juvenile specimen has been recorded.
Habitat and Ecology This species can be found in montane cloud forests; specimens have been collected in bromeliads and in low vegetation by night (Lynch 1979c). In the Cordillera del Cóndor of Ecuador, gravid females were found in January and August. Breeding is thought to take place by direct development.
Major Threats The main threat is habitat loss and degradation due to agricultural activities, wood extraction, and mining.
Conservation Measures It occurs in the Santiago Comainas Reserve Zone, Peru, and in Parque Nacional Podocarpus in Ecuador. Further survey work is needed to better understand the limits of the distribution of this species.
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 Martinez, Luis A. Coloma, Santiago Ron, Diego Almeida

EN *Eleutherodactylus pteridophilus* 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 only from six localities at elevations of 1,500-2,710m asl on the western flank of the Andes in the provinces of Imbabura and Pichincha, north-western Ecuador.
Population It is a moderately common species.
Habitat and Ecology It lives in primary forest, and is somewhat adaptable, being found on forest edges and the edges of pastures. The use of ferns by this species stands out dramatically in comparison with the limited degree to which most other Andean *Eleutherodactylus* perch on ferns. 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 agricultural development (including livestock farming), logging and human settlement.
Conservation Measures It is not known from any protected areas. There is an urgent need for the protection of primary forest habitat within the range of this species.
Bibliography: Lynch, J.D. and Duellman, W.E. (1997)
Data Providers: John Lynch, Luis A. Coloma, Santiago Ron

VU *Eleutherodactylus pugnax* Lynch, 1973

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

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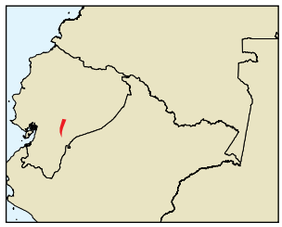
Geographic Range This species can be found at 1,660-2,700m asl on the eastern face of the Andes in northern Ecuador (Sucumbios and Napo provinces) and southern Colombia (Caqueta and Putumayo departments). It is likely to be a little more widespread, in particular in areas between known sites.
Population This species is reasonably common, and was found in great abundance along the road above western Caqueta in every stream in a transect in 1990.
Habitat and Ecology This is a nocturnal, cloud forest species. Its ability to adapt to modified habitats is unknown. It is strongly associated with water and the edges of streams; some individuals occur on riparian vegetation, but the majority occurs on rocks in the watercourses. During the day it is possible to find them under rocks. It is presumed to breed by direct development, but the site of egg deposition is not known.
Major Threats The major threat is habitat loss caused by logging and agricultural development (livestock and illegal crops).
Conservation Measures In Colombia it occurs in Parque Nacional Natural Alto Fragua. In Ecuador, its range overlaps with Reserva Ecológica Cayambe-Coca, and Reserva Ecológica Antisana.
Bibliography: Acosta-Galvis, A.R. (2000), Ardila-Robayo, M.C. and Acosta-Galvis, A. (2000a), Lynch, J.D. (1973b), 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, Santiago Ron, Luis A. Coloma, John Lynch

EN *Eleutherodactylus pycnodermis* Lynch, 1979

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



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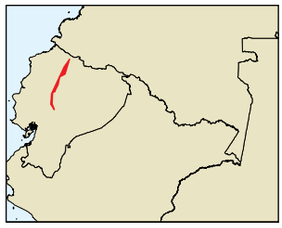
Geographic Range This species is known from six localities in the Cordillera de Matanga east of Cuenca, in the province of Morona Santiago, southern Ecuador, at 2,652-3,384m asl.
Population It is a common species.
Habitat and Ecology It seems to be primarily an inhabitant of páramo grassland that ranges down into meadows and pastures in upper cloud forests. It is not known whether or not it tolerates habitat degradation. 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, which is taking place due to agricultural development (involving both crops and livestock) and human settlement.
Conservation Measures It occurs in Parque Nacional Sangay, but there is a need for additional protection of suitable habitat in the Cordillera de Matanga.
Bibliography: Lynch, J.D. (1979c), Lynch, J.D. and Duellman, W.E. (1997)
Data Providers: Luis A. Coloma, Santiago Ron, John Lynch, Ana Almandáriz

EN *Eleutherodactylus pyrrhomerus* Lynch, 1976

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



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Geographic Range This species can be found in the upper cloud forest at elevations of 2,075-3,000m asl on the western flank of the Andes in the provinces of Pichincha, Imbabura, Carchi, Cotopaxi and Bolívar, Ecuador.
Population It is recorded as being uncommon in two sites (at Intag and Moran, in 2002), but common in Cashca Totoras (in 2000-2003).
Habitat and Ecology It seems to be restricted to the upper humid montane forest, and has been found most commonly under stones, logs, and wood chips along road cuts and in pastures by day (Lynch and Duellman 1997). In Cashca Totoras, this species is only found near streams. Reproduction occurs by direct development.
Major Threats The major threat is habitat destruction and degradation due to livestock farming and wood extraction activities, and the habitat is now severely fragmented.
Conservation Measures Its geographic range overlaps several protected areas, including the Reserva Geobotánica Pululahua and the Reserva Ecológica Cotacachi-Cayapas.
Bibliography: Funk, C.W. *et al.* (2003), Lynch, J.D. (1976c), Lynch, J.D. and Duellman, W.E. (1997)
Data Providers: Luis A. Coloma, Santiago Ron, Mario Yánez-Muñoz, Diego Almeida

VU *Eleutherodactylus quantus* Lynch, 1998

Vulnerable D2
Order, Family: Anura, Leptodactylidae
Country Distribution: Colombia
Current Population Trend: Stable

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Geographic Range This species is known from two localities on the Serrania de los Paraguas, in Valle del Cauca and Choco departments, on the Cordillera Occidental in western Colombia, from 2,100-2,250m asl.
Population This species is sometimes regularly encountered and sometimes inexplicably uncommon. Its very small size probably explains its rarity in collections.
Habitat and Ecology This species is restricted to forest habitat, or the forest edge. It occupies exactly the same microhabitat as *E. myops* with which it is microsympatric. At one of the two localities, *E. quantus* is more abundant than *E. myops*, but the reverse occurs at the other locality suggesting local ecological differences. It breeds via direct development.
Major Threats The habitat of the species is relatively unthreatened at present, although if a planned road is built this will present a major threat to the species' habitat.
Conservation Measures The range of this species does not include any protected areas; however, there are ongoing efforts promoting the creation of a formal protected area that would include the Serrania de los Paraguas. This species requires close population monitoring given that it has such a restricted range.
Bibliography: Acosta-Galvis, A.R. (2000), Lynch, J.D. (1998b)
Data Providers: Fernando Castro, Maria Isabel Herrera, John Lynch

VU *Eleutherodactylus quinquagesimus* Lynch and Trueb, 1980

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

© John D. Lynch

Geographic Range This species can be found at elevations of 1,410-2,710m asl, on the Pacific slopes of the western Andes in Ecuador, and in extreme southern Colombia, in Nariño Department, at elevations of 1,700-2,600m asl.
Population Locally common (for example, in Intag, Imbabura, Ecuador, in 2003), this species has disappeared from some localities where it was known to exist historically. For example, it was common when it was collected in the Quebrada Zapadores, Ecuador in the 1970s, but had disappeared by 1997 at this locality despite a lack of habitat disturbance.
Habitat and Ecology This species occurs in cloud forest in the humid temperate regime and humid subtropical regime. Most individuals have been found perched on leaves and branches at heights up to 2.5m above the ground, but one was found sitting amidst dead bamboo leaves on the ground (Lynch and Duellman 1997); they are sometimes found near streams. It is presumed to breed by direct development, though the site of egg deposition is not known. The ability of this species to adapt to modified habitats is unknown.
Major Threats Habitat loss caused by logging, agricultural development (livestock ranching and illegal crops), and human settlement 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 most of the populations are inside La Planada Natural Reserve. In Ecuador, its range overlaps with Reserva Ecológica El Angel, Reserva Ecológica Cotacachi-Cayapas, and Reserva Ecológica Los Illinizas.
Bibliography: Acosta-Galvis, A.R. (2000), Lynch, J.D. (1998b), Lynch, J.D. and Burrowes, P.A. (1990), Lynch, J.D. and Duellman, W.E. (1997), Lynch, J.D. and Trueb, L. (1980), 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), Yanez-Muñoz, M. (2003)
Data Providers: Fernando Castro, Maria Isabel Herrera, Santiago Ron, Luis A. Coloma, Mario Yánez-Muñoz, John Lynch, Diego Cisneros-Heredia

EN *Eleutherodactylus renjiforum* Lynch, 2000

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

Geographic Range This species is known from the district of Bogota, the municipality of Silbate and the municipality of Cabrera in the department of Cundinamarca, in Colombia, from 2,000-2,800m asl.
Population It is an uncommon species.
Habitat and Ecology It inhabits Andean forest, and some individuals have been found under logs and rocks. Breeding is by direct development.
Major Threats The major threat is habitat loss and degradation caused primarily by agriculture (involving cultivation of crops, and livestock farming).
Conservation Measures Its range does not include any protected areas, making habitat protection a priority for this species.
Bibliography: Lynch, J.D. (2000a)
Data Providers: Martha Patricia Ramírez Pinilla, Mariela Osorno-Muñoz, Jose Vicente Rueda, Adolfo Amézquita, María Cristina Ardila-Robayo

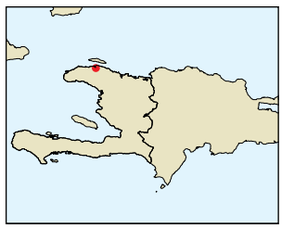
VU *Eleutherodactylus repens* Lynch, 1984

Vulnerable D2
Order, Family: Anura, Leptodactylidae
Country Distribution: Colombia
Current Population Trend: Stable

Geographic Range This species is known from an active volcano (Galeras) in the Municipality of Pasto, in the department of Nariño, in Colombia. It has been recorded from 3,150-3,720m asl.
Population It is a common species.
Habitat and Ecology The species is very adapted to volcanic soils and vegetation, and occurs at the sub-páramo and páramo altitudinal level and also slightly into forest. They are usually found under rocks or inside the sparse vegetation of the area. It breeds by direct development. It has not been recorded from anthropogenic habitats, but there are no human settlements at these high elevations anyway.
Major Threats The main threat to the species is the active volcano, since there is not much human activity at this elevation.
Conservation Measures Galeras is designated as a Fauna and Flora Sanctuary. There is a need for close population monitoring of this species, given its extremely restricted range.
Bibliography: Acosta-Galvis, A.R. (2000), Lynch, J.D. (1984a), 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, John Lynch

CR *Eleutherodactylus rhodesi* Schwartz, 1980

Critically Endangered A3c; B1ab(iii)+2ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Haiti
Current Population Trend: Decreasing



Geographic Range This species has a very restricted range (occurring in just one small area) on the north-eastern base of the Presqu´ile du Nord-Ouest, Haiti, at an altitude of around 30m asl.
Population It is moderately common in suitable habitat.
Habitat and Ecology It is a terrestrial species that has been found in leaf-litter and under rocks in forest. Eggs are laid on the ground and it breeds by direct development.
Major Threats The main threat is extensive habitat destruction due to logging by local people (charcoaling) and slash-and-burn agriculture.
Conservation Measures It is not known to occur in any protected areas, and protection of the remaining habitat is an urgent priority.
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. (1980d), Schwartz, A. and Henderson, R.W. (1991)
Data Providers: Blair Hedges, Richard Thomas

EN *Eleutherodactylus rhodoplichus* Duellman and Wild, 1993

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

Geographic Range This species can be found in the Andes of Peru and Ecuador. It has been recorded from elevations of 2,770-3,050m asl on the western slopes and crest of the Cordillera de Huancabamba, Piura Department. Peru; recently, it was collected in Ecuador from Curintza, in the province of Zamora Chinchipe, in Parque Nacional Podocarpus at 1,800m asl.
Population It is common where it occurs.
Habitat and Ecology It inhabits dense, humid montane and cloud forest, and it is not known if it can survive in degraded areas. Individuals have been found at night on low vegetation, and under ground cover by day. It breeds by direct development.
Major Threats The major threat across the range is habitat loss, due to deforestation for agriculture (mostly livestock farming) and selective wood extraction.
Conservation Measures Within Ecuador it has been recorded from Parque Nacional Podocarpus, but it is not known from any protected areas in Peru. Further survey work is necessary to determine whether this species might occur more widely than currently known.
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 Martinez, Erik Wild, Diego Almeida, Fernando Nogales

VU *Eleutherodactylus rhodostichus* Duellman and Pramuk, 1999

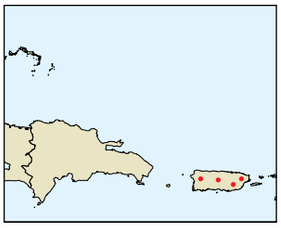
Vulnerable B1ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Ecuador, Peru
Current Population Trend: Decreasing

Geographic Range This species can be found in the Andes of northern Peru and southern Ecuador. In Peru it is known from a single locality at 1,080m asl on the road from Abra Pardo Miguel to Moyobamba, San Martin Province (Amazonas Department) on the east slope of the northern part of the Cordillera Central. In Ecuador, it is known from a single locality in Curintza, Zamora Chinchipe Province, Parque Nacional Podocarpus, at an elevation of 1,800m asl. It perhaps occurs a little more widely.
Population There is no information on the population status of this species. Only a few individuals have been observed.
Habitat and Ecology It is an arboreal species (> 3m) of primary cloud and montane forest; it is not known if this species occurs in degraded areas. Specimens have been recorded from terrestrial bromeliads in lower humid montane forest. It breeds by direct development.
Major Threats The major threat is habitat loss due to agriculture (mostly livestock) and selective logging.
Conservation Measures In Ecuador the species is present in Parque Nacional Podocarpus, but it is not recorded from any protected areas in Peru.
Bibliography: Duellman, W.E. and Pramuk, J.B. (1999)
Data Providers: Lily Rodríguez, Jorge Luis Martinez, Wilfredo Arizabal, Daniel Neira, Diego Almeida, Fernando Nogales

CR *Eleutherodactylus richmondi* Stejneger, 1904

RICHMOND'S COQUI

Critically Endangered A3ce
Order, Family: Anura, Leptodactylidae
Country Distribution: Puerto Rico
Current Population Trend: Decreasing



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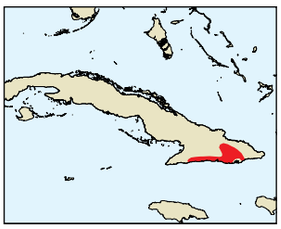
Geographic Range This species has a patchy distribution in the interior uplands of Puerto Rico at an atitudinal range of 40-1,152m asl.
Population There has been an unexplained decline of this species during the last two decades.
Habitat and Ecology It is terrestrial in mesic forests. Males call from the ground or low vegetation. Eggs are laid in rotten logs, and develop directly.
Major Threats The cause of the decline in this species is not known, but it is thought that chytridiomycosis linked with climate change might have played a role.
Conservation Measures It is known to occur in several protected areas. Further research and survey work is needed to determine the reasons for the decline, and the species' current population status. In view of the possible risk of chytridiomycosis, 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), Joglar, R.L. and Burrowes, P.A. (1996), Rivero, J.A. (1998)
Data Providers: Blair Hedges, Rafael Joglar, Richard Thomas, Luis J. Villanueva-Rivera, Neftalí Ríos-Lopez

VU *Eleutherodactylus ricordii* (Dumeril and Bibron, 1841)

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

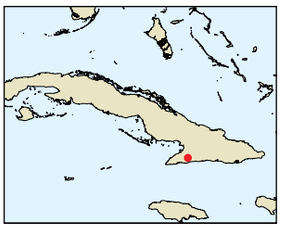


Geographic Range This species has a restricted range in the Sierra Maestra, Sierra de la Gran Piedra, and Cuchillas de Toa, Cuba. Its altitudinal range is from 290-1,150m asl.
Population This species is moderately common in suitable habitat.
Habitat and Ecology It is found in closed mesic upland forests. It breeds by direct development.
Major Threats Habitat destruction is taking place, even in the protected areas, as a result of agriculture, wood cutting, disturbance from tourists, and infrastructure development for human settlement.
Conservation Measures It occurs in several protected areas, including Parque Nacional Turquino and Parque Nacional La Bayamesa, but there is a need for improved management of these for conservation.

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. (1965c), Schwartz, A. (1976b), Schwartz, A. and Henderson, R.W. (1991)
Data Providers: Blair Hedges, Luis Díaz

CR *Eleutherodactylus rivularis* Diaz, Estrada and Hedges, 2001

Critically Endangered B1ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Cuba
Current Population Trend: Decreasing



Geographic Range This species is known from only three localities in the Sierra Maesta, south-eastern Cuba, at an altitude of 80-240m asl.
Population It is moderately common in suitable habitat.
Habitat and Ecology It occurs along streams with grassy margins in moist forest. Males calls from river beaches of sand and pebbles and from emerging rocks. Eggs are laid in excavated holes on the ground, and it breeds by direct development.
Major Threats There is a high level of human disturbance and habitat destruction in the range of the species due to infrastructure development for tourism and human settlements, agricultural expansion, and water pollution from agricultural activities and human settlements.
Conservation Measures The species is not known to occur in any protected areas, making protection and maintenance of remaining habitat an urgent priority.

Bibliography: Díaz, L.M., Estrada, A.R. and Hedges, S.B. (2001), 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 rivulus* Campbell and Savage, 2000

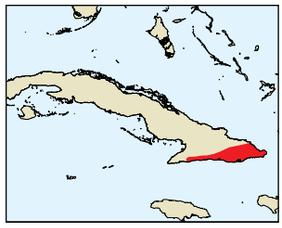
Vulnerable B1ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Guatemala
Current Population Trend: Decreasing

Geographic Range This species occurs in the highlands of western and central Guatemala, including the mountains of Alta Verapaz, and the eastern portion of the Sierra de Los Cuchumatanes, in the department of Quiché, at 7701,250m asl.
Population It is a common species, though decreasing.
Habitat and Ecology It inhabits humid montane forest, living along streams, and is not found in degraded forest. It presumably breeds by direct development and is not dependent on water for breeding.
Major Threats There is continued degradation of its habitat as a result of agricultural encroachment, logging, and human settlements. Water pollution is also a threat to its breeding habitat.
Conservation Measures It is not known from any protected areas. In view of the disappearance of other stream-dwelling *Eleutherodactylus* above 900m asl in Honduras, the population status of this species needs to be carefully monitored.

Bibliography: Campbell, J.A. (2001), Campbell, J.A. and Savage, J.M. (2000)
Data Providers: Manuel Acevedo, Eric Smith

VU *Eleutherodactylus ronaldi* Schwartz, 1960

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



Geographic Range This species has a restricted and very patchy range in the Sierra Maestra and Macizo de Sagua-Baracoa, Cuba. Its altitudinal range is from 212-1,060m asl.
Population This species is common in suitable habitat.
Habitat and Ecology It is found in primary and secondary mesic forest. Males call from shrubs and small trees. It breeds by direct development.
Major Threats Habitat destruction is taking place, even in protected areas, as a result of agriculture, wood cutting, disturbance from tourists, and infrastructure development for human settlement.
Conservation Measures It occurs in several protected areas, including Parque Nacional Turquino and Parque Nacional La Bayamesa, but there is a need for improved management of these areas for conservation.

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

VU *Eleutherodactylus rosadoi* Flores, 1988

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

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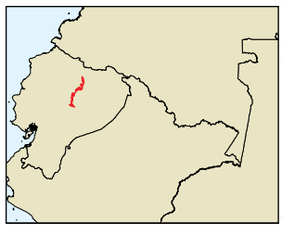
Geographic Range This species occurs below 800m asl in north-western Ecuador, and across the border in Colombia near Altaquer in Nariño Department. It also occurs on Gorgona Island, situated 56km off Colombia's Pacific coast.
Population It is an uncommon species.
Habitat and Ecology It inhabits primary and secondary lowland forest, not occurring in open areas. It is sometimes, but not always, found near streams. Specimens have been found at night on low vegetation. It is presumed to breed by direct development, but the site of egg deposition is not known.
Major Threats The major threats are likely to include agricultural development (livestock, plantations, and illegal crops), logging, and human settlement, and pollution resulting from the spraying of illegal crops.
Conservation Measures In Ecuador, its geographic range overlaps with the Reserva Ecológica Cotacachi-Cayapas. It occurs in Parque Nacional Natural Gorgona.
Bibliography: Flores, G. (1988b), Lynch, J.D. and Duellman, W.E. (1997), Ruiz-Carranza, P.M., Ardila-Robayo, M.C. and Lynch, J.D. (1996)
Data Providers: Diego Cisneros-Heredia, Manuel Morales, John Lynch

EN *Eleutherodactylus rubicundus* (Jiménez de la Espada, 1875)

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



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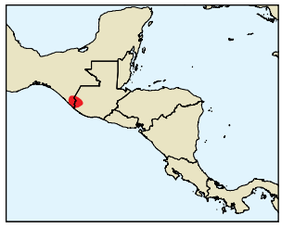
Geographic Range This species occurs on the lower Amazonian slopes of the Andes in Ecuador, from the Pastaza trench (at 1,080-1,300m asl) and from the north in the Cordillera del Dué (at 1,150m asl). It is known from six localities.
Population It is an uncommon species.
Habitat and Ecology An inhabitant of cloud forest, individuals have been found up to 2m above the ground on herbaceous plants, bushes, or low limbs of trees at night. It probably does not survive in degraded habitats. Breeding is presumed to be by direct development, but the site of egg deposition is not known.
Major Threats The major threat is habitat loss and degradation due to agricultural development (particularly livestock farming), logging, and human settlement.
Conservation Measures The geographic range of the species overlaps the Reserva Ecológica Antisana, Parque Nacional Sumaco, and Parque Nacional Llanganates.
Bibliography: Jiménez de la Espada, M. (1875), 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 rubrimaculatus* (Taylor and Smith, 1945)

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



Geographic Range This species is known from extreme south-eastern Pacific Chiapas, Mexico, and adjacent northern Guatemala, from 0-700m asl.
Population This is an abundant species within its restricted range.
Habitat and Ecology It inhabits cloud forests, and is not known from altered habitats. It breeds by direct development.
Major Threats The major threat is disturbance and transformation of the original forest areas due to agriculture and logging.
Conservation Measures The range of this species includes Reserva de la Biósfera Encrucijada and Reserva de la Biósfera El Triunfo, both in Mexico.
Bibliography: Hedges, S.B. (1989), Lynch, J.D. (1970)
Data Providers: Georgina Santos-Barrera, Luis Canseco-Márquez

VU *Eleutherodactylus ruedai* Ruíz-Carranza, Lynch and Ardila-Robayo, 1997

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

Geographic Range This species is known from Antioquia, Chocó and Risaralda departments on the western versant of the Cordillera Occidental, in Colombia, from 1,000-1,900m asl. It probably occurs more widely than current records suggest.
Population It is generally a common species.
Habitat and Ecology It occurs on cliffs or on rocks in streams with a suitable forest canopy cover. It breeds by direct development, and juveniles occur on vegetation near streams.
Major Threats The major threat is habitat loss caused by agricultural development (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 Some populations are inside the Parque Nacional Natural Las Orquideas and Parque Nacional Natural Tatama. Protection of the species' habitat is essential to its long-term survival given its reliance on an intact forest canopy.

Bibliography: Acosta-Galvis, A.R. (2000), Lynch, J.D. (1998b), Lynch, J.D., Ruiz-Carranza, P.M. and Ardila-Robayo, M.C. (1997), Paez, V.P. *et al.* (2002), Ruiz-Carranza, P.M., Lynch, J.D. and Ardila-Robayo, M.C. (1997)
Data Providers: Fernando Castro, Maria Isabel Herrera, John Lynch

CR *Eleutherodactylus rufescens* (Duellman and Dixon, 1959)

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 Coalcoman, north-western Michoacán, Mexico, occurring only at elevations above 2,000m asl.
Population This is a rare species.
Habitat and Ecology It inhabits pine-oak forest and cloud forest, and requires the presence of bromeliad plants in the dry season, and low bushes and trunks on the ground in the humid season. It breeds by direct development.
Major Threats The main threat is habitat disturbance and loss due mainly to agriculture and logging.
Conservation Measures The species' range is not currently within any protected area, which means that habitat maintenance and protection is essential to ensure its persistence. Survey work to evaluate the current population status of this species is also needed. This species is protected by Mexican law under the "Special Protection" category (Pr).

Bibliography: Duellman, W.E. and Dixon, J.R. (1959)
Data Providers: Georgina Santos-Barrera, Luis Canseco-Márquez

CR *Eleutherodactylus rufifemoralis* Noble and Hassler, 1933

Critically Endangered A3c
Order, Family: Anura, Leptodactylidae
Country Distribution: Dominican Republic
Current Population Trend: Decreasing

Geographic Range This species has a restricted range in the Sierra de Bahoruco, in the Dominican Republic. It has been recorded from 727-1,370m asl.
Population This species has only been encountered once or twice during many visits to the region over the last two decades. It was last collected in 1990, although there have been no surveys for the species since.
Habitat and Ecology This is a cloud forest species, found in terrestrial upland mesic broadleaf and pine forests. Eggs are laid on the ground, and it breeds by direct development.
Major Threats It is restricted to an area suffering severe habitat destruction, largely due to the impacts of agriculture and charcoaling.
Conservation Measures It is present in Parque Nacional Sierra de Bahoruco, but additional protection and maintenace of habitat in the Sierra de Bahoruco is necessary. Further survey work is also required 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), Ruder, J.M., Powell, R. and Parmerlee, Jr, J.S. (1995), Schwartz, A. and Henderson, R.W. (1991)
Data Providers: Blair Hedges, Sixto Inchaustegui, Robert Powell

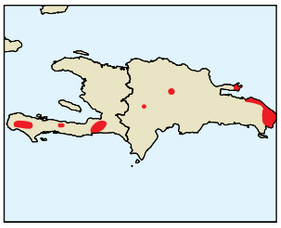
EN *Eleutherodactylus ruizi* Lynch, 1981

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

Geographic Range This species is known only from four localities in the Cordillera Occidental, in the department of Valle del Cauca, Colombia, at elevations of 1,500-2,000m asl.
Population It is an uncommon species.
Habitat and Ecology It is terrestrial, commonly found in leaf-litter in primary and disturbed forests, but is restricted to moist conditions. Breeding is by direct development.
Major Threats This is a large frog with a small population that is very sensitive to human disturbance. All known localities are threatened by the expansion of the city of Cali, in particular due to agriculture and human settlements.
Conservation Measures Some populations are inside Yotoco Forest Reserve, which affords some protection to the species' habitat, but there is clearly a need for improved protection of the habitat of this species, particularly given its microhabitat requirements.
Bibliography: Acosta-Galvis, A.R. (2000), Kattan, G. (1984), Lynch, J.D. (1981c), Lynch, J.D. (1981c), Lynch, J.D. (1997), 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)
Data Providers: Fernando Castro, Maria Isabel Herrera, John Lynch

EN *Eleutherodactylus ruthae* Noble, 1923

Endangered B1ab(iii,v)
Order, Family: Anura, Leptodactylidae
Country Distribution: Dominican Republic, Haiti
Current Population Trend: Decreasing



Geographic Range This species is widely, albeit patchily, distributed in Hispaniola (Haiti and Dominican Republic), with an altitudinal range from sea level up to 900m asl.
Population It is rarely encountered, and believed to be declining in suitable habitat for reasons that are unknown.
Habitat and Ecology It occurs in xeric pine forest and mesic forest, including in degraded areas. Males call from, and females lay eggs in, closed underground chambers. Breeding is by direct development.
Major Threats The major threat is severe habitat destruction due to agriculture (the cultivation of crops and livestock farming) and charcoaling. However, this does not explain the decline in suitable habitats, and other factors such as invasive predators, climate change, and chytridiomycosis may be implicated.
Conservation Measures It occurs in several protected areas. Further research is necessary to investigate the reasons for the decline of this species in suitable habitat. Further, given that this may represent a complex of species, each with an exceedingly small range, taxonomic work is needed to ascertain the true taxonomic status of individual populations.
Notes on taxonomy: This species is probably a complex of several 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. (1965d), Schwartz, A. and Henderson, R.W. (1991)
Data Providers: Blair Hedges, Sixto Inchaustegui, Richard Thomas, Robert Powell

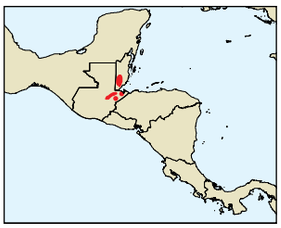
EN *Eleutherodactylus ruthveni* Lynch and Ruíz-Carranza, 1985

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

Geographic Range This species is known from the north-western slope of the Sierra Nevada de Santa Marta, in the department of Magdalena, Colombia, at 1,800-2,600m asl.
Population It is a rare species.
Habitat and Ecology An inhabitant of moist forest habitats, it is arboreal and nocturnal, occurring under rocks and logs during the day.
Major Threats The major threat is habitat loss and degradation caused primarily by agriculture (cultivation of crops and livestock farming).
Conservation Measures Its range includes Parque Nacional Natural Sierra Nevada de Santa Marta, and the adjacent, recently established El Dorado Nature Reserve.
Bibliography: Acosta-Galvis, A.R. (2000), Cochran, D.M. and Goin, C.J. (1970), Lynch, J.D. and Duellman, W.E. (1997), Lynch, J.D. and Ruiz-Carranza, P.M. (1985a), Ruiz-Carranza, P.M., Ardila-Robayo, M.C. and Lynch, J.D. (1996)
Data Providers: Martha Patricia Ramírez Pinilla, Mariela Osorno-Muñoz, Jose Vicente Rueda, Adolfo Amézquita, María Cristina Ardila-Robayo

EN *Eleutherodactylus sandersoni* Schmidt, 1941

Endangered A2ace
Order, Family: Anura, Leptodactylidae
Country Distribution: Belize, Guatemala
Current Population Trend: Decreasing



Geographic Range This species is known from the Maya Mountains in Belize south to the Caribbean foothills of Guatemala, including the Sierra de Santa Cruz, the Montañas del Mico, and the eastern portion of the Sierra de las Minas, from sea level up to 1,160m asl.
Population It has declined drastically in Guatemala, where it is now extinct at localities where previously hundreds could be found in a few hours. It is now rare at those Guatemalan localities where it still survives. It is still common in Belize.
Habitat and Ecology It lives on the forest floor near streams in moist forest, and is not found in degraded habitats. Breeding is by direct development, and the species is not dependent on water for breeding.
Major Threats The major threat is habitat loss due to agriculture, wood extraction, and human settlement. It is declining, even where suitable habitat remains, for reasons that are not understood. However, 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 It occurs in the Columbia River Forest Reserve and probably in the Bladen Forest Reserve in Belize; and in the Montanas del Mico Catchment Reserve and the Reserva de la Biosfera Sierra de las Minas in Guatemala. Further research is needed to determine the reasons for the decline of this species in suitable habitat.
Bibliography: Campbell, J.A. (1998), Campbell, J.A. (2001), Campbell, J.A. and Savage, J.M. (2000), Lee, J.C. (1996), Lee, J.C. (2000)
Data Providers: Julian Lee, Paul Walker, Manuel Acevedo

VU *Eleutherodactylus satagius* Lynch, 1995

Vulnerable D2
Order, Family: Anura, Leptodactylidae
Country Distribution: Colombia
Current Population Trend: Stable

Geographic Range This species is known only from the region of the type locality in the Páramo de Frontino, in the department of Antioquia, in Colombia, at 3,300-3,800m asl. It is probably genuinely restricted to this area.
Population The species is rare in collections, but it is difficult to access the páramo for herpetological surveys; it is probably not a rare species.
Habitat and Ecology It occurs in páramo and sub-páramo areas, amongst fallen leaves, grass and sparse vegetation. It is closely associated with the leaf axils of *Speletia* spp. It breeds by direct development.
Major Threats The range of the species is at very high elevations and out of reach of human disturbance at present. However, climate change could be a future threat that reduces the suitable habitat available to the species.
Conservation Measures There are no formal protected areas within the range of the species, although Paramo Urrao is a Protected Forest Reserve. The creation of a protected area to conserve the habitat of this species is recommended, although this measure alone will not protect the species against the effects of climate change. Close population monitoring of this species is required, given its extremely restricted range.
Bibliography: Acosta-Galvis, A.R. (2000), Lynch, J.D. (1995), Lynch, J.D. (1998b), Lynch, J.D., Ruiz-Carranza, P.M. and Ardila-Robayo, M.C. (1997), Paez, V.P. *et al.* (2002)
Data Providers: Fernando Castro, Maria Isabel Herrera, John Lynch

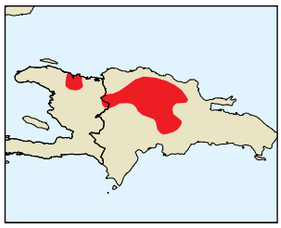
EN *Eleutherodactylus saxatilis* (Webb, 1962)

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

Geographic Range This species is known from north-western Durango and adjacent Sinaloa, from Revolcaderos Durango to El Palmito, Sinaloa, Mexico. The type locality is at about 1,830m asl.
Population It is a rare species.
Habitat and Ecology It inhabits mixed boreal-tropical forest; the original habitat was described by Webb (1962) as transitional pine-oak forest. It is restricted to rocky habitats such as crevices and boulders. Breeding is by direct development.
Major Threats The major threat is habitat loss and degradation due to logging and clear-cutting.
Conservation Measures It has not been recorded from any protected areas, making the protection of remaining forest habitat in the range of this species a priority.
Data Providers: Georgina Santos-Barrera, Luis Canseco-Márquez

CR *Eleutherodactylus schmidti* Noble, 1923

Critically Endangered A2ace
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 in the Cordillera Septentrional and Cordillera Central, in the Dominican Republic, and in the Massif du Nord, Haiti. It has been recorded from sea level to 1,758m asl.
Population It was common in the past and was known from many localities, but it has not been recorded since the late 1980s. Extensive surveys were carried out within its range between 1998 and 2000 (M. Hernandez pers. comm.), but these failed to find any individuals, thus suggesting a catastropic decline, even within suitable habitats.
Habitat and Ecology It is usually found beside streams in mesic closed-canopy rainforests. Males call from the river and stream banks. Eggs are laid on the ground, and it breeds by direct development.
Major Threats In the Cordillera Central, habitat destruction is taking place as a result of agricultural development (including livestock farming), and disturbance from ecotourism. However, chytridiomycosis is a possible reason for its decline within suitable habitats.
Conservation Measures The range of the species includes several protected areas, but there is very little management of these areas for conservation, and the habitat continues to be destroyed. Improved management of these, and maintenance of other remaining habitat, is essential. Research is also needed to determine whether or not chytrid is implicated in the decline 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. and Henderson, R.W. (1991)
Data Providers: Blair Hedges, Sixto Inchaustegui, Marcelino Hernandez, Robert Powell

VU *Eleutherodactylus schultei* Duellman, 1990

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

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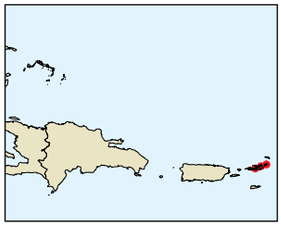
Geographic Range This species can be found in the Andes of northern Peru and southern Ecuador. In Peru it has been recorded from two localities at elevations of 2,400 and 2,850m asl in the northern part of the Cordillera Central (Amazonas Department). In Ecuador, it is known from a single locality in the Romerillos, Parque Nacional Podocarpus, at 1,900m asl. It might range more widely.
Population The current population status of this species is unknown.
Habitat and Ecology It is known only from disturbed cloud forest. The type locality is on a mostly cultivated ridge with remnants of dense low forest (6-8m high) bearing many orchids and bromeliads. The second Peruvian locality is on a ridge overlooking the cultivated valley. In both localities, the individuals were found in large terrestrial and arboreal bromeliads by day. It breeds by direct development.
Major Threats The major threat is habitat loss and destruction through an increase in agriculture, selective logging, and human settlement.
Conservation Measures In Ecuador the species is present in Parque Nacional Podocarpus; it is not present in any Peruvian protected areas. Further survey work is needed to determine the current population status of this species.
Bibliography: Duellman, W.E. (1990), Duellman, W.E. and Pramuk, J.B. (1999), Rodríguez, L.O., Cordova, J.H. and Icochea, J. (1993)
Data Providers: Lily Rodríguez, Jorge Luis Martinez, Wilfredo Arizabal, Karl-Heinz Jungfer, Diego Almeida, Fernando Nogales

EN *Eleutherodactylus schwartzi* Thomas, 1966

VIRGIN ISLANDS COQUI

Endangered B1ab(iii)+2ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Virgin Islands (British), Virgin Islands (United States) (Extinct)
Current Population Trend: Decreasing



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Geographic Range This species is now restricted to Tortola and Virgin Gorda in the British Virgin Islands, having been extirpated from St. John in the U.S. Virgin Islands. It has been recorded from sea level up to 227m asl.
Population There is no recent information available on the population status of this species.
Habitat and Ecology It is found in dry scrub forest in terrestrial bromeliads, and has not been recorded outside forested areas. Males call from near to the ground and terrestrial bromeliads; eggs are laid in bromeliads, and breeding is by direct development.
Major Threats Infrastructure development for tourism, human settlement, and road construction is a major threat. Rats and mongooses have also been introduced to the island and most likely pose a threat.
Conservation Measures It was previously known from a protected area on St. John, and it may occur in Virgin Gorda Peak Forest Park. The habitat of this species on Tortola and Virgin Gorda requires improved protection, and there is also a need to control invasive predators. Further survey work is 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. and Henderson, R.W. (1991), Thomas, R. (1966)
Data Providers: Blair Hedges, Richard Thomas

CR *Eleutherodactylus sciagraphus* Schwartz, 1973

Critically Endangered A3c; B2ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Haiti
Current Population Trend: Decreasing

Geographic Range This species is known from one locality in the Massif de la Hotte, Haiti, at an altitude of 1,060-1,081m asl.
Population It has only been encountered once during the last two decades, despite considerable collecting effort in its only known locality prior to 1991. The species is rarely encountered even in suitable habitat.
Habitat and Ecology It is found under rocks at high elevations in closed moist forest. Eggs are laid on the ground and it breeds by direct development.
Major Threats The reason for the decline of this species is unknown, although there has been severe habitat destruction within its range due to charcoal collection and slash-and-burn agriculture.
Conservation Measures It is not known to occur in any protected areas. 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 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. (1973), Schwartz, A. and Henderson, R.W. (1991)
Data Providers: Blair Hedges, Richard Thomas

EN *Eleutherodactylus scoloblepharus* Lynch, 1991

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 two localities: one in the municipality of Sonsón and the other in Belmira, both in the department of Antioquia, Colombia. It has been recorded from 2,620-2,800m asl.
Population It is an uncommon species.
Habitat and Ecology It is restricted to primary forest or slightly disturbed forest, along streams, in dense vegetation. It is also common in areas with waterfalls. This is a nocturnal species, and during the day it is usually found under rocks. Breeding is by direct development.
Major Threats The major threat is habitat loss caused by deforestation for agricultural development (including the cultivation of illegal crops). 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 It is not known from any protected areas, and habitat protection is urgently needed given that the species is not tolerant of much disturbance of its habitat.
Bibliography: Acosta-Galvis, A.R. (2000), Lynch, J.D. (1991a), 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

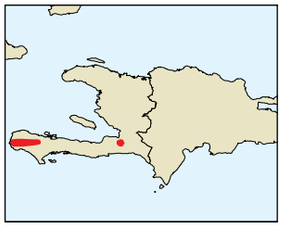
EN *Eleutherodactylus scolodiscus* Lynch and Burrowes, 1990

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

Geographic Range This species is known from a few localities at elevations of 1,200-1,780m asl in cloud forest on the Pacific slopes of the Andes in northern Ecuador (Carchi and Esmeraldas Provinces) and adjacent Colombia (Nariño Department). It might occur a little more widely.
Population There is little information on the current population status of this species. However, it was observed and photographed in the mid-1990s in La Planada, Colombia.
Habitat and Ecology It is nocturnal, and is usually active on vegetation 1-3m above the ground, inside dense and undisturbed cloud forests. It may occur on vegetation along streams. The ability of this species 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 The major threat is habitat loss caused by agricultural development (including the cultivation of illegal crops). 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 some populations of this species are distributed in La Planada National Reserve, while in Ecuador its geographic range overlaps with the Reserva Ecológica Cotacachi-Cayapas.
Bibliography: Acosta-Galvis, A.R. (2000), 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, John Lynch

CR *Eleutherodactylus semipalmatus* Shreve, 1936

Critically Endangered A3c; B2ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Haiti
Current Population Trend: Decreasing



Geographic Range This species is only known from the Massif de la Hotte and Massif de la Selle, in Haiti. It has been recorded from 303-1,697m asl.
Population At one time this species was abundant, but it has not been seen in the last two decades despite extensive surveys of suitable habitat prior to 1991, and might now be extinct.
Habitat and Ecology It is a riparian/aquatic stream-dwelling species found in mesic hardwood forests, 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, as a result of logging by local people (charcoaling) and slash-and-burn agriculture, is taking place on the Massif de la Hotte and Massif de la Selle. Chytridiomycosis might also be implicated in the decline of the species, although this has yet to be confirmed.
Conservation Measures The species is known from Parc National Morne La Visite and Parc National Macaya, but there is no management of these areas for conservation, and the habitat within them continues to be destroyed. Urgent action is required to conserve the remaining habitat in these areas. Survey work is also necessary to determine the population status of this species and whether or not it still survives in the wild. In view of the possible risk of chytridiomycosis, any surviving individuals might need to form the basis for the establishment of an *ex-situ* population.
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, Richard Thomas

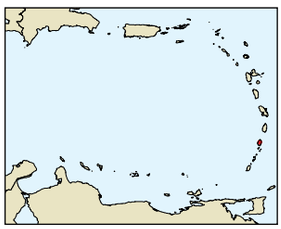
VU *Eleutherodactylus serendipitus* Duellman and Pramuk, 1999

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

Geographic Range This species can be found in the Andes of northern Peru and southern Ecuador. In Peru, it has been recorded from elevations of 1,850m asl on the upper western slopes of the northern Cordillera Central (drained by tributaries of the Río Chiriaco flowing northward into the Río Marañon), and from 1,700m asl on the western slopes of the Cordillera Colan (both sites in Amazonas Department). It is known in Ecuador from a single locality at 1,850m asl, in the Curintza, Zamora Chinchipe Province, Parque Nacional Podocarpus. This species might range more widely than these current records suggest.
Population The current population status is unknown; only a few individuals have been observed.
Habitat and Ecology This is a montane tropical forest species. In Peru, males were recorded calling at night from leaves of low herbaceous plants in highly disturbed, humid, upper montane forest. In the Cordillera Colan, a sub-adult female was found on a bush near a stream, and two juveniles were collected in leaf-litter in humid montane forest. It is presumed to breed by direct development. It is not known if this species occurs in degraded areas.
Major Threats The major threat is habitat loss due to selective logging and agriculture (including livestock).
Conservation Measures In Peru the range of this species overlaps with the Cordillera de Colán Reserved Zone, a 60,000ha protected area declared in 2002. In Ecuador it is present in the Parque Nacional Podocarpus. Further survey work is needed to determine the current population status of this species.
Bibliography: Duellman, W.E. and Pramuk, J.B. (1999)
Data Providers: Lily Rodríguez, Jorge Luis Martinez, Wilfredo Arizabal, Karl-Heinz Jungfer, Diego Almeida, Fernando Nogales

EN *Eleutherodactylus shrevei* Schwartz, 1967

Endangered B1ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: St Vincent and the Grenadines
Current Population Trend: Decreasing

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Geographic Range This species is restricted to St. Vincent, Lesser Antilles, from 275-922m asl.
Population It is not a well-known species, but it appears to be moderately common in suitable habitat.
Habitat and Ecology It is arboreal and can be found in rainforests, forest edge and montane meadows surrounded by agriculture. It lives on the ground and on vegetation. The eggs are laid on the ground, and breeding occurs by direct development without a larval stage.
Major Threats The major threat is habitat loss due to urbanization and tourism development, as well as for agriculture.
Conservation Measures It is unclear whether this species is represented in a protected area; clearly, though, habitat protection is urgently needed to ensure the persistence of this restricted-range 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), Kaiser, H. and Henderson, R.W. (1994), Kaiser, H., Green, D.M. and Schmid, M. (1994), Kaiser, H., Hardy, Jr., J.D. and Green, D.M. (1994), Schwartz, A. (1967), Schwartz, A. and Henderson, R.W. (1991)
Data Providers: Blair Hedges, Robert Powell

VU *Eleutherodactylus signifer* Ruíz-Carranza, Lynch and Ardila-Robayo, 1997

Vulnerable D2
Order, Family: Anura, Leptodactylidae
Country Distribution: Colombia
Current Population Trend: Stable

Geographic Range This species is known only from forested streams along the highway between Cartago and San José del Palmar on the western slopes of the Serranía de los Paraguas, in the department of Chocó, Colombia, from 1,850-1,860m asl.
Population This is a locally common species.
Habitat and Ecology It occurs along streams and by waterfalls, on wet rocks and moss inside the forest; adequate canopy cover is an important habitat requirement. It breeds by direct development and some juveniles are found on wet vegetation next to waterfalls.
Major Threats The habitat of the species is relatively unthreatened at present, although if a planned road is built this will present a major threat to the species' habitat. Agricultural development (illegal crops) also presents a potential future 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 It is not currently recorded from any protected areas, but there are ongoing efforts to transform the Serrania de los Paraguas into a wildlife reserve.
Bibliography: Acosta-Galvis, A.R. (2000), Lynch, J.D. (1998b), Lynch, J.D., Ruiz-Carranza, P.M. and Ardila-Robayo, M.C. (1997), Ruiz-Carranza, P.M., Lynch, J.D. and Ardila-Robayo, M.C. (1997)
Data Providers: Fernando Castro, Maria Isabel Herrera, John Lynch

EN *Eleutherodactylus simonbolivari* Wiens and Coloma, 1992

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


© Luis A. Coloma

Geographic Range This species is known only from the region of the type locality, Cashca Totoras, Bolivar Province, in central Ecuador, at 3,200m asl. It may be more widely distributed than current records suggest.
Population The species is locally abundant in a patch of forest (Bosque Protector Cashca Totoras) of about 300ha.
Habitat and Ecology At the type locality, all individuals were in the vicinity of a spring in upper humid montane forest, but many individuals were found in herbaceous vegetation in forest. It also occurs, to a limited extent, in secondary forest. Reproduction occurs by direct development.
Major Threats The major threat is habitat loss and degradation due to agriculture (cultivation of crops and livestock farming) and logging; the forest habitat in and around the type locality is now severely fragmented.
Conservation Measures Its geographic range does not overlap any protected areas, making it a priority to protect the remaining fragmented habitat of this species.
Bibliography: Funk, C.W. *et al.* (2003), Lynch, J.D. and Duellman, W.E. (1997), Wiens, J.J. and Coloma, L.A. (1992)
Data Providers: Luis A. Coloma, Santiago Ron, Diego Almeida

EN *Eleutherodactylus simoteriscus* Lynch, Ruíz-Carranza and Ardila-Robayo, 1996

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

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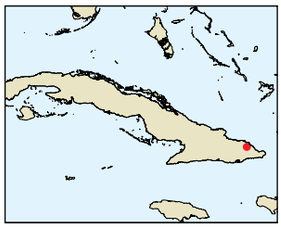
Geographic Range This species is known from the páramos on the border of the departments of Tolima and Quindio, in the Cordillera Central of Colombia, from 3,580-3,680m asl.
Population It is a common species.
Habitat and Ecology It occurs in páramo areas, under rocks, logs, and in the roots of grasses among *Espeletia*; it is also found in pastureland. It breeds by direct development.
Major Threats Habitat loss caused by cattle grazing (and in particular, burning of the páramo in order to cause the grass to grow faster for the cattle to graze upon) is the major threat.
Conservation Measures There are no protected areas within the range of this species, and its remaining habitat is in urgent need of protection.
Bibliography: Acosta-Galvis, A.R. (2000), Ardila-Robayo, M.C. and Acosta-Galvis, A. (2000a), Lynch, J.D., Ruiz-Carranza, P.M. and Ardila-Robayo, M.C. (1996), 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 simulans* Diaz and Fong, 2001

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



Geographic Range This species is known only from the type locality in Arroyo Bueno, La Melba, Holguin Province in eastern Cuba, at less than 200m asl.
Population It is uncommon even in suitable habitat.
Habitat and Ecology It occurs on riverbanks along streams and in the leaf-litter in secondary forest. Breeding is by direct development.
Major Threats The major threat is habitat destruction due to human settlements and agriculture.
Conservation Measures It occurs in Parque Nacional Alejandro de Humboldt, but this area is in need of improved management for biodiversity conservation.
Bibliography: Díaz, L.M. and Fong, A. (2001)
Data Providers: Luis Díaz

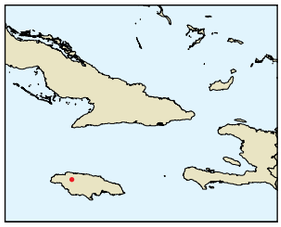
EN *Eleutherodactylus siopelus* Lynch and Burrowes, 1990

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

Geographic Range This species is known only from the region of the type locality in cloud forest on the western slope of the Andes in extreme southern Colombia. It is presumed to extend into adjacent Ecuador but has not yet been recorded there. It ranges from 1,700-2,020m asl.
Population It is not a common species.
Habitat and Ecology It is nocturnal, and is usually found on medium to high vegetation along side streams inside primary forest. Breeding is by direct development.
Major Threats There are no major threats to the habitat at the type locality at present, but there is pressure from local people to convert the current protected area to land for agriculture and cattle farming.
Conservation Measures The only known locality is within La Planada Natural Reserve. Continued management and maintenance of this protected area is essential to ensure the long-term survival of this species, particularly given its dependence upon good forest. Further survey work is needed to establish the current population status of this species, and to determine if it occurs outside the vicinity of the type locality.
Bibliography: Acosta-Galvis, A.R. (2000), 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, John Lynch

CR *Eleutherodactylus sisyphodemus* Crombie, 1977

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



© S. Blair Hedges, Penn State

Geographic Range This species is known only from the type locality: "vicinity of 'the cave' about 4 miles WNW Quick Step..." in the Cockpit Country of south-western Trelawny Parish, Jamaica, at around 450m asl.
Population It is a rare species, and is difficult to find.
Habitat and Ecology It is a very small frog found in heavy leaf-litter in low-elevation wet forests on limestone. Eggs are laid on the ground, and it breeds by direct development.
Major Threats This species requires undisturbed forested habitat, and so the continued clearing of forest for the planting of illegal crops at the type locality represents a serious threat to its survival.
Conservation Measures It is not known to occur in any protected areas, but its known range is in Cockpit Country Forest Reserve, although this does not guarantee the long-term protection of the species' habitat. Improved protection and maintenance of the remaining forested habitat is a priority.
Bibliography: Crombie, R.I. (1977), 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

EN *Eleutherodactylus sobetes* Lynch, 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 a few localities in the Río Saloya basin, Pichincha Province, Ecuador, from 1,700-2,050m asl.
Population It is a rare species, and was seen most recently in 2002.
Habitat and Ecology It can be found in cloud forest in a humid temperate regime, occurring in low vegetation near streams. It also occurs in old and secondary growth. Reproduction is by direct development.
Major Threats The major threat is habitat loss and degradation due to agriculture (primarily livestock farming) and wood extraction.
Conservation Measures It is not known to occur in any protected areas, and its cloud forest habitat is in need of protection.
Bibliography: Cisneros-Heredia, D.F. (2004), Lynch, J.D. (1980d), Lynch, J.D. and Duellman, W.E. (1997)
Data Providers: Luis A. Coloma, Santiago Ron, Diego Almeida, Diego Cisneros-Heredia

EN *Eleutherodactylus spilogaster* Lynch, 1984

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 the western slopes of the Cordillera Oriental, in the vicinity of Bogotacito, on the Duitama-Charalá road, in Gambita Municipality, Santander Department, Colombia, from 2,200-2,400m asl. It might occur a little more widely than current records suggest.
Population It is a rare species.
Habitat and Ecology It occurs in very humid cloud forests on vegetation in the low stratum. Although commonly found in the forest interior, it has also been recorded from secondary forest. Breeding is by direct development.
Major Threats The major threat is habitat loss caused by agricultural development (particularly livestock farming) and pine plantations.
Conservation Measures Its range does not include any protected areas, though it may occur in the Santuario de Fauna y Flora Guanentá Alto Río Fonce. There is a need for improved protection of cloud forest habitat within the range of this species.
Bibliography: Acosta-Galvis, A.R. (2000), 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: Martha Patricia Ramírez Pinilla, Mariela Osorno-Muñoz, Jose Vicente Rueda, Adolfo Amézquita, María Cristina Ardila-Robayo

EN *Eleutherodactylus suetus* 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 from cloud forest in the municipalities of Pensilvania and Samaná, in the department of Caldas, and from the municipalities of Sonson and Guatepé, in Antioquia Department, on the eastern flank of the Cordillera Central, in Colombia. It has been recorded between 1,800 and 2,800m asl.
Population It is common in Florencia (in Samana), but is generally uncommon elsewhere.
Habitat and Ecology A nocturnal species, it is usually found perching on low vegetation in primary forest, to which it is restricted. It breeds by direct development.
Major Threats The major threat is habitat loss caused by deforestation as a result of the collection of firewood by locals, as well as the clear cutting of the forest and general disturbance by humans, and possibly also the cultivation of illegal crops.
Conservation Measures Its range includes Florencia Forest, an area that is in the process of being declared a natural reserve area. Protection of the montane habitat of this species is essential, given its intolerance of any habitat disturbance.
Bibliography: Acosta-Galvis, A.R. (2000), Lynch, J.D. and Ardila-Robayo, M.C. (1999), Lynch, J.D. and Rueda-Almonacid, J.V. (1998b), Rueda-Almonacid, J.V. (2000)
Data Providers: Fernando Castro, Maria Isabel Herrera, John Lynch

EN *Eleutherodactylus sulculus* Lynch and Burrowes, 1990

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

Geographic Range This species is known only at the type locality, on the pacific slope of the Cordillera Occidental, in the department of Nariño, Colombia, from 1,700-2,020m asl. It is presumed that this species may be found in the northern area of Ecuador, in the province of Carchi, but it has not yet been recorded there.
Population It is a rare species.
Habitat and Ecology It is nocturnal, found on vegetation 1-2m above the ground, near streams in primary or good quality secondary forest. Breeding is by direct development.
Major Threats There are no major threats to the habitat at the type locality at present, but there is pressure from local people to convert the current protected area for agricuture and cattle grazing. 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 range of the species is wholly within La Planada Natural Reserve. Continued management and maintenance of this reserve is essential to ensure the long-term survival of this species, particularly given its reliance on good forest. Further survey work is needed to determine if it occurs outside the vicinity of the type locality.
Bibliography: Acosta-Galvis, A.R. (2000), 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, John Lynch

VU *Eleutherodactylus supernatis* Lynch, 1979

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

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Geographic Range This species can be found from the southern Cordillera Central, from Nevado de Huila, Colombia to extreme northern Ecuador, at 2,540 -3,500m asl. The central and northern Cordillera Central records (Antioquia-Tolima departments) and the Cordillera Occidental records (Jerico, Antioquia departments), correspond to a different species, *E. permixtus*. In Ecuador, it is now known from two localities, El Carmelo and El Chamizo in Carchi Province.
Population It was abundant in the 1970s and 1980s throughout its range. Since then, only a few individuals have been found in Ecuador, at El Chamizo, in Carchi Province in 2000.
Habitat and Ecology This species occurs in cloud forest, sub-páramo, and páramo areas. It has been found beneath rocks, logs, or in deep grass. At night, specimens are active on vegetation (Lynch 1979d). It is presumed to breed by direct development, but the site of egg deposition is not known. It occurs in old-growth and secondary forest.
Major Threats The major threat is habitat loss caused by logging and agricultural development (livestock and illegal crops).
Conservation Measures It occurs in Parque Nacional Natural Puracé and Parque Nacional Natural Nevado de Hulia in Colombia. It is not recorded from any protected areas in Ecuador.
Bibliography: Acosta-Galvis, A.R. (2000), Ardila-Robayo, M.C. and Acosta-Galvis, A. (2000a), Frolich, L.M. *et al.* (2003), Lynch, J.D. (1979d), Lynch, J.D. and Duellman, W.E. (1997), Lynch, J.D., Ruiz-Carranza, P.M. and Ardila-Robayo, M.C. (1994), 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, Diego Almeida, Fernando Nogales

EN *Eleutherodactylus surdus* (Boulenger, 1882)

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

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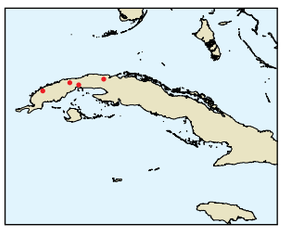
Geographic Range This species has been recorded from 11 localities on the upper slopes of the Cordillera Occidental in the provinces of Imbabura and Pichincha, north-western Ecuador, at elevations of 1,550-3,190m asl.
Population It was once very common, but it has now declined in certain places, especially where disturbance leads to general drying out of the habitat.
Habitat and Ecology It is a cloud forest species. Most individuals have been found under stones or clods of earth by day. Although it can tolerate a small amount of habitat degradation, it cannot survive in places where opening up of the habitat results in a decrease in humidity. It is presumed to breed by direct development, but the site of egg deposition is not known.
Major Threats The major threat is habitat loss and degradation due to agricultural development (including livestock farming), logging and human settlement.
Conservation Measures Its geographic range overlaps the Reserva Geobotánica Pululahua, but additional protection of the cloud forest habitat in the range of this species is necessary.
Bibliography: Boulenger, G.A. (1882c), Flores, G. (1988a), Flores, G. (1993), Lynch, J.D. (1980d), Lynch, J.D. and Duellman, W.E. (1997)
Data Providers: John Lynch, Luis A. Coloma, Santiago Ron

CR *Eleutherodactylus symingtoni* Schwartz, 1957

Critically Endangered A2ace; B2ab(iii,v); C1
Order, Family: Anura, Leptodactylidae
Country Distribution: Cuba
Current Population Trend: Decreasing



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Geographic Range This species was formerly known from upland areas throughout western Cuba in Pinar del Río and Matanzas Provinces, Cuba, but its range has now decreased significantly. It has been recorded from 70-155m asl.
Population It is known from a relatively small number of scattered localities, and is considered to be a very rare species. There have been recent declines in the population, even in good habitat.
Habitat and Ecology The species inhabits rocky areas and caves in lowland, mesic closed-canopy broadleaf forest. It has not been recorded outside forest habitat. It breeds by direct development.
Major Threats The main threat is habitat loss due to infrastructure development for tourism, disturbance of the habitat by touristic activities, and agriculture. Two specimens collected in 2003 showed signs of disease, although the results of studies investigating which disease specifically are pending. However, declines within suitable habitat are suggestive of chytridiomycosis.
Conservation Measures This species occurs in a few protected areas, but there is insufficient management of these for conservation, and the habitat continues to be degraded. Improved protection of the existing protected areas network is needed, as is urgent research to determine the cause of the decline.
Bibliography: Gomez, A.R. and Alonso, R. (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. (1957), Schwartz, A. and Henderson, R.W. (1991)
Data Providers: Blair Hedges, Luis Díaz

EN *Eleutherodactylus syristes* (Hoyt, 1965)

PIPING PEEPING FROG

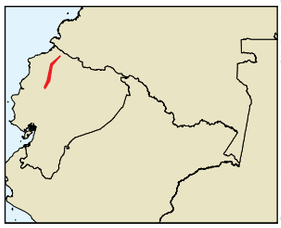
Endangered B1ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Mexico
Current Population Trend: Decreasing

© Tim Burkhardt

Geographic Range This species is known from the Pacific slopes of the Sierra de Miahuatlán and Mixteca Alta, Oaxaca, Mexico.
Population There is no information on the current population status of this species.
Habitat and Ecology It inhabits pine-oak forest areas, and breeds by direct development.
Major Threats The major threat is habitat disturbance and loss due to agricultural expansion and logging.
Conservation Measures Protection of the forests of central Oaxaca is extremely urgent since no protected areas exist in this region. Further survey work is needed to establish its current population status. This species is protected by Mexican law under the "Special Protection" category (Pr).
Bibliography: Hoyt, D.L. (1965)
Data Providers: Georgina Santos-Barrera, Luis Canseco-Márquez

EN *Eleutherodactylus tenebrionis* Lynch and Miyata, 1980

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



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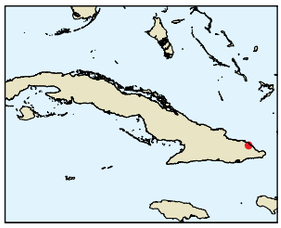
Geographic Range This species occurs along the western base of the Andes in Ecuador. It has been recorded from five localities, at elevations between 220 and 830m asl.
Population It is a rare species.
Habitat and Ecology It is an inhabitant of primary, perhaps undisturbed, forests, in humid climes (Lynch and Duellman 1997), and breeds by direct development.
Major Threats Habitat degradation and loss is particularly severe within its range (primarily due to agriculture, involving both crops and livestock, as well as logging and road construction), and much of the remaining habitat is now severely fragmented.
Conservation Measures Its geographic range overlaps the Reserva Ecológica Cotacachi-Cayapas and the Reserva Ecológica Los Illinizas. There is a need for improved protection of remaining primary forest within the range of this species.
Bibliography: Lynch, J.D. and Duellman, W.E. (1997), Lynch, J.D. and Miyata, K. (1980)
Data Providers: Luis A. Coloma, Santiago Ron, Diego Cisneros-Heredia, Ana Almandáriz

CR *Eleutherodactylus tetajulia* Estrada and Hedges, 1996

Critically Endangered B1ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Cuba
Current Population Trend: Decreasing

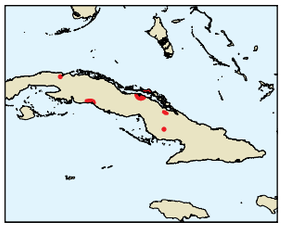


© Alberto R. Estrada

Geographic Range This species has a restricted range in Parque Nacional Alejandro de Humboldt, Cuba, occurring at an altitude of 300-600m asl.
Population It is an uncommon species.
Habitat and Ecology It is a terrestrial species, found only in closed mesic forests, and it breeds by direct development.
Major Threats The major threat is habitat destruction and deforestation, as a result of the impacts of subsistence farming and charcoaling. Mining within the park might also pose a threat to this species.
Conservation Measures Although it occurs in the Parque Nacional Alejandro de Humboldt, the area is not effectively managed and most of the threats are taking place within the park's boundaries. Improved management and protection of this area is essential to ensure the persistence of this species.
Bibliography: Centro Nacional de Areas Protegidas (CNAP) (2002), Estrada, A.R. and Hedges, S.B. (1996a), 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)
Data Providers: Blair Hedges, Luis Díaz

EN *Eleutherodactylus thomasi* Schwartz, 1959

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

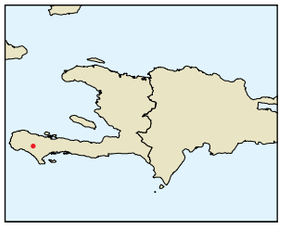


Geographic Range This species has a restricted range in the Sierra de Cubitas and the Sierra de Najasa, Pan de Matanzas, Sierra de Trinidad, in Cuba. It appears to have a relictual and patchy distribution. It has been recorded from sea level up to 390m asl.
Population It is an uncommon species that is difficult to find outside appropriate weather conditions.
Habitat and Ecology It is found on large rocks and in caves in broadleaf forest (mesic or semi-xeric), and has not been recorded outside forest habitat. It breeds by direct development.
Major Threats The major threat is habitat loss and degradation due to agriculture (smallholder farming) and mining.
Conservation Measures Its range includes several protected areas, but there is often insufficient management of these areas for conservation, and the habitat continues to be degraded. More effective management of these protected areas is required to ensure the long-term survival 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. (1959a), Schwartz, A. and Henderson, R.W. (1991)
Data Providers: Blair Hedges, Luis Díaz

CR *Eleutherodactylus thorectes* Hedges, 1988

Critically Endangered A3c; B1ab(iii)+2ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Haiti
Current Population Trend: Decreasing

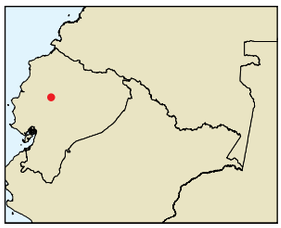


© S. Blair Hedges, Penn State

Geographic Range One of the smallest frogs in the world, this species has a very restricted range, occurring only on the peaks of Formon and Macaya at high elevations on the Massif de la Hotte, Haiti. Its altitudinal range is from 1,700-2,340m asl.
Population Believed to be common in suitable habitat, it was last recorded in 1991 (although there have been no surveys of the area since).
Habitat and Ecology It is slightly arboreal in closed montane pine and cloud forest with shrubs, tree ferns, bromeliads, and climbing bamboo. Eggs are laid on the ground and it breeds by direct development.
Major Threats Severe habitat destruction is taking place primarily due to logging (charcoal collection) by local people and slash-and-burn agriculture.
Conservation Measures This species is known only from 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. Survey work is also necessary to determine the current population status of this species.
Bibliography: Hedges, S.B. (1988a), Hedges, S.B. (1993), Hedges, S.B. (1999), Hedges, S.B. (2001), Hedges, S.B. and Powell, R. (1998c), 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 thymalopsoides* Lynch, 1976

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

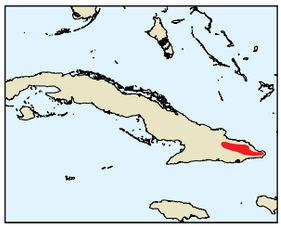


© John D. Lynch

Geographic Range This species is known only from the vicinity of Pilaló, at 2,460-2,480m asl, in the province of Cotopaxi, western Ecuador, but it might occur more widely.
Population At the time of its discovery, it was considered to be uncommon. Recent attempts to locate the species at Pilaló have been unsuccessful, but more intensive surveys are needed.
Habitat and Ecology It is a species of humid upper montane forest. It has been found along forest edges, but is more common inside forest. Adults and juveniles have been found in terrestrial and arboreal bromeliads by day, and perched on vegetation and tree limbs 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 which is taking place due to agricultural development (including livestock farming), logging and human settlement. As such, the forest at its only known locality is now severely fragmented.
Conservation Measures It is not known from any protected areas, but it may occur in the Reserva Ecológica Los Illinizas. Further survey work is needed to determine whether this species occurs outside the vicinity of the type locality.
Bibliography: Flores, G. (1988a), Lynch, J.D. (1976a), Lynch, J.D. and Duellman, W.E. (1997)
Data Providers: John Lynch, Luis A. Coloma, Santiago Ron

EN *Eleutherodactylus toa* Estrada and Hedges, 1991

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



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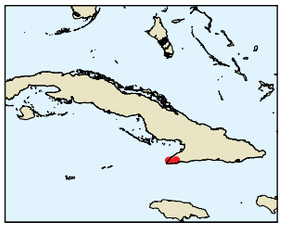
Geographic Range This species is restricted to Macizo de Sagua-Baracoa, eastern Cuba, at an altitude of 195-900m asl.
Population It can be moderately common in the narrow, suitable habitat in which it occurs.
Habitat and Ecology This is a riparian/aquatic species occurring in streams and nearby areas in mesic closed forests. It breeds by direct development.
Major Threats The major threat is habitat loss due to deforestation for subsistence farming and logging, and mining.
Conservation Measures It occurs marginally in Parque Nacional Alejandro de Humboldt, but additional protection of forest habitats is clearly needed. As a stream-associated species of eastern Cuba, this species must be monitored carefully because other stream-dwelling amphibians in the West Indies have disappeared suddenly after being formerly abundant.
Bibliography: Estrada, A.R. and 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. and Henderson, R.W. (1991)
Data Providers: Blair Hedges, Luis Díaz

CR *Eleutherodactylus tonyi* Estrada and Hedges, 1997

Critically Endangered B1ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Cuba
Current Population Trend: Decreasing



Geographic Range This species has a very restricted range, and is found in just two caves and one other locality, in Maseta de Cabo Cruz, in Cuba. It has been recorded from 10-50m asl.
Population It is a moderately common species within the caves and other appropriate habitat.
Habitat and Ecology It is associated with rocks, leaf-litter, and caves in lowland closed-canopy forests, and has not been recorded outside forest habitat. It breeds by direct development.
Major Threats Habitat destruction as a result of disturbance by tourists and infrastructure development for tourism is the major threat, particularly since the caves are a popular tourist attraction.
Conservation Measures It occurs in the Parque Nacional Desembarco del Granma (a World Heritage Site), but there is significant disturbance of the habitat in this park. Improved management of the existing protected area, particularly aimed at reducing disturbance around the caves, is necessary.

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)
Data Providers: Blair Hedges, Luis Díaz

CR *Eleutherodactylus torrenticola* Lynch and Rueda-Almonacid, 1998

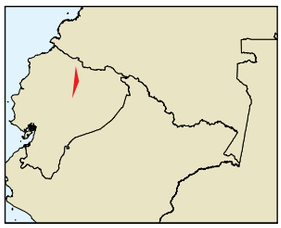
Critically Endangered B1ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Colombia
Current Population Trend: Decreasing

Geographic Range This species is known only from the Florencia Forest, Samaná municipality, in Caldas department, in the Cordillera Central of Colombia, from 1,800-2,400m asl.
Population It is a rare species.
Habitat and Ecology It is a nocturnal species, found on low vegetation alongside streams in primary or secondary forest with suitable canopy cover. They lay eggs in the moss beside the stream, and breed by direct development.
Major Threats The major threat is habitat loss caused by subsistence wood collecting and clear cutting, and agricultural expansion (the planting of illegal crops). Water pollution, resulting from spraying of illegal crops, is also a threat.
Conservation Measures The species' range is within the recently gazetted Parque Nacional Natural Selva de Florencia.

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

EN *Eleutherodactylus trepidotus* Lynch, 1968

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 the east slope of the Ecuadorian Andes, from near the border with Colombia, in the province of Sucumbios, south to the Llanganatis Mountains (Napo and Tunguragua Provinces) at altitudes between 2,360 and 3,700m asl.
Population It is common in Sucumbios and Napo (in 2000-2003). However, recent exploration of the Llanganatis Mountains has not revealed any individuals.
Habitat and Ecology it inhabits páramo, sub-páramo, and montane forest habitats. Individuals have been taken by day beneath rocks or logs in pastures or páramos. It also occurs in secondary and old growth forest, but not in heavily degraded areas. Reproduction occurs by direct development.
Major Threats The major threat is habitat loss and degradation due to agricultural activities (crops and livestock ranching), plantations and logging.
Conservation Measures The range of this species overlaps Parque Nacional Llanganatis, the Reserva Ecológica Cayambe-Coca, the Reserva Ecológica Antisana, and Parque Nacional Sumaco Napo-Galeras.
Bibliography: Frolich, L.M. *et al.* (2003), Lynch, J.D. (1968), Lynch, J.D. and Duellman, W.E. (1980), Lynch, J.D. and Duellman, W.E. (1997), Marsh, D.M. and Pearman, P.B. (1997)
Data Providers: Luis A. Coloma, Santiago Ron, Diego Almeida, Mario Yánez-Muñoz

CR *Eleutherodactylus tribulosus* Lynch and Rueda Almonacid, 1997

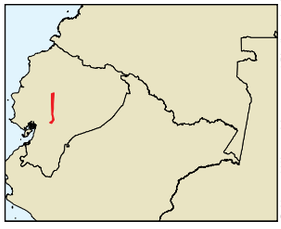
Critically Endangered B1ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Colombia
Current Population Trend: Decreasing

© John D. Lynch

Geographic Range This species is known only from a single forest fragment, the Florencia Forest, Samaná municipality, in Caldas department, on the Cordillera Central of Colombia, from 1,900-2,400m asl.
Population It is a rare species.
Habitat and Ecology A nocturnal species, usually found on low vegetation in dense, reasonably intact forest. It breeds by direct development.
Major Threats The main threats to the species are habitat loss caused by logging and agricultural development (the planting of illegal crops).
Conservation Measures As far as is known, this species occurs only in the recently gazetted Parque Nacional Natural Selva de Florencia.
Bibliography: Acosta-Galvis, A.R. (2000), Lynch, J.D. and Rueda-Almonacid, J.V. (1997), Rueda-Almonacid, J.V. (2000)
Data Providers: Fernando Castro, Maria Isabel Herrera, John Lynch

EN *Eleutherodactylus truebae* 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 nine localities at elevations of 2,870-3,190m asl on the western slopes of the Andes in the provinces of Bolívar, Cañar, and Cotopaxi, Ecuador.
Population It was common at Casco Totoras in 2003, where the population appears to be stable. However, in some nearby areas its habitat is severely disturbed and fragmented.
Habitat and Ecology It has been found at the upper edge of humid montane forest. Although some specimens have been found under rocks by day in disturbed areas, it is more abundant on vegetation in well-preserved forest. Reproduction occurs by direct development.
Major Threats Habitat destruction and degradation is very serious in its range due primarily to the activities of smallholder farmers and subsistence harvesting of wood.
Conservation Measures Its geographic range overlaps theReserva Ecológica Los Illinizas. There is a need for additional protection of humid montane forest in the range of this species.
Bibliography: Funk, C.W. *et al.* (2003), Lynch, J.D. and Duellman, W.E. (1997)
Data Providers: Luis A. Coloma, Santiago Ron, Diego Almeida

VU *Eleutherodactylus turpinorum* Hardy, 2001

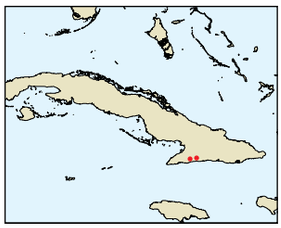
Vulnerable D2
Order, Family: Anura, Leptodactylidae
Country Distribution: Trinidad and Tobago
Current Population Trend: Stable

Geographic Range This species is restricted to lowland parts of north-eastern Tobago Island (in Trinidad and Tobago).
Population There is no information on the population status of this species.
Habitat and Ecology It is generally associated with forest and more specifically with palm trees. Males call from the ends of palm tree fronds, and females have been found on the forest floor. It breeds by direct development; the site of egg deposition is not known, but may be within the palm trees.
Major Threats There are no threats to this species, but its restricted range renders it susceptible to stochastic threatening processes.
Conservation Measures The forests of Tobago in which this species is found are protected as the Little Tobago Wildlife Sanctuary. There is a need for close population monitoring of this species given that it has such a limited range.

Bibliography: Hardy, Jr, J.D. (1982), Hardy, Jr, J.D. (2001), Murphy, J.C. (1997)
Data Providers: Jerry Hardy

CR *Eleutherodactylus turquinensis* 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, within an altitudinal range of 455-1,400m asl.
Population This species is common in suitable habitats, although the availability of this habitat is limited.
Habitat and Ecology It is aquatic and restricted to high-altitude montane streams in closed cloud forest. It is the most aquatic of all Cuban *Eleutherodactylus*. It breeds by direct development with eggs that are laid on land.
Major Threats The main threat to this species is habitat destruction that is taking place due to agricultural expansion, wood-cutting, disturbance from tourists, and infrastructure development for human settlement; as a high-altitude, cloud forest, stream-dwelling species, it also might be susceptible to chytridiomycosis.
Conservation Measures It occurs in the 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. As such, improved management of these, and maintenance of the remaining habitat, is urgently needed. Furthermore, this species requires close monitoring given that many other stream-dwelling *Eleutherodactylus* species have suddenly disappeared for unexplained reasons, even in pristine habitat.
Bibliography: Centro Nacional de Areas Protegidas (CNAP) (2002), 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

EN *Eleutherodactylus turumiquirensis* Rivero, 1961

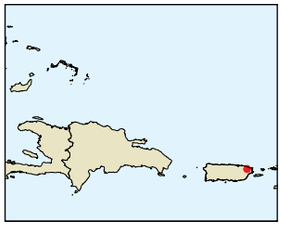
Endangered B1ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Venezuela
Current Population Trend: Decreasing

Geographic Range This species is known from La Trinidad, Monte Turimiquire, in a cave at about 1,830m asl, in the eastern portion of the Venezuelan coastal mountain range between Sucre and Monagas States.
Population It is believed to be a rare species.
Habitat and Ecology It has been found in a cave in cloud forest. Breeding is by direct development.
Major Threats The major threat is habitat loss due to agriculture, involving both crops and livestock.
Conservation Measures The range of this species falls within the Macizo Montanoso del Turimiquire Protective Zone, but there is a need for improved management of this area for biodiversity conservation.
Bibliography: Barrio Amorós, C.L. (2004), Frost, D.R. (1985), La Marca, E. (1992), Lynch, J.D. and La Marca, E. (1993), Rivero, J.A. (1961)
Data Providers: Jesús Manzanilla, Celsa Señaris, Enrique La Marca

CR *Eleutherodactylus unicolor* Stejneger, 1904

DWARF COQUI

Critically Endangered A3e; B1ab(iii)+2ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Puerto Rico
Current Population Trend: Stable

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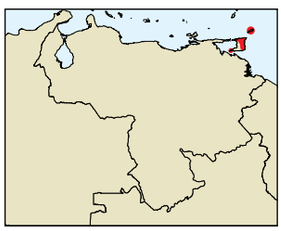
Geographic Range This species has a very restricted distribution in the Sierra del Luquillo, Puerto Rico. Its altitudinal range is from 660-1,039m asl.
Population The population of this species is currently believed to be stable.
Habitat and Ecology It lives underground in elfin forest, and males call from root cavities of various trees. It has not been recorded outside forest.
Major Threats Although the population is currently stable, and there are no immediate major threats to the habitat of this species, its very restricted range and specialized habits make it vulnerable to extinction even in the protected areas of El Yunque. In particular, the primary concern is the synergistic effect of climate change and chytridiomycosis, which has had devastating impacts on other *Eleutherodactylus* species on Puerto Rico (see Burrowes, Joglar and Green 2004), and there are now instances of chytridiomycosis hitting direct-developing frogs away from streams.
Conservation Measures It occurs in the Luquillo National Forest. In view of the possible risk of disease to this species, the status of this species should be closely monitored, and it might be necessary to establish *ex-situ* assurance colonies.
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, Richard Thomas, Luis J. Villanueva-Rivera, Neftalí Ríos-Lopez

EN *Eleutherodactylus urichi* (Boettger, 1894)

Endangered A2ae
Order, Family: Anura, Leptodactylidae
Country Distribution: Trinidad and Tobago
Current Population Trend: Decreasing

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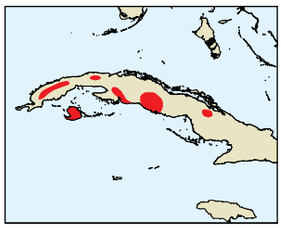
Geographic Range This species is known with certainty only from Trinidad and Tobago, where it is widespread in forested areas, occurring up to 936m asl. In Venezuela this species has been reported from Distrito Federal, Sucre and Zulia States, occurring up to 500m asl, but these specimens most likely belong to another, as yet undescribed species, and so are not mapped here.
Population There is little information on its population status. However, populations on Tobago have declined over the past five years; it is not known whether it is declining on Trinidad.
Habitat and Ecology This is a nocturnal species that lives on bushes or on the ground in tropical forests. The eggs are laid either on the ground or in bromeliads and breeding is by direct development.
Major Threats The threats to this species are unknown. Since declines on Tobago have been taking place within suitable habitat, chytridiomycosis cannot be ruled out.
Conservation Measures The forests on Tobago in which the species occurs are protected, mainly in Little Tobago Game Sanctuary. Further research is needed to establish the reasons for the declines observed in this species.
Notes on taxonomy: There is uncertainty about the taxonomic status of this name in Venezuela. Kaiser, Hardy and Green (1994) state that South American records are based on misidentifications. J. Hardy (pers. comm.) has seen specimens from Venezuela in North American institutions; these are in poor condition and are mis-identifications of *Eleutherodactylus urichi*. Here we consider the species to be endemic to Trinidad and Tobago, not occurring on the South American mainland.
Bibliography: Barrio Amorós, C.L. (2004), Hardy, Jr, J.D. (1982), Kaiser, H., Hardy, Jr., J.D. and Green, D.M. (1994), Kenny, J.S. (1969), La Marca, E. (1992), Mertens, R. (1972), Mole, R.R. and Urich, F.W. (1894), Moravec, F. and Kaiser, H. (1995), Murphy, J.C. (1997), Parker, H.W. (1933a), Rivero, J.A. (1961), Schwartz, A. (1967), Wells, K.D. (1981)
Data Providers: Jerry Hardy, Abraham Mijares, Enrique La Marca

VU *Eleutherodactylus varians* (Gundlach and Peters, 1864)

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



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Geographic Range This species is widespread in Cuba, including the Isla de Juventud. It has been recorded from sea level up to 845m asl.
Population It is moderately common in suitable habitat.
Habitat and Ecology It is an arboreal species sometimes found in bromeliads, but also outside bromeliads, in mesic forest. It has not been recorded outside forest habitat. Males call from tree branches and leaves, and eggs are laid in bromeliads. Breeding takes place by direct development.
Major Threats Habitat loss due to agricultural activities is the main threat.
Conservation Measures Its range includes several protected areas, but most of these are in need of improved management 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. and Henderson, R.W. (1991)
Data Providers: Blair Hedges, Luis Díaz

CR *Eleutherodactylus veletis* Lynch and Rueda Almonacid, 1997

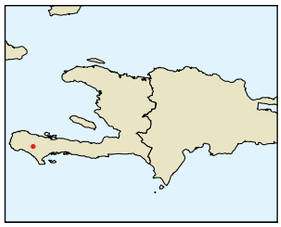
Critically Endangered B1ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Colombia
Current Population Trend: Decreasing

Geographic Range This species is known only from the vicinity of the type locality, on the eastern slope of the Cordillera Central, in the Municipality of Pennsylvania, Department of Caldas, in Colombia, at 1,800-2,400m asl.
Population It is a rare species.
Habitat and Ecology It is a nocturnal species, often found perching on medium to high vegetation, next to streams in primary forest with suitable canopy cover. During the day, it is found in leaf-litter on the forest floor. It breeds by direct development and lays up to 18 eggs that are deposited on moss, up to 1m above ground.
Major Threats The main threat is habitat loss as a result of deforestation caused by logging (subsistence wood collecting, clear cutting) and agricultural development (the planting of illegal crops).
Conservation Measures The species' distribution is within the recently gazetted Parque Nacional Natural Selva de Florencia.

Bibliography: Acosta-Galvis, A.R. (2000), Lynch, J.D. and Rueda-Almonacid, J.V. (1997), Rueda-Almonacid, J.V. (2000)
Data Providers: Fernando Castro, Maria Isabel Herrera, John Lynch

CR *Eleutherodactylus ventrilineatus* (Shreve, 1936)

Critically Endangered A3c; B1ab(iii)+2ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Haiti
Current Population Trend: Decreasing



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Geographic Range This species has a very restricted distribution on the peaks of Formon and Macaya on the Massif de la Hotte, Haiti. Its altitudinal range is from 1,700-2,340m asl.
Population Believed to be common in suitable habitat, it was last recorded in 1991 (although no one has surveyed the area since).
Habitat and Ecology It is a terrestrial species, occurring in open sites in montane closed pine and cloud forest. Eggs are laid on the ground and it breeds by direct development.
Major Threats The major threat is habitat loss, primarily due to logging (charcoal collection) by local people and slash-and-burn agriculture.
Conservation Measures It is known to occur 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. Survey work is also necessary 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. and Henderson, R.W. (1991)
Data Providers: Blair Hedges, Richard Thomas

VU *Eleutherodactylus verecundus* Lynch and Burrowes, 1990

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

© Luis A. Coloma

Geographic Range This species is known from five localities on the western flank of the Andes in extreme southern Colombia (1,700-2,020m asl) and provinces of Carchi, Cotopaxi, and Pichincha, Ecuador (900-1,800m asl). In Colombia, it occurs on the western slope from the Cordillera Occidental, in the department of Nariño. It might occur a little more widely than current records suggest.
Population It was found to be rare in 2002-2003 at the La Favorita Experimental Station in Pichincha, but was common at La Planada in Colombia in 1998.
Habitat and Ecology This species can be found in cloud forest in the humid subtropical and temperate regime (Lynch and Duellman 1997). It occurs on vegetation up to 1.5m above ground, inside the forest as well as next to waterfalls. It breeds by direct development and eggs are deposited on the tops of leaves; the clutch is guarded by an adult. The ability of this species to adapt to modified habitats is unknown.
Major Threats Habitat loss caused by logging and agricultural development (livestock and illegal crops) is a 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 Most of the Colombian populations are inside La Planada Natural Reserve. In Ecuador, its range overlaps with Reserva Ecológica Cotacachi-Cayapas, and Reserva Ecológica Los Illinizas.
Bibliography: Acosta-Galvis, A.R. (2000), 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), Vargas, F. and Castro, F. (1999)
Data Providers: Fernando Castro, Maria Isabel Herrera, John Lynch, Mario Yánez-Muñoz

VU *Eleutherodactylus verrucipes* (Cope, 1885)

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

© Barry P. Stephenson

Geographic Range This species is known from south-eastern San Luis Potosi, Queretaro and north-western Hidalgo and northern Puebla, Mexico, at 200-1,300m asl.
Population This is a common species.
Habitat and Ecology This species inhabits montane cloud forest and pine-oak forest. It breeds by direct development.
Major Threats The major threat to this species is habitat loss due to clear-cutting.
Conservation Measures This species is not known to occur in any protected areas, so there is a clear need for improved habitat protection at sites where it is known to occur. It is protected by Mexican law under the "Special Protection" category (Pr).
Bibliography: Lynch, J.D. (1970)
Data Providers: Georgina Santos-Barrera, Luis Canseco-Márquez

VU *Eleutherodactylus versicolor* Lynch, 1979

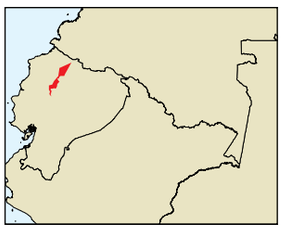
Vulnerable B1ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Ecuador, Peru
Current Population Trend: Decreasing

© John D. Lynch

Geographic Range This species occurs in southern Ecuador and northern Peru. In Ecuador it is known from: the area north of San Lucas, in Loja Province, at 3,100m asl; at Abra Zamora at 2,500-2,800m asl; and at Curintza, Romerillos and Bombuscaro, in Zamora Chinchipe Province, at 2,100m asl. In Peru it occurs in Amazonas Province on the eastern slopes of the Cordillera del Cóndor and Upper Río Comainas at elevations of 665-1,750m asl. It probably occurs more widely than current records suggest.
Population It is a common species.
Habitat and Ecology Specimens are found beneath stones and logs in sparsely wooded pasture or in cloud forest and sub-páramo habitats. Peruvian specimens were collected at night on vegetation up to 2m above the ground. It breeds by direct development, but the site of egg deposition is not known.
Major Threats The main threat to this species is habitat loss and degradation due to agriculture, logging, mining, and human settlement.
Conservation Measures The range of this species overlaps with the Santiago Comainas Reserve Zone, Peru. In Ecuador this species occurs in Parque Nacional Podocarpus.
Bibliography: Duellman, W.E. and Pramuk, J.B. (1999), Lynch, J.D. (1979c), Lynch, J.D. and Duellman, W.E. (1997)
Data Providers: Lily Rodríguez, Jorge Luis Martinez, Luis A. Coloma, Santiago Ron, Diego Almeida

VU *Eleutherodactylus vertebralis* (Boulenger, 1886)

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



© Francisco José López-López

Geographic Range This species is known from the provinces of Carchi, Imbabura, Pichincha, and Bolivar, western Ecuador, at elevations of 1,800-3,000m asl.
Population It is rare throughout much of its range.
Habitat and Ecology It occurs in relatively intact cloud, humid montane, and temperate montane forest. It can be found near streams and in bromeliads. Reproduction occurs by direct development.
Major Threats The main threat is habitat degradation due to smallholder agricultural activities, and subsistence wood collection. 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 Reserva Geobotánica Pululahua and Reserva Ecológica Los Illinizas.
Bibliography: Boulenger, G.A. (1886), Lynch, J.D. (1979d), Lynch, J.D. and Duellman, W.E. (1997)
Data Providers: Luis A. Coloma, Santiago Ron, Diego Almeida, Mario Yánez-Muñoz

EN *Eleutherodactylus vidua* Lynch, 1979

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

© Natural History Museum and Biodiversity Research Center, University of Kansas

Geographic Range This species occurs on mountain crests east and north of Loja, in Loja and Zamora Chinchipe Provinces, southern Ecuador, at 2,710-3,100m asl. It is known from only three localities.
Population It was relatively common in the late 1960s, but there has been much habitat loss since then, and insufficient fieldwork in the area where it occurs.
Habitat and Ecology It inhabits páramo grassland and sub-páramo bush land. Specimens have been collected beneath rocks or on vegetation. It is not known whether or not it tolerates habitat degradation. Breeding is presumed to take place by direct development, but the site of egg deposition is not known.
Major Threats The major threat is habitat destruction and degradation which is taking place due to agricultural development (including livestock farming) and human settlement.
Conservation Measures It is not known from any protected areas, and there is a need for improved protection of remaining habitat in the range 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 viridicans* Lynch, 1977

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

Geographic Range This species is known from the departments of Cauca and Valle del Cauca, on the western flank of the Cordillera Occidental, in Colombia, from 1,700-2,680m asl.
Population It is a rare species.
Habitat and Ecology It occurs on grasses along roads and forest edge, and is never found far from forest. A nocturnal species, during the day it can be found under rocks and logs in forested areas. It breeds by direct development.
Major Threats The major threat is habitat loss caused by deforestation for agricultural development (including the cultivation of illegal crops).
Conservation Measures Some populations occur within Parque Nacional Natural Munchique and Parque Nacional Natural Los Farallones.
Bibliography: Acosta-Galvis, A.R. (2000), Kattan, G. (1984), Lynch, J.D. (1977), 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)
Data Providers: Fernando Castro, Maria Isabel Herrera, John Lynch

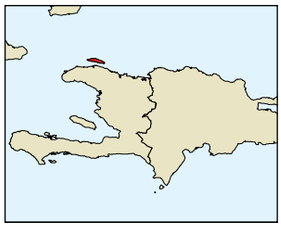
EN *Eleutherodactylus vulcani* Shannon and Werler, 1955

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

Geographic Range This species is known only from the isolated Sierra de Los Tuxtlas of southern Veracruz, Mexico, at altitudes between 400 and 1,200m asl.
Population The population status of this species is unknown.
Habitat and Ecology It occurs along streams in premontane and lower montane wet forests; it is not known if this species can adapt to habitat modification. Breeding is by direct development.
Major Threats The threats to this species are not known, although it is likely to be impacted by ongoing forest loss in the region.
Conservation Measures It is present in the Los Tuxtlas National Biosphere Reserve. Further survey work is needed to establish the current population status of the species.
Bibliography: Campbell, J.A. and Savage, J.M. (2000)
Data Providers: Georgina Santos-Barrera

CR *Eleutherodactylus warreni* Schwartz, 1976

Critically Endangered A3c
Order, Family: Anura, Leptodactylidae
Country Distribution: Haiti
Current Population Trend: Decreasing

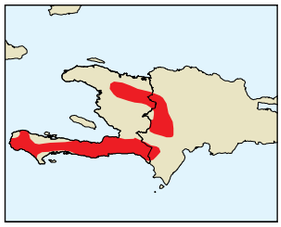


Geographic Range This species is restricted to Ile de la Tortue, in Haiti, where it has been recorded from around 400m asl.
Population There is little information available on this species' population status. It has not been collected since it was first described, although there has been no recent survey work for this species.
Habitat and Ecology It is a terrestrial species, found on rocks and in leaf-litter, in xeric hardwood forest. Eggs are laid on the ground, and it breeds by direct development.
Major Threats Extensive habitat degradation, due to charcoaling and slash-and-burn agriculture, is taking place on Ile de la Tortue.
Conservation Measures There are no protected areas on the island, and so effective protection of the species' remaining habitat is needed to ensure its persistence.

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. (1976b), Schwartz, A. and Henderson, R.W. (1991)
Data Providers: Blair Hedges, Richard Thomas

VU *Eleutherodactylus wetmorei* Cochran, 1932

Vulnerable B1ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Dominican Republic, Haiti
Current Population Trend: Decreasing



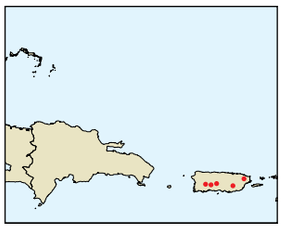
Geographic Range This species occurs in the Tiburon Peninsula, east to the Massif de la Selle, and also in the Massif du Nord, in Hispaniola. It has been recorded from sea level up to 1,324m asl.
Population It is moderately common in suitable habitat.
Habitat and Ecology It is arboreal in mesic broadleaf forest, and is found in bromeliads and other plants. It can also be found in the leaf axils of banana plantations. Males call from the forest canopy, and eggs are laid in bromeliads; breeding takes place by direct development.
Major Threats Severe habitat destruction is taking place within its range, due to charcoaling and slash-and-burn agriculture.
Conservation Measures Its distribution includes several protected areas, but most are in need of greatly improved management and protection. There is also a need for improved habitat protection at unprotected sites where this species is known to occur, particularly in the Massif de la Selle.

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, Robert Powell

EN *Eleutherodactylus wightmanae* Schmidt, 1920

MELODIUS COQUI

Endangered A4ae; B1ab(v)
Order, Family: Anura, Leptodactylidae
Country Distribution: Puerto Rico
Current Population Trend: Decreasing



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Geographic Range This species is restricted to the interior uplands of Puerto Rico, where it has been recorded from 150-1,189m asl.
Population Studies show that populations of this species are declining in both the higher and lower elevations of its range (R. Joglar pers. comm.).
Habitat and Ecology It is a terrestrial species, occurring in mesic upland forest, and has not been recorded outside forest habitat. Males call from low vegetation, and breeding is by direct development.
Major Threats Although some habitat destruction is taking place (due to agriculture and infrastructure development for roads and human settlement), the primary reason for the observed declines is believed to be chytridiomycosis (acting in combination with climate change).
Conservation Measures It occurs in several protected areas, most of which are well managed. Further research is necessary to determine the reasons for the species' decline.
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-Lopez

VU *Eleutherodactylus xylochobates* Lynch and Ruíz-Carranza, 1996

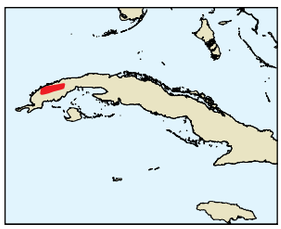
Vulnerable D2
Order, Family: Anura, Leptodactylidae
Country Distribution: Colombia
Current Population Trend: Stable

Geographic Range This species is known only from two sites on the crest of the Serranía de los Paraguas on the border of the departments of Chocó and Valle del Cauca, in Colombia, from 2,100-2,250m asl.
Population It is a rare species.
Habitat and Ecology Individuals perch on low vegetation inside dense undisturbed forests. It breeds by direct development.
Major Threats There are no threats to the species' habitat at present, but there are plans to build a road along the Serranía de los Paraguas that will threaten the species' habitat in the future if it goes ahead as planned.
Conservation Measures It is not currently recorded from any protected area, but there are ongoing efforts to transform the Serrania de los Paraguas into a wildlife reserve. There is a need for close population monitoring of this species given its very limited range.

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

EN *Eleutherodactylus zeus* Schwartz, 1958

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 de los Organos and the Sierra del Rosario, in western Cuba. It has been recorded from 75-182m asl.
Population It can be locally common, but is also uncommon in some localities; only a few individuals have been recorded at one locality in the Viñales region, despite many collections in nearby areas (B. Hedges pers. comm.).
Habitat and Ecology This is a large species that is found in rock crevices and caves in mesic broadleaf forest. It has not been recorded outside forest habitat and is always associated with limestone. It breeds by direct development.
Major Threats The main threat is infrastructure development for tourism, and the disturbance of habitat by tourist activities.
Conservation Measures Its range includes several protected areas (such as Parque Nacional Viñales), but there is a need to improve the management of these reserves 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. (1958a), Schwartz, A. and Henderson, R.W. (1991)
Data Providers: Blair Hedges, Luis Díaz

CR *Eleutherodactylus zongoensis* Reichle and Köhler, 1997

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

Geographic Range This species is only known from Zongo Valley, in Murillo Province, in the department of La Paz, Bolivia, at 1,250m asl (Reichle and Köhler 1997).
Population It is known only from the holotype, which was collected in January 1996. A subsequent visit to the type locality in 1999 and then in 2002/2003 found no individuals and it might now be extinct.
Habitat and Ecology The single specimen was found under rocks in Yungas forest (Reichle and Köhler 1997). The absence of finger discs suggests it is a terrestrial species. It presumably breeds by direct development, like other species in the genus.
Major Threats The type locality has been entirely destroyed with the construction of a hydroelectric power plant.
Conservation Measures Surveys are urgently needed to establish whether or not this species still survives in the wild.

Bibliography: Reichle, S. and Köhler, J. (2000)
Data Providers: Claudia Cortez, Steffen Reichle, Ignacio De la Riva, Jörn Köhler

EN *Eleutherodactylus zophus* Lynch and Ardila, 1999

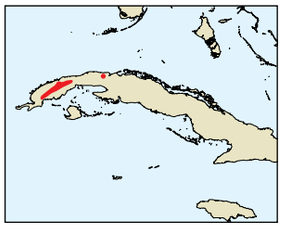
Endangered B1ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Colombia
Current Population Trend: Decreasing

Geographic Range This species is known from three localities in Antioquia Department, on the northern Cordillera Occidental of Colombia, from 2,030-2,800m asl.
Population It is a common species.
Habitat and Ecology It is usually found perched on very low vegetation, up to 20cm above the ground, along streams inside primary or secondary forest or forest edge, and has not been recorded outside forest habitat. It is nocturnal, and breeds by direct development.
Major Threats The major threat is habitat loss caused by agricultural development (primarily for cattle and the cultivation of illegal crops). 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 range of the species does not include any protected areas, and protection of its habitat is clearly needed, particularly given its reliance upon intact forest.

Bibliography: Acosta-Galvis, A.R. (2000), Lynch, J.D. and Ardila-Robayo, M.C. (1999), Paez, V.P. *et al.* (2002)
Data Providers: Fernando Castro, Maria Isabel Herrera, John Lynch

EN *Eleutherodactylus zugi* Schwartz, 1958

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

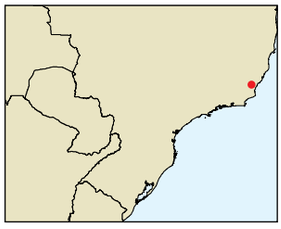


Geographic Range This species has a restricted range in the Sierra del Rosario, the Sierra de Camarones, and Pan de Matanzas, in western and central Cuba. It has been recorded from 155-390m asl.
Population It is a rare species; in several decades of field work B. Hedges (pers. comm.) encountered it only once.
Habitat and Ecology It is a terrestrial species found in mesic broadleaf forest, and has not been recorded outside forest habitat. At the Sierra de Camarones locality it is found on rocks. Eggs are laid on the ground, and it breeds by direct development.
Major Threats The major threat is habitat loss and degradation due to agriculture, infrastructure development for human settlement, and tourism; agricultural pollution may also be having a negative impact on populations.
Conservation Measures Its range includes several protected areas, but many of these are in need of improved 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. (1958b), Schwartz, A. and Henderson, R.W. (1991)
Data Providers: Blair Hedges, Luis Díaz

VU *Euparkerella robusta* Izecksohn, 1988

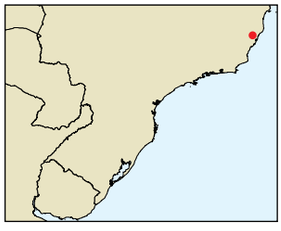
Vulnerable B1ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Brazil
Current Population Trend: Decreasing



Geographic Range This species is known only from Mimoso do Sul, in the state of Espírito Santo, south-eastern Brazil, at 70m asl. With survey work, it probably will be shown to occur more widely.
Population It is reasonably common at the only known locality.
Habitat and Ecology It lives in the leaf-litter of primary and secondary forest, and does not occur in degraded habitats. It breeds by direct development.
Major Threats The major threat is habitat loss due to agriculture (crops and livestock grazing), logging, and human settlement.
Conservation Measures It is not known from any protected areas. There is a need for improved habitat protection in the Miomoso do Sul.
Bibliography: Izecksohn, E. (1988)
Data Providers: Débora Silvano, Oswaldo Luiz Peixoto

VU *Euparkerella tridactyla* Izecksohn, 1988

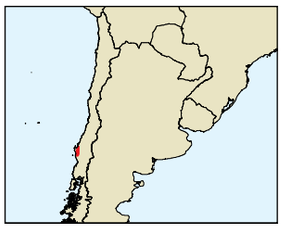
Vulnerable D2
Order, Family: Anura, Leptodactylidae
Country Distribution: Brazil
Current Population Trend: Stable



Geographic Range This species is known only from near Santa Teresa, in the State of Espirito Santo, south-eastern Brazil, at around 650m asl. It might be more widespread.
Population The population status of this species is unknown.
Habitat and Ecology It lives in the leaf-litter of primary and secondary forest, and does not occur in degraded habitats. It breeds by direct development.
Major Threats The area where the species is found is quite well protected (as a biological reserve), but habitat loss is taking place nearby (where the species might occur), due to agriculture (including wood plantations), logging, human settlement, and tourism.
Conservation Measures It occurs in the Estacion Biólogica Augusto Ruschi.
Bibliography: Izecksohn, E. (1988)
Data Providers: Débora Silvano, Oswaldo Luiz Peixoto

EN *Eupsophus contulmoensis* Ortiz, Ibarra-Vidal, Formas, 1989

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



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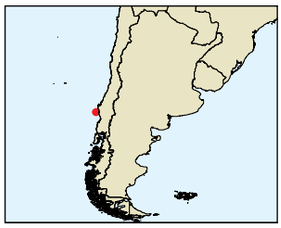
Geographic Range This species is known only from the vicinity of the type locality, Coltulmo National Monument, Bio-Bio Province, south-central Chile, at an elevation of 50-350m asl. Considering the available habitat in the region, the range is probably not much larger than is currently recognized.
Population It is generally uncommon. A small series was collected most recently in 2002.
Habitat and Ecology It can be found under logs and rocks in temperate *Nothofagus* forest, and does not tolerate extensive habitat disturbance. It lays eggs in small, terrestrial water-filled holes on hillsides, where the larvae develop.
Major Threats The major threat is habitat loss as a result of conversion to large-scale pine and eucalyptus plantations. There is also disturbance of the habitat from tourist activities.
Conservation Measures It occurs in the Coltulmo National Monument. There is a need for improved protection of native temperate forest habitat in this region of Chile.
Bibliography: Formas, J.R. (1995), Ortiz, J.C., Ibarra-Vidal, H. and Formas, J. (1989), Servicio Agrícola Ganadero (1998)
Data Providers: Alberto Veloso, Herman Núñez, Juan Carlos Ortiz

CR *Eupsophus insularis* (Philippi, 1902)

Critically Endangered B1ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Chile
Current Population Trend: Decreasing

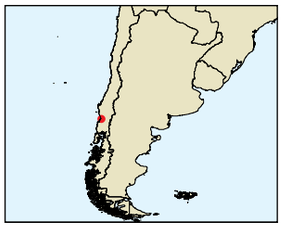


Geographic Range This species is known only from the type locality: Isla Mocha (38° 22'S; 73° 54'W), 40km from the coast of Chile near Concepcion. Its altitudinal range is from 20-250m asl.
Population The population of this species is very small. The most recent records are of three individuals collected in August 2001.
Habitat and Ecology It can be found under logs in mixed temperate forest. It lays its eggs in small, terrestrial, water-filled holes on hillsides. The larvae develop in the same places.
Major Threats This species is threatened by habitat destruction caused by subsistence wood collecting and cattle ranching.
Conservation Measures The island where this species occurs is currently protected by the Isla Mocha Reserve, although people live within this reserve; improved management of the existing protected area is required, as is close monitoring of the surviving populations.

Bibliography: Cuevas, C.C. and Formas, J.R. (1996), Formas, J.R. (1995), Formas, J.R. and Brieva, L. (1994), Formas, J.R. and Vera, M.I. (1982), Formas, J.R., Lacrampe, S. and Brieva, L. (1992), Servicio Agrícola Ganadero (1998), Veloso, A. and Navarro, J. (1988)
Data Providers: Alberto Veloso, Herman Núñez, Jose Núñez, Juan Carlos Ortiz

EN *Eupsophus migueli* Formas, 1978

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



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Geographic Range This species is known only from the type locality: Mehuin, Valdivia Province, Chile. It has an altitudinal range of 50-80m asl.
Population It was abundant in the 1970s but is now rare; a few individuals were found in 2003.
Habitat and Ecology It can be found under logs close to forest streams in temperate *Nothofagus* forest, and does not tolerate disturbance of its habitat. It lays eggs in small, water-filled holes on hillsides, where the larvae develop.
Major Threats The major threat is habitat loss as a result of clear-cutting and cattle ranching.
Conservation Measures It does not occur in any protected areas, and there is an urgent need for formal protection of its native *Nothofagus* forest in its range. Further survey work is also needed to determine whether this species occurs outside the vicinity of the type locality.
Bibliography: Fernandez-de la Reguera, P.A. (1987), Formas, J.R. (1978), Formas, J.R. (1985), Formas, J.R. (1995), Glade, A. (1993), Iturra, P. and Veloso, A. (1989), Puga, S. (1980), Servicio Agrícola Ganadero (1998), Veloso, A. and Navarro, J. (1988)
Data Providers: Alberto Veloso, Herman Núñez, Ramón Formas

EN *Eupsophus nahuelbutensis* Ortiz, Ibarra-Vidal, 1992

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

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Geographic Range This species is known only from three localities located not far from each other: Pichinahuel, Rucapehuen, and Ramadillas, all in Arauco Province, Chile. Its altitudinal range is from 100-800m asl.
Population It is locally common within its limited range.
Habitat and Ecology It is commonly found under logs and rocks in temperate *Nothofagus* forest. Although it can persist near streams in disturbed areas, it does not occur in pine plantations. Eggs are laid in small, terrestrial water-filled holes on hillsides, where the larvae develop.
Major Threats The major threat is habitat loss and degradation as a result of wood extraction and conversion to pine and eucalyptus plantations. There is also some habitat disturbance from tourist activities.
Conservation Measures It occurs in Nahuelbuta National Park, which is relatively well managed, but there is a need for additional protection of native *Nothofagus* forest.
Bibliography: Formas, J.R. (1995), Ortiz, J.C. and Ibarra-Vidal, H. (1992), Servicio Agrícola Ganadero (1998)
Data Providers: Alberto Veloso, Herman Núñez, Jose Núñez, Juan Carlos Ortiz

EN *Flectonotus fitzgeraldi* (Parker, 1933)

Endangered B1ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Trinidad and Tobago, Venezuela
Current Population Trend: Decreasing

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Geographic Range This species is known from Peninsula de Paria in Venezuela, and from the islands of Trinidad and Tobago. It has an altitudinal range of sea level up to approximately 1,000m asl.
Population The current population status of this species is not known.
Habitat and Ecology A nocturnal and arboreal species, on Trinidad it is found in the leaf bases of bromeliads and aroids. It is also found in bushes or in montane humid forests, and appears not to have been reported from altered habitats. It carries its eggs on its back and has larvae that develop in the leaf axils of bromeliads.
Major Threats Some populations may be affected by small-scale agricultural activities and timber extraction. On Tobago road construction is probably having an effect on its habitat.
Conservation Measures In Venezuela, a number of populations are located within Parque Nacional Peninsula de Paria, while the species' rainforest habitat in Tobago is also partially protected. Further survey work is needed to establish the current population status of this species.
Notes on taxonomy: This genus has recently been moved from the family Hylidae (Faivovich *et al.* 2005).
Bibliography: Barrio Amorós, C.L. (2004), Duellman, W.E. and Gray, P. (1983), Faivovich, J. *et al.* (2005), Frost, D.R. (1985), Hardy, Jr, J.D. (1982), Kenny, J.S. (1969), La Marca, E. (1992), Murphy, J.C. (1997), Parker, H.W. (1933a)
Data Providers: Enrique La Marca, Jesús Manzanilla, Jerry Hardy

VU *Gastrotheca angustifrons* (Boulenger, 1898)

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

Geographic Range This species occurs in the Pacific lowlands of north-western Ecuador and western Colombia, at 100-600m asl. There is only one known locality in Ecuador in Esmeraldas Province. In Colombia, it is known from a small number of localities in the departments of Antioquia, Cauca, Valle del Cauca and Chocó. It could be more widespread than records suggest.
Population It is a rare species.
Habitat and Ecology It is arboreal and lives on vegetation inside humid lowland forest near water. It has only been found in closed forest and has not been found in secondary habitats. It breeds by direct development; the eggs are carried on the back of the female.
Major Threats The major threats are habitat loss due to agricultural development (livestock, 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. There is a need for improved protection of forest habitats at sites where this species is known to occur in the Chocó-Darién forests of western Ecuador.

Notes on taxonomy: This genus has recently been moved from the family Hylidae (Faivovich *et al.* 2005).
Bibliography: Boulenger, G.A. (1898), Duellman, W.E. (1983), Duellman, W.E. (1989a), Duellman, W.E., Maxson, L.R. and Jesiolowski, C.A. (1988), Faivovich, J. *et al.* (2005), Ruiz-Carranza, P.M., Ardila-Robayo, M.C. and Lynch, J.D. (1996)
Data Providers: Wilmar Bolívar, Luis A. Coloma, Santiago Ron, Karl-Heinz Jungfer

VU *Gastrotheca antomia* Ruíz-Carranza, Ardila-Robayo, Lynch and Restrepo, 1997

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 departments of Valle del Cauca, Risaralda, Chocó, and Antioquia, in the Andean cloud forests on the western versant of the Cordillera Occidental, at elevations of 1,700-2,500m asl, in Colombia. It might occur more widely.
Population It is a common species.
Habitat and Ecology This species has only been recorded from primary forest, where they are found on vegetation. They are direct developing frogs with the eggs kept in the pouch of the female.
Major Threats The major threat is habitat loss and fragmentation due to the expansion of agriculture (particularly cattle raising) and logging.
Conservation Measures The range of the species includes a few protected areas, such as Parque Nacional Natural Tatamá.
Notes on taxonomy: This genus has recently been moved from the family Hylidae (Faivovich *et al.* 2005).
Bibliography: Faivovich, J. *et al.* (2005), Ruiz-Carranza, P.M. *et al.* (1997)
Data Providers: Fernando Castro, John Lynch

EN *Gastrotheca bufona* Cochran and Goin, 1970

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

© John D. Lynch

Geographic Range This species is known from only three localities from the north side of the Cordillera Central in the Department of Antioquia, to the eastern slopes of Caldas Department, Colombia, between 1,700 and 2,200m asl. It might be more widespread than current records suggest.
Population It is known from only 10 specimens and is thought to be a rare species.
Habitat and Ecology This species is a canopy dweller restricted entirely to primary Andean forest. The eggs are carried in a pouch on the back of the female, where they develop directly without a larval stage.
Major Threats The major threat is habitat destruction for agriculture and livestock, and as a result of logging.
Conservation Measures Its range does not include any protected areas, and its habitat is in urgent need of protection, particularly since it is confined to primary intact forest. Further survey work would help establish the species' current population status.
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), Duellman, W.E. (1989a), Faivovich, J. *et al.* (2005), Paez, V.P. *et al.* (2002)
Data Providers: Fernando Castro, John Lynch

EN *Gastrotheca christiani* Laurent, 1967

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

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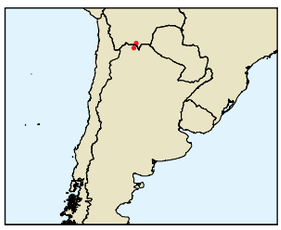
Geographic Range This species occurs on the slopes of the Andes in Jujuy Province, Argentina, at mid elevations from 1,550-2,600m asl.
Population It is very rare, but has been collected as recently as 2002.
Habitat and Ecology It is a terrestrial species that lives in montane forests (Yungas), and occurs arborially in tree crowns, tree holes and rock crevices. Although there are records of this species persisting in moderately disturbed habitats for a few decades, intensification of the disturbance eventually led to the species' disappearance in these areas. Males call from burrows, and during amplexus, males place eggs in the marsupial pouch on the female's back. The eggs hatch and the larvae develop in the pouch, which is also where they develop into froglets.
Major Threats The major threat is habitat loss, mainly due to selective logging and clear cutting of primary forests.
Conservation Measures Some populations are protected in Parque Nacional Calilegua, but there is a need for additional protection of Yungas habitat in the range of this species.
Notes on taxonomy: This genus has recently been moved from the family Hylidae (Faivovich *et al.* 2005).
Bibliography: Faivovich, J. *et al.* (2005), Laurent, R.F. (1967), Laurent, R.F., Lavilla, E.O. and Terán, E.M. (1986), Lavilla, E.O. *et al.* (2000), Lavilla, E.O. and Cei, J.M. (2001), Vaira, M. (2002), Vaira, M. (2003)
Data Providers: Esteban Lavilla

VU *Gastrotheca chrysosticta* Laurent, 1976

Vulnerable B1ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Argentina, Bolivia
Current Population Trend: Decreasing



Geographic Range This species is known from a few localities on the slopes of the Andes in Salta Province, Argentina, and also in Tarija Department, Bolivia, at 1,500-1,600m asl. It probably occurs a little more widely than records indicate.
Population It is a very rare species, but has been collected as recently as 2002 in Argentina.
Habitat and Ecology It is an arboreal species found in the canopy of montane forests (Yungas). During amplexus, males place eggs in the marsupial pouch on the female's back. The eggs hatch and the larvae develop in the pouch. The females subsequently deposit the larvae in small pools of water on the forest floor where metamorphosis takes place. This species' tolerance to habitat disturbance is not known.
Major Threats The major threats include selective logging, the clear-cutting of primary forests, introduction of predatory fish (trout), and the alteration of watersheds.
Conservation Measures Some populations are protected in Parque Nacional Baritú in Argentina, and Reserva Nacional de Flora y Fauna Tariquía in Bolivia.
Notes on taxonomy: This genus has recently been moved from the family Hylidae (Faivovich *et al.* 2005).
Bibliography: De la Riva, I. *et al.* (2000), Faivovich, J. *et al.* (2005), Gonzalez, J.A., Scrocchi, G.J. and Lavilla, E.O. (1999), Laurent, R.F. (1976b), Laurent, R.F., Lavilla, E.O. and Terán, E.M. (1986), Lavilla, E.O. *et al.* (2000), Lavilla, E.O. and Cei, J.M. (2001)
Data Providers: Esteban Lavilla, Ignacio De la Riva, Steffen Reichle

VU *Gastrotheca dendronastes* Duellman, 1983

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

© Taran Grant

Geographic Range This species occurs on the Pacific slopes of the Andes in southern Colombia (in the departments of Antioquia, Risoraldo, Choco, Valle del Cauca and Cauca), and in one locality in the southern part of Pichincha Province, in northern Ecuador. There is also an isolated population at Florencia in the department of Caldas on the eastern slopes of the Central Cordillera in Colombia. Its altitudinal range is 1,230-2,090m asl. It probably occurs more widely than is currently known.
Population It is rare in Ecuador, where it has not been found in recent years, but it is still common in Colombia.
Habitat and Ecology It lives on vegetation inside primary and secondary montane forests, usually near water sources. It breeds by direct development; the eggs are carried on the back of the female.
Major Threats The major threats are habitat loss due to agricultural development (livestock, illegal crops), logging, and human settlement, and pollution resulting from the spraying of illegal crops. Fire is probably also a threat in some places. Its apparent disappearance in Ecuador could be due to habitat loss, but chytridiomycosis, which has affected other species of *Gastrotheca* in Ecuador, cannot be ruled out.
Conservation Measures It occurs in several protected areas in Colombia, including Parque Nacional Natural Farallones de Cali, but none in Ecuador. There is a need for close population monitoring of this species given the potential threat of chytridiomycosis.
Notes on taxonomy: This genus has recently been moved from the family Hylidae (Faivovich *et al.* 2005).
Bibliography: Duellman, W.E. (1983), Duellman, W.E. (1989a), Faivovich, J. *et al.* (2005), Ruiz-Carranza, P.M., Ardila-Robayo, M.C. and Lynch, J.D. (1996)
Data Providers: Wilmar Bolívar, Luis A. Coloma, Santiago Ron

EN *Gastrotheca espeletia* Duellman and Hillis, 1987

Endangered B1ab(iii)+2ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Colombia, Ecuador
Current Population Trend: Decreasing

© Mario Humberto Yánez-Muñoz

Geographic Range This species occurs at elevations of 2,530-3,400m asl in a small area in the southern part of the Cordillera Central in Colombia (in the department of Narino) and in the Nudo de Pasto region in southern Colombia (also in the department of Narino) and northern Ecuador (Carchi Province).
Population It is common and is frequently encountered, although there are few recent records from Colombia (due to lack of survey effort).
Habitat and Ecology It lives on vegetation in sub-páramo bush land and montane forests, often close to streams with forest remnants. The female carries the eggs in a dorsal pouch, and the larvae are deposited in slow-moving or standing water.
Major Threats The major threats are deforestation for agricultural development (including the cultivation of illegal crops), logging, and human settlement, and pollution resulting from the spraying of illegal crops. Fire is probably also a problem in some places.
Conservation Measures It is not known from any protected areas, making the protection of its high-elevation sub-páramo and forest habitat a priority. Survey work is needed to establish the status of populations in Colombia.
Notes on taxonomy: This genus has recently been moved from the family Hylidae (Faivovich *et al.* 2005).
Bibliography: Duellman, W.E. (1989a), Duellman, W.E. and Hillis, D.M. (1987), Faivovich, J. *et al.* (2005), Ruiz-Carranza, P.M., Ardila-Robayo, M.C. and Lynch, J.D. (1996)
Data Providers: Wilmar Bolívar, Luis A. Coloma, Santiago Ron

VU *Gastrotheca excubitor* Duellman and Fritts, 1972

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

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Geographic Range This species is found along the Amazonian slopes of the Andes, and is recorded from three different areas, namely Machu Pichu, San Luis and San Pedro in the department of Cuzco, southern Peru. Records from the department of Cajamarca are thought to be in error and require further verification. It has an altitudinal range of 2,000-3,000m asl.
Population This species is very common.
Habitat and Ecology It is a terrestrial species of primary and secondary montane tropical forest; it exhibits some resilience in the face of habitat distrubance, and may be found in low intensity farmed areas. The eggs hatch on the female's back, and the larvae are also carried on the back.
Major Threats The major threat is extensive habitat loss due to agriculture (tea and coffee), and the development of infrastructure for tourism.
Conservation Measures It is recorded from both Manú National Park and Machu Pichu.
Notes on taxonomy: This genus has recently been moved from the family Hylidae (Faivovich *et al.* 2005).
Bibliography: Duellman, W.E. and Fritts, T.H. (1972), Faivovich, J. *et al.* (2005), Instituto Nacional de Recursos Naturales (INRENA) (2000), Rodríguez, L.O., Cordova, J.H. and Icochea, J. (1993)
Data Providers: Ariadne Angulo, Wilfredo Arizabal, Jesús Córdova-Santa Gadea

VU *Gastrotheca gracilis* Laurent, 1969

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

Geographic Range This species occurs on the eastern slopes of Sierra del Aconquija, Sierra de Medina and Sierra de Taficillo (near Tucumán), in north-western Argentina, in Catamarca, Tucumán and Salta provinces, at 1,500-2,000m asl. It might occur more widely, including in Bolivia.
Population It is a very rare species. The most recent record is from 1995, but there has been no recent survey work.
Habitat and Ecology It is an arboreal species found in the tree canopy of montane forests (Yungas). During amplexus, males place eggs in the marsupial pouch on the female's back. The eggs hatch and the larvae develop in the pouch. The females subsequently deposit the larvae in small pools of water on the forest floor where metamorphosis takes place. This species' tolerance to habitat disturbance is not known.
Major Threats Major threats include selective logging, the clear-cutting of primary forests, introduction of predatory fish (trout), and the alteration of watersheds.
Conservation Measures Some populations are probably protected in Parque Nacional Los Alisos.
Notes on taxonomy: This genus has recently been moved from the family Hylidae (Faivovich *et al.* 2005).
Bibliography: De la Riva, I. *et al.* (2000), Faivovich, J. *et al.* (2005), Laurent, R.F. (1969), Laurent, R.F., Lavilla, E.O. and Terán, E.M. (1986), Lavilla, E.O. *et al.* (2000), Lavilla, E.O. and Cei, J.M. (2001)
Data Providers: Esteban Lavilla

VU *Gastrotheca guentheri* (Boulenger, 1882)

Vulnerable B1ab(iii,v)
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 Andes in northern Ecuador (Pichinchi and Cotapaxi provinces) and western Colombia (from Nariño Department to Antioquia Department). It has been recorded between 700 and 2,010m asl.
Population The population status of this species across much of Ecuador is unknown. It was most recently recorded in 1996, and appears to have declined. Data from the Reserva Otonga (Pichincha Province) suggest that it is now absent from where it once occurred (L. Coloma pers. obs.). It is an uncommon species in Colombia.
Habitat and Ecology It is a nocturnal species, living on vegetation, including arboreal bromeliads, in forest habitats, usually next to water sources. It prefers undisturbed habitats, but can be found on the edge of secondary forest. It breeds by direct development, and the eggs are carried in a pouch on the back of the female.
Major Threats The major threats are habitat loss due to agricultural development (livestock and illegal crops), logging, and human settlement, and pollution resulting from the spraying of illegal crops. The decline in Ecuador is unexplained and has taken place within suitable habitats, and might perhaps be related to climate change, or to chytridiomycosis (which has been recorded in *Gastrotheca* species in Ecuador), or to a combination of these two factors.
Conservation Measures In Ecuador, its range overlaps with the Reserva Ecológica Los Illinizas. It occurs in several protected areas in Colombia, including Parque Nacional Natural Farallones de Cali. Further research is needed to investigate the cause of the apparent decline of this species in Ecuador.
Notes on taxonomy: This genus has recently been moved from the family Hylidae (Faivovich *et al.* 2005).
Bibliography: Boulenger, G.A. (1882c), Duellman, W.E. (1989a), Duellman, W.E., Maxson, L.R. and Jesiolowski, C.A. (1988), Faivovich, J. *et al.* (2005), 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, Juan Manuel Renjifo

CR *Gastrotheca lauzuricae* De la Riva, 1992

Critically Endangered B1ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Bolivia
Current Population Trend: Decreasing

© Ignacio De La Riva

Geographic Range This species is known only from the type locality "La Siberia", 40km from Comarapa toward Pojo, in Carrasco Province, Cochabamba Department, Bolivia, at 2,800m asl (De la Riva 1992). Surveys in nearby areas have not found this species, suggesting that it has a genuinely restricted range.
Population This species is known only from a single female, collected in 1989, from the type locality, and it might now be extinct.
Habitat and Ecology An arboreal cloud forest species, there is no information known about breeding, although the eggs are presumably carried on the back of the female, like other species of the genus.
Major Threats Habitat degradation and loss as a result of agriculture (crops and livestock) is a major threat at the type locality.
Conservation Measures Its range includes Parque Nacional Carrasco, but further protection and maintenance of the remaining habitat in the species' range is needed. Further survey work is also required to determine the biology and population status of this species, particularly to ascertain whether or not it survives in the wild.
Notes on taxonomy: This genus has recently been moved from the family Hylidae (Faivovich *et al.* 2005).
Bibliography: De la Riva, I. (1992b), Faivovich, J. *et al.* (2005), Köhler, J. (2000a)
Data Providers: Claudia Cortez, Steffen Reichle, Ignacio De la Riva, Jörn Köhler

EN *Gastrotheca litonedis* Duellman and Hillis, 1987

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

© Luis A. Coloma

Geographic Range This species is known from eight localities in intermontane basins in the Andes, in Azuay Province, southern Ecuador, at 3,000-3,600m asl.
Population There is no information on the population status of this species. It is often confused with *G. pseustes*, and it appears that one or other, or both, of these species may be declining.
Habitat and Ecology It inhabits sub-páramo, subhumid pastureland and grassy páramo (Duellman and Hillis 1987). There is no information on the breeding habits of this species, but the eggs are presumably carried on the back of the female, and it is likely that the larvae are deposited in small pools of water or streams.
Major Threats The major threat is habitat destruction and degradation due, in particular, to large-scale livestock ranching. However, it might be declining even within suitable habitat, possibly due to chytridiomycosis.
Conservation Measures Its geographic range slightly overlaps Parque Nacional Cajas, and it also occurs in the Bosques Protector Masan and Zurocucho. Survey work is needed to determine the current population status of this species, and to ascertain whether it is declining in suitable habitat due to chytrid.
Notes on taxonomy: This genus has recently been moved from the family Hylidae (Faivovich *et al.* 2005).
Bibliography: Duellman, W.E. and Hillis, D.M. (1987), Faivovich, J. *et al.* (2005)
Data Providers: Luis A. Coloma, Santiago Ron, Manuel Morales

EN *Gastrotheca orophylax* Duellman and Pyles, 1980

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

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Geographic Range This species occurs on the upper Amazonian slopes of the eastern Andes in Ecuador (Sucumbios, Imbabura and Carchi Provinces) and Colombia (on the eastern slope of the Nudo de Pasto in Narino and Putumayo Departments). Its altitudinal range is 2,600-3,100m asl.

Population It is now an uncommon species in Ecuador, whereas it was formerly common three decades ago.
Habitat and Ecology It inhabits primary and secondary cloud forest, and has also been found in agricultural fields (potato cultivation) in Ecuador, though it now appears to be reduced in this habitat. It breeds by direct development, the eggs are carried on the female's back.
Major Threats There are only four locality records in Ecuador and all are facing severe human-induced habitat deterioration. The major threats are deforestation for agricultural development (mainly crops), logging, and human settlement, as well as fire. However, the decline in Ecuador remains unexplained, and might perhaps be related to climatic changes, since the species appears to have disappeared in pristine habitats. It is also possible that the use of agro-chemicals in agricultural areas (particularly for potato cultivation) could have led to declines in this habitat. Chytridiomycosis is probably not implicated in any declines, since the species is not associated with water, though this still cannot be ruled out.
Conservation Measures In Ecuador, its geographic range overlaps with the Reserva Ecológica Cayambe-Coca; however, it is not known from any protected areas in Colombia. There is a need for improved protection of the forest habitat of this species, and further research is also necessary to understand the reasons for the decline of this species in suitable habitat.
Notes on taxonomy: This genus has recently been moved from the family Hylidae (Faivovich *et al.* 2005).
Bibliography: Duellman, W.E. and Hillis, D.M. (1987), Duellman, W.E. and Pyles, R.A. (1980), Faivovich, J. *et al.* (2005), Ruiz-Carranza, P.M., Ardila-Robayo, M.C. and Lynch, J.D. (1996)
Data Providers: Luis A. Coloma, Santiago Ron, John Lynch, Diego Almeida

EN *Gastrotheca ovifera* (Lichtenstein and Weinland, 1854)

Endangered B1ab(iii,v)
Order, Family: Anura, Leptodactylidae
Country Distribution: Venezuela
Current Population Trend: Decreasing

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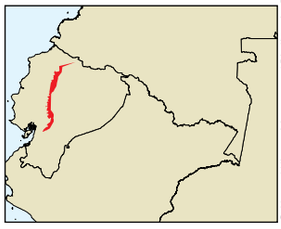
Geographic Range This species is known from the Cordillera de la Costa in the Venezuelan coastal mountain range, from 800-1,800m asl.
Population In some places (such as in Cerro Avila; Barrio 1999) it seems to be an abundant species; however, in other places (such as Parque Nacional Henri Pittier; La Marca 1995b; Manzanilla *et al.* 1995), where it used to be common, it is now less so.
Habitat and Ecology It is associated with bromeliads (especially during dry periods when it takes refuge in them) in cloud forest. Breeding is by direct development, and the eggs are carried on the female's back.
Major Threats Threats to its habitat are minimal in some places like Parque Nacional Henri Pittier, but elsewhere the habitat is severely threatened by agriculture, logging and infrastructure development. The cause(s) of the decline in pristine habitats is not clear, and chytridiomycosis cannot be ruled out, but it seems improbable as this species is not associated with water.
Conservation Measures A number of populations are protected in national parks, including Parques Nacionales El Avila, San Esteban, Yurubi and Henri Pittier. Research is needed to better understand the reasons for the species' decline in suitable habitats.
Notes on taxonomy: This genus has recently been moved from the family Hylidae (Faivovich *et al.* 2005).
Bibliography: Barrio Amorós, C.L. (2001), Barrio Amorós, C.L. (2004), Barrio, C.L. (1999), Duellman, W.E. (1977), Faivovich, J. *et al.* (2005), Frost, D.R. (1985), La Marca, E. (1995b), La Marca, E. (1997), Manzanilla, J. *et al.* (1995), Manzanilla, J. *et al.* (1996), Manzanilla, J. and Sanchez, D. (2003), Schmid, M. *et al.* (1988), Schmid, M. *et al.* (2002)
Data Providers: Enrique La Marca, Jesús Manzanilla

VU *Gastrotheca plumbea* (Boulenger, 1882)

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



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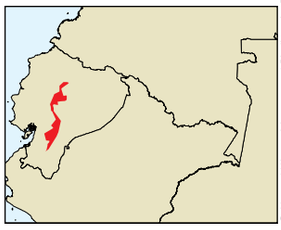
Geographic Range This species occurs at 2,500-3,200m asl on the Pacific slopes of the Andes in northern and central Ecuador, where it has been recorded from eight localities.
Population It is not an uncommon species, but it appears to be declining, and some populations have disappeared.
Habitat and Ecology It is a nocturnal, arboreal inhabitant of cloud forests, and can also be found in forest edge and secondary, degraded habitats. It is closely associated with arboreal bromeliads. It breeds by direct development, and the eggs are carried on the female's back.
Major Threats Although it is somewhat adaptable, this species is probably impacted by severe habitat loss, especially due to agriculture and the impacts of fire. The causes of its decline in pristine habitats are not clear; chytridiomycosis cannot be ruled out, but it seems improbable, since this species is not associated with water.
Conservation Measures Its range overlaps with the Reserva Ecológica Cotacachi-Cayapas, Reserva Ecológica Los Illinizas and the Reserva Geobotánica Pululahua.
Notes on taxonomy: This genus has recently been moved from the family Hylidae (Faivovich *et al.* 2005).
Bibliography: Auber-Thomay, M., Colomba, L. and Onore, G. (1990), Boulenger, G.A. (1882c), del Pino, E.M. and Elinson, R.P. (1983), Duellman, W.E. (1974), Duellman, W.E. and Hillis, D.M. (1987), Faivovich, J. *et al.* (2005)
Data Providers: Luis A. Coloma, Santiago Ron, Diego Cisneros-Heredia, Ana Almandáriz

EN *Gastrotheca pseustes* Duellman and Hillis, 1987

Endangered A2ace
Order, Family: Anura, Leptodactylidae
Country Distribution: Ecuador
Current Population Trend: Decreasing



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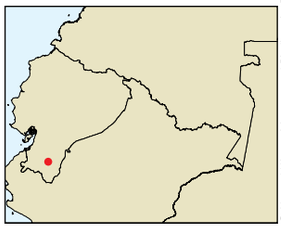
Geographic Range This species occurs at elevations of 2,200-4,000m asl, in the Andes of northern and southern Ecuador, from Pichincha to Azuay Provinces.
Population The populations in several localities (Cashca Totoras and near Parque Nacional Cajas) have disappeared. Many populations were once abundant in the mid 1980s, and these are now severely reduced. It can be easily confused with *G. litonedis*, which can complicate attempts to assess the population status of both species.
Habitat and Ecology This species can be found in old-growth cloud forest and altered zones such as secondary forest and pastures; it also can be found in páramo. The female carries the eggs in a pouch on her back and then deposits the larvae in small pools of water.
Major Threats Chytridiomycosis has been confirmed in this species, and this is probably the main cause of its decline. It is relatively tolerant of habitat destruction, although it requires some thickets to persist. The conversion of habitat for human settlements has severely fragmented its habitat, and aggressive afforestation programmes in páramo habitats, using exotic pines, are probably also a threat.
Conservation Measures Its geographic range overlaps the Reserva Ecológica Antisana, Parque Nacional Cotopaxi, Parque Nacional Llanganates, the Reserva de Producción Faunística Chimborazo, Parque Nacional Sangay and Parque Nacional Cajas. Given the threat of chytrid, it may be necessary to establish a captive-breeding programme for this species.
Notes on taxonomy: This genus has recently been moved from the family Hylidae (Faivovich *et al.* 2005).
Bibliography: Duellman, W.E. and Hillis, D.M. (1987), Faivovich, J. *et al.* (2005)
Data Providers: Luis A. Coloma, Santiago Ron, Manuel Morales, Diego Almeida

EN *Gastrotheca psychrophila* Duellman, 1974

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



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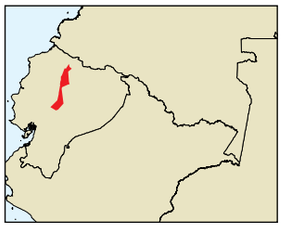
Geographic Range This species is known only from a limited region on the Abra de Zamora ridge, between Loja and Zamora, in the Cordillera Oriental in southern Ecuador, at 2,750-2,850m asl. Although it is known only from the type locality, it probably occurs more widely.
Population There is little information on its population status, but it is probably a very rare species.
Habitat and Ecology It is an inhabitant of sub-páramo. The type locality is exceedingly wet, with cold winds blowing from the east. The vegetation near the crest consists of grasses and dense bushes, and large bromeliads are abundant on the ground and in the bushes. Individuals have been found in bromeliads and under rocks. The eggs are carried on the back of the female, but it is not known whether or not this species breeds by direct development or by larval development.
Major Threats The major threat is habitat destruction and degradation, largely due to conversion of habitat to pine tree plantations, and expanding agriculture (involving both crops and livestock).
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. Further survey work is needed to establish the current population status of this species, and to investigate its breeding biology.
Notes on taxonomy: The genus *Gastrotheca* has recently been moved from the family Hylidae (Faivovich *et al.* 2005).
Bibliography: Duellman, W.E. (1974), Duellman, W.E. and Hillis, D.M. (1987), Faivovich, J. *et al.* (2005)
Data Providers: Luis A. Coloma, Santiago Ron

EN *Gastrotheca riobambae* (Fowler, 1913)

Endangered A2ac
Order, Family: Anura, Leptodactylidae
Country Distribution: Ecuador
Current Population Trend: Decreasing



© H. Mauricio Ortega-Andrade

Geographic Range This species is restricted to the Andes and inter-Andean valleys in northern and central Ecuador from Imbabura south to Chimborazo. Its altitudinal range is 2,200-3,500m asl.
Population It was once a common species, but has undergone declines across much of its range.
Habitat and Ecology It lives on vegetation inside montane forests and in a variety of habitats ranging from wet montane meadows to dry rocky hillsides, agave plants and corn fields. It is often found close to water sources such as pools, streams and drainage, and irrigation ditches. The eggs are carried in a pouch on the back of the female, and the larvae are deposited in still water or very slow-flowing streams.
Major Threats Probably much of its past decline relates to extreme habitat loss. Although the species is clearly adaptable, it probably cannot survive when nothing but pastures remain. Pollution and global and local climatic change could be implicated in the observed declines. It is unlikely to be a victim of chytridiomycosis (though this cannot be ruled out, in particular because of its association with streams).
Conservation Measures Its geographic range overlaps the Reserva Ecológica Cayambe-Coca, the Reserva Ecológica Antisana, Parque Nacional Cotopaxi, and the Reserva de Producción Faunística Chimborazo.
Notes on taxonomy: This genus has recently been moved from the family Hylidae (Faivovich *et al.* 2005).
Bibliography: Duellman, W.E. (1974), Duellman, W.E. and Hillis, D.M. (1987), Faivovich, J. *et al.* (2005), Fowler, H.W. (1913), Ortiz, A. and Morales, M. (2000)
Data Providers: Luis A. Coloma, Santiago Ron, Karl-Heinz Jungfer

EN *Gastrotheca ruizi* Duellman and Burrowes, 1986

Endangered B1ab(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 immediate vicinity of the type locality: Valle de Sibundoy, in the Cordillera Oriental of the Andes, in southern Colombia, from 2,250m asl.
Population It was previously considered a common species. However, recent surveys of the type locality have not found the species (J. Lynch pers. comm.). It is uncertain whether this represents a real decline or simply lack of sampling.
Habitat and Ecology It occurs on vegetation near the forest edge in Andean forests; it has not been recorded from disturbed habitats. The eggs develop in a pouch on the back of the female and the larvae are then transported to small pools where they develop further.
Major Threats The main threat is the drainage of wetlands for agriculture and livestock farming, thereby reducing the breeding habitat available. Water pollution from agriculture is also a major threat.
Conservation Measures It is not known from any protected areas, and there is an urgent need for the protection of the breeding habitat of this species. More research is needed to determine if it occurs outside the vicinity of the type locality and to confirm whether the species is in decline, and the causes of the decline.
Notes on taxonomy: This genus has recently been moved from the family Hylidae (Faivovich *et al.* 2005).
Bibliography: Duellman, W.E. and Burrowes, P.A. (1986), Duellman, W.E. and Hillis, D.M. (1987), 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 *Gastrotheca splendens* (Schmidt, 1857)

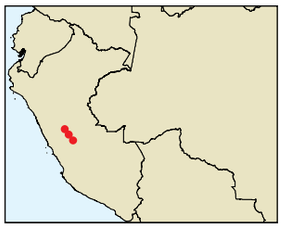
Endangered A3c
Order, Family: Anura, Leptodactylidae
Country Distribution: Bolivia
Current Population Trend: Decreasing

© Ignacio De La Riva

Geographic Range This species is known only from Abra de la Cruz, in Parque Nacional Amboro, Caballero Province, in the department of Santa Cruz, Bolivia, at 2,286m asl. It might occur a little more widely, but it probably has a restricted distribution.
Population It is known from only two individuals, one collected in 1857, and the other in 1997. It is clearly very rare, because the area where it was rediscovered has been well surveyed, without success.
Habitat and Ecology It has been recorded from cloud forest and is probably a direct developing species.
Major Threats The major threat is habitat loss due to agriculture, involving both crops and livestock, as well as infrastructure development for human settlement. Chytridiomycosis is a potential future threat.
Conservation Measures The only known locality is within Parque Nacional Amboro, and continued management of this area is essential to ensure the long-term survival of this species. Further survey work is needed to determine whether it might occur beyond the type locality.
Notes on taxonomy: The original type locality of this species was Panama, but this is in error according to Savage and Heyer (1969) who suggested that the type specimen might have come from Colombia, Peru or Bolivia. Subsequently, Duellman and De la Riva (1999) found a single specimen. This genus has recently been moved from the family Hylidae (Faivovich *et al.* 2005).
Bibliography: Duellman, W.E. and de la Riva, I. (1999), Faivovich, J. *et al.* (2005), Schmidt, O. (1857), Schmidt, O. (1858)
Data Providers: Claudia Cortez, Steffen Reichle, Ignacio De la Riva, Jörn Köhler

EN *Gastrotheca stictopleura* Duellman, Lehr and Aguilar, 2001

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



© Edgar Lehr

Geographic Range This species is known only from a few sites on the eastern face of the Cordillera Oriental and associated ranges of Peru. It has been recorded from the departments of Huánuco, Pasco and northern Junín. The range is not completely known and it may occur more widely than current records suggest. It has been recorded from elevations of 2,500-3,090m asl.
Population It is uncommon.
Habitat and Ecology It is an arboreal species that inhabits primary and disturbed cloud forest; it is sometimes present near villages and can be found in pastures with trees. Breeding is by larval development, and the larvae complete their development in ponds.
Major Threats The major threat is deforestation due to agriculture, logging and human settlement. The inhabited areas of Chaglla and Carpish are in a region of intensive cultivation, principally for potatoes.
Conservation Measures It is not known to occur in any protected areas, and some form of habitat protection is needed to ensure the maintenance of some cloud forest within the range of this species. Survey work is required to determine whether it might occur between known sites.
Notes on taxonomy: This genus has recently been moved from the family Hylidae (Faivovich *et al.* 2005).
Bibliography: Duellman, W.E. *et al.* (2005), Duellman, W.E., Lehr, E. and Aguilar, C. (2001), Faivovich, J. *et al.* (2005), Lehr, E. (2002)
Data Providers: Ariadne Angulo, Javier Icochea, Edgar Lehr, César Aguilar Puntriano

EN *Gastrotheca trachyceps* Duellman, 1987

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

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Geographic Range This species is currently known only from the region of the type locality: Cerro Munchique on the Pacific slopes of the Cordillera Occidental, in Cauca Department, Colombia, from 2,170-2,540m asl. It might occur somewhat more widely.
Population It is relatively common at the type locality.
Habitat and Ecology It occurs on vegetation and next to streams inside forest and at the forest edge, and seeks refuge in bromeliads. It can occur in habitat such as páramo as long as there are bromeliads. Breeding is by direct development, with the eggs kept in the pouch of the female until hatched.
Major Threats Although its only known locality is a protected area, cultivation of illegal crops is leading to the destruction of native habitat in some parts of the park.
Conservation Measures The type locality is entirely within Parque Nacional Natural Munchique, but there is a need to combat activities that result in the loss of native habitat within the park boundaries. More research is needed to determine if it occurs outside the vicinity of the type locality.
Notes on taxonomy: This genus has recently been moved from the family Hylidae (Faivovich *et al.* 2005).
Bibliography: Duellman, W.E. (1987), Faivovich, J. *et al.* (2005)
Data Providers: Fernando Castro, John Lynch

CR *Gastrotheca zeugocystis* Duellman, Lehr, Rodriguez and von May, 2004

Critically Endangered B1ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Peru
Current Population Trend: Decreasing

© Edgar Lehr

Geographic Range This species is known only from the Cordillera de Carpish, at 2,920m asl, in the Provincia de Huánuco, an outlier of the Cordillera Oriental of the Peruvian Andes. It is not known whether or not it occurs more widely.
Population There is no information on the population status of the species, and it is known from only two specimens.
Habitat and Ecology The only known specimens were found under leaves and under a piece of wood in cloud forest. It is presumed to breed by direct development.
Major Threats The main threat to the species is deforestation due to agricultural expansion and firewood collection.
Conservation Measures There are currently no protected areas in place, making habitat protection and management an urgently needed conservation action. Further survey work is required to determine the biology and current population status of this species.
Bibliography: Duellman, W.E. *et al.* (2004)
Data Providers: Simon Stuart

EN *Geobatrachus walkeri* Ruthven, 1915

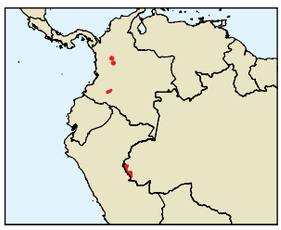
Endangered B1ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Colombia
Current Population Trend: Decreasing

© Taran Grant

Geographic Range This species is known only from the north-western and western slopes of the Sierra Nevada de Santa Marta, in the department of Magdalena, northern Colombia, from 1,550-2,870m asl. It may occur more widely than current records suggest, but is likely to be estricted to the Sierra Nevada de Santa Marta.
Population It is a common species.
Habitat and Ecology It is both nocturnal and diurnal, and appears to be confined to forest where it occurs under rocks and logs (which is also where it lays its eggs). Breeding is by direct development.
Major Threats The major threat is habitat loss and destruction due to agriculture.
Conservation Measures Its range includes Parque Nacional Natural Sierra Nevada de Santa Marta.
Bibliography: Acosta-Galvis, A.R. (2000), Ardila-Robayo, M.C. (1979), Cochran, D.M. and Goin, C.J. (1970), Kaplan, M. (2003), Lynch, J.D. (1971), Ruiz-Carranza, P.M., Ardila-Robayo, M.C. and Lynch, J.D. (1996), Ruthven, A.G. (1915)
Data Providers: Martha Patricia Ramírez Pinilla, Mariela Osorno-Muñoz, Jose Vicente Rueda, Adolfo Amézquita, María Cristina Ardila-Robayo

EN *Hemiphractus johnsoni* (Noble, 1917)

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

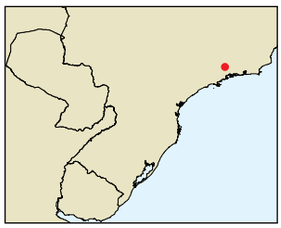


© John D. Lynch

Geographic Range This species is known from four localities in the Colombian Andes at 1,350-1,910m asl, and also from the Brazilian Amazon at much lower altitudes. On the Cordillera Central of the Colombian Andes it occurs in southern Antioquia Department, and the eastern slope in Caldas Department; on the Cordillera Oriental of the Colombian Andes it occurs in Parque Nacional Cuera de los Guacharos, in Huila Department, and in extreme western Caqueta Department. In Brazil, it has been recorded from the vicinity of Parque Nacional da Serra do Divisor, in Acre State.
Population It is considered to be a very rare species, and is known only from about 20 specimens.
Habitat and Ecology It occurs on the lower stratum of vegetation, among fallen leaves, and on shrubs in primary cloud forest. It is very sensitive to moisture and is restricted to primary forest. It eats other species of frogs, and probably only survives in areas of high frog density. Females lay their eggs and glue them on to their back, where they develop directly.
Major Threats The major threat is habitat loss and degradation due to cultivation of illegal crops, livestock farming and logging.
Conservation Measures It occurs in Parque Nacional Cuera de los Guacharos, Colombia, and Parque Nacional da Serra do Divisor, Brazil. Further survey work is needed to better determine the limits of the distribution of this species and its current population status.
Notes on taxonomy: This form is probably a complex of several species. Brazilian populations assigned to this species presumably belong to another species. This genus has recently been moved from the family Hylidae (Faivovich *et al.* 2005).
Bibliography: Faivovich, J. *et al.* (2005), Fenolio, D. and Ready, M. (1995), Ruiz-Carranza, P.M., Ardila-Robayo, M.C. and Lynch, J.D. (1996), Sheil, C.A. and Mendelson III, J.R. (2001), Sheil, C.A., Mendelson III, J.R. and Da Silva, H.R. (2001), Souza, M.B. (2003), Trueb, L. (1974)
Data Providers: Fernando Castro, John Lynch, Claude Gascon

CR *Holoaden bradei* B. Lutz, 1958

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

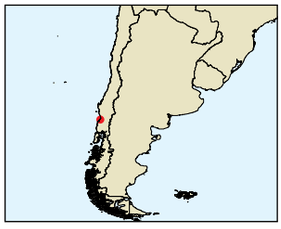


© Ivan Sazima

Geographic Range This species is restricted to the highlands of the Itatiaia Mountains, in south-eastern Brazil. It occurs from 2,400-2,600m asl.
Population This species was found frequently up until the 1970s, but has not been found for more than 10 years even though there have been extensive searches of the area for many years. It was last collected in 1976.
Habitat and Ecology This species occurs on the ground, under mulch and leaves, which is also where the eggs are laid. It hides under stones and in terrestrial bromeliads in open grassland, and probably breeds by direct development.
Major Threats The species has been heavily impacted by habitat degradation due to touristic activities and fire, and is also affected by extreme frosts.
Conservation Measures The range of the species is within Parque Nacional do Itatiaia, and continued conservation and maintenance of its habitat is necessary. More exhaustive searches for this species are needed, in order to determine whether or not it still survives in the wild. If it is found, then further conservation measures, including a conservation management plan, will be needed.
Bibliography: Bergallo, H.G. *et al.* (2000), Lutz, B. (1958)
Data Providers: Carlos Frederico da Rocha, Monique Van Sluys, Carlos Alberto Gonçalves da Cruz

CR *Insuetophrynus acarpicus* Barrio, 1970

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



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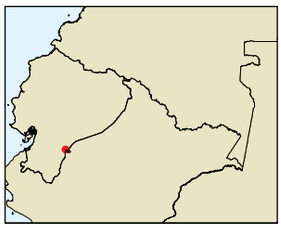
Geographic Range This species is known only from around the type locality, Mehuin, Valdivia Province, Chile. It has not been found elsewhere, despite survey work. Its altitudinal range is from 50-200m asl.
Population It is locally common, and was last recorded in 2003.
Habitat and Ecology It occurs in small streams and under stones in temperate forest. At night, it feeds on the margins of streams. Breeding takes place in streams, and the species is characterized by free-swimming tadpoles.
Major Threats It is threatened by habitat destruction resulting from clear cutting and afforestation with pine plantations.
Conservation Measures It does not occur in any protected area, and there remains a need for much improved protection and maintenance of the Validivian temperate forests in its range. The status of this species should be closely monitored.
Bibliography: Barrio, A. (1970), Díaz, N., Valencia, J. and Sallaberry, M. (1983), Formas, J.R. (1995), Glade, A. (1993), Servicio Agrícola Ganadero (1998), Veloso, A. and Navarro, J. (1988)
Data Providers: Alberto Veloso, Herman Núñez, Jose Núñez, Ramón Formas

VU *Ischnocnema simmonsi* Lynch, 1974

Vulnerable D2
Order, Family: Anura, Leptodactylidae
Country Distribution: Ecuador
Current Population Trend: Stable



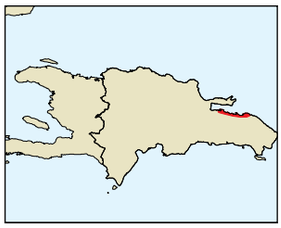
Geographic Range This species is known only from the region of the type locality in the Cordillera del Cóndor, Morona-Santiago Province, Ecuador.
Population It was uncommon when last recorded in 1999.
Habitat and Ecology This species can be found in subtropical old-growth forest. At Río Piuntza, Cordillera del Cóndor, Ecuador, two specimens were collected by day on the forest floor (Lynch 1974). It is terrestrial and breeds by direct development.
Major Threats It occurs in an area that was mined during the Ecuador-Peru border war in 1995, with the result that there is little human activity in the area now. However, a proposed road might introduce threats to the area.
Conservation Measures It is not recorded from any protected areas, though habitat protection might be necessary in the future. There is a need for close population monitoring of this species.

Bibliography: Lynch, J.D. (1974)
Data Providers: Luis A. Coloma, Santiago Ron, Fernando Nogales

EN *Leptodactylus dominicensis* Cochran, 1923

HISPANIOLAN DITCH FROG

Endangered B1ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Dominican Republic
Current Population Trend: Decreasing



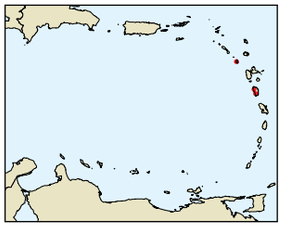
Geographic Range This species has a very restricted range on the southern coast of Bahia de Samana, in the eastern Dominican Republic. The altitudinal range is from sea level up to 60m asl.
Population It is abundant in suitable habitat.
Habitat and Ecology It occurs in wet meadows and flooded fields. Males call from clumps of grasses in soggy areas, and the eggs are laid in foam nests.
Major Threats This species is threatened by habitat destruction due to agriculture (including both crops and livestock), and a recently built road has compounded the effects of habitat loss by leading to further fragmentation of the habitat.
Conservation Measures It occurs in Parque Nacional Los Haitises and in the Reserva Cientifica Laguna Redondo y Limon.
Notes on taxonomy: We follow Hedges (1999) in considering this a separate species from *Leptodactylus albilabris*.

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, Richard Thomas, Robert Powell

CR *Leptodactylus fallax* Muller, 1926

MOUNTAIN CHICKEN

Critically Endangered A2ace
Order, Family: Anura, Leptodactylidae
Country Distribution: Dominica, Montserrat, Guadeloupe (Extinct), Martinique (Extinct), St Kitts and Nevis (Extinct)
Current Population Trend: Decreasing

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Geographic Range This species occurs mostly on the western side of Dominica (there is a more limited population-possibly translocated or reintroduced-on the eastern side, but not mapped here) and in the Centre Hills of northern Montserrat, having been unsuccessfully introduced on Jamaica and Puerto Rico. It has apparently been extirpated from Guadeloupe, Martinique, and St Kitts, and might once also have occurred on St Lucia and Antigua. Its range is now restricted on Dominica to around 25km² and to about 20km² on Montserrat. It is a relatively low-altitude species on Dominica, occurring from sea level up to (rarely) 400m asl. On Montserrat it is present from sea level to 430m asl.
Population The species might have been in decline on Montserrat since Cyclone Hugo in 1989 and the Soufriere volcanic eruption of 1995, but analysis of census data does not confirm this (J. Fa pers. comm.). The population on the eastern Centre Hills of Montserrat is relatively inaccessible, and is consequently larger. On Dominica it was formerly abundant in suitable habitat (possibly as recently as 2002), despite heavy exploitation for food (estimated annual harvest of 8,000-36,000 animals), but the population started to crash during 2002 with few individuals reported in 2003, and it might now be nearing extinction with a population suggested to be as low as 8,000 animals (Magin 2004).
Habitat and Ecology The species lives in dense secondary vegetation, plantations (Dominica only), ravines, and flooded forest. It is terrestrial and nocturnal, hiding in burrows during the day in moist forest. It appears as though the animals are associated with certain soil types that allow the digging of nests. The eggs are laid in foam nests at the bottom of a burrow. The tadpoles (26-43 per nest) develop terrestrially in the nest, not in water. Both females and males guard the nest. The larvae feed on infertile eggs deposited in the nest burrow by the female.
Major Threats The species is consumed by humans and is prized for its meat (both subsistence and commercial use for tourists), which has contributed to its decline. Substantial habitat loss is also taking place over much of its range due to agriculture, human settlement and pressure from touristic development. On Montserrat, populations in the South Soufriere Hills, Soufriere Hills and Garibaldi Hill have been lost to lava flows from recent volcanic eruptions. The population of Dominica, where the species was once most abundant, has declined catastrophically from 2002 until the present, following a major confirmed outbreak of the fungal disease chytridiomycosis. This decline is continuing and appears to have significantly impacted most, if not all, of the population in that country.
Conservation Measures The protected areas of Dominica are generally above the maximum known elevation of the species and contain few, if any, animals. Captive populations occur in Jersey (Montserrat origin), St Louis (Dominican origin) and some other zoos. No hunting of animals on Dominica has been allowed since 2003, and public awareness actions have taken place to inform the Dominican public of the magnitude of threat facing their national dish and to discourage illegal hunting.

Bibliography: Breuil, M. (2004), Brooks, G.R. (1982), Daltry, J.C. (1998), Daltry, J.C. (2002), Daltry, J.C. and Gray, G. (1999), Davis, S.L. *et al.* (2000), Gibson, R.C. and Buley, K.R. (2001), Gibson, R.C. and Buley, K.R. (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. (1994), Kaiser, H. and Henderson, R.W. (1994), Lescure, J. and Letellier, F. (1983), Magin, C. (2003), Magin, C. (2004), McIntyre, S. (2003), Schwartz, A. and Henderson, R.W. (1991)
Data Providers: John Fa, Blair Hedges, Beatrice Ibéné, Michel Breuil, Robert Powell, Christopher Magin

CR *Leptodactylus magistris* Mijares-Urrutia, 1997

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

Geographic Range This species is an endemic of Cerro Socopó, about 30km by road south-west Guajiro, in the municipality of Mauroa in Falcón State, Venezuela, at about 1,250m asl. Mijares (1997) suggested it might be present in Cerro Azul (about 1,880m asl) and Cerro Cerrón (about 2,080m asl). These Cerros, along with Cerro Socopó, comprise the Serrania de Ziruma.
Population The population status of this species is not known. It is known from only two collections, both made prior to the description of the species in 1997. A brief attempt to find the species in 2003 was not successful, perhaps because this survey took place below the elevation at which this species was previously recorded.
Habitat and Ecology It inhabits small streams bordered by open vegetation with shrubs and herbaceous plants. The habitat surrounding the known localities is artificial open land, which is a result of the clearing of cloud forest, suggesting that the species may inhabit other natural open places nearby. It is a diurnal terrestrial species that breeds in ponds. It makes foam nests on the water and the tadpoles are free-living.
Major Threats The main threats to this species are habitat loss due to agriculture (both crops and livestock) and fires, and pollution as a result of agricultural activities.
Conservation Measures The range does not include any protected areas, so protection of remaining habitat at sites at which this species is known to occur is urgently needed. Additional survey work is necessary to determine the current population status of this species.

Bibliography: Barrio Amorós, C.L. (2004), Mijares-Urrutia, A. (1997b)
Data Providers: Abraham Mijares, Enrique La Marca

VU *Leptodactylus nesiotus* Heyer, 1994

Vulnerable D2
Order, Family: Anura, Leptodactylidae
Country Distribution: Trinidad and Tobago
Current Population Trend: Stable

© Michael Jowers

Geographic Range This species is known only from the type locality, Icacos Swamp on the south-western peninsula of Trinidad Island, Trinidad and Tobago.
Population The current population status of this species is not known. Since the species was described, extensive surveys of the type locality have not located any further specimens.
Habitat and Ecology A specimen of this species was found calling at night in a burrow under a mass of fern roots in a stagnant swamp. It is presumed to use aquatic habitats for breeding and to breed by larval development.
Major Threats There are no known threats at present; the Icacos Swamp is a relatively pristine area.
Conservation Measures Since it currently has no formal protection, consideration should be given to establishing Icacos Swamp as a protected area. There remains a need for further surveys at appropriate times of the year at the type locality to determine whether or not this species still persists.
Bibliography: Heyer, W.R. (1994), Murphy, J.C. (1997)
Data Providers: Jerry Hardy

VU *Leptodactylus pascoensis* Heyer, 1994

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

Geographic Range This species is known from the Chontilla, Iscozazin Valley, Pasco, and Serrania de Sira, Huánuco, central Peru, east of the Andes. Its altitudinal range is from 780-2,500m asl.
Population It is not an uncommon species.
Habitat and Ecology This species can be found on the forest floor of the Amazonian flanks of the Andes. Reproduction takes place in foam nests in temporary ponds. There is no information on whether or not this species can occur in modified habitats.
Major Threats The major threat to this species is habitat loss due to increased agricultural activity, largely driven by government policies (land tenancy of the area is conditional upon converting forest to agricultural land).
Conservation Measures This species occurs in Parque Nacional Yanachaga Chemillen (J. Icochea pers. comm.). It might also occur in Yanesha Communal Reserve and Bosque de Proteccion San Matias San Carlos.

Bibliography: Heyer, W.R. (1994)
Data Providers: Ariadne Angulo, Ronald Heyer

CR *Leptodactylus silvanimbus* McCranie, Wilson and Porras,1980

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

© James McCranie

Geographic Range This species is known from Montañas de Celaque and Sierra del Merendon in the Department of Ocotepeque in extreme western Honduras, at elevations of 1,470-2,000m asl.
Population It is known from only three localities: it has already disappeared from one of these (El Chagüitón); at the second (Belén Gualcho), it persists rather precariously in a pool dug to provide water for cattle in a pasture; and at the third (El Portillo), its status is unknown.
Habitat and Ecology The species has been collected in pastures around small ponds and inundated areas in premontane moist forest and lower montane moist forest. It breeds in slow-flowing streams.
Major Threats Habitat destruction caused by agriculture and the creation of pasture for cattle ranching, as well as urbanization, is the main threat to this species.
Conservation Measures It is not currently known from any protected areas, although it does occur near the edge of Parque Nacional Celaque. While further survey work is necessary to determine the current population status of this species and the limits of its range, improved habitat protection and maintenance of the existing habitat is also urgently needed.
Bibliography: Heyer, W.R. *et al.* (1996), McCranie, J.R. and Wilson, L.D. (2002b), McCranie, J.R., Wilson, L.D. and Porras, L. (1980)
Data Providers: Gustavo Cruz, Larry David Wilson

VU *Odontophrynus achalensis* Di Tada, Barla, Martori and Cei, 1984

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

© Alexander Haas

Geographic Range This species is endemic to the Sierras Grandes de Cordoba, Argentina, where it ranges from 1,800-2,500m asl.
Population It is a rare species, but populations appear to be stable where suitable habitat remains.
Habitat and Ecology It occurs in montane grasslands and rocky outcrops therein. Reproduction takes place in permanent streams and it does not tolerate habitat disturbance.
Major Threats Habitat fragmentation caused by cattle ranching is a threat to this species; cattle ranching also leads to the deterioration of water quality for breeding sites. Some populations might be declining due to fires.
Conservation Measures It occurs in Parque Nacional Quebrada el Condorito and the Pampa de Achala Regional Hydrological Reserve.
Bibliography: Di Tada, I.E. *et al.* (1996), Lavilla, E.O. *et al.* (2000), Lavilla, E.O. and Cei, J.M. (2001), Martino, A.L. and Sinsch, U. (2002)
Data Providers: Esteban Lavilla, Ismael di Tada

CR *Odontophrynus moratoi* Jim and Caramaschi, 1980

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

© Ivan Sazima

Geographic Range This species is known only from the type locality: Botucatu, in São Paulo State, Brazil. It is known from around 800-900m asl.
Population It is only known from a few specimens, and was last collected in 1990. A drastic population decline is suspected to have taken place; subsequent searches have not been successful in finding this species, either at the type locality, or elsewhere, and it might now be extinct.
Habitat and Ecology This species occurs on the ground near waterbodies in open areas near forest edge; it is not known from anthropogenically disturbed habitats. It breeds in temporary and permanent pools..
Major Threats The type locality for this species has been destroyed by infrastructure development and agriculture.
Conservation Measures It is not known from any protected area. Additional survey work is needed to establish whether or not this species might still survive in the wild, prior to the recommendation of any specific conservation actions.
Bibliography: Caramaschi, U. and Jim, J. (1980), Rossa-Feres, D.C. and Jim, J. (1996)
Data Providers: Carlos Alberto Gonçalves da Cruz, Ulisses Caramaschi

CR *Phrynopus adenobrachius* Ardila-Robaya, Ruíz-Carranza and Barrera-Rodriguez, 1996

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, in the vicinity of Albania, in the municipality of Herveo, department of Tolima, on the eastern slope of the Cordillera Central, Colombia, from 3,100-3,400m asl. It is most likely restricted to this area.
Population This is a rare species.
Habitat and Ecology It occurs under rocks and logs in grasses in sub-páramo areas. It can also be found in pastureland and arable land, although this is not ideal habitat as it is often burned. It breeds by direct development.
Major Threats The major threat to this species is fire, in the form of frequent burning of the páramo so that the grass grows more quickly for cattle grazing.
Conservation Measures There are no protected areas within the range of this species, making habitat maintenance and protection for this species a very high conservation priority. A more carefully managed burning regime would also benefit this species.

Bibliography: Acosta-Galvis, A.R. (2000), Ardila-Robayo, M.C., Ruiz-Carranza, P.M. and Barrera-Rodrigues, M. (1996), 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

VU *Phrynopus bagrecitoi* Lynch, 1986

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

Geographic Range This species is known only from the type locality of "Rio Marcapata" on the Amazonian slopes of the southern Andes of Peru (Cusco Department) at 2,740m asl. It is believed to occur much more widely than is currently known.
Population There is no information on the current population status of this species.
Habitat and Ecology This species can be found in montane cloud forest. It breeds by direct development.
Major Threats The major threat is habitat loss and disturbance due to small-scale agriculture (potatoes, livestock) and firewood collection.
Conservation Measures It is not known to occur in any protected areas, and improved habitat protection and maintenance is required at sites where this species has been recorded. Further survey work is needed to determine the current population status of this species.

Bibliography: Lynch, J.D. (1986b), Rodríguez, L.O., Cordova, J.H. and Icochea, J. (1993)
Data Providers: Javier Icochea, Edgar Lehr, Wilfredo Arizabal

VU *Phrynopus barthlenae* Lehr and Aguilar, 2002

Vulnerable D2
Order, Family: Anura, Leptodactylidae
Country Distribution: Peru
Current Population Trend: Stable

© Edgar Lehr

Geographic Range This species has been recorded from the type locality, 15km south-east of Maraypata near Laguna Gwengway, and from Alcas, San Rafael District, Ambo Province (Huanaco Department). It occurs at altitudes of around 3,680m asl.
Population It is an uncommon species.
Habitat and Ecology This is a montane forest inhabitant that is now found in Puna grassland as a result of deforestation. It can be found in gardens, potato fields, and other similar habitats. It is presumed to breed by direct development.
Major Threats The major threat to this species in the past was loss of forest habitat, but the species seems to have adapted relatively well in the face of such habitat degradation. There are no immediate threats at present, although agrochemical pollution might pose a threat in the future.
Conservation Measures It does not exist in any protected areas. There is a need for close population monitoring of this species given its very restricted range.
Bibliography: Lehr, E. and Aguilar, C. (2002)
Data Providers: Edgar Lehr, César Aguilar Puntriano

EN *Phrynopus bracki* Hedges, 1990

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

© S. Blair Hedges, Penn State

Geographic Range This species is known only from the type locality in the Cordillera Yanachaga, at 2,300-2,700m asl (in Pasco Department) in Peru. Although its range is not well known, it is presumed to be confined to the Cordillera Yanachaga.
Population Its current population status is unknown, but it may be uncommon.
Habitat and Ecology It is a terrestrial species inhabiting montane cloud forest and elfin forest; it is not known if it occurs in degraded habitats. Breeding is by direct development.
Major Threats The Yanachaga Mountain is the last large forested area in this region of Peru, and there is increasing human pressure to convert the land for agricultural activities (for example, "Rocoto" [chilli pepper] plantations).
Conservation Measures The major part of its range is protected in Parque Nacional Yanachaga Chemillen, and given the pressures facing this area the continued maintenance and management of this area will be essential to ensure the long-term survival of this species.
Bibliography: Hedges, S.B. (1990), Rodríguez, L.O., Cordova, J.H. and Icochea, J. (1993)
Data Providers: Javier Icochea, Edgar Lehr, Wilfredo Arizabal, César Aguilar Puntriano

EN *Phrynopus brunneus* Lynch, 1975

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

© John D. Lynch

Geographic Range This species is known currently from two localities near El Carmelo and in El Chamizo, Carchi Province, Ecuador, at 3,100-3,200m asl. It was recently discovered in Nariño Department on the Colombian side of the border near Carmelo. It might range a little more widely.
Population It was rare at El Chamizo in 2000, where two individuals were found.
Habitat and Ecology Specimens have been collected by day beneath logs in a wet pasture in páramo habitat; they have also been found in holes in the ground. Reproduction occurs by direct development.
Major Threats The major threat is habitat destruction and degradation due to the expansion of agricultural activities.
Conservation Measures It is not known to occur in any protected areas, and the habitat of this species is in urgent need of protection.
Bibliography: Cisneros-Heredia, D.F. (2004), Frolich, L.M. *et al.* (2003), Lynch, J.D. (1975a)
Data Providers: Luis A. Coloma, Santiago Ron, Diego Almeida

CR *Phrynopus carpish* Lehr, Rodriguez and Cordova, 2002

Critically Endangered B1ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Peru
Current Population Trend: Decreasing

© Edgar Lehr

Geographic Range This species is known only from, and is believed to be confined to, the Cordillera de Carpish, at 2,960m asl., in Provincia Huanaco, Departamento de Huanaco, Peru.
Population It is a very rare species.
Habitat and Ecology It is probably restricted to montane primary forest, and is found in bromeliads 1.5m above the ground. Its breeding strategy is not known, but it probably breeds by direct development.
Major Threats The main threat is habitat loss due to agricultural expansion and firewood collection.
Conservation Measures It is not recorded from any protected areas, making protection and maintenance of the remaining habitat a high priority.
Bibliography: Lehr, E., Rodriguez, D. and Cordova, J.H. (2002)
Data Providers: Edgar Lehr, César Aguilar Puntriano

EN *Phrynopus cophites* Lynch, 1975

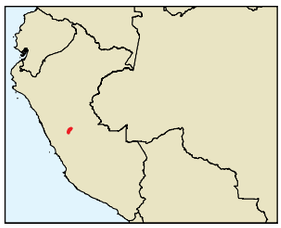
Endangered B1ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Peru
Current Population Trend: Decreasing

© Alessandro Catenazzi

Geographic Range This species is known only from the type locality: "S slope Abra Acjanacu, 14km NNE Paucartambo", Cordillera de Paucartambo (Cusco Department), at 3,400m asl in Peru; it is endemic to the south-east of the Cordillera Paucartambo.
Population It is very common where it occurs.
Habitat and Ecology It is a terrestrial species of wet puna and elfin forest, and is not present in degraded areas. Breeding takes place by direct development.
Major Threats The major threat is the destruction of habitat by the activities of smallholder farmers.
Conservation Measures It is present in Parque Nacional Manu, but further survey work is needed to determine whether it might occur beyond the vicinity of the type locality.
Bibliography: Lynch, J.D. (1975a), Rodríguez, L.O., Cordova, J.H. and Icochea, J. (1993)
Data Providers: Javier Icochea, Edgar Lehr, Wilfredo Arizabal

CR *Phrynopus dagmarae* Lehr, Aguilar and Köhler, 2002

Critically Endangered B1ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Peru
Current Population Trend: Decreasing



© Edgar Lehr

Geographic Range This species is known only from three mountain peaks: Chaglla, Maraypata, and Palma Pampa, in the Departamento Huanuco, Peru, at an altitude of 3,070-3,380m asl.
Population It is an uncommon species.
Habitat and Ecology It is terrestrial and can be found in montane cloud forest and wet shrubland, and formerly in forested wet grassland close to the edge of forest. It breeds by direct development.
Major Threats It is severely threatened by agricultural activities (especially potato cultivation).
Conservation Measures The species is not known to be present in any protected areas, and there is an urgent need for improved habitat protection at sites at which this species is known to occur.
Bibliography: Lehr, E. (2002), Lehr, E., Aguilar, C. and Köhler, G. (2002)
Data Providers: Javier Icochea, Edgar Lehr, César Aguilar Puntriano

EN *Phrynopus flavomaculatus* (Parker, 1938)

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

© John D. Lynch

Geographic Range This species is known from the community of Cajanuma and in Parque Nacional Podocarpus, Lojas Province, between 2,215 and 3,200m asl, on the eastern Andean Cordillera in southern Ecuador.
Population It is rare; two individuals were last collected in 1985.
Habitat and Ecology It occurs on the ground in páramo habitat. Reproduction is believed to occur by direct development.
Major Threats The major threat to the species is habitat destruction and degradation, in particular for small-scale agriculture and non-timber plantations; it might also be impacted by fires.
Conservation Measures Although it has been recorded within Parque Nacional Podocarpus, additional habitat protection is required. Further survey work is necessary to help better determine the current population status of this species.
Bibliography: Cannatella, D.C. (1984), Lynch, J.D. (1975b), Parker, H.W. (1938)
Data Providers: Luis A. Coloma, Santiago Ron, Diego Almeida

CR *Phrynopus heimorum* Lehr, 2001

Critically Endangered B1ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Peru
Current Population Trend: Decreasing

© Edgar Lehr

Geographic Range This species is known only from the type locality: "Conchamarca, Ambo, of the eastern Andean slopes of central Peru (Departamento: Huanuco) 3,420m asl".
Population It is extremely rare.
Habitat and Ecology It is terrestrial and can be found in *Polylepis* forest ("Queñoales") and pasture with bushes ("Matorral Humedo"). The species needs moist areas to survive, and has not been found in degraded habitats. It breeds by direct development.
Major Threats The *Polylepis* forests have been reduced drastically by human activities over the years (primarily due to potato farming and cattle ranching).
Conservation Measures It is not currently known from any protected areas, and immediate protection and maintenance of the remaining habitat is necessary.
Bibliography: Lehr, E. (2001), Lehr, E. (2002)
Data Providers: Javier Icochea, Edgar Lehr, César Aguilar Puntriano

CR *Phrynopus horstpauli* Lehr, Köhler and Ponce, 2000

Critically Endangered B1ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Peru
Current Population Trend: Decreasing

© Edgar Lehr

Geographic Range This species is known only from a small region on the Andean slopes of central Peru: Conchamarca, Yaurin, Huancamonte, Maraypata (Provincia Ambo, Departamento: Huanuco). It has an altitudinal range of 3,030-3,430m asl.
Population It is an uncommon species.
Habitat and Ecology It occurs in *Polylepis* forest ("Queñoales"), montane forest, and pasture with bushes ("Matorral Humedo"); it is also present in disturbed areas where water is available. It has been observed during the day on the ground, while at night it is found on leaves. It breeds by direct development.
Major Threats The *Polylepis* forests have been reduced drastically by human activities over the years (primarily due to potato farming and cattle ranching).
Conservation Measures The local people of Maraypata informally protect the remaining forest, but given the continuing rate of forest loss there might well be a need for the establishment of a formal protected area and an official management plan.
Bibliography: Lehr, E. (2002), Lehr, E., Köhler, G. and Ponce, E. (2000)
Data Providers: Javier Icochea, Edgar Lehr, César Aguilar Puntriano

VU *Phrynopus iatamasi* Aguayo-Vedia and Harvey, 2001

Vulnerable D2
Order, Family: Anura, Leptodactylidae
Country Distribution: Bolivia
Current Population Trend: Stable

© Ignacio De La Riva

Geographic Range This species is known from the vicinity of the Parque Nacional Carrasco, in Cochabamba Province, Bolivia, at 3,450-4,000m asl. It is thought to have a genuinely restricted distribution.
Population It is an abundant species.
Habitat and Ecology It occurs in wet puna high-elevation grassland, and in humid cloud forest. It is often found under stones at higher elevations, and on vegetation at lower elevations. It breeds by direct development.
Major Threats There are no major threats at present; however, its restricted range renders it susceptible to stochastic threatening processes.
Conservation Measures It occurs entirely in the Parque Nacional Carrasco. Close population monitoring of this species is required, given that it appears to have such a limited range.
Bibliography: Aguayo, C.R. and Harvey, M.B. (2001)
Data Providers: Claudia Cortez, Steffen Reichle, Ignacio De la Riva, Jörn Köhler

CR *Phrynopus juninensis* (Shreve, 1938)

Critically Endangered B1ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Peru
Current Population Trend: Decreasing

© Mikael Lundberg

Geographic Range This species is known from two locations on the Andean slopes of central Peru: Cascas near Huasihuasi (Departamentos Junin) and Bellavista and Jatunchinchi, Paucartambo region, Departamento Pasco. It is present at altitudes from 2,800-3,820m asl.
Population It is a rare species.
Habitat and Ecology It can be found in primary montane cloud forest, and at forest edges, but not in degraded habitats. It is a terrestrial species that breeds by direct development.
Major Threats The main threat is habitat loss due to agricultural activities, including potato farming and livestock ranching.
Conservation Measures It is not known from any protected areas, and immediate protection and maintenance of the remaining habitat is necessary.
Bibliography: Cannatella, D.C. (1985), Lehr, E., Aguilar, C. and Cordova, J.H. (2002)
Data Providers: Javier Icochea, Edgar Lehr, César Aguilar Puntriano

CR *Phrynopus kauneorum* Lehr, Aguilar and Köhler, 2002

Critically Endangered B1ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Peru
Current Population Trend: Decreasing

© Edgar Lehr

Geographic Range This species is known only from "Palma Pampa' and the Cordillera de Carpish, on the eastern slopes of the Andes in central Peru (Departamento Huanuco), at an altitude of 2,600-3,020m asl.
Population There is limited information available on its population status, but it is known to be very rare at the type locality.
Habitat and Ecology An inhabitant of montane cloud forest, it can also be found in forest edge but not in agricultural land. It is a direct developing, terrestrial species.
Major Threats The main threat is habitat destruction as a result of agricultural activities, primarily from potato farming and livestock ranching.
Conservation Measures The species is not known from any protected areas, and immediate protection and maintenance of the remaining habitat is necessary.
Bibliography: Lehr, E., Aguilar, C. and Cordova, J.H. (2002), Lehr, E., Aguilar, C. and Köhler, G. (2002)
Data Providers: Javier Icochea, Edgar Lehr, César Aguilar Puntriano

EN *Phrynopus kempffi* De la Riva, 1992

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

© Ignacio De La Riva

Geographic Range This species is known only from the region called "La Siberia", on the border of the separtments of Cochabamba and Santa Cruz, in the Bolivian Andes, at 2,500-2,900m asl (De la Riva 1992a).
Population It is apparently a fairly common species. However, it does not seem to have been recorded since 1994, though this is probably the last time a herpetologist visited the area where it occurs.
Habitat and Ecology It is a terrestrial species living in cloud forest, and its ability to adapt to altered habitats is not known. It has been found near rocks along a road, on moss and on tree roots, and is both diurnal and nocturnal. Breeding is by direct development.
Major Threats There is ongoing habitat loss and degradation, due to the activities of smallholder farmers, timber harvesting, and expanding human settlements.
Conservation Measures It probably occurs in Parque Nacional Carrasco. Further survey work is needed to determine the current population status of the species.
Bibliography: De la Riva, I. (1992a)
Data Providers: Claudia Cortez, Steffen Reichle, Ignacio De la Riva, Jörn Köhler

CR *Phrynopus lucida* Cannatella, 1984

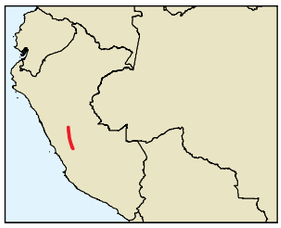
Critically Endangered B1ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Peru
Current Population Trend: Decreasing

Geographic Range This species is known only from the type locality: "north slope of Abra Tapuna, 7km N Mahuayura", Cordillera Oriental west of the Río Apurimac (Departamento: Ayacucho). It was collected at an elevation of 3,710m asl.
Population The current population status is unknown.
Habitat and Ecology It can be found in montane shrubland and cloud forest, but it is not known whether or not it could occur in degraded areas. It is a terrestrial species that breeds by direct development.
Major Threats The main threat to the species is habitat loss, primarily from the clearance of land (mainly through the use of fire) for agriculture.
Conservation Measures It does not occur in any protected areas, and immediate protection and maintenance of the remaining habitat is necessary. Attempts to breed this species in captivity have proved unsuccessful.

Bibliography: Cannatella, D.C. (1984), Rodríguez, L.O., Cordova, J.H. and Icochea, J. (1993)
Data Providers: Javier Icochea, Edgar Lehr, César Aguilar Puntriano, Wilfredo Arizabal

EN *Phrynopus montium* (Shreve, 1938)

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



Geographic Range This species is known from the departments of Huanaco (Huancapallac), Junin (type locality: Cascas, near Huasahuasi) and Pasco. It has been collected at elevations between 2,600 and 2,750m asl.
Population It is uncommon.
Habitat and Ecology This is a terrestrial species that can be found in cloud mountain forest, and dry Andean valleys with scrub vegetation; it is not known from degraded habitats. Breeding is by direct development.
Major Threats The major threat is general habitat loss as a result of agricultural activities (cultivation of potatoes, and livestock farming), and deforestation for firewood.
Conservation Measures It is not known from any protected areas, and there is an urgent need to protect the cloud forest habitat of this species.

Bibliography: Lynch, J.D. (1975a), Rodríguez, L.O., Cordova, J.H. and Icochea, J. (1993)
Data Providers: Javier Icochea, Edgar Lehr, César Aguilar Puntriano

CR *Phrynopus parkeri* Lynch, 1975

Critically Endangered B1ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Peru
Current Population Trend: Decreasing

© German Chávez

Geographic Range This species is known only from sites at El Tambo on the Cordillera de Huancabamba (Departamento Piura) and Santuario Nacional Tabaconas-Namballe (Cajamarca) in Peru. It has an altitudinal range of 2,770-3,100m asl.
Population It is an uncommon species.
Habitat and Ecology It can be found in humid montane forest under rocks, and in páramo habitats (hiding in low vegetation), but does not occur in agricultural areas. Breeding takes place by direct development.
Major Threats In Huancabamba, the main threat to the species is expanding agricultural activities (mainly due to potato farming and livestock ranching).
Conservation Measures Although it is present in the Santuario Nacional Tabaconas-Namballe, protection and maintenance of the habitat on the Cordillera de Huancabamba is necessary.
Bibliography: Duellman, W.E. and Wild, E.R. (1993), Lynch, J.D. (1975a), Rodríguez, L.O., Cordova, J.H. and Icochea, J. (1993)
Data Providers: Javier Icochea, Edgar Lehr, César Aguilar Puntriano, Erik Wild

CR *Phrynopus pereger* Lynch, 1975

Critically Endangered B1ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Peru
Current Population Trend: Decreasing

© Edgar Lehr

Geographic Range This species is known only from the vicinity of the type locality in the eastern Andes west of the Apurimac River, and from Cordillera Vilcabamba, Departamento Ayacucho, Peru, between 2,460 and 2,650m asl. It is believed to be a genuinely restricted-range species.
Population There is no information on the population status of this species.
Habitat and Ecology It is a terrestrial species, inhabiting montane cloud forest, but it is not known whether or not it occurs in degraded areas. It is presumed to breed by direct development.
Major Threats The major threat is habitat loss due to agricultural expansion, subsistence wood collecting, and human settlement.
Conservation Measures It is not known to occur in any protected areas, making habitat protection and maintenance a priority. The species is, in general, quite poorly known, and further research is needed into its biology and population status.
Bibliography: Lynch, J.D. (1975a), Rodríguez, L.O., Cordova, J.H. and Icochea, J. (1993)
Data Providers: Javier Icochea, Edgar Lehr, César Aguilar Puntriano

EN *Phrynopus peruvianus* (Noble, 1921)

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

© Alessandro Catenazzi

Geographic Range This Peruvian endemic is known from Abra Accanacu, Paucartambo, in the department of Cusco. The original publication gives an incorrect locality of "near Juliaca, Departamento: Puno". Records from Bolivia are misidentifications. It is present at elevations of 2,800-3,500m asl.
Population It is common where it occurs.
Habitat and Ecology It can be found in the altiplano shrublands, and may be found at the edges of agricultural land (but not in cultivated areas). It breeds by direct development.
Major Threats General habitat loss through agricultural activity (cultivation of potatoes) and other human activities is the major threat.
Conservation Measures It is probably present in Parque Nacional Manu, but populations occurring outside the park remain in need of protection.
Bibliography: Lynch, J.D. (1975a), Noble, G.K. (1921)
Data Providers: Javier Icochea, Edgar Lehr, Wilfredo Arizabal

CR *Phrynopus simonsii* (Boulenger, 1900)

Critically Endangered B1ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Peru
Current Population Trend: Decreasing

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Geographic Range This species is known only from the type locality of Celendin and its surroundings, in the vicinity of Cajamarca, Departamento Cajamarca, Peru. It has an altitudinal range of around 3,200m asl.
Population It was previously common, although its current population status is not known.
Habitat and Ecology It is a terrestrial species, inhabiting páramo grassland, and is not found in degraded areas. Breeding takes place by direct development.
Major Threats Habitat loss, as a result of agricultural expansion (potato farming and livestock ranching), represents the major threat to the species.
Conservation Measures It is not known to occur in any protected areas, so protection and maintenance of existing habitat is a priority. Further research is needed into the biology and population status of this species.
Bibliography: Lynch, J.D. (1968), Lynch, J.D. (1975a), Rodríguez, L.O., Cordova, J.H. and Icochea, J. (1993)
Data Providers: Javier Icochea, Edgar Lehr, César Aguilar Puntriano

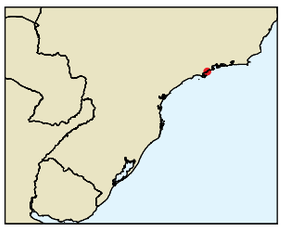
CR *Phrynopus spectabilis* Duellman, 2000

Critically Endangered B1ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Peru
Current Population Trend: Decreasing

Geographic Range This species is known only from the type locality: 12km south of Catac in the Río Santa Valley between the Cordillera Negra and the Cordillera Blanca, Provincia Recuay, Departamento Ancash, Peru. It has been collected at an altitude of 3,500m asl.
Population There is no recent information on the population status of this species. It was possibly rare when it was first collected in 1972, and it is still known from only a few specimens. It was not located during intensive surveys of the area in 1997 and 1998 (E. Lehr, pers comm.), raising fears that it might be extinct.
Habitat and Ecology This species can be found in high-elevation puna grassland. It is a terrestrial species that breeds by direct development.
Major Threats Within the area of the type locality, agricultural activities (e.g., potato farming and cattle ranching) and water pollution (resulting from the washing of clothes and possibly mining waste), represent the main threats to the species.
Conservation Measures It is not found in any protected areas, making habitat protection a much-needed conservation action. The species is poorly known and further research is needed into the biology and population status of this species.
Bibliography: Duellman, W.E. (2000)
Data Providers: Edgar Lehr, César Aguilar Puntriano

VU *Physalaemus atlanticus* Haddad and Sazima, 2004

Vulnerable D2
Order, Family: Anura, Leptodactylidae
Country Distribution: Brazil
Current Population Trend: Unknown

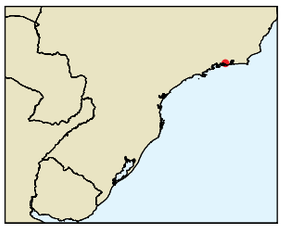


© Ivan Sazima

Geographic Range This species is known only from the municipality of Ubatuba, on the northern coast of São Paulo State, Brazil. All specimens collected and observed were at an altitude of 0-50m asl. It probably has a genuinely restricted distribution that is characteristic of the *Physalaemus signifier* group to which it belongs.
Population The population status of this species is unknown.
Habitat and Ecology This species is associated with ponds or leaf-litter of the coastal plain in the Atlantic rainforest. It reproduces on the forest floor near places that are prone to flooding. The eggs are laid in a foam nest built on the water surface, and are anchored to the margins of ponds, or alternatively, on the wet leaf-litter close to the ponds.
Major Threats The major threats to this species are not known, but it might be affected by localized forest loss.
Conservation Measures It has been collected in the Parque Estadual da Serra do Mar. There is a need for further survey work to determine, and monitor, the population status of this species.
Bibliography: Haddad. C.F.B. and Sazima, I. (2004)
Data Providers: Neil Cox, Simon Stuart

EN *Physalaemus soaresi* Izecksohn, 1965

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



© Ivan Sazima

Geographic Range This species is known only from Horto Florestal de Santa Cruz, Itaguaí Municipality, in the state of Rio de Janeiro, south-eastern Brazil. The only known site is very close to sea level.
Population It has a very small, but stable, population.
Habitat and Ecology It was probably originally a primary forest species, but now lives only in secondary forest, since this is all that remains within its range. It is usually found near ponds in forest. The eggs are laid in a foam nest on the surface of temporary pools.
Major Threats The major threats are habitat loss due to conversion of habitat to eucalyptus plantations, and human disturbance.
Conservation Measures It occurs in the Florestal Nacional Mario Xavier protected area, but this is poorly protected and in need of improved management.
Bibliography: Izecksohn, E. (1965)
Data Providers: Luciana Barreto Nascimento, Sergio Potsch de Carvalho-e-Silva

CR *Somuncuria somuncurensis* (Cei, 1969)

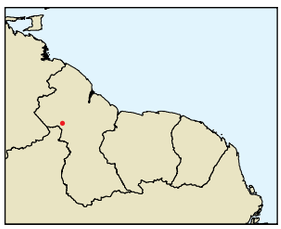
Critically Endangered B2ab(iii,iv)
Order, Family: Anura, Leptodactylidae
Country Distribution: Argentina
Current Population Trend: Decreasing

© Boris Blotto

Geographic Range This species is known only from the Somuncura Plateau, an isolated basaltic plateau in the Río Negro Province, Argentinean Patagonia. It has an altitudinal range of 500-700m asl.
Population It is generally quite rare, and thought to be declining.
Habitat and Ecology It is wholly aquatic, inhabiting and breeding in permanent thermal springs and streams originating in the northern slopes of Somuncura Plateau. It is not present in modified habitats.
Major Threats The species is probably threatened by introduced predatory fish (*Oncorhynchus mykiss*), and by the canalization of spring water towards local towns and villages for domestic use. In addition, the impacts of livestock farming (sheep and goats) result in overgrazing, as well as chemical pollution of waterways from sheep baths.
Conservation Measures The range of the species is within the Reserva Provincial Somuncura, but the reserve currently is poorly managed, and there is little real protection for the species. Strengthening the management of such existing protected areas is necessary, and further field research is needed to determine the current population status of the species.
Bibliography: Cei, J.M. (1969a), Cei, J.M. (1969b), Cei, J.M. (1970a), Lynch, J.D. (1978)
Data Providers: Carmen Úbeda, Esteban Lavilla

VU *Stefania ackawaio* MacCulloch and Lathrop, 2002

Vulnerable D2
Order, Family: Anura, Leptodactylidae
Country Distribution: Guyana
Current Population Trend: Stable



Geographic Range This species is known only from the vicinity of the type locality on the north-east plateau of Mount Ayanganna, Guyana (05° 24'N; 59° 57'W) between 1,490 and 1,550m asl (MacCulloch and Lathrop 2002). It probably has a very restricted range.
Population It is a relatively uncommon species.
Habitat and Ecology It is a high-elevation forest species. All specimens were collected at night, on leaves or branches, 1-3m above ground. Females carry the eggs on their back and juveniles develop fully on their mother's back.
Major Threats There are no known threats, and all known localities for this species are in undisturbed, remote areas. Nonetheless, given its small range, it remains vulnerable to stochastic threatening processes.
Conservation Measures The range of this species is within Kaieteur National Park. There is a need for close monitoring of the population status of this species.

Notes on taxonomy: This genus has recently been moved from the family Hylidae (Faivovich *et al.* 2005).
Bibliography: Faivovich, J. *et al.* (2005), MacCulloch, R.D. and Lathrop, A. (2002)
Data Providers: Robert Reynolds, Marinus Hoogmoed, Ross MacCulloch, Philippe Gaucher

VU *Stefania ayangannae* MacCulloch and Lathrop, 2002

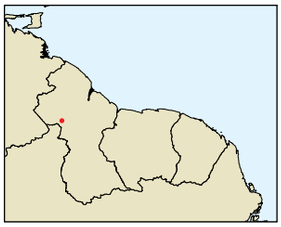
Vulnerable D2
Order, Family: Anura, Leptodactylidae
Country Distribution: Guyana
Current Population Trend: Stable

Geographic Range This species is known only from the vicinity of the type locality on the north-east plateau of Mount Ayanganna, Guyana (05° 24'N; 59° 57'W), between 1,490 and 1,550m asl. It is thought likely to have a very restricted range.
Population This was the most abundant amphibian species encountered on Mount Ayanganna (MacCulloch and Lathrop 2002).
Habitat and Ecology A high-elevation forest species. All specimens were collected at night on leaves or branches 1-5m above ground. Females carry the eggs on their back and juveniles develop fully on their mother's back.
Major Threats There are no known threats, and all known localities for this species are in undisturbed, remote areas. Nonetheless, given its small range, it remains vulnerable to stochastic threatening processes.
Conservation Measures The range of this species is within Kaieteur National Park. There is a need for close monitoring of the population status of this species.

Notes on taxonomy: This genus has recently been moved from the family Hylidae (Faivovich *et al.* 2005).
Bibliography: Faivovich, J. *et al.* (2005), MacCulloch, R.D. and Lathrop, A. (2002)
Data Providers: Robert Reynolds, Marinus Hoogmoed, Ross MacCulloch, Philippe Gaucher

VU *Stefania coxi* MacCulloch and Lathrop, 2002

Vulnerable D2
Order, Family: Anura, Leptodactylidae
Country Distribution: Guyana
Current Population Trend: Stable



Geographic Range This species is known only from the vicinity of the type locality on the north-east plateau of Mount Ayanganna, Guyana (05° 24'N; 59° 57'W), between 1,490 and 1,550m asl (MacCulloch and Lathrop 2002). It probably has a very restricted range.
Population This is not an uncommon species.
Habitat and Ecology The species inhabits primary forest. Specimens were collected at night, on moss-covered branches, 1-4m above ground, or in the base of a large terrestrial bromeliad. The females carry the eggs on their back, and juveniles develop fully on their mother's back. They have not been recorded from disturbed areas.
Major Threats There are no known threats, and all known localities for this species are in undisturbed, remote areas. Nonetheless, given its small range, it remains vulnerable to stochastic threatening processes.
Conservation Measures The range of this species is within Kaieteur National Park. There is a need for close monitoring of the population status of this species.

Notes on taxonomy: This genus has recently been moved from the family Hylidae (Faivovich *et al.* 2005).
Bibliography: Faivovich, J. *et al.* (2005), MacCulloch, R.D. and Lathrop, A. (2002)
Data Providers: Robert Reynolds, Marinus Hoogmoed, Ross MacCulloch, Philippe Gaucher

VU *Stefania riveroi* Señaris, Ayarzaguena and Gorzula, 1997 "1996"

Vulnerable D2
Order, Family: Anura, Leptodactylidae
Country Distribution: Venezuela
Current Population Trend: Stable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Geographic Range This species is known only from the summit of Yuruaní tepui, in Bolívar state, Venezuela, at 2,300m asl (05° 19'N; 60° 51'W). It probably has a very restricted distribution.
Population It is common within its restricted range.
Habitat and Ecology It occurs in crevices and on rocks near streams. They breed by direct development, and it carries its eggs and the juveniles on its back.
Major Threats There are no known threats to the species' habitat at present. However, its restricted range renders it vulnerable to stochastic threatening processes.
Conservation Measures The type locality is within the Monumental Natural Los Tepuyes. There is a need for close monitoring of the population status of this species given its restriction to Yuruaní tepui.
Notes on taxonomy: This genus has recently been moved from the family Hylidae (Faivovich *et al.* 2005).
Bibliography: Barrio Amorós, C.L. (2004), Barrio, C. (1998), Faivovich, J. *et al.* (2005), La Marca, E. (1997), MacCulloch, R.D. and Lathrop, A. (2002), Mägdefrau, H. (1991), Señaris, J.C., Ayarsagüena, J. and Gorzula, S. (1997)
Data Providers: Celsa Señaris, Enrique La Marca

VU *Stefania schuberti* Señaris, Ayarzaguena and Gorzula, 1997 "1996"

Vulnerable D2
Order, Family: Anura, Leptodactylidae
Country Distribution: Venezuela
Current Population Trend: Stable

Geographic Range This species is endemic to the summit of Auyan-tepui, in Bolívar state, Venezuela, at elevations from 1,750-2,400m asl. It probably has a genuinely restricted distribution.
Population It is a common species within its restricted range.
Habitat and Ecology This is a nocturnal frog that has been found hidden amongst rocks in cascading mountain streams, and about 1m above the ground on branches of tepui vegetation along watercourses. By day, specimens hide below rocks by the rivers, or in vegetation close to these watercourses. Adults carry the eggs and juveniles on their back where they develop directly.
Major Threats There are no major threats to the species, but it might be susceptible to wildfire and habitat disturbance by tourists.
Conservation Measures Its range is within Parque Nacional Canaima. There is a need for close population monitoring of this species given its restriction to Auyan-tepui.

Notes on taxonomy: This genus has recently been moved from the family Hylidae (Faivovich *et al.* 2005).
Bibliography: Barrio Amorós, C.L. (2004), Barrio, C. (1998), Faivovich, J. *et al.* (2005), Gorzula, S. and Señaris, J.C. (1998), La Marca, E. (1997), MacCulloch, R.D. and Lathrop, A. (2002), Señaris, J.C., Ayarsagüena, J. and Gorzula, S. (1997)
Data Providers: Celsa Señaris, Enrique La Marca

VU *Telmatobius arequipensis* Vellard, 1955

Vulnerable A2ad
Order, Family: Anura, Leptodactylidae
Country Distribution: Peru
Current Population Trend: Decreasing


© Daniel Neira

Geographic Range This species is endemic to the Arequipa region of Perú (Arequipa and Moquegua departments). It has an altitudinal range of 2,000-4,500m asl.
Population It is common where it occurs, but declines have been noted at lower elevations, probably because of over-harvesting.
Habitat and Ecology It is a riparian semi-aquatic frog. It is present in streams, wet grassland and shrublands, and ditches. It may be found in modified habitats wherever there are streams or ditches. Eggs are laid in the water.
Major Threats A major threat to this species is water pollution caused by agrochemicals and domestic waste. It is also harvested for food and for use in traditional medicine. *Telmatobius* populations living at high elevations might be very susceptible to infection with chytrid, although this pathogen has yet to be reported from *T. arequipensis*.
Conservation Measures It is present in Salinas y Aguada Blanca Reserva Nacional. Education programmes are needed to inform local people of the importance of ensuring that the harvest of this species from the wild is managed sustainably. There is a need for close monitoring of the status of this species given the potential threat of chytridiomycosis.
Bibliography: Patron, H.Z. (1994), Péfaur, J.E. *et al.* (1978), Vellard, J. (1955)
Data Providers: Javier Icochea, Daniel Neira, Ulrich Sinsch

CR *Telmatobius atacamensis* Gallardo, 1962

Critically Endangered A2ace; B1ab(ii,iii,iv,v) +2ab(ii,iii,iv,v)
Order, Family: Anura, Leptodactylidae
Country Distribution: Argentina
Current Population Trend: Decreasing

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Geographic Range This species was initially discovered at "San Antonio de los Cobres (24° 11'S; 66° 21'W)", Salta Province, Argentina", but it has now been extirpated from this site. It is currently known with certainty only from a single bog (Pueblo Nuevo) approximately 1.5km from the type locality. A population that morphologically is very close to *T. atacamensis* has recently been discovered at Los Patos, which is close to the type locality, but is in a rivulet that does not belong to the same basin of the two other localities. It has been recorded at an elevation of 3,800m asl.
Population This is a very rare species that is in serious decline. Already extinct at the type locality, it might survive at Pueblo Nuevo.
Habitat and Ecology It is wholly aquatic, occurring in high-elevation bog streams with individuals found in burrows in the bog streamsides. The species cannot survive in modified habitats.
Major Threats It is threatened by the introduction of predatory fish (*Oncorhynchus mykiss*), and by water pollution caused by mining activities (gold and copper). In addition, the drainage of mountain bogs and the alteration of watersheds are also threats to this species. Chytridiomycosis has not yet been reported in this species, but it remains a potential future threat.
Conservation Measures To date, this species is not recorded from any protected areas, and the establishment of a protected area for this species coupled with a species management plan (including *ex-situ* assistance) is needed. The population at Pueblo Nuevo needs to be closely monitored, while the taxonomic status of the population of Los Patos needs further investigation to determine whether or not it represents a distinct taxon.
Bibliography: Frost, D.R. (1985), Gallardo, J.M. (1962b), Lavilla, E.O. (2002), Lavilla, E.O. *et al.* (2000), Lavilla, E.O. and Cei, J.M. (2001)
Data Providers: Esteban Lavilla

EN *Telmatobius brevipes* Vellard, 1951

Endangered A3e
Order, Family: Anura, Leptodactylidae
Country Distribution: Peru
Current Population Trend: Decreasing

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Geographic Range This species is known from the Cordillera Occidental of northern Perú, in the departments of Cajamarca and La Libertad, where it has been collected at elevations of between 2,000 and 3,520m asl.
Population Its population status is not known.
Habitat and Ecology It is a riparian semi-aquatic species, and can be found under rocks along streams in cloud forest to páramo; it is also present in irrigation ditches in cultivated areas. It is presumed to be a stream breeder.
Major Threats There is little information available on its threats, although water pollution might be a localized threat. Populations of other species in the genus living at high elevations are very susceptible to infection with chytridiomycosis. The pathogen has yet to be reported from *Telmatobius brevipes*, but congeners nearby in Ecuador have disappeared, and so this species would appear to be seriously at risk.
Conservation Measures Survey work is needed to establish the population status of this species, and it requires careful population monitoring, particularly given the risk of chytridiomycosis. It is not known to be present in any protected areas.
Bibliography: Vellard, J. (1951), Wiens, J.J. (1993)
Data Providers: Javier Icochea, Ulrich Sinsch, Edgar Lehr, Wilfredo Arizabal, Jesús Córdova-Santa Gadea

EN *Telmatobius brevirostris* Vellard, 1955

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

© Edgar Lehr

Geographic Range This species is known from the upper Huallaga River and its tributaries, in Huánuco Department, Peru, and it has an altitudinal range of 2,000-3,600m asl.
Population It is a very rare species.
Habitat and Ecology It is a riparian semi-aquatic, stream-breeding frog, living in small streams in shrubland and cloud forest, and is not present in cultivated areas.
Major Threats Agrochemical runoff into streams, as a result of use in potato cultivation, is a major threat to this species. Other *Telmatobius* populations living at high elevations are believed to be particularly prone to infection with chytridiomycosis, though the pathogen has yet to be reported from this species.
Conservation Measures It is not present in any protected areas, and habitat protection is urgently needed to ensure the maintenance of suitable habitat for this species. It also requires close population monitoring, particularly given the threat of chytrid infection.
Notes on taxonomy: The subspecies *Telmatobius brevirostris punctatus* will soon be elevated to species status (E. Lehr pers. comm.).
Bibliography: Lehr, E. (2002), Vellard, J. (1955)
Data Providers: Javier Icochea, Edgar Lehr, César Aguilar Puntriano

VU *Telmatobius carillae* Morales, 1988

Vulnerable A3e
Order, Family: Anura, Leptodactylidae
Country Distribution: Peru
Current Population Trend: Decreasing

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Geographic Range This species is endemic to the Peruvian Andes and is known from the vicinity of the type locality "Puna de Crusjircan" in the department of Ancash, and from the Río Blanco, near Banos, in the department of Huanaco. It is known from 3,950-4,000m asl, but presumably has a broader elevational range than this.
Population It has been recorded as abundant.
Habitat and Ecology This species is a riparian, semi-aquatic frog of the puna. Breeding takes place in streams.
Major Threats Water pollution from mines and domestic use of water is a localized threat. It is probably also collected for food and medicine. *Telmatobius* populations living at high elevations might be particularly prone to infection with chytrid, although this pathogen has yet to be reported from *T. carillae*.
Conservation Measures It is not present in any protected areas, but might range into the lower elevations of Parque Nacional Huascarán. Further research is needed to determine the levels of offtake of this species from the wild. There is a need for close monitoring of the status of this species given the potential threat of chytridiomycosis.
Bibliography: Lehr, E. (2002), Morales, V.R. (1988)
Data Providers: Javier Icochea, Edgar Lehr, César Aguilar Puntriano, Ulrich Sinsch

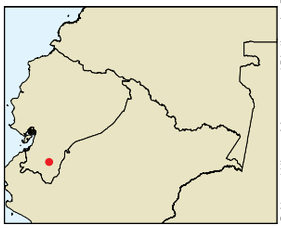
EN *Telmatobius ceiorum* Laurent, 1970 "1969"

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

Geographic Range This Argentinean endemic is distributed from the type locality of La Banderita (27° 08'S; 66° 02'W) (Catamarca Province) north to Los Sosa River (Tucumán Province), ranging from 1,400-2,200m asl.
Population It is a rare species.
Habitat and Ecology It is mostly aquatic, occurring in montane forest streams in the Aconquija Range (Tucumán-Catamarca, Argentina), and is not present in modified areas. Breeding takes place in the streams, and the larvae are aquatic; there is no dispersal between streams.
Major Threats The major threat is habitat loss and degradation due to selective logging and clear-cutting of primary forests and conversion of habitat to wood plantations. Other threats include alteration of watersheds, sedimentation and pollution of waterbodies (often by livestock, but also from mining waste), and predation by introduced trout. Chytridiomycosis may be a potential future threat.
Conservation Measures A few populations are protected in Parque Nacional Los Alisos. Conservation actions needed to conserve the species include the expansion of existing protected areas to ensure increased protection of habitat; the control of invasive predators within protected areas; and close population monitoring, particularly given the threat of chyrid.
Bibliography: Lavilla, E.O. (2002), Lavilla, E.O. *et al.* (2000), Lavilla, E.O. and Cei, J.M. (2001)
Data Providers: Esteban Lavilla

CR *Telmatobius cirrhacelis* Trueb, 1979

Critically Endangered A2ace;B1ab(i,ii,iii,iv,v)+2ab(i,ii,iii,iv,v)
Order, Family: Anura, Leptodactylidae
Country Distribution: Ecuador
Current Population Trend: Decreasing



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Geographic Range This species is only known from the vicinity of Abra de Zamora in Morona Santiago Province, and from Lagunas del Compadre and Cerro Toledo in Loja Province, southern Ecuador. Its altitudinal range is 2,700-3,200m asl.
Population There is no recent information on its population status; like some other members of the genus, the species has been severely affected by declines and possible extinctions. It was last recorded in November 1981 in Laguna del Compadre, despite 11 survey attemps to locate it between 1987 and 2002.
Habitat and Ecology It lives in very wet, cold elfin forest dominated by thick layers of moss, lichens, liverworts, dense bushes, bromeliads and bamboo, and it is closely associated with streams. Individuals have been found beneath rocks in a roadside streambed, and in a roadside ditch. It presumably breeds in streams.
Major Threats There is evidence that *Telmatobius* species in Ecuador have been impacted by disease (including chytridiomycosis, but also from another fungal disease, a nematode infection, and from morphological malformations). Climatic abnormalities might also be implicated, and are perhaps related to the incidence of disease outbreaks. In addition, habitat loss and degradation is taking place due to agricultural development (crops and livestock ranching) and human settlement. *Telmatobius* species have traditionally been heavily used for food by local people.
Conservation Measures It is not known from any protected areas, but it occurs close to the northern limit of the Parque Nacional Podocarpus. Although protection and maintenance of existing habitat is clearly needed, the risk of disease means that it is a very high priority to conduct surveys to relocate this species and determine its current population status. Any surviving individuals should form the basis for the initiation of a captive-breeding programme.
Bibliography: Merino-Viteri, A. and Coloma, L.A. (2003), Trueb, L. (1979)
Data Providers: Andrés Merino-Viteri, Luis A. Coloma, Santiago Ron

EN *Telmatobius colanensis* Wiens, 1993

Endangered A3e
Order, Family: Anura, Leptodactylidae
Country Distribution: Peru
Current Population Trend: Unknown

Geographic Range This species is known only from the Cordillera El Colán, in Amazonas Department in the northern Peruvian Andes, at 2,410m asl. It might occur a little more widely.
Population Nothing is known about its population status.
Habitat and Ecology This is a riparian, semi-aquatic species of rocky high-gradient streams in undisturbed cloud forest. It is not known if it can occur in disturbed habitat.
Major Threats Outside existing protected areas, the major threat is likely to be ongoing forest loss. Populations of other species in the genus living at high elevations are very susceptible to infection with chytridiomycosis. The pathogen has yet to be reported from *Telmatobius colanensis*, but congeners nearby in Ecuador have disappeared, and so this species would appear to be seriously at risk.
Conservation Measures Survey work is needed to establish the population status of this species, and it requires careful population monitoring, particularly given the risk of chytridiomycosis. It is present within the Cordillera El Colán protected area.
Bibliography: Wiens, J.J. (1993)
Data Providers: Javier Icochea, Edgar Lehr, César Aguilar Puntriano

CR *Telmatobius culeus* (Garman, 1875)

Critically Endangered A2acde
Order, Family: Anura, Leptodactylidae
Country Distribution: Bolivia, Peru
Current Population Trend: Decreasing

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Geographic Range This species is endemic to Lake Titicaca of Peru (Departamento Puno) and Bolivia (Departamento La Paz) at an elevation of 3,810m asl.
Population It was previously common, but it has experienced massive declines, and it is now seriously threatened.
Habitat and Ecology It is a wholly aquatic species, with reproduction taking place in shallow waters close to the Lake's shoreline.
Major Threats Major threats include over-harvesting of adults, the presumed predation of larvae by introduced trout, water extraction from the Lake, and domestic and agricultural water pollution. There has been a severe loss of suitable aquatic habitat where reproduction takes place. Although not yet recorded, chytridiomycosis remains a potential future threat.
Conservation Measures It is present in the Lake Titicaca Reserve, but measures are needed to maintain suitable aquatic habitat for breeding and to mitigate the impacts of other threats. Captive-breeding programmes around Lake Titicaca are generally considered to have been unsuccessful to date. In Peru, National legislation to treat as "Situación Indeterminada" (Decreto Supremo N° 013-99-AG, May-19.1999) is needed.
Notes on taxonomy: *Telmatobius albiventris* and *Telmatobius crawfordi* were synonymized with this species by Benavides, Ortiz and Sites (2002).
Bibliography: Benavides, E., Ortiz, J.C. and Sites, J.W. (2002), De la Riva, I. *et al.* (2000), Köhler, J. (2000a), Vellard, J. (1992)
Data Providers: Javier Icochea, Steffen Reichle, Ignacio De la Riva, Ulrich Sinsch, Jörn Köhler

EN *Telmatobius degener* Wiens, 1993

Endangered A3e
Order, Family: Anura, Leptodactylidae
Country Distribution: Peru
Current Population Trend: Unknown

Geographic Range This species is known only from the type locality: 13km ESE Yamobamba, 18km SE Agallpampa on the road from Otuzco to Huamachuco (7° 59'S; 78° 36'W), La Libertad Department, in the northern Peruvian Andes, at 3,290m asl. It presumably occurs more widely.
Population It is abundant where it occurs.
Habitat and Ecology It has been collected in a densely vegetated roadside marsh in an open pasture. The marsh was fed by a brook draining into the Rio Moche, and was in the very humid subalpine páramo. The frogs were active in pools and running water by day. Breeding takes place in wetlands.
Major Threats The threats are not currently known. Populations of other species in the genus living at high elevations are very susceptible to infection with chytridiomycosis. The pathogen has yet to be reported from *Telmatobius degener*, but congeners in Ecuador have disappeared, and so this species would appear to be seriously at risk.
Conservation Measures It is not known to be present in any protected areas. This species requires careful population monitoring, particularly given the risk of chytridiomycosis.
Bibliography: Wiens, J.J. (1993)
Data Providers: César Aguilar Puntriano, Ulrich Sinsch, Edgar Lehr

EN *Telmatobius edaphonastes* De la Riva, 1994

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

© Steffen Reichle

Geographic Range This species is known only from the slopes of the Bolivian Andes, at La Siberia, on the border between the departments of Cochabamba and Santa Cruz, and from Sehuencas in Parque Nacional Carrasca. It has been found at approximately 2,600m asl, though it presumably has a broader elevational range than this, and may also occur more widely.
Population It is an uncommon species.
Habitat and Ecology It is both aquatic and terrestrial, and inhabits cloud forest and mountain streams, though its adaptability to altered habitats is not known. It presumably breeds in streams by larval development.
Major Threats It is likely to be adversely affected by ongoing habitat loss and degradation taking place mainly due to agriculture, logging, and human settlement. Chytridiomycosis is a potential future threat.
Conservation Measures It occurs in Parque Nacional Carrasco and possibly also in Parque Nacional Amboro.
Bibliography: De la Riva, I. (1994c), De la Riva, I. *et al.* (2000), Köhler, J. (2000a)
Data Providers: Claudia Cortez, Steffen Reichle, Ignacio De la Riva, Jörn Köhler

CR *Telmatobius gigas* Vellard, 1969 "1968"

Critically Endangered B2ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Bolivia
Current Population Trend: Decreasing

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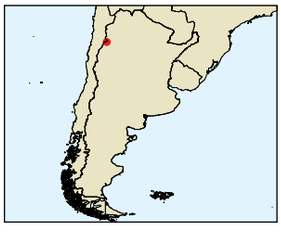
Geographic Range This species is known only from the canyon of the Río Huayllamarca, in Carangas Province, Oruro Department, in the Bolivian Andes, at around 3,965m asl.
Population It is fairly common at the type locality.
Habitat and Ecology It lives in streams in high-elevation puna grassland habitats, where it presumably breeds by larval development.
Major Threats Populations are possibly affected by water pollution from agriculture, over-harvesting for medicinal use, and the deviation of water from streams for the irrigation of crops. Although not yet recorded, chytridiomycosis is a potential future threat.
Conservation Measures It is not recorded from any protected areas. Habitat protection and maintenance is recommended, complemented by more general actions to mitigate the effects of water pollution and channelization, and to manage exploitation. Close monitoring of surviving populations of this species is required.
Bibliography: Vellard, J. (1968)
Data Providers: Claudia Cortez, Steffen Reichle, Ignacio De la Riva, Jörn Köhler

VU *Telmatobius hauthali* Koslowsky, 1895

Vulnerable D2
Order, Family: Anura, Leptodactylidae
Country Distribution: Argentina
Current Population Trend: Stable



Geographic Range This species is known only from the type locality of "la cordilleras de Catamarca en el arroyo 'Aguas Calientes' (4,020m asl) en las inmediaciones de Cazadero Grande", Catamarca, in north-western Argentina.
Population It is common within its restricted range.
Habitat and Ecology It is an aquatic species known only from a single thermal spring of about 5km in length. Breeding takes place in the stream and the species does not occur in modified habitats.
Major Threats This species is potentially threatened by the use of the stream as a watering point for passing livestock, and the removal of vegetation from the area for firewood, but at present these threats appear to be minor, and no decline has been noted. Chytridiomycosis also is a potential future threat.
Conservation Measures It is not present in any protected areas, and there might be a need for improved habitat protection at the type locality. The species is in need of close population monitoring given its very limited range and the potential threat of chytridiomycosis.
Bibliography: Lavilla, E.O. *et al.* (2000), Lavilla, E.O. and Cei, J.M. (2001)
Data Providers: Esteban Lavilla

VU *Telmatobius hockingi* Salas and Sinsch, 1996

Vulnerable A3e
Order, Family: Anura, Leptodactylidae
Country Distribution: Peru
Current Population Trend: Decreasing

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Geographic Range This species is known only from the type locality of Río Sihuas, in the department of Ancash, in the Peruvian Andes at an elevation of 2,700m asl. Its distribution is very poorly known, and it is likely to occur more widely.
Population There is no information on the population status of this species.
Habitat and Ecology This is a riparian semi-aquatic species. It is found under rocks in fast-flowing streams in alder forest. It is also found under rocks in pools and moist soil. Reproduction occurs in streams. It is not known if it occurs in degraded habitats.
Major Threats It is likely to be impacted by ongoing forest loss. *Telmatobius* populations living at high elevations might be particularly prone to infection with chytrid, although this pathogen has yet to be reported from *T. hockingi*.
Conservation Measures It is not present in any protected areas, and there is a need for improved habitat protection at the type locality. Further survey work is needed to assess the current population status of the species, and there is a need for close monitoring of populations given the potential threat of chytridiomycosis.
Bibliography: Salas, A.W. and Sinsch, U. (1996)
Data Providers: Javier Icochea, Edgar Lehr, César Aguilar Puntriano, Ulrich Sinsch

VU *Telmatobius huayra* Lavilla and Ergueta, 1995

Vulnerable B1ab(ii,iv)
Order, Family: Anura, Leptodactylidae
Country Distribution: Bolivia
Current Population Trend: Decreasing

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Geographic Range This species occurs in the southern Andean highlands of Bolivia, in Sud Lípez, in the southern part of the department of Potosí, at around 4,200m asl.
Population It is locally common. Although its populations appear to be relatively stable, there is some evidence of a decline.
Habitat and Ecology It is an aquatic species that lives in very scattered populations in small streams, rivers and peat bogs, in a cold desert landscape. Some populations live in thermal springs. It presumably breeds by larval development in water.
Major Threats The causes of the observed declines are not known, but given the high elevation at which the species occurs, climate change could be a threat.
Conservation Measures It occurs in the National Reserve of Andine Fauna Eduardo Avaroa. Further research is needed to investigate the reasons for the declines observed in this species.
Bibliography: Lavilla, E.O. and Ergueta, P. (1995)
Data Providers: Claudia Cortez, Steffen Reichle, Ignacio De la Riva, Jörn Köhler

EN *Telmatobius hypselocephalus* Lavilla and Laurent, 1989 "1988"

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

Geographic Range This species is known only from two nearby localities in Jujuy Province, in north-western Argentina: El Moreno (the type locality); and El Angosto. Its altitudinal range is 3,500-3,600m asl. It might occur a little more widely than current records suggest.
Population It is a rare species.
Habitat and Ecology It is wholly aquatic, and is found in high mountain streams usually surrounded by scrubby bush land. It is not known from any modified habitats.
Major Threats Current threats include pollution of the streams by livestock, and collection of vegetation surrounding the streams for firewood (leading to increased run-off sedimentation). Other potential threats include the introduction of predatory fishes (trout), stream pollution from mining activities, destruction of high mountain bogs associated with the streams, and alteration of stream watersheds. Chytridiomycosis is also a potential future threat.
Conservation Measures It is not present in any protected areas, and habitat protection is urgently required to ensure the long-term persistence of this species.
Bibliography: Lavilla, E.O. *et al.* (2000), Lavilla, E.O. and Cei, J.M. (2001), Lavilla, E.O. and Laurent, R.F. (1988)
Data Providers: Esteban Lavilla

EN *Telmatobius ignavus* Barbour and Noble, 1920

Endangered A3e; B1ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Peru
Current Population Trend: Decreasing

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Geographic Range This species is known only from the Cordillera de Huancabamba (in Piura Department) at an altitude of 1,840-3,080m asl.
Population It is an uncommon species.
Habitat and Ecology It is a riparian, semi-aquatic, stream-breeding frog, and can be found under rocks in streams in very humid montane forest, humid lower montane forest and possibly dry lower montane forest. It may occur in disturbed areas, where water quality remains good, and has been recorded close to towns and agricultural areas.
Major Threats There are no current major threats known for the areas occupied, though there may be some localized stream degradation. However, *Telmatobius* populations living at high elevations are particularly prone to infection with chytridiomycosis, and, although the pathogen has yet to be reported from *T. ignavus*, congeners nearby in Ecuador have disappeared, and so this species would appear to be seriously at risk.
Conservation Measures It is not known to be present in any protected areas. This species requires careful population monitoring, particularly given the risk of chytridiomycosis.
Bibliography: Duellman, W.E. and Wild, E.R. (1993), Wiens, J.J. (1993)
Data Providers: Javier Icochea, Erik Wild, César Aguilar Puntriano

EN *Telmatobius laticeps* Laurent, 1977

Endangered B1ab(ii,iii,iv,v)+2ab(ii,iii,iv,v)
Order, Family: Anura, Leptodactylidae
Country Distribution: Argentina
Current Population Trend: Decreasing

Geographic Range This species is restricted to the valley of Tafí in Tucumán Province, Argentina, with an altitudinal range of 1,900-3,100m asl.
Population It was previously common and had been recorded from seven localities. However, the species was last collected in 1992 and it appears to have disappeared from the lower parts of its range (it was not found during intensive surveys in 2003). The status of populations at higher elevations is currently not known, as there have been no recent collections within this part of the range.
Habitat and Ecology It is a wholly aquatic, stream-breeding species of mountain streams within bog land areas; at higher elevations, the surrounding vegetation is shrubland, while the vegetation in lowland areas includes some trees (*Alnus* spp.). The species is not present in any modified habitats.
Major Threats Current threats to the species include predation by introduced exotic fishes (trout); urbanization and the drainage of bogs; alterations of watercourses (through measures such as canalization); degradation of bog habitat by four-wheel drive vehicles; potato cultivation close to the stream edges (increasing sedimentation); construction of roads across the streams; plantation of exotic tree species (pines, with subsequent sedimentation during harvesting); and construction of power-lines in the gorges and within the streams (also resulting in stream sedimentation). Potential future threats include water pollution through mining activities, and also chytridiomycosis: populations of other species in the genus living at high elevations are very susceptible to infection with chytridiomycosis. The pathogen has yet to be reported from *Telmatobius laticeps*, but congeners in Ecuador have disappeared, and so this species would appear to be seriously at risk
Conservation Measures The species is not present in any protected areas, and therefore habitat protection is a priority. Further survey work is necessary at higher elevations to establish the current status of those populations.
Bibliography: Laurent, R.F. (1977), Lavilla, E.O. *et al.* (2000), Lavilla, E.O. and Cei, J.M. (2001)
Data Providers: Esteban Lavilla

EN *Telmatobius latirostris* Vellard, 1951

Endangered A3ce; B1ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Peru
Current Population Trend: Decreasing

Geographic Range This species is known only from the type locality of the city of Cutervo, Cajamarca Department, in the northern Peruvian Andes, and was collected at an elevation of 2,620m asl. It is expected to occur more widely, but additional survey work is needed to confirm this.
Population Nothing is known about the population status of this species; it was last collected in 1993 by J. Wiens at the type location.
Habitat and Ecology It is a riparian, semi-aquatic, stream-breeding frog, with breeding taking place in streams and ditches in the city.
Major Threats There is little information on threats to this species, although it is presumably impacted by habitat loss, while within Cutervo it is threatened by water pollution. *Telmatobius* populations living at high elevations are particularly prone to infection with chytridiomycosis, and, although the pathogen has yet to be reported from *T. latirostris*, congeners nearby in Ecuador have disappeared, and so this species may be seriously at risk.
Conservation Measures It may be present in Parque Nacional Cutervo, although this requires confirmation. Further research into this little-known species is needed.
Bibliography: Rodríguez, L.O., Cordova, J.H. and Icochea, J. (1993), Vellard, J. (1951), Wiens, J.J. (1993)
Data Providers: Javier Icochea, Ulrich Sinsch, Edgar Lehr

VU *Telmatobius marmoratus* (Duméril and Bibron, 1841)

Vulnerable A3cde
Order, Family: Anura, Leptodactylidae
Country Distribution: Bolivia, Chile, Peru
Current Population Trend: Decreasing


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Geographic Range This species has the broadest distribution of any *Telmatobius* species. It is known from the Andean region of southern Peru, northern and central Bolivia and northern Chile. It is recorded in Peru from the Lake Titicaca and Cusco region (Cusco and Puno departments), with uncertain records from Ayacucho (not mapped). In Bolivia, it is recorded from the departments of La Paz, Oruro, and the highlands of Cochabamba. It is present in the altiplano of northern Chile (Parinacota, Lauca River, and Chungara Lake, Parinacota Province). It is also recorded from three localities in Argentina (Jujuy Province on the Bolivian border), although the taxonomic status of these specimens is unclear. It occurs from 3,000-5,000m asl.
Population In Bolivia and Peru it is locally common. In Chile the species is reported to have large populations, and to be abundant in high plateau streams.
Habitat and Ecology It is a riparian, semi-aquatic frog of streams, waterfalls and slow moving water in montane grasslands and shrublands. Breeding takes place in small lakes, streams and rivers with good water quality.
Major Threats This species is currently subject to over-harvesting in Peru, and is susceptible to eutrophication of waterways through agricultural activities (livestock and agrochemicals). Chytridiomycosis has been reported in specimens from Cusco in Peru (although without reference to population declines), but healthy specimens were found in the department of Puno in southern Peru during recent fieldwork (February 2006; I. De la Riva pers. comm.). It is not currently threatened in Chile.
Conservation Measures In Bolivia the species has been recorded from Parque Nacional Cotapata and Parque Nacional Sajama. In Peru, it presumably occurs in Reserva Nacional del Titicaca. In Chile, it occurs in Parque Nacional Lauca. It is plausible that some populations of this widespread species are extinct or have declined due to chytridiomycosis, but further survey work is needed to investigate this.
Notes on taxonomy: This species is a complex of more than one species.
Bibliography: Benavides, E., Ortiz, J.C. and Sites, J.W. (2002), De la Riva, I. *et al.* (2000), Formas, J.R. (1995), Lavilla, E.O., Barrionuevo, S. and Baldo, D. (2002), Rodríguez, L.O., Cordova, J.H. and Icochea, J. (1993), Servicio Agrícola Ganadero (1998), Veloso, A. *et al.* (1982a), Veloso, A. and Navarro, J. (1988)
Data Providers: Javier Icochea, Wilfredo Arizabal, Edgar Lehr, Ignacio De la Riva, Alberto Veloso, Herman Núñez, Esteban Lavilla

EN *Telmatobius mayoloi* Salas and Sinsch, 1996

Endangered A3e; B1ab(iii,v)
Order, Family: Anura, Leptodactylidae
Country Distribution: Peru
Current Population Trend: Decreasing


© Mikael Lundberg

Geographic Range This species is endemic to Ancash Department, Peru. It is restricted to the Río Santa, from the type locality of the "mouth of Rio Santa 500m from Lake Conococha, Provincia Recuay (4,050m asl)" 30km northwards along this river and in small rivers and waterways associated with the river (Conococha, Catac, Laguna Aguashcocha, Pachacoto). It has an altitudinal range of 3,515-4,150m asl.
Population It is uncommon.
Habitat and Ecology It is a riparian, semi-aquatic stream-breeding, frog restricted to the puna region, and may be found under rocks and submerged plants in slow-moving sections of rivers. It is not recorded from degraded habitats.
Major Threats Major threats include local use for food and medicine (including the larvae), and water pollution from mining and agrochemical use. *Telmatobius* populations living at high elevations are particularly prone to infection with chytridiomycosis, and, although the pathogen has yet to be reported from *T. mayoloi* it could be at risk.
Conservation Measures It is present in Parque Nacional Huascaran. There is a need to regulate harvesting and offtake of this species. Close population monitoring is required, particularly given the potential threat of chytrid.
Bibliography: Lehr, E. (2000), Lehr, E. (2002), Lehr, E., Köhler, G. and Streit, B. (2002), Salas, A.W. and Sinsch, U. (1996)
Data Providers: Javier Icochea, Edgar Lehr

EN *Telmatobius necopinus* Wiens, 1993

Endangered A3e
Order, Family: Anura, Leptodactylidae
Country Distribution: Peru
Current Population Trend: Decreasing

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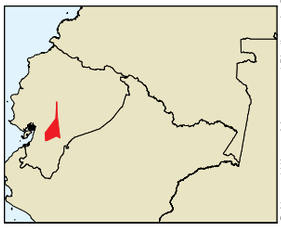
Geographic Range This species is known only from the type locality on the eastern-most ridge of the Cordillera Central, Amazonas Department, in the northern Peruvian Andes at an altitude of approximately 2,050m asl. It is likely to occur more widely.
Population Nothing is known of the species' current population status.
Habitat and Ecology It is a riparian, semi-aquatic, stream-breeding frog, and may be found under rocks in cloud forest streams. It has been observed in muddy roadside ditches at night.
Major Threats The major threats are not known. Populations of other species in the genus living at high elevations are very susceptible to infection with chytridiomycosis. The pathogen has yet to be reported from *Telmatobius necopinus*, but congeners in Ecuador have disappeared, and so this species would appear to be seriously at risk.
Conservation Measures Survey work is needed to establish the population status of this species, and it requires careful population monitoring, particularly given the risk of chytridiomycosis. It is not known to be present in any protected areas.
Bibliography: Wiens, J.J. (1993)
Data Providers: Javier Icochea, Edgar Lehr

CR *Telmatobius niger* Barbour and Noble, 1920

Critically Endangered A2ace
Order, Family: Anura, Leptodactylidae
Country Distribution: Ecuador
Current Population Trend: Decreasing



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Geographic Range This species has been recorded from more than 10 localities on both slopes of the Ecuadorian Andes from the Cuenca Basin (in the Province of Azuay) north to Juan Benigno Vela (in the Province of Tungurahua). Records from Intac in the Province of Imbabura are considered to be invalid, and are not mapped here. The altitudinal range is 2,496-4,000m asl.
Population It was formerly reasonably common, but it has declined dramatically and might be extinct. It was last recorded in Lagunas de Atillo, in the Province of Chimborazo, in December 1994, despite six visits to locate the species between 1994 and 2002.
Habitat and Ecology It is an inhabitant of high-altitude páramo grassland, where it is found in the vicinity of streams and rivers. By day, adults usually are found beneath rocks and in weedy vegetation in and at the edge of streams (where they breed).
Major Threats *Telmatobius* species in Ecuador have been impacted by disease (not only from chytridiomycosis-confirmed in this species in 1994-but also from another fungal disease, a nematode infection, and from morphological malformations). Climatic abnormalities might also be implicated, and are perhaps related to the incidence of disease outbreaks. In addition, habitat destruction and degradation is taking place due to agricultural development (crops and livestock ranching) and human settlement. Local people have traditionally heavily used species of the genus for food.
Conservation Measures The range of the species overlaps the Parque Nacional Sangay and the Parque Nacional Cajas. Although protection and maintenance of existing habitat is clearly needed, the risk of disease means that it is a very high priority to conduct surveys to relocate this species and determine its current population status. Any surviving individuals should form the basis for the initiation of a captive-breeding programme.
Bibliography: Barbour, T. and Noble, G.K. (1920), Merino-Viteri, A. and Coloma, L.A. (2003), Trueb, L. (1979)
Data Providers: Andrés Merino-Viteri, Luis A. Coloma, Santiago Ron, John Lynch

VU *Telmatobius oxycephalus* Vellard, 1946

Vulnerable D2
Order, Family: Anura, Leptodactylidae
Country Distribution: Argentina
Current Population Trend: Stable

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Geographic Range This species is currently only known from the Parque Nacional Calilegua, Jujuy Province, in north-western Argentina. The type locality of "Cerro de la Escalera, Orán Range, Salta Province", is unspecific and cannot be relocated, and therefore is not mapped here. It has an altitudinal range of 1,400-2,550m asl.
Population It is a rare species.
Habitat and Ecology It is mostly aquatic and inhabits and breeds in streams in montane forest. The species is not known to occur in modified habitats.
Major Threats The only known populations of this species are within a protected area. If the species occurs outside the Parque Nacional Calilegua , then threats might include selective logging, introduction of predatory fishes (trout), alteration of watersheds, and the impacts of mining operations. Chytridiomycosis is a potential future threat.
Conservation Measures It is present in Parque Nacional Calilegua, although the reserve is in need of improved management. This species requires close population monitoring given that it is currently known from only a single site, and there is the potential threat of chytridiomycosis.
Bibliography: Lavilla, E.O. *et al.* (2000), Lavilla, E.O. and Cei, J.M. (2001), Vaira, M. (2002)
Data Providers: Esteban Lavilla

CR *Telmatobius pefauri* Veloso and Trueb, 1976

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

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Geographic Range This species is known only from the type locality: Zapahuira, Parinacota Province, in extreme northern Chile (18° 20'S; 69° 36'W) at 3,400m asl, on the western slopes of the Andes.
Population A small population persisted in 1999, but the species generally appears to be in decline.
Habitat and Ecology The type locality is a small high-altitude stream, close to human villages. It is wholly aquatic, requiring small permanent streams to persist, and its tolerance to habitat destruction is unknown. Reproduction occurs in the water and it has large, free-swimming tadpoles.
Major Threats The main threat to the species is water extraction from streams, because local people extract water for cattle ranching and human use; it might also be affected by the impact of cattle on the streams. Although not recorded, chytridiomycosis is a potential future threat.
Conservation Measures It does not occur in any protected area. Habitat protection and maintenance is recommended, complemented by more general actions to mitigate the effects of water pollution and channelization. Close monitoring of surviving populations of this species is required.
Bibliography: Formas, J.R. (1995), Servicio Agrícola Ganadero (1998), Veloso, A. *et al.* (1982a), Veloso, A. and Navarro, J. (1988), Veloso, A. and Trueb, L. (1979)
Data Providers: Alberto Veloso, Herman Núñez

VU *Telmatobius peruvianus* Wiegmann, 1834

Vulnerable B1ab(iii,v)
Order, Family: Anura, Leptodactylidae
Country Distribution: Chile, Peru
Current Population Trend: Decreasing

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Geographic Range This species is known from the south-eastern Andes of Perú (Moquegua and Tacna departments), and a single site in Chile: Putre, Parinacota Province, close to the Peruvian border, at 3,300m asl.
Population There is little recent information on the status of this species in Peru. The small Chilean population is declining, and was last seen in 1986; several visits to the site in 1996 and 2003 failed to turn up any records.
Habitat and Ecology It is a riparian, semi-aquatic frog, occurring in streams and small rivers in the high Andes. Breeding takes place in streams. Itly is not known to occur in modified or degraded habitats.
Major Threats In Peru, there are some localized threats including habitat loss, through mining and agricultural activities, and small-scale harvesting for food and medicine. In Chile, it is locally threatened by human water consumption and water pollution, leading to the drying out of streams. *Telmatobius* species living at high elevations might be particularly prone to infection with chytrid, although this pathogen has yet to be reported from *T. peruvianus*.
Conservation Measures It has not been recorded from any protected areas, and there is a need for improved habitat protection at sites at which the species has been recorded. In Chile, there is a need for further survey work to determine the species' current population status. There is a need for close monitoring of the status of this species given the potential threat of chytridiomycosis.
Bibliography: Formas, J.R. (1995), Glade, A. (1993), Rodríguez, L.O., Cordova, J.H. and Icochea, J. (1993), Servicio Agrícola Ganadero (1998), Vellard, J. (1951), Veloso, A. *et al.* (1982a), Veloso, A. and Navarro, J. (1988)
Data Providers: Javier Icochea, Edgar Lehr, Daniel Neira, Ulrich Sinsch, Alberto Veloso, Herman Núñez

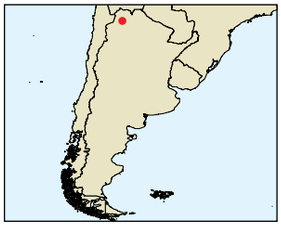
EN *Telmatobius pisanoi* Laurent, 1977

Endangered B1ab(ii,iii,iv,v)+2ab(ii,iii,iv,v)
Order, Family: Anura, Leptodactylidae
Country Distribution: Argentina
Current Population Trend: Decreasing

Geographic Range This species is restricted to the Calchaquí Valley, Catamarca and Tucumán Provinces, Argentina. It has been recorded from seven localities, and has an altitudinal range of 2,600-4,200m asl.
Population It has disappeared entirely from the lower-elevation parts of its range.
Habitat and Ecology It is wholly aquatic, breeding in mountain bog streams surrounded by dry shrubland. It does not occur in modified habitats.
Major Threats Current threats to the species include: introduction of predatory exotic fishes (trout); urbanization and the drainage of bogs; alterations of watercourses (through measures such as canalization); degradation of bog habitat by four-wheel drive vehicles; potato cultivation close to the stream edges (increasing sedimentation); construction of roads across the streams; plantation of exotic tree species (pines, with subsequent sedimentation during harvesting); and construction of power-lines in the gorges and within the streams (also resulting in stream sedimentation). Potential threats include water pollution through mining activities, and chytridiomycosis: populations of other species in the genus living at high elevations are very susceptible to infection with chytridiomycosis. The pathogen has yet to be reported from *Telmatobius pisanoi*, but congeners in Ecuador have disappeared, and so this species would appear to be seriously at risk
Conservation Measures The species is not present in any protected areas, and therefore habitat protection is a priority. Further survey work is necessary at lower elevations to establish whether any populations may still survive.
Bibliography: Laurent, R.F. (1977), Lavilla, E.O. *et al.* (2000), Lavilla, E.O. and Cei, J.M. (2001)
Data Providers: Esteban Lavilla

EN *Telmatobius platycephalus* Lavilla and Laurent, 1989 "1988"

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



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Geographic Range This species is known only from three nearby localities in Jujuy Province, north-western Argentina: El Moreno, El Angosto and San Jose de Chani. It has an altitudinal range of 3,600-3,750m asl.
Population It is a rare species.
Habitat and Ecology It is wholly aquatic, breeding in high mountain streams surrounded by rough bush land, and does not occur in modified areas.
Major Threats Current threats include the pollution of streams by livestock activities, and the collection of vegetation surrounding the streams for firewood (resulting in run-off and stream sedimentation). Potential threats from nearby villages include the introduction of predatory fishes (trout), stream pollution through mining activities, and the destruction of high mountain bogs (stream watersheds). Chytridiomycosis also poses a potential future threat.
Conservation Measures It is not present in any protected areas, and protection of suitable habitat is urgently required. There is also a need for continued population monitoring, particularly given the threat of chytrid.
Bibliography: Lavilla, E.O. *et al.* (2000), Lavilla, E.O. and Cei, J.M. (2001), Lavilla, E.O. and Laurent, R.F. (1988)
Data Providers: Esteban Lavilla

EN *Telmatobius schreiteri* Vellard, 1946

Endangered B2ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Argentina
Current Population Trend: Decreasing

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Geographic Range This species is known only from two localities within the Famatina range of mountains, Aimogasta (type locality 28° 33'S; 66° 49'W) and a gorge near to Anjullon (28° 44'S; 66° 56'W), in La Rioja Province, western Argentina. It has been recorded from elevations between 1,800 and 2,050m asl.
Population It is a rare species.
Habitat and Ecology It is wholly aquatic, breeding in high mountain streams surrounded by dry bush land, and is not present in modified habitats.
Major Threats Current threats include the introduction of predatory fishes (trout); stream pollution through livestock and mining activities; collection of streamside vegetation (with resulting increased runoff); and destruction of high mountain bogs and other watersheds. Chytridiomycosis is a potential future threat.
Conservation Measures It is not present in any protected areas, and protection of suitable habitat is clearly required. There is also a need for continued population monitoring, particularly given the threat of chytrid.
Bibliography: Lavilla, E.O. *et al.* (2000), Lavilla, E.O. and Cei, J.M. (2001)
Data Providers: Esteban Lavilla

EN *Telmatobius scrocchii* Laurent and Lavilla, 1986

Endangered B1ab(ii,iii,iv,v)+2ab(ii,iii,iv,v)
Order, Family: Anura, Leptodactylidae
Country Distribution: Argentina
Current Population Trend: Decreasing

Geographic Range This species is known only from four sites: the El Ingenio stream (which is the type locality), and its tributaries the Río Arenal, Loma Redonda and Lio los Cerrillos, in the Campo Arenal area of Catamarca Province, north-western Argentina. It has an altitudinal range of 3,000-3,050m asl.
Population This is a rare species that has not been seen since a catastrophic flooding event took place in 1997 when the main river, El Ingenio, rose seven metres above its normal level and washed away everything except for large rocks. While it seems that the species no longer survives in the El Ingenio stream itself, the tributaries of El Ingenio have not been surveyed since the flooding event.
Habitat and Ecology It is an aquatic species, breeding in high mountain streams surrounded by shrubland, but is not present in modified habitats.
Major Threats Previous, and possibly remaining, major threats to any surviving populations include pollution from mining activities; introduction of predatory fishes (trout); destruction of high mountain bogs; and alteration of watersheds. Chytridiomycosis is also a potential future threat.
Conservation Measures It is not known from any protected areas. Survey work in the tributaries of the El Ingenio is urgently needed to ascertain whether the species is still present; the possibility of re-introducing the species to the El Ingenio stream also should be considered.
Bibliography: Lavilla, E.O. *et al.* (2000), Lavilla, E.O. and Cei, J.M. (2001)
Data Providers: Esteban Lavilla

EN *Telmatobius sibiricus* De la Riva and Harvey, 2003

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

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Geographic Range This species is known only from two localities in the La Siberia region of the Bolivian Andes in the departments of Cochabamba and Santa Cruz, from 2,000-2,900m asl.
Population It is a fairly common species.
Habitat and Ecology It lives in montane cloud forest, and is found near small rivers and in roadside ditches. It is both aquatic and terrestrial, and breeds in streams. It is able to tolerate some level of habitat disturbance.
Major Threats The major threats to this species are habitat loss and degradation, due to agriculture and timber extraction, and water pollution. Chytridiomycosis is a potential future threat.
Conservation Measures It occurs in Parque Nacional Carrasco and Parque Nacional Amboro. This species requires careful population monitoring, particularly given the potential threat of chytridiomycosis.
Bibliography: De la Riva, I. and Harvey, M.B. (2003)
Data Providers: Claudia Cortez, Steffen Reichle, Ignacio De la Riva, Jörn Köhler

EN *Telmatobius stephani* Laurent, 1973

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

Geographic Range This species is known from only four localities (Río Encrucijada, La Cumbrecita, Cerro el Manchao and Casa de Piendra de los Cajones) in the Sierra de El Manchao, Catamarca Province, in north-western Argentina. It has an altitudinal range of 2,200-2,300m asl.
Population It is a rare species.
Habitat and Ecology It is wholly aquatic, breeding in small rivulets in mountain Yungas forest. The species does not occur in modified habitats.
Major Threats The main threat is habitat loss, due to both selective logging and clear-cutting of primary Yungas forest. Other threats include the introduction of predatory fishes (trout), alteration of watersheds, agricultural activities, and potential mining within the area. Chytridiomycosis is a potential future threat.
Conservation Measures It is not known from any protected areas, and there is a need for immediate protection of its montane forest habitat. This species requires careful population monitoring, particularly given the potential threat of chytridiomycosis.
Bibliography: Lavilla, E.O. *et al.* (2000), Lavilla, E.O. and Cei, J.M. (2001)
Data Providers: Esteban Lavilla

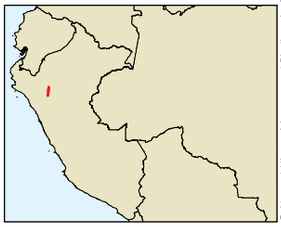
EN *Telmatobius thompsoni* Wiens, 1993

Endangered A3e
Order, Family: Anura, Leptodactylidae
Country Distribution: Peru
Current Population Trend: Unknown

Geographic Range This species is known only from the type locality: "13km ESE Yamobamba, 18km SE Agallpampa on road from Otuzco to Huamachuco (75° 09'S;78° 36'W)" in the Cordillera Occidental, Huamachuco (La Libertad Department), in the northern Peruvian Andes. It has been collected at 3,290m asl. Its distribution is poorly known and it is likely to occur more widely.
Population There is no information on the population status of this species.
Habitat and Ecology It is a riparian, semi-aquatic frog, that breeds in streams, pools and marshes in very humid subalpine páramo. It is not known from degraded habitats.
Major Threats There is no information on immediate threats to the species. Populations of other species in the genus living at high elevations are susceptible to infection with chytridiomycosis, and, although the pathogen has yet to be reported from *Telmatobius thompsoni*, this species would appear to be at risk.
Conservation Measures Survey work is needed to establish the population status of this species, and it requires careful population monitoring, particularly given the risk of chytridiomycosis. It is not known to be present in any protected areas.
Bibliography: Wiens, J.J. (1993)
Data Providers: Javier Icochea, Ulrich Sinsch, Edgar Lehr, Daniel Neira, Jorge Luis Martinez

EN *Telmatobius truebae* Wiens, 1993

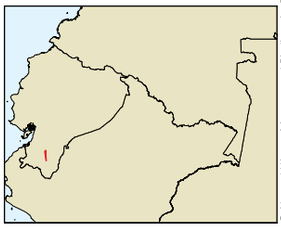
Endangered A3e
Order, Family: Anura, Leptodactylidae
Country Distribution: Peru
Current Population Trend: Unknown



Geographic Range This species is currently known from the Cordillera Oriental of northern Perú (in Amazonas Department) at 2,150-3,470m asl. Its distribution is poorly known and it is likely to occur more widely.
Population There is no information on the population status of this species.
Habitat and Ecology It is a riparian, semi-aquatic, stream-breeding frog, typically found under rocks, and along streams and drainage ditches, in very humid montane forest. It is not known from degraded habitats.
Major Threats There is no information on immediate threats to the species. Populations of other species in the genus living at high elevations are susceptible to infection with chytridiomycosis, and, although the pathogen has yet to be reported from *Telmatobius truebae*, this species would appear to be at risk.
Conservation Measures Survey work is needed to establish the population status of this species, and it requires careful population monitoring, particularly given the risk of chytridiomycosis. It is not known to be present in any protected areas.
Bibliography: Wiens, J.J. (1993)
Data Providers: Javier Icochea, Ulrich Sinsch, Edgar Lehr, Daniel Neira, Jorge Luis Martinez

CR *Telmatobius vellardi* Munsterman and Leviton, 1959

Critically Endangered A2ace;B2ab(i,ii,iii,iv,v)
Order, Family: Anura, Leptodactylidae
Country Distribution: Ecuador
Current Population Trend: Decreasing



Geographic Range This species is known only from four localities in the general vicinity of the Cajanuma Mountains, 15km south of Loja, in Loja Province, southern Ecuador. Its altitudinal range is 2,500-3,050m asl.
Population Populations of this species have declined seriously, and it was last recorded in July 1987, close to Centro Administrativo of Parque Nacional Podocarpus. It might possibly survive in the south-eastern páramos of Loja Province, but there are also concerns that it is already extinct.
Habitat and Ecology It is found in the vicinity of streams, rivers and irrigation ditches, in pastures and humid montane forest. Adults can be found beneath stones and logs in or near streams (which is also where they breed). It is not known to what extent it can adapt to disturbed habitats.
Major Threats *Telmatobius* species in Ecuador have been impacted by disease (including chytridiomycosis, but also from another fungal disease, a nematode infection, and from morphological malformations). Climatic abnormalities might also be implicated, and are perhaps related to the incidence of disease outbreaks. In addition, habitat destruction and degradation is taking place due to agricultural development (crops and livestock ranching) and human settlement. Species in the genus are also commonly used for food.
Conservation Measures It is not known from any protected areas. Although protection and maintenance of existing habitat is clearly needed, the risk of disease means that it is a very high priority to conduct surveys to relocate this species and determine its current population status. Any surviving individuals should form the basis for the initiation of a captive-breeding programme.
Bibliography: Merino-Viteri, A. and Coloma, L.A. (2003), Munsterman, H.E. and Leviton, A.E. (1959), Trueb, L. (1979)
Data Providers: Andrés Merino-Viteri, Luis A. Coloma, Santiago Ron

VU *Telmatobius verrucosus* Werner, 1899

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

Geographic Range This species occurs in the Yungas of the department of La Paz, Bolivia, at an altitudinal range of 3,000-3,600m asl.
Population It is an uncommon species; the most recent records date to 2004.
Habitat and Ecology This species inhabits upper montane humid forests. It is an aquatic species that has been observed both in streams and under big, flat stones (Lavilla and Ergueta 1995). There is no information on the breeding habits of this species, but it presumably breeds in streams.
Major Threats This species might be threatened by the loss of riparian habitat and water pollution, presumably from agricultural activity and from domestic sources. It might also be susceptible to infection with the chytrid pathogen.
Conservation Measures It might be present in Parque Nacional Cotapata and in the Apollobamba Mountains. There is a need for close monitoring of the status of this species given the potential threat of chytridiomycosis.
Notes on taxonomy: We follow De la Riva *et al.* (2000) in considering this species to be separate from *Telmatobius marmoratus*, and also follow De la Riva (2004) in considering *T. jahuira* as a synonym of *T. verrucosus*.
Bibliography: De la Riva, I. (2004), De la Riva, I. *et al.* (2000), Lavilla, E. and Ergueta, P. (1995), Vellard, J. (1970)
Data Providers: Ignacio De la Riva

VU *Telmatobius yuracare* De la Riva, 1994

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

Geographic Range This species occurs in the eastern Andes of Bolivia, between Chapare Province, in the department of Cochabamba, and Caballero Province, in the department of Santa Cruz, at 2,000-3,000m asl (De la Riva 1994).
Population It is locally common.
Habitat and Ecology It is an aquatic species that can be observed on the bottom of small streams or rivers, and in ponds, in montane cloud forest and Yungas forest. It presumably breeds in water by larval development. It is not known from exposed areas outside forest.
Major Threats It is probably declining because of habitat loss and degradation, due to agriculture and logging, and also water pollution. Chytridiomycosis is a potential future threat.
Conservation Measures It presumably occurs in Parque Nacional Carrasco. There is a need for close monitoring of the status of this species given the potential threat of chytridiomycosis.
Bibliography: De la Riva, I. (1994a), Köhler, J. (2000a)
Data Providers: Claudia Cortez, Steffen Reichle, Ignacio De la Riva, Jörn Köhler

CR *Telmatobius zapahuirensis* Veloso, Sallaberry, Navarro, Iturra, Valencia, Penna and Díaz, 1982

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

Geographic Range This species is known only at the type locality on the western slopes of the northern Chilean Andes: Zapahuira, Parinacota Province (18° 20'S; 69° 36'W), at 3,400m asl. It might occur more widely, but it is likely to have a very small range.
Population The population surviving at the type locality is small, and underwent a steep decline following the construction of a nearby dam.
Habitat and Ecology It is a riparian, semi-aquatic species, occurring in streams and small rivers in the high Andes; breeding takes place in streams.
Major Threats The only known locality is close to human villages, where the species occurs in streams that have been modified by peasants for agriculture, suggesting some limited ability to adapt to human disturbance. A known major threat to the species has been the construction of the nearby dam for human water consumption. Although not yet recorded, chytridiomycosis is a possible future threat.
Conservation Measures It does not occur in any protected areas. Close monitoring of the population status of this species is needed.
Bibliography: Formas, J.R. (1995), Servicio Agrícola Ganadero (1998), Veloso, A. *et al.* (1982a), Veloso, A. *et al.* (1982b)
Data Providers: Alberto Veloso, Herman Núñez

VU *Telmatobufo australis* Formas, 1972

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

Geographic Range This species is known from the western and eastern slopes of the Coastal Range, in Valdivia and Osorno Provinces, Chile, at 0 -1,000m asl. It is found at 38° 38'S to 40° 53'S, localities that correspond to the Nothofagus region.
Population It is known from only a few small, disjunct populations, and is uncommonly seen (it was recorded as recently as 2001).
Habitat and Ecology It occurs in fast-flowing streams in temperate Nothofagus forest. The tadpoles are free-swimming and feed by scraping algae off of submerged rocks. It is tolerant of minor habitat destruction.
Major Threats The main threat to this species is the siltation of streams (which makes it difficult for larvae to feed), caused by afforestation with exotic species and clear cutting.
Conservation Measures It is not known to occur in any protected areas, and there is a need for greatly improved protection of the Valdivian forests.
Bibliography: Formas, J.R. (1972), Formas, J.R. (1995), Formas, J.R., Núñez, J.J. and Brieva, L.M. (2001), Glade, A. (1993), Núñez, J.J. and Formas, J.R. (2000), Servicio Agrícola Ganadero (1998), Veloso, A. and Navarro, J. (1988)
Data Providers: Alberto Veloso, Herman Núñez, Ramón Formas, Jose Núñez

CR *Telmatobufo bullocki* Schmidt, 1952

Critically Endangered B2ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Chile
Current Population Trend: Decreasing

Geographic Range This species is known from only a few locations in the Coastal Range, Nahuelbuta, Arauco Province, Chile, between 37° and 38°S. It has an altitudinal range of 800-1,200m asl.
Population It is extremely rare; extensive fieldwork by several herpetologists within the range of this species from 1992-2002 turned up only a single adult (in 2002).
Habitat and Ecology It occurs in fast-flowing streams in temperate *Nothofagus* forest. The tadpoles are free-swimming and feed by scraping algae off of submerged rocks. It is tolerant of moderate habitat destruction.
Major Threats The major threat to the species is clear cutting and afforestation with pine plantations, which causes siltation of streams (which, in turn, makes it harder for the larvae to feed).
Conservation Measures It occurs in the Parque Nacional Nahuelbuta, but there is a need for additional protection and maintenance of habitat at sites at which this species is known to occur. Further survey work is required to determine the current population status of the species.
Bibliography: Formas, J.R. (1995), Formas, J.R., Núñez, J.J. and Brieva, L.M. (2001), Glade, A. (1993), Núñez, J.J. and Formas, J.R. (2000), Servicio Agrícola Ganadero (1998), Veloso, A. and Navarro, J. (1988)
Data Providers: Alberto Veloso, Herman Núñez, Ramón Formas

EN *Telmatobufo venustus* Philippi, 1899

Endangered B2ab(iii)
Order, Family: Anura, Leptodactylidae
Country Distribution: Chile
Current Population Trend: Decreasing

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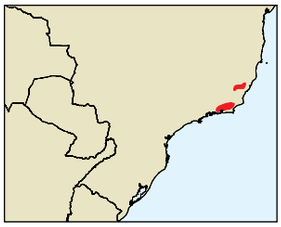
Geographic Range This species is known from the western slopes of the Chilean Andes from 35° 20'S to 38° 50'S (Altos de Vilches, Talca Province; Cordillera de Chillan, Chillan Province; Ralco, Bio Bio Province), at an elevation of 1,500-1,700m asl.
Population It is a rare species, and in 1999 was recorded for the first time in some 100 years. It is known from very few individuals from only three localities.
Habitat and Ecology It occurs under rocks along streams in temperate *Nothofagus* forest. Its reproduction is unknown, though it probably takes place by larval development in water.
Major Threats The major threat is habitat loss due to conversion of native habitat to pine and eucalyptus plantations, and as a result of forest fires.
Conservation Measures It occurs in Parque Nacional Altos de Lircay. Further survey work is needed to better understand the current population status of this poorly known species.
Bibliography: Formas, J.R. (1995), Formas, J.R., Núñez, J.J. and Brieva, L.M. (2001), Glade, A. (1993), Núñez, J.J. and Formas, J.R. (2000), Servicio Agrícola Ganadero (1998), Veloso, A. and Navarro, J. (1988)
Data Providers: Alberto Veloso, Herman Núñez, Ramón Formas

EN *Thoropa lutzi* Cochran, 1938

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



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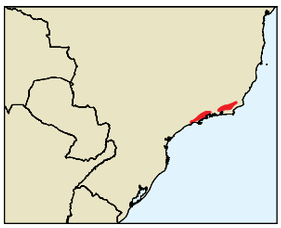
Geographic Range This species from south-eastern Brazil has been recorded from the states of Rio de Janeiro, Espirito Santo, and extreme south-eastern Minas Gerais. Its altitudinal range is 200-800m asl.
Population It is very rare, and has undergone precipitous declines. The records from Espirito Santo are very old, and it has not been seen in Rio de Janeiro for 20 years, despite searches. There are some recent records from Minas Gerais, in Parque Nacional do Caparao, these being the only recent records of the species.
Habitat and Ecology It lives on wet rock walls near streams in forest, or on the forest edge. The egg clutch is deposited in rock fissures, while the larvae live on wet rock walls where water drains.
Major Threats The major threats are probably related to habitat loss due to human settlement, tourist activities and fire. However, the reasons for the observed dramatic declines remain unexplained; like amphibians in some other parts of the wet tropics, it appears to have disappeared from areas of apparently suitable habitat, and chytridiomycosis cannot be ruled out as a threat, despite the fact that this pathogen has not been confirmed from Brazil.
Conservation Measures It occurs in Parque Nacional do Caparao, and has also been found in Parque Nacional da Tijuca in Rio de Janeiro, although there are no recent records. Further survey work is required to determine the current population status of this species, and further research is needed into the reasons for the decline of this species in suitable habitat.
Bibliography: Bokermann, W.C.A. (1965), Cochran, D.M. (1955), Izecksohn, E. and Carvalho-e-Silva, S.P. (2001)
Data Providers: Sergio Potsch de Carvalho-e-Silva, Ana Carolina Carnaval

VU *Thoropa petropolitana* (Wandolleck, 1907)

Vulnerable B1ab(iii,v)+2ab(ii,iii,iv,v)
Order, Family: Anura, Leptodactylidae
Country Distribution: Brazil
Current Population Trend: Decreasing



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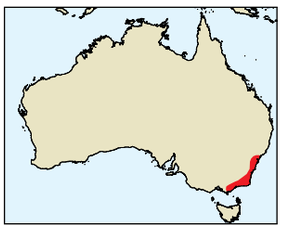
Geographic Range This species is known with certainty only from above 800m asl in the Serra des Órgãos, in the state of Rio de Janeiro, south-eastern Brazil. There are historical records from mountain tops in the state of São Paulo, but there are no recent records from this state. A record from Santa Teresa in the state of Espírito Santo requires confirmation.
Population It used to be common, but it has now undergone significant declines. For example, whereas it was once abundant and easy to find (at least up until 1979) at Teresópolis, Serra dos Órgãos, in Rio de Janeiro State, it has not been recorded since.
Habitat and Ecology It is found in rocky areas in forest, or on the forest edge, living on wet rock walls near streams or waterfalls. The egg clutch is deposited in rock fissures.
Major Threats The major threats are probably related to habitat loss due to clear-cutting, human settlement, tourism, and fire. However, this does not fully account for the recorded declines. Like amphibians in some other parts of the wet tropics, it appears to have disappeared from areas of apparently suitable habitat, and chytridiomycosis cannot be ruled out as a threat, even though this disease has not yet been confirmed from Brazil.
Conservation Measures It occurs in the Parque Nacional da Serra des Órgãos. However, the park is urgently in need of an improved management plan to accommodate increased tourist traffic to the area. There is a need for further research to investigate the reasons for the decline of this species in apparently suitable habitat.
Notes on taxonomy: The identity of populations outside the state of Rio de Janeiro require clarification.
Bibliography: Bokermann, W.C.A. (1965), Cochran, D.M. (1955), Eterovick, P.C. *et al.* (2005), Heyer, W.R. *et al.* (1988)
Data Providers: Sergio Potsch de Carvalho-e-Silva, Oswaldo Luiz Peixoto

LIMNODYNASTIDAE

VU *Heleioporus australiacus* (Shaw and Nodder, 1795) GIANT BURROWING FROG

Vulnerable A2ac
Order, Family: Anura, Limnodynastidae
Country Distribution: Australia
Current Population Trend: Decreasing



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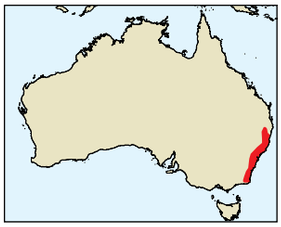
Geographic Range This species is confined to the eastern slopes of the Great Dividing Range and coastal regions from the south end of the Olney State Forest north of Sydney, New South Wales (Australian Museum records), to Walhalla in the central highlands of eastern Victoria (Littlejohn and Martin 1967). It has been found from near sea level up to 1,000m asl, from the coast to almost 100km inland along the escarpment of the Great Dividing Range (Gillespie 1990; Rescei 1997; Australian Museum records). Most records are either from the north end of the range in the Sydney region, or eastern Victoria and south-eastern New South Wales (see Gillespie 1990 for a summary of the distribution of *H. australiacus* in Victoria). There is a notable disjunction in records between Jervis Bay and the Eden District, which might be due to either the rarity of the species or the limited survey effort in the region. However, recent records have nearly filled in this gap (F. Lemckert pers. comm.).

Population Available information indicates that *H. australiacus* is now rare (Webb 1987; Gillespie 1990; Rescei 1997), and populations appear to have declined. However, information is lacking on the demography of the species and on the size of populations. With few exceptions, recent records of this species have been of a single individual or few individuals (Gillespie 1990; Daly 1996).
Habitat and Ecology In the south end of its range the species occurs in a wide range of forest communities including montane sclerophyll woodland, montane riparian woodland, wet, damp and dry sclerophyll forest (Gillespie 1990). In the central coast of New South Wales the species is associated with sandy soils that support heath vegetation (Mahony 1993). Breeding activity occurs in spring to autumn (Gillespie 1990). Males call from partially flooded burrows at the base of creek banks or beneath dense vegetation beside creeks (Littlejohn and Martin 1967; Gillespie 1990). Breeding occurs at ephemeral pools and sometimes-permanent pools. Watson and Martin (1973) recorded 775-1,239 eggs (2.6mm diameter) from four foamy egg masses deposited in standing or slow water in vegetation or burrows. Tadpoles are free-living and metamorphosis occurs at 3 and 11 months (Daly 1996).
Major Threats There are a number of threatening processes operating across the range of this species, including intensive timber harvesting, cattle grazing, fuel reduction burning, introduced terrestrial and aquatic predators, and disturbances resulting from urbanization (Gillespie 1990; Rescei 1997). Road mortality has also been observed (Mahony 1993). The potential impacts of these processes have not been examined. Foxes and cats are common and widespread throughout south-eastern Australia and are potentially a major threatening process to terrestrial frog species such as *H. australiacus* (Gillespie and Hines 1999). Chytrid fungus was detected in this species in Springwood, New South Wales.
Conservation Measures It is listed as Vulnerable in the states where it occurs (Victoria and New South Wales) and is therefore protected by State legislation. It is also protected where its habitat occurs within State Forest or National Parks. This species is the subject of two major studies in New South Wales.
Bibliography: Barker, J., Grigg, G. and Tyler, M. (1995), Daly, G. (1996), Gillespie, G. and Hines, H.B. (1999), Gillespie, G.R. (1990), Lee, A.K. (1967), Lemckert, F.L., Brassil, T. and McCray, K. (1998), Littlejohn, M.J. and Martin, A.A. (1967), Mahony, M. (1993), Rescei, J. (1997), Watson, G.F. and Martin, A.A. (1973), Webb, G. (1983), Webb, G. (1991), Webb, G. (1993), Webb, G.A. (1987)
Data Providers: Jean-Marc Hero, Frank Lemckert, Graeme Gillespie, Peter Robertson, Murray Littlejohn

VU *Mixophyes balbus* Straughan, 1968

STUTTERING FROG

Vulnerable C1+2a(i)
Order, Family: Anura, Limnodynastidae
Country Distribution: Australia
Current Population Trend: Decreasing



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Geographic Range This species, an Australian endemic, is restricted to the eastern slopes of the Great Divide, from the Cann River catchments in far East Gippsland, Victoria, to tributaries of the Timbarra River near Drake, New South Wales (Gillespie and Hines 1999). It occurs from 20 to over 1,400m asl, from low to high altitudes from south to north (Gillespie and Hines 1999).

Population *Mixophyes balbus* was formerly more frequently encountered in the northern part of its range than south of Sydney, although this might reflect limited historical searches in the region (Gillespie and Hines 1999). The species has only been found in Victoria on three occasions (Tennyson Creek, Cann River and Jones Creek) and is now thought to be extinct in that state (Gillespie and Hines 1999). The species has declined and disappeared from a number of locations in New South Wales where it was previously common (Mahony 1993; Anstis and Littlejohn 1996; Anstis 1997). Surveys in south-east New South Wales since 1990 have located individuals at only a few sites (Lemckert *et al.* 1997; Daly 1998). The estimated population number is less than 10,000, and where populations have been recorded recently, the species appears to be in low numbers (Mahony, Knowles and Pattinson 1997b).

Habitat and Ecology This species is typically found in association with permanent streams through temperate and sub-tropical rainforest and wet sclerophyll forest, and rarely in dry open tableland riparian vegetation (Mahony, Knowles and Pattinson 1997b), and also in moist gullies in dry forest (Gillespie and Hines 1999). The ecological requirements of adults and larvae are poorly known. In north-east New South Wales, statistical modelling was used to investigate the relationship of this species with 24 environmental predictors (NSW NPWS 1994, in Gillespie and Hines 1999). The species showed a preference for the interiors of large forest tracts in areas with relatively cool mean annual temperatures. These sites are typically free from any disturbance with a thick canopy and relatively simple understorey (Gillespie and Hines 1999). *Mixophyes balbus* occurs in first order streams and occasionally springs; it is not associated with ponds or ephemeral pools (Mahony, Knowles and Pattinson 1997b). Calling has been recorded from September to April (F. Lemckert pers. comm.). Males call from beside small streams, often from under leaf-litter or within holes (Lemckert and Morse 1999). Reproductive biology is very similar to that of *Mixophyes fleayi* (Gillespie and Hines 1999). Both species construct a nest in shallow running water that occurs between pools in relatively wide, flat sections of mountain streams (Knowles *et al.* 1998), and 500-550 pigmented eggs (2.8mm diameter) are deposited in a shallow excavation in the streambed or pasted directly onto bed-rock (Watson and Martin 1973; Knowles *et al.* 1998). The stream microhabitats used by this species for oviposition are limited (Knowles *et al.* 1998). The free-swimming tadpole of the species has been described by Watson and Martin (1973) and Daly (1998). Tadpoles develop in pools and shallow water with the aquatic phase of the life cycle lasting approximately one year (Daly 1998).

Major Threats Several potentially threatening processes have operated at sites where this species has been found, or up-stream in catchments. Logging and associated forest management practices have been carried out in some catchments where *M. balbus* historically occurred, or currently occurs (Mahony, Knowles and Pattinson 1997b). The health and stability of extant populations in these disturbed catchments is unknown. Forest grazing and land clearance for pasture upstream have also occurred in some catchments (Mahony, Knowles and Pattinson 1997b). Mahony *et al.* (1997) report that the species is not known from any localities with disturbed riparian vegetation or significant human impacts upstream. This might indicate that the species is highly sensitive to perturbations in the environment. However, populations of this species have also disappeared in catchments with seemingly minimal human disturbance (Mahony *et al.* 1997). Also, Lemckert (1999) was unable to detect a negative impact of selective logging on this species. Trampling by domestic stock is likely to have deleterious impacts on oviposition sites of the species (Knowles *et al.* 1998). *Mixophyes balbus* tadpoles have been found in sympatry with native fish, and probably have survival strategies to avoid predation by them (Gillespie and Hines 1999). However, the impact of introduced fish, such as Eastern Gambusia (*Gambusia holbrooki*), carp (*Cyprinus* spp.) and salmonids is unknown (Gillespie and Hines 1999). Mahony *et al.* (1997) did not observe introduced fish at any sites where they found *M. balbus*. In other reports though, introduced fish (salmonids) have been recorded at sites where *M. balbus* has declined (Anstis 1997). However, *M. balbus* has also disappeared from many streams that do not contain introduced fish species (Gillespie and Hines 1999), and so disease, such as chytridiomycosis, might also be a factor in its decline.

Conservation Measures Disease protocols are in place. A Recovery Plan is being developed for this species. Its range includes a few protected areas and it is protected wherever it occurs in State Forests. There is a cooperative program between Melbourne Zoo and the NSW North-East Threatened Frog Recovery Team to develop husbandry protocols for the species. It is now thought that this species encompasses more than one taxonomic form. The Zoo has frogs from northern and southern populations and has bred the former.

Notes on taxonomy: This taxon might represent a species complex.

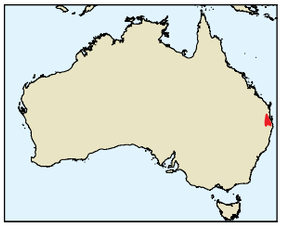
Bibliography: Anstis, M. (1997), Anstis, M. and Littlejohn, M.J. (1996), Barker, J., Grigg, G. and Tyler, M. (1995), Daly, G. (1998), Gillespie, G. and Hines, H.B. (1999), Knowles, R. *et al.* (1998), Lemckert, F. (1999), Lemckert, F. *et al.* (1997), Lemckert, F.L. and Morse, R. (1999), Mahony, M. (1993), Mahony, M., Knowles, R. and Pattinson, L. (1997b), NSW National Parks and Wildlife Service (1994), Tyler, M.J. (1997), Watson, G.F. and Martin, A.A. (1973)

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

EN *Mixophyes fleayi* Corben and Ingram, 1987

FLEAY'S BARRED-FROG

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



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Geographic Range This species, an Australian endemic, is narrowly and disjunctly distributed in wet forests from the Conondale Range in south-east Queensland, south to Yabbra Scrub in north-east New South Wales (Hines, Mahony and McDonald 1999). While the majority of records for the species are from altitudes above 400m asl, it is also known from lowland rainforest (200m asl, Goldingay, Newell and Graham 1999; 90 and 150m asl, H. Hines and L. Shoo unpubl.).

Population Corben (in McDonald 1991) reported declines in the Conondale Range in the late 1970s. Ingram and McDonald (1993) reported that the species has not been seen in the Conondale Range since the summer of 1990-1991. Since Ingram and McDonald's (1993) review, targeted surveys have been undertaken (Hines, Mahony and McDonald 1999; Goldingay, Newell and Graham 1999). In Queensland, populations are currently known from the Conondale Range, Lamington Plateau and the northern section of Main Range, the Mount Barney area and Currumbin and Tallebudgera Creek below Springbrook Plateau (Hines, Mahony and McDonald 1999). Despite targeted surveys, there have been no records of the species from the extensively developed Mount Tamborine area since 1976 (Hines, Mahony and McDonald 1999). There is a museum specimen of this species collected from Bunya Mount in 1970 (H. Hines unpubl.); however, recent surveys have failed to locate the species in this area (H. Hines pers. comm.). In New South Wales the species is known from Lever's Plateau (Border Ranges), Yabbra and Tooloom Scrubs, Mount Warning, Terania Creek in Nightcap Range and Sheepstation Creek in the Border Ranges (Mahony, Knowles and Pattinson 1997; Hines, Mahony and McDonald 1999). This species has disappeared from some locations, though whether populations have declined at other locations is difficult to assess due to a lack of information on the abundance of the species at historical sites (Hines, Mahony and McDonald 1999). The very low numbers recorded from many well-surveyed sites suggests that declines in abundance may have occurred (Hines, Mahony and McDonald 1999; Goldingay, Newell and Graham 1999).

Habitat and Ecology Fleay's barred-frog is associated with montane rainforest (Corben and Ingram 1987) and open forest communities adjoining rainforest (H. Hines pers. comm.). It occurs along stream habitats from first to third order streams (i.e. small streams close to their origin through to permanent streams with grades of 1 in 50) and is not found in ponds or ephemeral pools (Mahony, Knowles and Pattinson 1997). However, larvae may be found in isolated pools in dry creek beds, and adults may also be found in the vicinity of these pools. At some locations where the species has been recorded, riparian vegetation has been disturbed and replaced by weeds, although this is considered marginal habitat (Mahony, Knowles and Pattinson 1997). Breeding has been recorded in all months between July and March (Corben and Ingram 1987; H. Hines unpubl.). Males call from under leaf-litter, from exposed rocks in streambeds or from the edges of pools beside streams (Corben and Ingram 1987). Calling activity is related to temperature and stream conditions (W. O'Reilly and H. Hines unpubl.). Reproductive biology is very similar to that of *Mixophyes balbus* (Gillespie and Hines 1999). Both species construct a nest in the shallow running water that occurs between pools in relatively wide, flat sections of mountain streams (Knowles *et al.* 1998). Between 652 and 1290 (C. Morrison pers. comm.) eggs are deposited in a shallow excavation in the streambed or pasted directly onto bedrock (Knowles *et al.* 1998). This species does not appear to breed during and immediately after heavy rain when water flow is high, presumably due to the lack of suitable oviposition sites and the threat of nests and larvae being washed downstream (W. O'Reilly and H. Hines unpubl.). Larvae are described in Meyer, Hines and Hero (2001) and Anstis (2000).

Major Threats The reason(s) for declines or disappearance of populations are not known. Large areas of the species' habitat have been, and continue to be, degraded by feral animals (e.g. pigs in the Conondale Range), domestic stock, and invasion of weeds (i.e. Mistflower, *Ageratina riparia* and crofton weed *A. adenophora*) (Hines, Mahony and McDonald 1999). Upstream clearing, timber harvesting and urban development (e.g. Mount Tamborine) are all likely to have affected flow regimes and water quality (Hines, Mahony and McDonald 1999). A chytrid fungal infection has been identified as the cause of illness and death of this species on Main Range and Lamington Plateau (Berger *et al.* 1998). Populations tend to be characterized by low density and are often isolated from other populations (Hines, Mahony and McDonald 1999; Goldingay, Newell and Graham 1999). The stability of small populations and the effect of isolation on genetic variation within each population are unknown.

Conservation Measures This species is listed as endangered in Australian legislation. Much of its habitat is protected within national parks and state forests. Further research and monitoring is needed. It is bred in captivity in Australia.

Bibliography: Anstis, M. (2000), Berger, L. *et al.* (1998), Corben, C.J. and Ingram, G.J. (1987), Gillespie, G. and Hines, H.B. (1999), Goldingay, R., Newell, D. and Graham, M. (1999), Hines, H., Mahony, M. and McDonald, K. (1999), Ingram, G.J. and McDonald, K.R. (1993), Knowles, R. *et al.* (1998), Mahony, M., Knowles, R. and Pattinson, L. (1997c), McDonald, K.R. (1991), Meyer, E., Hines, H. and Hero, J.-M. (2001a), Tyler, M.J. (1997)

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

EN *Mixophyes iteratus* Straughan, 1968

GIANT BARRED-FROG

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

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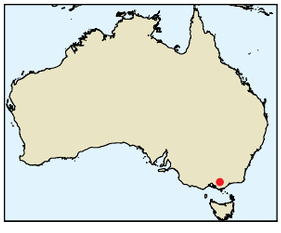
Geographic Range This species, an Australian endemic, is distributed from Belli Creek near Eumundi, south-east Queensland, south to Warrimoo in mid-eastern New South Wales (Hines, Mahony and McDonald 1999). It is currently known from mid to low altitudes below 610m asl. In south-east Queensland, it is currently known from scattered locations in the Mary River catchments downstream to about Kenilworth, Upper Stanley River, Caboolture River and Coomera River (Hines, Mahony and McDonald 1999).
Population During the early 1980s, the giant barred-frog declined and disappeared from at least two streams in the Conondale Range (Corben, in McDonald 1991). The Bunya Mount (Straughan 1966) and Cunningham's Gap (Straughan 1966) previously supported this species, but these and nearby sites have recently been the subject of targeted surveys and intensive monitoring without locating the species (Hines, Mahony and McDonald 1999). Assessing the extent of the decline is difficult because of the lack of baseline data on its distribution and abundance (Hines, Mahony and McDonald 1999). The species has suffered major declines in the southern portion of its range in the Sydney Basin Region (Hines, Mahony and McDonald 1999; White 2000) where extant populations were recorded at only two of the 14 historical sites surveyed (White 2000). There are no recent records from the Blue Mountains and the species is currently only known from five populations in the Watagan Mountains area (White 2000). A population was recently located in the southern Nambucca River catchments (NSW NPWS 1994). North of this there is currently a large population in the Dorrigo-Coffs Harbour area, North Washpool and Bungawalbin State Forest (Hines, Mahony and McDonald 1999). In far north-east New South Wales, it is known from only three broad areas (Mebbin, Whian Whian and Richmond Range), despite intensive surveys (Goldingay, Newell and Graham 1999). Goldingay, Newell and Graham (1999) reported that the density of these populations was relatively low with an average abundance of 4.2 individuals per 100m of stream transect between 1997 and 1998 and an average of 3.4 individuals over the same transects in 1999 (Goldingay, Newell and Graham 1999).
Habitat and Ecology This species occurs in upland and lowland rainforest and wet sclerophyll forest, and adjacent farmland (Ingram and McDonald 1993). Populations have been found in disturbed areas with riparian strips including cattle farms and regenerating logged areas (Hero and Shoo pers. obs.). They have also been recorded from eucalypt plantations (Lemckert and Morse 1999) and in streams within partially to nearly completely cleared lands (Lemckert and Brassil 2000; Lemckert 2002). It is a stream-breeding species. Eggs are deposited out of water, under overhanging banks or on steep banks of large pools (Knowles *et al.* 1998). The stream microhabitats used by the species for oviposition are limited (Knowles *et al.* 1998). Hero and Fickling (1996) and Morrison and Hero (2002) reported clutch sizes for the species as 4184 (n=1) and 1343-3471 (n=13), respectively, and egg diameter ranges between 1.7 and 1.8mm (n=5) (Morrison and Hero 2002). Larvae are described in Meyer, Hines and Hero (2001) and Anstis (2000).
Major Threats Many sites where this species occurs are the lower reaches of streams, which have had major disturbances such as clearing, timber harvesting and urban development in their headwaters (Hines, Mahony and McDonald 1999). In the Dorrigo area, Lemckert (1999) found that it was less abundant in recently logged areas and sites where there was little undisturbed forest. The impacts of feral animals, domestic stock, weed invasion and disturbance to riparian vegetation, all potential threats to current populations, are unknown (Hines, Mahony and McDonald 1999). Populations now generally exist in small, isolated patches of forest. The effect this may have on genetic variation within populations and the general health of individuals is unknown. The species does colonize and use plantations and vegetated streams in otherwise cleared agricultural lands. This is positive for the survival of the species, but also indicates that such sites can be of some significance and any clearing of this vegetation may be of some significance.
Conservation Measures This species is listed as endangered in Australian legislation. Much of its habitat is protected within national parks and state forests. Research and monitoring protocols are in place for this species.
Bibliography: Anstis, M. (2000), Goldingay, R., Newell, D. and Graham, M. (1999), Hero, J.-M. and Fickling, S. (1996), Hines, H., Mahony, M. and McDonald, K. (1999), Ingram, G.J. and McDonald, K.R. (1993), Knowles, R. *et al.* (1998), Lemckert, F. (1999), Lemckert, F. (2002), Lemckert, F. and Brassil, T. (2000), Lemckert, F.L. and Morse, R. (1999), Mahony, M., Knowles, R. and Pattinson, L. (1997a), McDonald, K.R. (1991), Meyer, E., Hines, H. and Hero, J.-M. (2001b), Morrison, C. and Hero, J.-M. (2002), NSW National Parks and Wildlife Service (1994), Straughan, I.R. (1966), Streatfeild, C. (1999), Tyler, M.J. (1997), White, A. (2000)
Data Providers: Harry Hines, David Newell, John Clarke, Jean-Marc Hero, Ed Meyer

CR *Philoria frosti* Spencer, 1901

BAW BAW FROG

Critically Endangered A2ace; B1ab(ii,iii,iv,v) +2ab(ii,iii,iv,v); C2b
Order, Family: Anura, Limnodynastidae
Country Distribution: Australia
Current Population Trend: Decreasing



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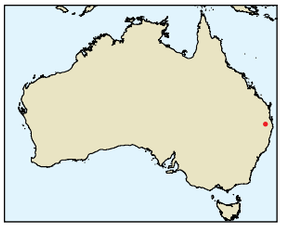
Geographic Range This species is restricted entirely to the Baw Baw Plateau, located approximately 120km east of Melbourne, Victoria (Malone 1985a; Hollis 1995). Despite searches in close proximity to the plateau, and in similar environments (e.g., Mount Useful, Mount Torongo), the species has not been found elsewhere. Encompassing an area of approximately 80km², the Baw Baw Plateau between approximately 1,260 and 1,560m asl is contained within the Baw Baw National Park, except for approximately 3.5km² near Mount Baw Baw that is managed by the Victorian Alpine Resorts Commission (Hollis 1997). At lower elevations, between 960 and 1,300m asl, records of the species occur from montane forest along the south escarpment of the Baw Baw Plateau (G. Hollis pers. comm.). In 1983 and 1984, Malone (1985a) undertook a comprehensive assessment of the distribution of the species. It was found to be widely distributed and abundant in the west (Mt Baw Baw), central (Mt St Phillack) and north-west (Mt Whitelaw) parts of the plateau. There were fewer records from the east region (Mt St Gwinear), and the species was conspicuously absent from the south-east region. The distribution map shows the historical and not current range of the species. It has now disappeared from over 80% of its former occupied range.
Population Malone (1985a) estimated the adult male population on the plateau to be over ten thousand individuals. During a series of extensive annual surveys carried out since 1993, a considerable reduction in the abundance of the species has been observed (Hollis 1995, 1997; Osborne, Hunter and Hollis 1999). Malone (1985a) recorded calling males in 73% (64 of 88) of frost hollows surveyed in 1983 and 1984, compared with 46% (22 of 48) recorded by Hollis (1995) in 1993. In a subset of 35 frost hollows surveyed in both 1983 and 1993, Malone (1985a) recorded 3,694 males compared with 83 by Hollis (1995). Similarly, in a subset of 19 frost hollows surveyed in both 1984 and 1993, 885 males were recorded in 1984 compared with 19 in 1993. Hollis (1995) and Osborne, Hunter and Hollis (1999) only recorded 2.2% and 2.1% of the number of males recorded by Malone in 1983 and 1984, respectively. Surveys during subsequent years (1994-1997) indicate that the species is currently restricted to the western half of the Baw Baw plateau (particularly to steeper montane-forested areas on the edge of the western plateau (W. Osborne pers. comm.), with a contraction of the distribution from eastern and western areas (Osborne, Hunter and Hollis 1999). Twenty-four sites surveyed on the Baw Baw plateau originally by Malone (1985a) were re-surveyed annually by Osborne, Hunter and Hollis (1999) for numbers of calling males present. At all sites, there was a very large reduction in the numbers recorded. The mean number of calling males recorded at 24 sites declined from 124 individuals in 1983 to between 1.5 and 3.3 individuals over the five years 1993 to 1997. In 1983-1984 the maximum population size recorded at a monitoring site was 667 individuals; by contrast, between 1993 and 1997 the largest population recorded was 41 individuals. In 1997 frogs were recorded at only six of the 25 monitoring sites. Overall, the current population size is estimated to be less than 250 adults, a tiny fraction of the number estimated only 20 years earlier by Malone (1985a).
Habitat and Ecology This species is a habitat specialist. During the breeding season (September-December), calling males, gravid females and egg masses have been recorded, along seepage lines within or at the periphery of sub-alpine wet heathland and in gullies within montane vegetation communities (Malone 1985a; Hollis 1995). Calling activity has been recorded in early September, continuing as late as the last week in December (Malone 1985a; Hollis 1995; G.J. Hollis. pers. comm.). Oviposition (egg laying) appears to be confined to a shorter interval of 2-3 weeks during this period, when a peak in calling activity occurs (Malone 1985a, b; Hollis 1995). The timing of this peak in calling activity varies between breeding seasons (Hollis 1997). Calling activity may occur at any time of the day or night, with the greatest levels of activity being recorded during relatively warm, humid conditions (Hollis 1997). Very little calling activity occurs at temperatures near freezing (Malone 1985a) or when temperatures are high with low humidity (Hollis 1997). Egg masses are deposited in a transparent foam nest (8cm diameter and 3-4cm high) at the calling site, or nearby, during inguinal amplexus (Littlejohn 1963). The foam nest is produced by the female beating air bubbles into the mucous and eggs with flanged fingers during egg laying (Littlejohn 1963). The egg mass may be deposited at varying depths in vegetation, or below the ground surface, depending on the structural attributes of the site (Hollis 1997). Depths of over a metre have been observed, whilst others are deposited in vegetation very close to the surface (Hollis 1997). Clutch sizes reported in the literature range from 50-185 (see Littlejohn 1963; Malone 1985a, b; Tyler 1992). Ova are white and unpigmented and measure on average 4mm in diameter (Malone 1985b). Oviposition of more than one clutch may occur at a single site (Malone 1985b; Hollis 1997). It is also possible that females deposit a portion of their eggs at more than one site (Malone 1985a). Under natural conditions the embryonic period varies from 5-8 weeks, with individuals hatching at Gosner stages 22-23 (Malone 1985a, b). The larvae are non-feeding, hatching with a residual yolk mass that maintains them through to metamorphosis (Malone 1985a, b). Larvae usually remain at oviposition sites through to metamorphosis (Barker, Grigg and Tyler 1995; Hollis 1997). Upon hatching, however, larvae have also been observed to move small distances in shallow water from oviposition sites, while remaining covered under vegetation and/or woody debris (Hollis 1997), or to be washed into nearby pools (B.S. Malone pers. comm. in Hollis 1997).
Major Threats The dearth of information available on the population dynamics and demography of the Baw Baw Frog makes it very difficult to interpret the observed decline in the adult male population. This decline coincides with a recent global phenomenon of declining amphibians (e.g., Barinaga 1990; Blaustein and Wake 1990; Tyler 1991), and perhaps of more concern, with the reported decline of species restricted to mountain-top and alpine environments in Australia (e.g., Osborne 1990; Richards, McDonald and Alford 1993) and overseas. Numerous hypotheses have been generated to explain these declines, but few as yet have been investigated thoroughly. Those that have, or are currently being investigated, include climate change (Osborne 1990; Richards, McDonald and Alford 1993), ultraviolet radiation (Blaustein *et al.* 1994), atmospheric pollution (Blaustein *et al.* 1994) and pathogens (such as chytridiomycosis) (Blaustein *et al.* 1994; Trenerry, Laurance and McDonald 1994), but there is growing scientific consensus that chytridiomycosis is often implicated. No thorough investigation of these hypotheses has yet been undertaken for the Baw Baw Frog. Forestry operations might also represent a threat to the species where it occurs in State Forest (W.S. Osborne pers. comm.). Willow (*Salix cinerea*), cattle, rabbits, Sambar deer, foxes, dogs and cats have been identified as invasive species that might be impacting the species (G.J. Hollis pers. comm.).
Conservation Measures The species' habitat is protected within Baw Baw National Park, and the species is listed as endangered in Australian legislation. Research and monitoring are currently in place. The implementation of a focused recovery plan is clearly needed, and this will probably need to include an *ex-situ* component.
Bibliography: Barinaga, P.H. (1990), Barker, J., Grigg, G. and Tyler, M. (1995), Blaustein, A.R. *et al.* (1994), Blaustein, A.R. and Wake, D.B. (1990), Crump, M.L., Hensley, F.R. and Clark, K.L. (1992), Hollis, G.J. (1995), Hollis, G.J. (1997), Knowles, R. *et al.* (2004), La Marca, E. and Reinthaler, H.P. (1991), Littlejohn, M.J. (1963), Malone, B.S. (1985a), Malone, B.S. (1985b), Osborne, W., Hunter, D. and Hollis, G. (1999), Osborne, W.S. (1990a), Richards, S.J., McDonald, K.R. and Alford, R.A. (1993), Trenerry, M.P., Laurance, W.F. and McDonald, K.R. (1994), Tyler, M.J. (1991), Tyler, M.J. (1992)
Data Providers: Jean-Marc Hero, Graeme Gillespie, Peter Robertson, Murray Littlejohn, Frank Lemckert

EN *Philoria kundagungan* (Ingram and Corben, 1975) — MOUNTAIN FROG

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

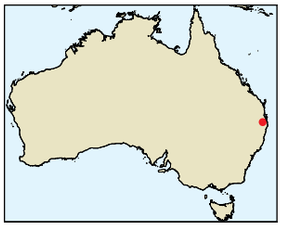


© Marion Anstis

Geographic Range This species is confined to the mountainous areas between Mistake Mountains and Teviot Falls in south-east Queensland and north-eastern New South Wales.
Population There are no documented declines in this species.
Habitat and Ecology It is a montane rainforest species, and is usually found among saturated or moist leaf-litter and vegetation near small creeks. It is also commonly found in seepage areas. Calling occurs between August and February. Large yolky eggs are deposited in water-filled burrows hidden from the light. Larvae remain within the nest throughout development and live off the yolk.
Major Threats In the past, a considerable area of this species' habitat was cleared or logged, but a majority of the habitat is now in reserves and protected from clearing or timber harvesting. Nonetheless, disturbances upstream that affect hydrological processes and/or water quality may threaten the species. Stock (cattle) has been observed at a number of breeding sites.
Conservation Measures It is listed as rare in Queensland and vulnerable in New South Wales, and is therefore protected by state legislation. Its remaining habitat is largely protected in national parks.
Bibliography: Barker, J., Grigg, G. and Tyler, M. (1995), Hines, H., Mahony, M. and McDonald, K. (1999), Knowles, R. *et al.* (2004), Robinson, M. (1994)
Data Providers: Jean-Marc Hero, Ed Meyer, John Clarke

EN *Philoria loveridgei* Parker, 1940 — LOVERIDGE'S FROG

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

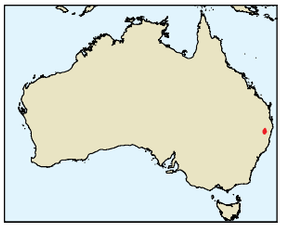


© Marion Anstis

Geographic Range This Australian endemic has a restricted distribution in south-east Queensland on the Queensland/New South Wales border above 500m asl. Specimens attributed to this species from regions south of the currently defined distribution are currently not assigned to any species (Knowles *et al.* 2004).
Population There are no documented declines in this species.
Habitat and Ecology It inhabits rainforests, and is commonly found in areas of soft, moist soil (e.g. along drainage lines, and in seepage areas). Higher temperatures stimulate breeding in November and December. Males call from underground, often in flask-shaped burrows. About 20-30 eggs are deposited in a frothy nest in the burrow. Larvae emerge from the eggs after several days and then move to the top of the jelly mass and live entirely on the yolk from the eggs. They emerge from the nest as tiny frogs.
Major Threats In the past, a considerable area of the species' habitat was cleared or logged, but the majority of the habitat is now in reserves and protected from clearing or timber harvesting. However, disturbances upstream that affect hydrological processes and/or water quality may threaten the species. Stock (cattle) has been observed at a number of breeding sites.
Conservation Measures it is listed as rare in Queensland and vulnerable in New South Wales, and is therefore protected by state legislation. Most of its habitat is within national parks (Border Ranges, Lamington, Mount Warning and Nightcap National Parks).
Bibliography: Barker, J., Grigg, G. and Tyler, M. (1995), Hines, H., Mahony, M. and McDonald, K. (1999), Knowles, R. *et al.* (2004), Robinson, M. (1994), Seymour, R.S., Mahony, M.J. and Knowles, R. (1995)
Data Providers: Jean-Marc Hero, John Clarke, Ed Meyer

EN *Philoria pughi* Knowles, Mahony, Armstrong and Donnellan, 2004

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



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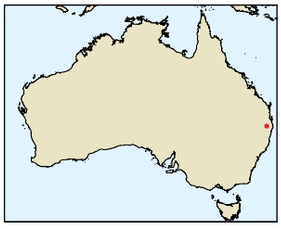
Geographic Range This species is known from the north-eastern corner of New South Wales close to the border with Queensland. There are seven confirmed localities, and several other as yet unconfirmed localities, suggesting that it most likely has a larger range than is currently mapped here. It occurs at elevations above 600m asl.
Population It is not a common species, and most known populations are small.
Habitat and Ecology It is usually found in streams or temporary pools in high rainfall rainforest. It lays eggs in nests in the ground, where the larvae also complete their development.
Major Threats Livestock farming is a major threat to the species, mainly due to the trampling of nest sites.
Conservation Measures Its range includes at least two protected areas, namely the Gibraltar Range National Park and Washpool National Park.
Bibliography: Knowles, R. *et al.* (2004)
Data Providers: Jean-Marc Hero, Michael Mahony

EN *Philoria richmondensis* Knowles, Mahony, Armstrong and Donnelan, 2004

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



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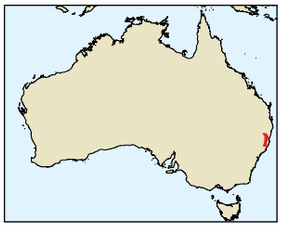
Geographic Range This species is known only from three localities within one continuous forest block in the Richmond Range and Yabbra Range in north-eastern New South Wales. It may possibly also occur at three additional locations, but these require confirmation and hence are not mapped here. It occurs at elevations above 600m asl.
Population There are no documented declines in this species.
Habitat and Ecology It inhabits montane moist forest and subtropical rainforest where there are seepage areas beside seasonal or permanent streams and other water saturated sites. They lay eggs in a foam nest hidden from light and the larvae develop entirely on the yolk.
Major Threats In some areas there has been considerable clearing of the habitat, but the majority of the habitat is now protected. However, it may still be susceptible to upstream disturbances that affect hydrological regimes or water quality. Direct damage to breeding habitat by domestic stock has been observed at one site.
Conservation Measures Most of its habitat occurs within national parks (such as Richmond Range National Park and Yabbra National Park).
Bibliography: Barker, J., Grigg, G. and Tyler, M. (1995), Hines, H., Mahony, M. and McDonald, K. (1999), Knowles, R. *et al.* (2004)
Data Providers: Jean-Marc Hero, Harry Hines, David Newell

EN *Philoria sphagnicolus* (Moore, 1958) — SPHAGNUM FROG

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



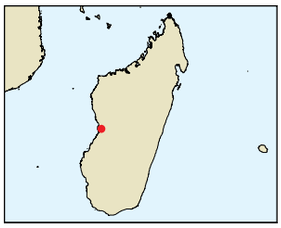
© Marion Anstis

Geographic Range This Australian endemic occurs in north-eastern New South Wales from Mount Hyland in the north to Gloucester Tops in the south, in the northern and central northern mountains of New South Wales.
Population There are no documented declines in this species.
Habitat and Ecology It is found in montane subtropical rainforest and wet sclerophyll forest where the rainfall is high (1,500mm annually). It lives in extensive beds of sphagnum moss and seepages on steep slopes. It is a spring-summer breeder, with diurnal calling. About 40-60 large eggs are laid in moist spots such as in rock crevices, under logs or in burrows made in sphagnum moss. In aquatic situations the larvae may be found in the silt of small pools. Larvae remain in the nest and feed off the yolk. They generally emerge after one month. Males tend to the nests whilst the females move on after about five days.
Major Threats In the past a considerable area of the species' habitat was cleared or logged, but the majority of the habitat is now in reserves and protected from clearing or timber harvesting. However, disturbances upstream that affect hydrological processes and/or water quality may threaten the species. Stock (cattle) has been observed at a number of breeding sites.
Conservation Measures It is listed as vulnerable in New South Wales and is therefore protected by legislation in that state. Most of its habitat occurs within national parks and state forests, including Mount Boss State Forest.
Bibliography: Anstis, M. (1981), Barker, J., Grigg, G. and Tyler, M. (1995), Hines, H., Mahony, M. and McDonald, K. (1999), Knowles, R. *et al.* (2004)
Data Providers: Jean-Marc Hero, Ed Meyer, John Clarke

MANTELLIDAE

EN *Aglyptodactylus laticeps* Glaw, Vences, Böhme, 1998

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

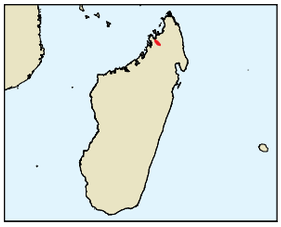


© Frank Glaw and Miguel Vences

Geographic Range This species is only known from Kirindy Forest (not Kirindy-Mitea) in western Madagascar, at around 100m asl.
Population It is a locally abundant species.
Habitat and Ecology It inhabits dry deciduous forest, and has not been found outside forest in open areas, but does occur in somewhat degraded forest. It breeds in temporary pools and puddles; the larvae grow rapidly, developing in 12 days.
Major Threats Kirindy Forest is seriously threatened by subsistence farming, wood extraction, and livestock.
Conservation Measures The Kirindy Forest forms part of the Menabe Forest complex, which has been proposed as part of the Systéme d'Aires Protégées de Madagascar.
Bibliography: Glaw, F., Vences, M. and Böhme, W. (1998), Glos, J. (2003)
Data Providers: Frank Glaw, Miguel Vences

VU *Boophis andreonei* Glaw and Vences, 1994

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

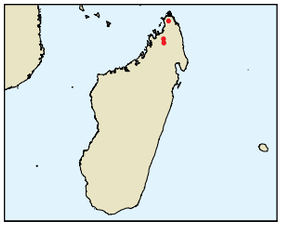


© Franco Andreone

Geographic Range This species occurs at Benavony and Manongaribo, in north-western Madagascar, and probably occurs widely in the low-altitude Sambirano forest zone. It is probably even more widespread than this, and might occur at Tsaratanana. Its recorded altitudinal range is 200-700m asl.
Population Little information is available, but it is not particularly rare.
Habitat and Ecology It is a species of pristine and slightly degraded forest close to primary forest. It presumably breeds in streams.
Major Threats There is very rapid deforestation within its range due to subsistence agriculture (including livestock grazing), timber extraction, charcoaling, and expanding human settlements.
Conservation Measures It occurs in the Réserve Spéciale de Manongarivo.
Bibliography: Glaw, F. and Vences, M. (1994)
Data Providers: Frank Glaw, Miguel Vences

VU *Boophis blommersae* Glaw and Vences, 1994

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



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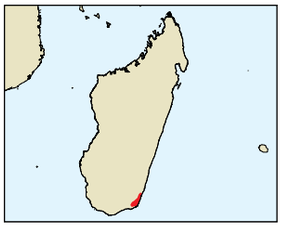
Geographic Range This species occurs at Montagne d'Ambre in northern Madagascar, and further south in the general vicinity of Tsaratanana. Other rainforest areas of northern Madagascar might also harbour this species. Its recorded altitudinal range is 500-900m asl.
Population It is a very common species.
Habitat and Ecology It is a species of humid rainforest, surviving only in slightly modified habitats. It breeds in streams.
Major Threats Its forest habitat is receding due to subsistence agriculture (including livestock grazing), timber extraction, charcoal manufacture, the spread of invasive eucalyptus, and expanding human settlements.
Conservation Measures It occurs in Parc National de Montagne d'Ambre and Réserve Naturelle Intégrale du Tsaratanana.
Bibliography: Glaw, F. *et al.*. (2001), Glaw, F. and Vences, M. (1994)
Data Providers: Ronald Nussbaum, Christopher Raxworthy, Frank Glaw

VU *Boophis haematopus* Glaw, Vences, Andreone and Vallan, 2001

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

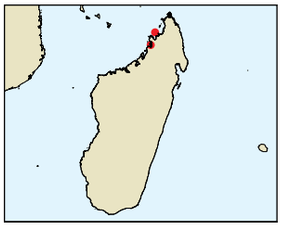


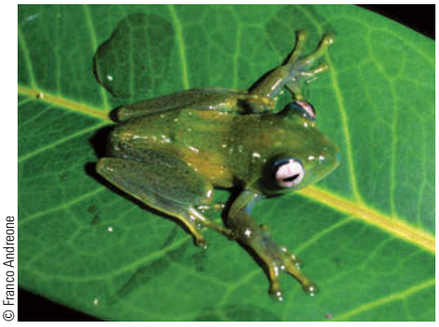
© Denis Vallan

Geographic Range This species is known only from three localities in south-eastern Madagascar (Nahampaoana, Andohahela, and Marovony) at 200-400m asl.
Population It is moderately common.
Habitat and Ecology It lives in pristine and secondary rainforest, and breeds in streams.
Major Threats Its forest habitat is receding due to subsistence agriculture (including livestock grazing), timber extraction, charcoal manufacture, the spread of invasive eucalyptus, and expanding human settlements.
Conservation Measures It occurs in the Parc National d'Andohahela.
Bibliography: Andreone, F. and Randriamahazo, H. (1997), Glaw, F. *et al.*. (2001)
Data Providers: Christopher Raxworthy, Franco Andreone

VU *Boophis jaegeri* Glaw and Vences, 1992

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





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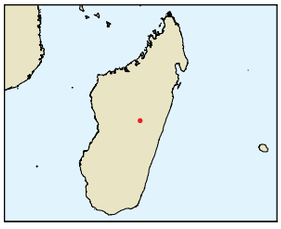
Geographic Range This species is known from Nosy Be Island and from Sahamalaza Peninsula (Berara) on the mainland, north-western Madagascar. It occurs from sea level up to 200m asl. It is likely to occur more widely.
Population It is a locally abundant species.
Habitat and Ecology It inhabits primary and secondary rainforest, and also occurs in tree plantations, gallery forest, and dense secondary vegetation, but always along streams, in which breeding takes place.
Major Threats Its forest habitat is receding due to subsistence agriculture (including livestock grazing), timber extraction, charcoal manufacture, fire, and expanding human settlements. It is probably also impacted by water pollution on Nosy Be, and also by the drying up of streams as a result of water abstraction.
Conservation Measures It occurs in the Réserve Naturelle Intégrale de Lokobe.
Bibliography: Andreone, F. (1993), Andreone, F. *et al.* (2003b), Andreone, F., Vences, M. and Randrianirina, J.E. (2001), Glaw, F. and Thiesmeier, B. (1993), Glaw, F. and Vences, M. (1992c), Glaw, F. and Vences, M. (1994)
Data Providers: Franco Andreone, Miguel Vences, Frank Glaw

CR *Boophis williamsi* (Guibé, 1974)

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



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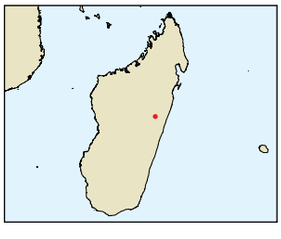
Geographic Range This species has been recorded only from the Ankaratra Massif, a small, unprotected locality in east-central Madagascar, at 2,100m asl. It is unlikely to have a large range.
Population Its population is undoubtedly small, since the species is rare and only occasionally encountered.
Habitat and Ecology Although this species might originally have occurred in montane rainforest, it is now restricted to high-elevation grasslands with relict montane forest. It breeds in fast-flowing mountain streams and inhabits nearby degraded areas. This habitat is burned annually and is subject to extensive overgrazing and cultivation (as potato fields).
Major Threats Since it lives in a severely degraded area, its habitat is under constant threat from fire, overgrazing by livestock, and expanding potato farming. It might also be threatened by the impacts of pollution and siltation of its breeding streams, as well as from droughts. It is one of the most threatened amphibians in Madagascar.
Conservation Measures The species is not known from any protected areas, making protection of remaining habitat in Ankaratra a top priority. Continued monitoring of the population is essential.
Bibliography: Andreone, F. *et al.* (2005a), Blommers-Schlösser, R.M.A. (1979b), Blommers-Schlösser, R.M.A. and Blanc, C.P. (1991), Glaw, F. and Vences, M. (1994), Guibé, J. (1974), Vences, M. *et al.* (2002a), Vences, M. and Glaw, F. (1999)
Data Providers: Miguel Vences, Ronald Nussbaum

CR *Mantella aurantiaca* Mocquard, 1900

GOLDEN MANTELLA

Critically Endangered B2ab(iii,v)
Order, Family: Anura, Mantellidae
Country Distribution: Madagascar
Current Population Trend: Decreasing
CITES: Appendix II



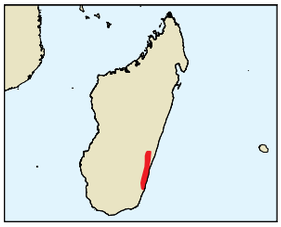
© Franco Andreone

Geographic Range This species has a very restricted distribution in east-central Madagascar, centred on the Torotorofotsy area (c. 7km north-west of Andasibe) and the Andromena Forest at the Samarirana River. Its recorded altitudinal range is 920-960m asl.
Population It is extremely localized, being very abundant in tiny areas, often of just a few hectares.
Habitat and Ecology It is a terrestrial species of primary and secondary rainforest only, and usually found in damp, swampy areas, often associated with screw pine (*Pandanus*) forest. The eggs are laid on the ground, and the larvae are flushed by rain into swamps, temporary ponds, and flooded forest, where they develop further.
Major Threats It is restricted to a fragment of forest surrounded by degraded land, and the remaining forest is under threat from subsistence agriculture, timber extraction, fires, and expanding human settlements. Recent surveys indicate that the habitat is being degraded in all the areas where the species occurs, and in 2001 a significant amount of the remaining suitable habitat at Torotorofotsy was affected by fire (although three years later the species was still common in the affected areas). However, the remaining habitat for the species is now severely fragmented. It is also possible that over-collecting for commercial and private purposes is a threat, but so far such harvesting has not had a visible effect on its populations.
Conservation Measures Limits on exportation of animals have been imposed, and the trade has been greatly reduced. Plans to implement a controlled, sustainable trade through a trade quota should be encouraged, and would help ensure the survival of its habitat, as well as probably being more effective than complete trade bans. It does not occur in protected areas, but it is found near to the Réserve Spéciale d'Analamazaotra. This species is being maintained in captivity by about 35 zoos and other institutions and is being bred in captivity by public institutions and many private individuals.
Notes on taxonomy: There are populations of "golden" mantellas that might be new species. The taxonomy of this group is uncertain.
Bibliography: Andreone, F. *et al.* (2005a), Andreone, F. and Luiselli, L.M. (2003), Blommers-Schlösser, R.M.A. (1979a), Blommers-Schlösser, R.M.A. and Blanc, C.P. (1991), Daly, J.W. *et al.* (1996), Glaw, F. and Vences, M. (1994), Glaw, F., Vences, M. and Schmidt, K. (2000), Guibé, J. (1978), Raxworthy, C.J. and Nussbaum, R.A. (1996b), Raxworthy, C.J. and Nussbaum, R.A. (2000), Staniszewski, M. (2001), Vences, M. (1996), Vences, M. *et al.* (1998), Vences, M. *et al.* (2003a), Vences, M., Glaw, F. and Böhme, W. (1999), Zimmermann, H. (1992), Zimmermann, H. and Hetz, S. (1992)
Data Providers: Miguel Vences, Christopher Raxworthy

EN *Mantella bernhardi* Vences, Glaw, Peyrieras, Böhme and Busse, 1994

BERNHARD'S MANTELLA

Endangered B2ab(iii,v)
Order, Family: Anura, Mantellidae
Country Distribution: Madagascar
Current Population Trend: Decreasing
CITES: Appendix II



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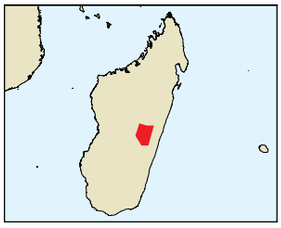
Geographic Range Until recently, this species was known only from a single locality, but recent fieldwork has extended its known range by the discovery of seven new populations, all in south-eastern Madagascar from Ranomafana south to near Manambondro, at 60-629m asl (Rabemananjara *et al.* 2005).
Population It is locally abundant, but there is very limited suitable habitat within its range.
Habitat and Ecology It lives in rainforest, including in very tiny patches. It is now found only in degraded rainforest, probably because of severe habitat degradation within its range. It is not found in open areas, nor in littoral forest on a sandy substrate. It presumably breeds in swamps or small streams, with the eggs being laid on the ground near water.
Major Threats The area where the species occurs is being degraded rapidly due to subsistence agriculture, timber extraction, charcoaling, livestock grazing, fires, and expanding human settlements. It is also possible that over collecting for commercial and private purposes is a threat.
Conservation Measures It is found in the Manombo Special Reserve and Parc National de Ranomafana. There is a need for trade in this species to be carefully regulated.
Notes on taxonomy: Molecular data indicate the existence of at least two different management units for conservation in this species, corresponding to the north and south of its distribution range (Vieites *et al.* 2006).
Bibliography: Andreone, F. and Luiselli, L.M. (2003), Glaw, F. and Vences, M. (1994), Rabemananjara, F. *et al.* (2005), Raxworthy, C.J. and Nussbaum, R.A. (2000), Staniszewski, M. (2001), Vences, M. *et al.* (1994), Vences, M. *et al.* (1998), Vences, M., Glaw, F. and Böhme, W. (1999), Vieites, D.R. *et al.* (2006)
Data Providers: John Cadle, Christopher Raxworthy

CR *Mantella cowanii* Boulenger, 1882

COWAN'S MANTELLA

Critically Endangered A2acd+B2ab(iii)
Order, Family: Anura, Mantellidae
Country Distribution: Madagascar
Current Population Trend: Decreasing
CITES: Appendix II



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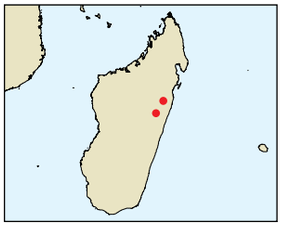
Geographic Range This species occurs on the high plateau of east-central Madagascar from Tsinjoarivo to Antoetra, with old records to the west that require further investigation. It occurs at 1,000-2,000m asl. There is conflicting information on its distribution based on (often very unreliable) hearsay from commercial collectors. The distribution map should be considered tentative, because some of the sites are not verified by voucher specimens.

Population It was formerly reported as being common, but a drastic population decline occurred recently, as deduced from a dramatic reduction in its distribution and in the number of mature adults (Andreone and Randrianirina 2003). It is now a rare species at all known sites (with each subpopulation estimated to number only about 50 mature individuals), with no reproduction recorded in recent years.
Habitat and Ecology It is a terrestrial species, living in tiny strips of gallery forest along streams, moving into nearby montane grassland savannah and moorland in the rains; it is fossorial in the dry season. It presumably breeds like other mantellas, with the eggs laid on the ground, and the larvae developing in streams.
Major Threats The fact that the observed decline in this species followed a period of increased exploitation for the international pet trade suggests that populations were over-collected, resulting in a population crash. The species also occurs in a region that has largely been deforested, and the remaining forest fragments are being lost due to subsistence agriculture, timber extraction and charcoal production, fires, and expanding human settlements. The Farimazava population has hybridized with *Mantella baroni* and might no longer be distinct.
Conservation Measures It is not known from any protected areas, making protection of the remaining habitat of this species a top priority. A moratorium on the export of *Mantella cowani* was implemented in 2003 (through the application of a zero export quota on any Appendix II species until populations recover).
Bibliography: Andreone, F. *et al.* (2005a), Andreone, F. and Luiselli, L.M. (2003), Andreone, F. and Randrianirina, J.E. (2003), Blommers-Schlösser, R.M.A. and Blanc, C.P. (1991), Böhme, W., Busse, K. and Glaw, F. (1993), Daly, J.W. *et al.* (1996), Glaw, F. and Vences, M. (1994), Guibé, J. (1978), Raxworthy, C.J. and Nussbaum, R.A. (1996b), Staniszewski, M. (2001), Vences, M. *et al.* (1994), Vences, M. *et al.* (1998), Vences, M., Glaw, F. and Böhme, W. (1999)
Data Providers: Franco Andreone, Miguel Vences

EN *Mantella crocea* Pintak and Böhme, 1990

YELLOW MANTELLA

Endangered B1ab(iii,v)+2ab(iii,v)
Order, Family: Anura, Mantellidae
Country Distribution: Madagascar
Current Population Trend: Decreasing
CITES: Appendix II



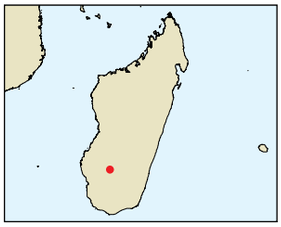
© Franco Andreone

Geographic Range This species is known from a few localities covering a very small area in east-central Madagascar: Ifoha west of Parc National de Mantadia; a forest area east of Ambohimanarivo; and outside the Réserve Naturelle Intégrale de Zahamena. Its recorded altitudinal range is 800-1,057m asl.
Population It is locally common, but has a patchy occurrence.
Habitat and Ecology It is a terrestrial species of forest edge around swamps. It has been found in secondary forest, but not in open areas. Breeding is similar to other mantella species, with the eggs laid on the ground and the larvae developing in swamps.
Major Threats The forest habitat of this species is receding due to subsistence agriculture, timber extraction, charcoal manufacture, the spread of invasive eucalyptus, livestock grazing, and expanding human settlements. It is also possible that over-collecting for commercial and private purposes is a threat, but this has not been demonstrated.
Conservation Measures It has not been recorded from any protected areas, but is likely to occur in Parc National de Mantadia and the Réserve Naturelle Intégrale de Zahamena. A carefully regulated trade is required for this species.
Notes on taxonomy: This species and *Mantella milotympanum* might be colour variants of the same species (M. Vences and F. Glaw pers. comm.).
Bibliography: Daly, J.W. *et al.* (1996), Glaw, F. and Vences, M. (1994), Ottensmann, M.-S. (1993), Pintak, T. and Böhme, W. (1990), Staniszewski, M. (2001), Vences, M. *et al.* (1998), Vences, M. *et al.* (2003a), Vences, M., Glaw, F. and Böhme, W. (1999), Zimmermann, H. (1992)
Data Providers: Christopher Raxworthy, Miguel Vences

CR *Mantella expectata* Busse and Böhme, 1992

BLUE-LEGGED MANTELLA

Critically Endangered B2ab(iii,v)
Order, Family: Anura, Mantellidae
Country Distribution: Madagascar
Current Population Trend: Decreasing
CITES: Appendix II



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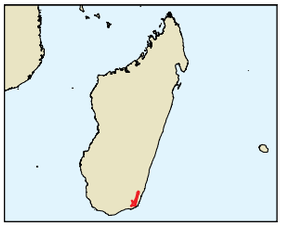
Geographic Range This species is endemic to a small region in south-western Madagascar. It is known with certainty from only a few locations around the Isalo Massif (at 700-1,000m asl). Records from near Toliara (Busse and Böhme 1992) are probably erroneous (Vences, Glaw and Böhme 1999), while records from the Morondava region and Mandena (Glaw and Vences 1994) are unreliable because no voucher specimens or recent field surveys document the species' presence in these areas.
Population At Isalo, the species is sometimes abundant in suitable habitat.
Habitat and Ecology It is usually found around seasonal streams, and in wet canyons (where it is often associated with narrow gallery forest). It breeds in a similar way to other mantella species, with the eggs laid on the ground and the larvae developing in swamps.
Major Threats The main threat to this species is habitat loss due to grazing and fire, and in some localized regions due to mining for sapphires. It is actively sought after for the pet trade, and during the rainy season up to several thousand specimens can be collected. Such collecting might pose a major threat to the species, but this has not, as yet, been demonstrated.
Conservation Measures It occurs in Parque Nacional de Isalo. Trade in this species needs to be very carefully regulated, and the populations require close monitoring.
Bibliography: Andreone, F. *et al.* (2005a), Busse, K. and Böhme, W. (1992), Daly, J.W. *et al.* (1996), Glaw, F. and Vences, M. (1994), Glaw, F., Vences, M. and Schmidt, K. (2000), Staniszewski, M. (2001), Vences, M. *et al.* (1998), Vences, M., Glaw, F. and Böhme, W. (1999)
Data Providers: Christopher Raxworthy, Frank Glaw

VU *Mantella haraldmeieri* Busse, 1981

HARALDMEIER'S MANTELLA

Vulnerable B1ab(iii)
Order, Family: Anura, Mantellidae
Country Distribution: Madagascar
Current Population Trend: Decreasing
CITES: Appendix II



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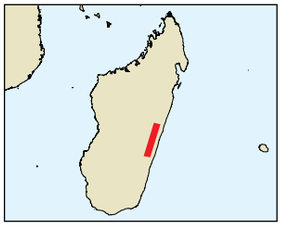
Geographic Range This species is known from at least ten localities in extreme south-eastern Madagascar, at 300-950m asl.
Population It is locally common.
Habitat and Ecology It is a terrestrial species in rainforest, including in slightly degraded forest. It lives along brooks and streams. The eggs are laid on land, and the larvae develop in streams.
Major Threats Its forest habitat is receding due to subsistence agriculture (including livestock grazing), timber extraction, charcoal manufacture, the spread of invasive eucalyptus, and expanding human settlements. It has appeared in very small numbers in the pet trade, but is not likely to be heavily collected.
Conservation Measures It occurs in Parc National d'Andohahela.
Notes on taxonomy: This species might be a colour morph of *Mantella baroni* (F. Glaw pers. comm.).
Bibliography: Andreone, F. and Luiselli, L.M. (2003), Blommers-Schlösser, R.M.A. and Blanc, C.P. (1991), Böhme, W., Busse, K. and Glaw, F. (1993), Busse, K. (1980), Glaw, F. and Vences, M. (1994), Nussbaum, R.A. *et al.* (1999), Staniszewski, M. (2001), Vences, M. *et al.* (1998), Vences, M., Glaw, F. and Böhme, W. (1999)
Data Providers: Ronald Nussbaum, Christopher Raxworthy

VU *Mantella madagascariensis* (Grandidier, 1872)

MADAGASCAN MANTELLA

Vulnerable B1ab(iii)
Order, Family: Anura, Mantellidae
Country Distribution: Madagascar
Current Population Trend: Decreasing
CITES: Appendix II



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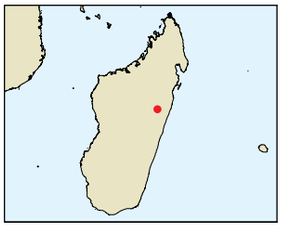
Geographic Range This species occurs in east-central Madagascar from near Niagarakely, south to Ranomafana. It has been recorded from 700-1,050m asl.
Population It is uncommonly encountered, but large numbers have been recorded in trade.
Habitat and Ecology It is a terrestrial species, living in forest and forest edge, in particular along streams. The eggs are laid on land, and the larvae develop in streams.
Major Threats Its forest habitat is receding due to subsistence agriculture (including livestock grazing), timber extraction, charcoal manufacture, the spread of invasive eucalyptus, and expanding human settlements. It is also possible that over-collecting for commercial and private purposes poses a threat, but this requires further investigation.
Conservation Measures Its presence is not confirmed in any protected areas, but it occurs close to Parc National de Ranomafana. There is a need for careful regulation of the trade in this species.
Notes on taxonomy: This species is closely related to *Mantella pulchra* (F. Glaw pers. comm.).
Bibliography: Blommers-Schlösser, R.M.A. and Blanc, C.P. (1991), Busse, K. (1980), Daly, J.W. *et al.* (1996), Glaw, F. and Vences, M. (1994), Glaw, F., Vences, M. and Schmidt, K. (2000), Guibé, J. (1978), Raxworthy, C.J. and Nussbaum, R.A. (1996a), Staniszewski, M. (2001), Vences, M. *et al.* (1998), Vences, M. *et al.* (2003a), Vences, M., Glaw, F. and Böhme, W. (1999)
Data Providers: Franco Andreone, Frank Glaw

CR *Mantella milotympanum* Staniszewski, 1996

BLACK-EARED MANTELLA

Critically Endangered B2ab(iii)
Order, Family: Anura, Mantellidae
Country Distribution: Madagascar
Current Population Trend: Decreasing
CITES: Appendix II



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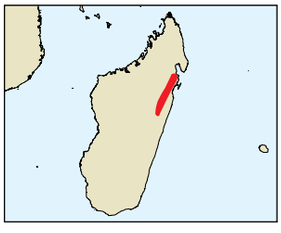
Geographic Range This species occurs in many fragmented localities in east-central Madagascar covering a small area south of Fiorenana, at 900-1,000m asl.
Population It is a locally common species, and has been observed at high densities.
Habitat and Ecology It is a terrestrial species living in gallery forest around large swamps, and in seasonally flooded forest, but is not found outside forest. Breeding is the same as other mantellas, with the eggs being laid on land and the larvae being washed into swamps by rain. It is very seasonal in its breeding, and hard to find when it is not breeding.
Major Threats The area where this species occurs is severely threatened, with its forest habitat receding due to the impacts of subsistence agriculture (including livestock grazing), timber extraction, charcoal production, the spread of eucalyptus, fires, and expanding human settlements. It has, in the past, been collected in large numbers by commercial collectors, and trade might pose a major threat to the species.
Conservation Measures It is not known from any protected areas, making protection of remaining habitat a top priority, particularly given the high rate of habitat loss and degradation within its range. The species also requires careful population monitoring, and any trade should be carefully regulated.
Notes on taxonomy: This species and *Mantella crocea* might represent colour variants of the same species (M. Vences and F. Glaw pers. comm.). The taxonomy of this species and of *Mantella manery* have been confused by amateurs using pseudo-scientific names in the pet-trade literature before the species were properly described.
Bibliography: Andreone, F. *et al.* (2005a), Staniszewski, M. (1996), Staniszewski, M. (2001), Vences, M., Glaw, F. and Böhme, W. (1999)
Data Providers: Miguel Vences, Ronald Nussbaum

VU *Mantella pulchra* Parker, 1925

BEAUTIFUL MANTELLA

Vulnerable B1ab(iii)
Order, Family: Anura, Mantellidae
Country Distribution: Madagascar
Current Population Trend: Decreasing
CITES: Appendix II



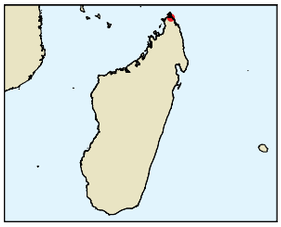
© Franco Andreone

Geographic Range This species has been recorded in north-eastern Madagascar from Mananara-Nord, south to An'Ala, at 300-950m asl.
Population It is a rare species.
Habitat and Ecology It is a terrestrial species of swampy rainforest, and does not occur in secondary habitats. It breeds in swamps in forest.
Major Threats Its forest habitat is receding due to subsistence agriculture (including livestock grazing), timber extraction, charcoal manufacture, the spread of invasive eucalyptus, and expanding human settlements. It is possible that over-collecting for commercial and private purposes is a threat, but this requires further investigation.
Conservation Measures It occurs in the Reserve De Biosphere De Mananara Nord and the Réserve Spéciale d' Ambatovaky. There is a need for careful regulation of the trade in this species.
Notes on taxonomy: This species is closely related to *Mantella madagascariensis* (F. Glaw pers. comm.).
Bibliography: Andreone, F. (1992b), Daly, J.W. *et al.* (1996), Glaw, F. and Vences, M. (1994), Guibé, J. (1978), Staniszewski, M. (2001), Vallan, D. *et al.* (2004), Vences, M. *et al.* (1998), Vences, M., Glaw, F. and Böhme, W. (1999)
Data Providers: Christopher Raxworthy, Frank Glaw

CR *Mantella viridis* Pintak and Böhme, 1988

GREEN MANTELLA

Critically Endangered B2ab(iii)
Order, Family: Anura, Mantellidae
Country Distribution: Madagascar
Current Population Trend: Decreasing
CITES: Appendix II



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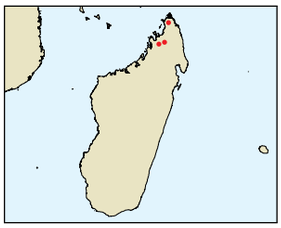
Geographic Range This species occurs on the Montagne des Francais in northern Madagascar, and the Massif of Antogombato, south of Diego, at 50-300m asl.
Population It is a common species, albeit very localized.
Habitat and Ecology It is a terrestrial species of deciduous dry forest on karst landscape, usually found near temporary brooks and streams, where it breeds. It can survive in degraded habitats to some extent, but it needs shade and good vegetation cover.
Major Threats The main threat is habitat loss, due to the impacts of fires, selective logging and the collection of firewood, and livestock grazing; it is also affected by the subsequent permanent drying out of smaller streams following forest loss. It has been recorded in the pet trade in relatively large numbers, although this is now greatly reduced.
Conservation Measures It does not occur in any protected areas (though it has been recorded from a classified forest), and increased protection and maintenance of the remaining habitat is needed. Any future trade in this species should be carefully regulated. It is maintained in captivity in several facilities outside Madagascar. Research is needed to establish the taxonomic status of populations to the south-west of the type locality.
Notes on taxonomy: There are populations to the south-west of the type locality of this species that might belong to this species.
Bibliography: Andreone, F. *et al.* (2005a), Glaw, F. and Vences, M. (1994), Pintak, T. and Böhme, W. (1988), Staniszewski, M. (2001), Vences, M. *et al.* (1998), Vences, M., Glaw, F. and Böhme, W. (1999), Zimmermann, H. (1992)

VU *Mantidactylus ambohitra* Vences and Glaw, 2001

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



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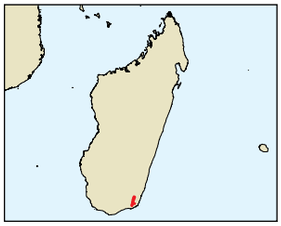
Geographic Range This species is known only from Montagne d'Ambre, Tsaratanana and Manongarivo in northern Madagascar, at 500-1,200m asl.
Population It is locally abundant.
Habitat and Ecology It lives in pristine rainforest only. Its breeding biology is unknown, though it is perhaps by direct development, since the species is not associated with streams.
Major Threats Its forest habitat is receding due to subsistence agriculture (including livestock grazing), timber extraction, charcoal manufacture, the spread of invasive eucalyptus, and expanding human settlements.
Conservation Measures It occurs in the Parc National de Montagne d'Ambre, Réserve Naturelle Intégrale du Tsaratanana, and Réserve Spéciale de Manongarivo.
Notes on taxonomy: This species was previously considered to belong to *Mantidactylus asper*.
Bibliography: Raxworthy, C.J. and Nussbaum, R.A. (1994), Vences, M. and Glaw, F. (2001)
Data Providers: Christopher Raxworthy, Miguel Vences

EN *Mantidactylus brunae* Andreone, Glaw, Vences, Vallan, 1998

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



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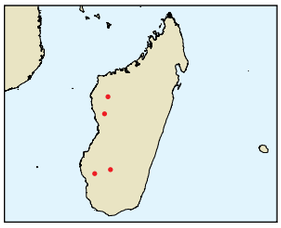
Geographic Range This species is known from Andohahela and Manantantely in extreme south-eastern Madagascar, but it has only recently been described and its distribution in relation to other species is not yet understood. It has been recorded from 300-600m asl.
Population It is locally moderately common.
Habitat and Ecology It lives in crevices among boulders and rocky areas in pristine forest, usually close to flowing waters, and does not survive in secondary or degraded areas. Its breeding biology is unknown, though it possibly takes place in water flowing among rocks.
Major Threats The major threat to this species is habitat loss due to subsistence agriculture, timber extraction, charcoal manufacture, the invasive spread of eucalyptus, livestock grazing, and expanding human settlements.
Conservation Measures It occurs in Parc National d'Andohahela.
Notes on taxonomy: This recently described species is similar to *Mantidactylus peraccae* and *M. elegans*. There is confustion regarding the taxonomy of this Group (additional species might be involved), and a revision is needed.
Bibliography: Andreone, F. *et al.* (1998), Nussbaum, R.A. *et al.* (1999)
Data Providers: Ronald Nussbaum, Christopher Raxworthy, Franco Andreone

EN *Mantidactylus corvus* Glaw and Vences, 1994

Endangered B2ab(iii)
Order, Family: Anura, Mantellidae
Country Distribution: Madagascar
Current Population Trend: Decreasing



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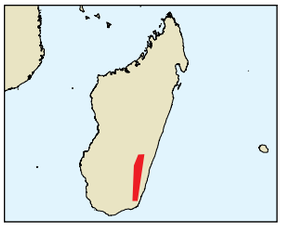
Geographic Range This species occurs in west-central Madagascar, including Isalo, Analavelona, Bemaraha and the Kelifely Plateau. It has been recorded at 200-800m asl.
Population It is not a common species.
Habitat and Ecology It lives in dry tropical forest, usually near streams, and often in canyons, and has not so far been found in disturbed areas. Breeding takes place in pools in permanent streams.
Major Threats The major threat is habitat loss due to subsistence agriculture, timber extraction, charcoal manufacture, fire, livestock grazing, and expanding human settlements.
Conservation Measures It occurs in Parc National de Isalo and in Parc National Tsingy de Bemaraha. The two northern records (Analavelona and Bemaraha) require further taxonomic investigation.
Notes on taxonomy: Unpublished genetic studies suggest that at least two species are included under this name (M. Vences pers. comm.).
Bibliography: Glaw, F. and Vences, M. (1994)
Data Providers: Frank Glaw, Christopher Raxworthy

VU *Mantidactylus elegans* (Guibé, 1974)

Vulnerable B1ab(iii)+2ab(iii)
Order, Family: Anura, Mantellidae
Country Distribution: Madagascar
Current Population Trend: Decreasing



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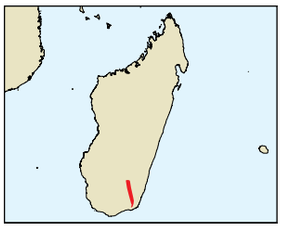
Geographic Range This species occurs in south-eastern Madagascar from Ranomafana, south to Andohahela. Records from northern Madagascar require further investigation. It has been recorded at 1,350-2,500m asl.
Population It is a rare species. No adult males have ever been collected.
Habitat and Ecology It is always associated with rocky outcrops, both in forested zones, and above the tree line. It breeds in streams. The very large tadpoles spend at least a year in the stream before metamorphosis.
Major Threats Being in remote rocky areas, it is probably not as seriously threatened as several other species. However, it is probably impacted by fires, livestock (affecting water quality), and water pollution.
Conservation Measures It occurs in Parc National de Ranomafana, Parc National d'Andringitra, Parc National d'Andohahela, and probably Parc National de Midongy du Sud.
Bibliography: Blommers-Schlösser, R.M.A. and Blanc, C.P. (1991), Glaw, F. and Vences, M. (1994), Guibé, J. (1974), Guibé, J. (1978), Nussbaum, R.A. *et al.* (1999), Thomas, M. *et al.* (2005)
Data Providers: John Cadle, Christopher Raxworthy

EN *Mantidactylus guibei* Blommers-Schlösser, 1991

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

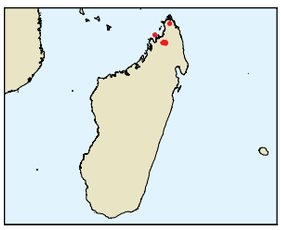


© Miguel Vences

Geographic Range This species occurs in south-eastern Madagascar, from the Kalambatritra Reserve south to Andohahela. It has been recorded from 1,200m asl, perhaps up to 1,800m asl.
Population It is a rare species.
Habitat and Ecology It lives among rock outcrops with dripping water in montane rainforest, and is not found in degraded areas. Its breeding is unknown, and it is not clear if it is by direct or larval development.
Major Threats The major threat is habitat loss due to subsistence agriculture, timber extraction, charcoal manufacture, invasive spread of eucalyptus, livestock grazing, and expanding human settlements.
Conservation Measures It occurs in Parc National d'Andohahela and the Réserve Spéciale de Kalambatritra.
Bibliography: Blommers-Schlösser, R.M.A. and Blanc, C.P. (1991), Glaw, F. and Vences, M. (1994), Guibé, J. (1974), Nussbaum, R.A. *et al.* (1999)
Data Providers: Christopher Raxworthy, John Cadle

EN *Mantidactylus horridus* (Boettger, 1880)

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



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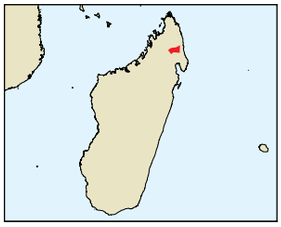
Geographic Range This species is known only from northern Madagascar, at Montagne d'Ambre, Tsaratanana and Nosy Be Island. Following Vences *et al.* (2002b) records from eastern Madagascar are not considered here. It has been recorded at 300-1,400m asl.
Population It is a rare species, with very few records.
Habitat and Ecology It inhabits lowland and montane rainforest, and is not found in disturbed areas. It probably breeds by direct development, but this requires confirmation.
Major Threats The major threat is habitat loss due to subsistence agriculture, timber extraction, charcoal manufacture, the invasive spread of eucalyptus, livestock grazing, and expanding human settlements.
Conservation Measures It occurs in at least two protected areas: the Réserve Naturelle Intégrale du Tsaratanana and Parc National de Montagne d'Ambre.
Notes on taxonomy: This species was recently revised by Vences *et al.* (2002).
Bibliography: Blommers-Schlösser, R.M.A. and Blanc, C.P. (1991), Glaw, F. and Vences, M. (1994), Raxworthy, C.J. and Nussbaum, R.A. (1994), Vences, M. *et al.* (2002b)
Data Providers: Franco Andreone, Frank Glaw

VU *Mantidactylus klemmeri* (Guibé, 1974)

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



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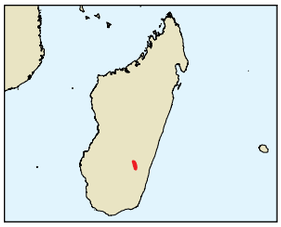
Geographic Range This species is known only from north-eastern Madagascar at Marojejy, Anjanaharibe-Sud, and Betaolana. It possibly occurs on the Masoala Peninsula. It has been recorded at 600-900m asl. Reports from south-eastern Madagascar (Anosyenne Mountains) are due to the mislabelling of a specimen.
Population It is moderately common.
Habitat and Ecology It lives in the leaf-litter of pristine rainforest, and is not found in disturbed areas. If the records of this species from Masoala are correct, then it also occurs in small patches of heathland. It is not associated with water, and is presumed to breed by direct development.
Major Threats Its forest habitat is receding due to subsistence agriculture (including livestock grazing), timber extraction, charcoal manufacture, the spread of invasive eucalyptus, and expanding human settlements.
Conservation Measures It occurs in the Parc National de Marojejy and Réserve Spéciale d'Anjanaharibe-Sud.
Bibliography: Andreone, F. *et al.* (2000), Blommers-Schlösser, R.M.A. and Blanc, C.P. (1991), Glaw, F. and Vences, M. (1994), Guibé, J. (1974), Raselimanana, A.P., Raxworthy, C.J. and Nussbaum, R.A. (2000), Vences, M. and Glaw, F. (2002), Vences, M., Glaw, F. and Andreone, F. (1997)
Data Providers: Christopher Raxworthy, Frank Glaw

EN *Mantidactylus madecassus* (Millot and Guibé, 1950)

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



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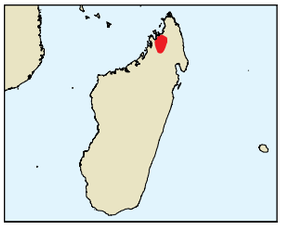
Geographic Range This species is known only from Andringitra in south-eastern Madagascar, where the species is restricted to elevations between 1,500 and 2,500m asl. It has been found at about ten localities in Andringitra.
Population It is a rare species.
Habitat and Ecology It lives in rocky streams in forest or above the tree line. It is not dependent on forest and is usually found outside forest in rocky landscapes. The species is largely aquatic and breeds in the slower-flowing parts of streams.
Major Threats Its habitat is probably being impacted by overgrazing and fires (which are likely to be too frequent).
Conservation Measures It occurs in Parc National d'Andringitra.
Notes on taxonomy: The taxonomic distinction between *Mantidactylus madecassus* and *M. pauliani* has recently been corroborated on the basis of genetic studies (M. Vences pers. comm.).
Bibliography: Blommers-Schlösser, R.M.A. (1979a), Blommers-Schlösser, R.M.A. and Blanc, C.P. (1991), Glaw, F. and Vences, M. (1994), Thomas, M. *et al.* (2005), Vences, M. and Glaw, F. (1999)
Data Providers: Miguel Vences, Frank Glaw

VU *Mantidactylus massorum* Glaw and Vences, 1994

Vulnerable B1ab(iii)+2ab(iii)
Order, Family: Anura, Mantellidae
Country Distribution: Madagascar
Current Population Trend: Decreasing



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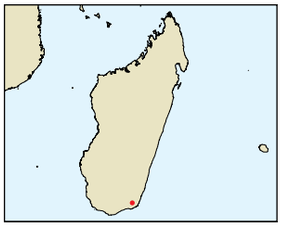
Geographic Range This species is known from Benavony (near Ambanja), Manongarivo, and Tsaratanana in north-western Madagascar, at 200-1,100m asl.
Population It is locally abundant.
Habitat and Ecology It is an arboreal species in primary forest near streams, and is not found in secondary habitats. It breeds in streams, and probably lays its eggs on plants above the water.
Major Threats Its forest habitat is receding due to subsistence agriculture (including livestock grazing), timber extraction, charcoal manufacture, the spread of invasive eucalyptus, and expanding human settlements.
Conservation Measures It might occur in the Réserve Spéciale de Manongarivo and Réserve Naturelle Intégrale du Tsaratanana.
Notes on taxonomy: The specific name was originally *Mantidactylus massi*, and was recently emended.
Bibliography: Glaw, F. and Vences, M. (1994), Vences, M. *et al.* (2003c)
Data Providers: Christopher Raxworthy, Frank Glaw

EN *Mantidactylus microtis* (Guibé, 1974)

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



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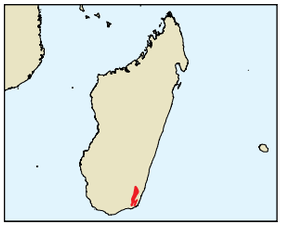
Geographic Range This species appears to be restricted to a small area in extreme south-eastern Madagascar, where it ranges from 800-1,400m asl.
Population It is a reasonably common species.
Habitat and Ecology It inhabits rainforest, living in and around streams, and is not found in secondary habitats. The eggs are laid outside water close to streams; the larvae then move to water, where they develop.
Major Threats The major threat is habitat loss due to subsistence agriculture, timber extraction, charcoal manufacture, the invasive spread of eucalyptus, livestock grazing, and expanding human settlements.
Conservation Measures It occurs in Parc National d'Andohahela.
Notes on taxonomy: This species is here considered to belong to the genus *Mantidactylus*, rather than *Boophis*, following Andreone and Randriamahazo (1997), Nussbaum *et al.* (1999), and Andreone and Luiselli (2003).
Bibliography: Andreone, F. and Luiselli, L.M. (2003), Andreone, F. and Randriamahazo, H. (1997), Blommers-Schlösser, R.M.A. and Blanc, C.P. (1991), Glaw, F. and Vences, M. (1994), Guibé, J. (1974), Nussbaum, R.A. *et al.* (1999)
Data Providers: Christopher Raxworthy, Franco Andreone

EN *Mantidactylus microtympanum* Angel, 1935

Endangered B2ab(iii)
Order, Family: Anura, Mantellidae
Country Distribution: Madagascar
Current Population Trend: Decreasing



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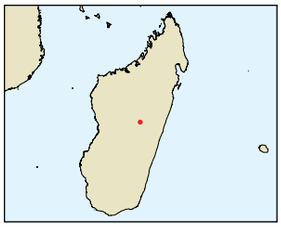
Geographic Range This species has a small range in extreme south-eastern Madagascar from Midongy-Sud to Andohahela, at 50-1,000m asl.
Population It is locally common. However, it has become extinct in some localities around Fort Dauphin.
Habitat and Ecology It occurs in degraded as well as pristine forest, but usually in mature forest; it has once been recorded in an open area next to relict forest. It lives in fast-flowing, rocky streams, where it breeds.
Major Threats Its forest habitat is receding due to subsistence agriculture, timber extraction, charcoal manufacture, the spread of invasive eucalyptus, livestock grazing, and expanding human settlements. It is also collected for human consumption, but this is probably only a localized threat.
Conservation Measures It occurs in the Andohahela and Midongy-du-Sud National Parks.
Bibliography: Andreone, F. and Randriamahazo, H. (1997), Blommers-Schlösser, R.M.A. and Blanc, C.P. (1991), Glaw, F. and Vences, M. (1992c), Glaw, F. and Vences, M. (1994), Nussbaum, R.A. *et al.* (1999)
Data Providers: Ronald Nussbaum, Christopher Raxworthy, Franco Andreone

CR *Mantidactylus pauliani* Guibé, 1974

Critically Endangered B2ab(iii)
Order, Family: Anura, Mantellidae
Country Distribution: Madagascar
Current Population Trend: Decreasing



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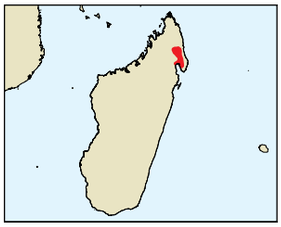
Geographic Range This species occurs in a single, small area at 2,200m asl on the Ankaratra Massif in central Madagascar.
Population In the last 20 years, it has only been recorded in a single stream, where it is known to be rare. Despite recent survey work, it has not been found at other locations on the Ankaratra Massif.
Habitat and Ecology Although it originally lived in montane rainforest, it is now known only in high-altitude grassland with forest remnants. It breeds in fast-flowing mountain streams.
Major Threats The main threats to its habitat on the Ankaratra Massif are fire, overgrazing by livestock, and expanding potato farming. However, water pollution and stream sedimentation as a result of agriculture and mining might also be threats.
Conservation Measures It is not known from any protected areas, and the protection of remaining habitat on the Ankaratra Massif is urgently needed. Further survey work is needed to determine whether or not the species might survive elsewhere on the Massif, and to determine the current population status of the species.
Bibliography: Andreone, F. *et al.* (2005a), Guibé, J. (1974), Vences, M. *et al.* (2002a), Vences, M. and Glaw, F. (1999)
Data Providers: Miguel Vences, Ronald Nussbaum

VU *Mantidactylus rivicola* Vences, Glaw and Andreone, 1997

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

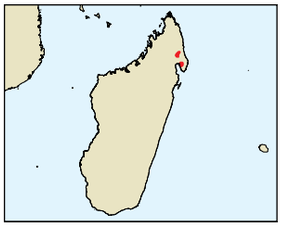


© Franco Andreone

Geographic Range This species is known only from north-eastern Madagascar from Marojejy, south to Masoala. It has been recorded from sea level up to 700m asl.
Population It is locally abundant.
Habitat and Ecology It lives along streams in pristine rainforest, and does not survive in altered habitats. Its breeding biology is unknown, and it is not clear if it is by direct or larval development.
Major Threats Its forest habitat is receding due to subsistence agriculture (including livestock grazing), timber extraction, charcoal manufacture, the spread of invasive eucalyptus, and expanding human settlements.
Conservation Measures It occurs in the Parc National de Marojejy, Parc National de Masoala, and Réserve Spéciale d'Anjanaharibe-Sud.
Bibliography: Andreone, F. *et al.* (2000), Raselimanana, A.P., Raxworthy, C.J. and Nussbaum, R.A. (2000), Raxworthy, C.J. *et al.* (1998), Vences, M., Glaw, F. and Andreone, F. (1997)
Data Providers: Franco Andreone, Miguel Vences

VU *Mantidactylus salegy* Andreone, Aprea, Vences and Odierna, 2003

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

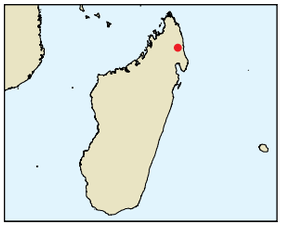


© Franco Andreone

Geographic Range This species is known from Anjanaharibe-Sud, south to the Masoala Peninsula in north-eastern Madagascar, at 500-1,000m asl.
Population It is not a common species, and is hard to find.
Habitat and Ecology It lives only in pristine rainforest. There is no information on its breeding biology, but it probably breeds by direct development.
Major Threats Its forest habitat is receding due to subsistence agriculture (including livestock grazing), timber extraction, charcoal manufacture, the spread of invasive eucalyptus, and expanding human settlements.
Conservation Measures It occurs in the Parc National de Masoala and Réserve Spéciale d'Anjanaharibe-Sud.
Bibliography: Andreone, F. *et al.* (2003a)
Data Providers: Franco Andreone, Miguel Vences

VU *Mantidactylus schilfi* Glaw and Vences, 2000

Vulnerable D2
Order, Family: Anura, Mantellidae
Country Distribution: Madagascar
Current Population Trend: Unknown



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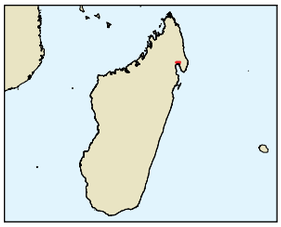
Geographic Range This species is known only from Parc National de Marojejy, at 1,250m asl, in north-eastern Madagascar. It is unlikely to be very widespread.
Population It appears to be a rare species.
Habitat and Ecology It is known only from a single site where it has been found in bushes in an artificial clearing surrounded by montane forest. It calls during the day. Its breeding biology is unknown, but it lives far from water, so it presumably breeds by direct development.
Major Threats There are no major threats to the species at present. However, its forest habitat is at risk of receding due to subsistence agriculture (including livestock grazing), timber extraction, charcoal manufacture, the spread of invasive eucalyptus, and expanding human settlements.
Conservation Measures It occurs only in Parc National de Marojejy.
Bibliography: Glaw, F. and Vences, M. (2000)
Data Providers: Frank Glaw, Miguel Vences

EN *Mantidactylus silvanus* Vences, Glaw and Andreone, 1997

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

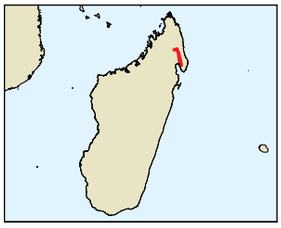


© Franco Andreone

Geographic Range This species is known only from the island of Nosy Mangabe and the nearby mainland along the coast of the Antongila Bay. It might occur more widely on the Masoala Peninsula. It occurs from sea level up to 400m asl.
Population It is a rare species.
Habitat and Ecology It lives on low vegetation near streams and brooks, and among boulders and in caves, in pristine rainforest; it cannot survive in altered habitats. The breeding biology is unknown, and it could reproduce by either direct or larval development.
Major Threats The major threat is habitat loss due to subsistence agriculture, timber extraction, charcoal manufacture, spread of invasive eucalyptus, livestock grazing, and expanding human settlements.
Conservation Measures It occurs in the Réserve Spéciale de Nosy Mangabe. Although not yet confirmed from Parc National de Masoala, it is likely to occur there as well.
Bibliography: Vences, M., Glaw, F. and Andreone, F. (1997)
Data Providers: Franco Andreone, Miguel Vences

VU *Mantidactylus striatus* Vences, Glaw, Andreone, Jesu and Schimmenti, 2002

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



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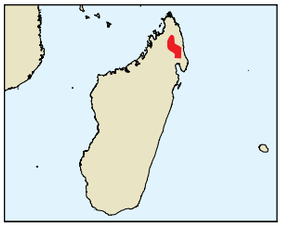
Geographic Range This species is recorded from north-eastern Madagascar from Marojejy, and from Betaolana to Masoala, at approximately 400-800m asl.
Population It is an abundant species.
Habitat and Ecology It lives in pristine rainforest, where it is often found close to, but sometimes at some distance from, small streams. It is not found in altered habitats. Its breeding biology is unknown, and it is not clear if it takes place by larval or direct development.
Major Threats Its forest habitat is receding due to subsistence agriculture (including livestock grazing), timber extraction, charcoal manufacture, the spread of invasive eucalyptus, and expanding human settlements.
Conservation Measures It occurs in the Parc National de Marojejy and Parc National de Masoala.
Notes on taxonomy: This species was previously included in *Mantidactylus malagasius* (Vences *et al.* 2002).
Bibliography: Vences, M. *et al.* (2002b)
Data Providers: Franco Andreone, Christopher Raxworthy

VU *Mantidactylus tandroka* Glaw and Vences, 2001

Vulnerable D2
Order, Family: Anura, Mantellidae
Country Distribution: Madagascar
Current Population Trend: Stable



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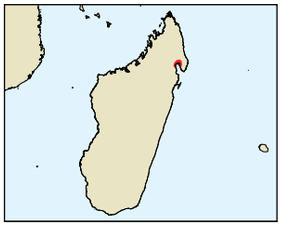
Geographic Range This species is known with certainly only from the Marojejy Massif at 700-1,400m asl in north-eastern Madagascar. There is one specimen collected from Tsaratanana that probably belongs to this species, but this awaits confirmation.
Population It is an abundant species.
Habitat and Ecology It is usually observed near streams and tiny trickles of water in rainforest, where it can be found climbing on low vegetation. It is not found in disturbed areas. Its breeding biology is unknown, and could be by either direct or larval development.
Major Threats Its forest habitat is receding due to subsistence agriculture (including livestock grazing), timber extraction, charcoal manufacture, the spread of invasive eucalyptus, and expanding human settlements.
Conservation Measures It occurs in Parc National de Marojejy.
Bibliography: Andreone, F. *et al.* (2003a), Glaw, F. and Vences, M. (2001), Raselimanana, A.P., Raxworthy, C.J. and Nussbaum, R.A. (2000)
Data Providers: Christopher Raxworthy, Franco Andreone

EN *Mantidactylus webbi* (Grandison, 1953)

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



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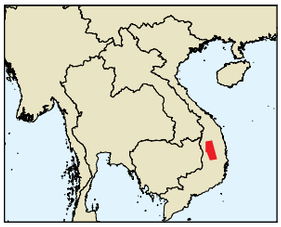
Geographic Range This species occurs around the Antongila Bay and on the island of Nosy Mangabe in north-eastern Madagascar. Records from Andohahela in south-eastern Madagascar require confirmation, and are not included here. It has been recorded from sea level up to 100m asl.
Population It is locally common.
Habitat and Ecology It inhabits very low altitude rainforest, living along rocky streams among boulders and moss, and is intolerant of disturbed habitat. It breeds along streams under mossy boulders, the eggs being laid on rocks.
Major Threats The major threat is habitat loss due to subsistence agriculture, timber extraction, and expanding human settlements. Forest loss is particularly severe on the coast of mainland Madagascar.
Conservation Measures It occurs in the Réserve Spéciale de Nosy Mangabe, but is not yet confirmed from Parc National de Masoala.
Bibliography: Blommers-Schlösser, R.M.A. and Blanc, C.P. (1991), Glaw, F. and Vences, M. (1992c), Glaw, F. and Vences, M. (1994), Vences, M., Glaw, F. and Andreone, F. (1997)
Data Providers: Franco Andreone, Miguel Vences

MEGOPHRYIDAE

VU *Brachytarsophrys intermedia* (Smith, 1921)

Vulnerable B1ab(iii)+2ab(iii)
Order, Family: Anura, Megophryidae
Country Distribution: Viet Nam
Current Population Trend: Decreasing



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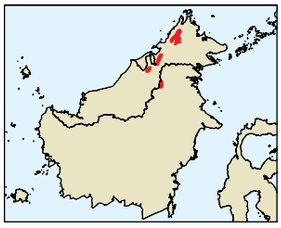
Geographic Range This species is known only from the Tay Nguyen Plateau of south-central Viet Nam, though it might extend into southern Lao People's Democratic Republic or extreme north-eastern Cambodia. It has been recorded above 900m asl.
Population It was common at the type locality in the early 1900s, but there is no recent information on its status.
Habitat and Ecology This species is known from forested areas, and breeds in streams.
Major Threats The major threat to this species is habitat loss due to clear cutting and human settlement.
Conservation Measures This species is not currently recorded from any protected areas, and there is a need for improved habitat protection at sites where the species is known to occur. Further survey work is needed to determine the current population status of this species.
Notes on taxonomy: This species might be a synonym of *Brachytarsophrys carinensis*.
Bibliography: Bourret, R. (1942), Orlov, N.L. *et al.* (2000)
Data Providers: Peter Paul van Dijk, Raoul Bain

VU *Leptobrachella baluensis* Smith, 1931

Vulnerable B1ab(iii)+2ab(iii)
Order, Family: Anura, Megophryidae
Country Distribution: Indonesia, Malaysia
Current Population Trend: Decreasing

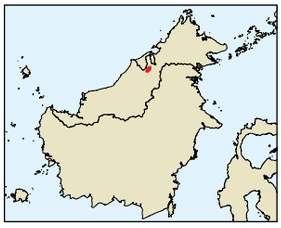


© Indraneil Das

Geographic Range This species is known only from montane regions (750-1,800m asl) of northern Borneo.
Population It appears to be relatively abundant.
Habitat and Ecology An inhabitant of sub-montane forests (oak-chestnut and mossy forest), adults are found in the leaf-litter, and on vegetation close to streams (Malkmus *et al.* 2002). Breeding occurs in small, clear, rocky, mountain streams.
Major Threats The major threat to this species is loss of habitat through logging, particularly in the Trus Madi portion of the species' range. Other parts of the range are threatened by forest clearance for pine and eucalyptus plantations.
Conservation Measures Several parks in Sabah, Malaysia, have large tracts of appropriate habitat, including Gunung Mulu, Crocker Range, and Gunung Kinabalu National Park. However, there remains a need for improved protection and maintenance of submontane forest in Kalimantan, Indonesia.
Bibliography: Inger, R.F. (1966), Inger, R.F. and Stuebing, R.B. (1997), Malkmus, R. *et al.* (2002)
Data Providers: Robert Inger, Indraneil Das, Robert Stuebing, Maklarin Lakim, Paul Yambun

VU *Leptobrachella brevicrus* Dring, 1984

Vulnerable D2
Order, Family: Anura, Megophryidae
Country Distribution: Malaysia
Current Population Trend: Stable

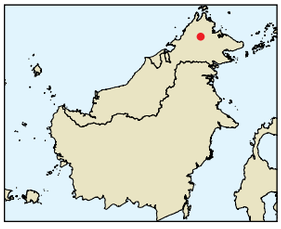


Geographic Range This species is known only from one site within Gunung Mulu National Park, Sabah, Borneo, Malaysia at 1,800m asl.
Population The current population status of this species is unknown.
Habitat and Ecology This species inhabits montane forest; all specimens were seen calling along small, clear mountain streams.
Major Threats There are no major threats to the species at present. However, despite the presence of this species within a protected area, there is always a potential risk of encroaching habitat loss.
Conservation Measures It occurs in Gunung Mulu National Park. The species is in need of close population monitoring given its restriction to a single locality. Further survey work is required in areas of suitable habitat adjacent to Gunung Mulu.

Bibliography: Dring, J.C.M. (1984a)
Data Providers: Robert Inger, Indraneil Das, Robert Stuebing, Maklarin Lakim, Paul Yambun

CR *Leptobrachella palmata* Inger and Stuebing, 1991

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

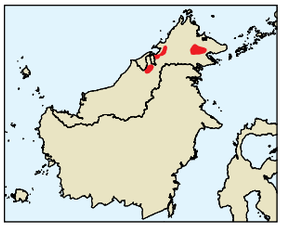


© Rob Stuebing

Geographic Range The only record of this species is from the type locality: the bank of a small tributary of Sungai Liwagu, in the Lipaso Forest Reserve, Labuk and Sugut District, Sabah, in Malaysian Borneo. It was recorded at an elevation of 310m asl. It has not been found in Gunung Kinabalu National Park, not far from the type locality, despite intensive sampling.
Population There is no information on the population status of this species, and it appears to be rare.
Habitat and Ecology It was found along a clear, rocky hill stream in lowland forest. If this species behaves like its congeners, adults move widely through the forest and larvae develop in the gravel beds of riffles and rapids.
Major Threats The main threat to the species is habitat loss, since it occurs in a lowland forest type that is being rapidly logged. Siltation of larval habitats is a threat.
Conservation Measures It occurs in the Lipaso Forest Reserve, but this is probably not being managed adequately for the purpose of biodiversity conservation. More effective protection and preservation of mid-elevation forests in the area around the Maliau basin (Sabah) is essential. Further survey work is needed to determine the population status of this species.
Bibliography: Inger, R.F. and Stuebing, R.B. (1991), Inger, R.F. and Stuebing, R.B. (1997)
Data Providers: Robert Inger, Indraneil Das, Robert Stuebing, Maklarin Lakim, Paul Yambun

VU *Leptobrachella parva* Dring, 1984

Vulnerable B1ab(iii)+2ab(iii)
Order, Family: Anura, Megophryidae
Country Distribution: Malaysia
Current Population Trend: Decreasing

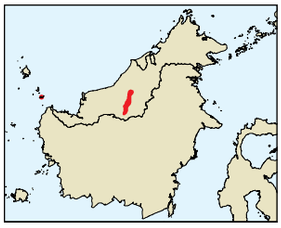


Geographic Range This Bornean endemic is known from a wide area of Sabah and northern Sarawak, Malaysia. The type locality was at 150m asl. It probably occurs more widely than current records suggest, especially in areas between known sites.
Population It seems to be relatively abundant in some regions.
Habitat and Ecology An inhabitant of lowland, hilly rainforest. Adults move to small, clear, rocky streams to breed; the larvae require silt-free, gravel or rocky bottom streams.
Major Threats The major threat to this species is logging, which also contributes to the siltation of streams and thereby hinders the ability of tadpoles to feed.
Conservation Measures It is present in the Danum Valley and Gunung Mulu National Park. However, more effective protection of lowland hill forest is necessary; some of the localities from which it was originally reported have been heavily logged.

Bibliography: Dring, J.C.M. (1984a), Inger, R.F. and Stuebing, R.B. (1997)
Data Providers: Robert Inger, Indraneil Das, Robert Stuebing, Maklarin Lakim, Paul Yambun

VU *Leptobrachella serasanae* Dring, 1984 "1983"

Vulnerable B1ab(iii)+2ab(iii)
Order, Family: Anura, Megophryidae
Country Distribution: Indonesia, Malaysia
Current Population Trend: Decreasing

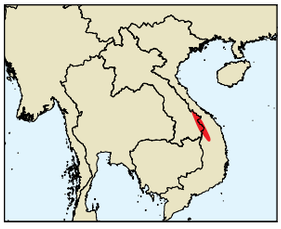


Geographic Range This species occurs on Serhassan Island (Lesser Natuna) off the western tip of Borneo, and in eastern Sarawak, Borneo, Malaysia. It probably occurs more widely in Sarawak than current records suggest.
Population There is no information on the current population status of this species. It is difficult to find outside the breeding season.
Habitat and Ecology It inhabits lowland rainforest, where it occurs on the forest floor and the lower hebaceous strata. They breed in clear, rocky, small streams.
Major Threats The main threat to the species is the deforestation of Sarawak's forests, which is detrimental to both adult and larval stages. Threats to the species on Serhassan Island are not known.
Conservation Measures It does not occur in any protected areas, and there is a need for more effective protection of lowland hill forest in eastern Sarawak. Further survey work is needed to determine the current population status of the species.

Bibliography: Dring, J.C.M. (1984a), Inger, R.F. and Stuebing, R.B. (1991), Inger, R.F. and Stuebing, R.B. (1997), Leong, T.M., Grismer, L. and Mumpuni (2002)
Data Providers: Robert Inger, Djoko Iskandar, Indraneil Das, Robert Stuebing, Maklarin Lakim, Paul Yambun

VU *Leptobrachium banae* Lathrop, Murphy, Orlov and Cuc, 1998

Vulnerable B1ab(iii)+2ab(iii)
Order, Family: Anura, Megophryidae
Country Distribution: Lao P.D.R., Viet Nam
Current Population Trend: Decreasing



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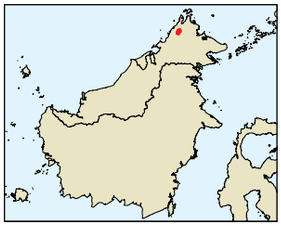
Geographic Range This species is known from the vicinity of Ko Rong village, Gia Lai Province, on the Tay Nguyen plateau of south-central Viet Nam (Lathrop *et al.* 1998a; Orlov *et al.* 2000), and from the Annamite Mountains of Lao People's Democratic Republic (Stuart 1999). It has been recorded from 800-1,600m asl.
Population It is apparently not extremely rare in Viet Nam (Lathrop *et al.* 1998), but is known from only a single specimen in Lao People's Democratic Republic (Stuart 1999).
Habitat and Ecology It is recorded from wet evergreen forest, and breeding takes place in streams.
Major Threats In Viet Nam, the only known locality has been badly affected by logging and by clearance of the forest undergrowth (Lathrop *et al.* 1998).
Conservation Measures It is found within Xe Xap National Biodiversity Conservation Area in Lao People's Democratic Republic. Surveys of the species' population status and distribution are urgently required, based on which options for protected area establishment and/or engagement of local people to reduce their impact on the species' habitat will need to be determined.
Bibliography: Lathrop, A. *et al.* (1998), Orlov, N.L. *et al.* (2000), Stuart, B.L. (1999)
Data Providers: Peter Paul van Dijk, Tanya Chan-ard, Bryan Stuart

VU *Leptobrachium gunungense* Malkmus, 1996

Vulnerable D2
Order, Family: Anura, Megophryidae
Country Distribution: Malaysia
Current Population Trend: Stable

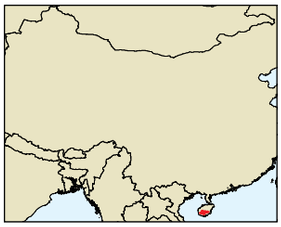


© Alexander Haas

Geographic Range This species is known only from Gunung Kinabalu in Borneo, Malaysia, where it has been recorded at elevations of 1,750-2,200m asl (Malkmus *et al.* 2002).
Population It is generally an uncommon species.
Habitat and Ecology It is a terrestrial species of montane tropical moist forest (inhabiting the transition zone between upper oak-chestnut and mossy forest). Adults can be found in leaf-litter, rock crevices, and in holes in the ground. Breeding takes place in streams.
Major Threats There are no major threats to the species at present. However, despite the presence of this species within a relatively well-managed protected area, there is always the potential risk of encroaching habitat loss.
Conservation Measures It is known only from Gunung Kinabalu National Park. There is a need for close monitoring of the population status of this species.
Bibliography: Malkmus, R. (1996c), Malkmus, R. *et al.* (2002)
Data Providers: Robert Inger, Djoko Iskandar, Indraneil Das, Robert Stuebing, Maklarin Lakim, Paul Yambun

VU *Leptobrachium hainanense* Ye and Fei, 1993

Vulnerable B1ab(iii)+2ab(iii)
Order, Family: Anura, Megophryidae
Country Distribution: China
Current Population Trend: Decreasing



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Geographic Range This species is endemic to the mountain ranges of central and south-western Hainan, China, from 270m to over 1,000m asl.
Population It is uncommon (Lu Sunqing pers. comm.).
Habitat and Ecology It inhabits evergreen broadleaf forests, and breeds in hill streams.
Major Threats The major threat is habitat loss and degradation due to subsistence agriculture and small-scale wood collection. Local people also collect the species for food.
Conservation Measures It is present in a number of protected areas on Hainan.
Bibliography: Fei, L. *et al.* (1999), MacKinnon, J. *et al.* (1996), Ye, C.-Y, Fei, L. and Hu, S.Q. (1993)
Data Providers: Michael Wai Neng Lau, Shi Haitao

EN *Leptolalax alpinus* Fei, Ye and Li, 1991

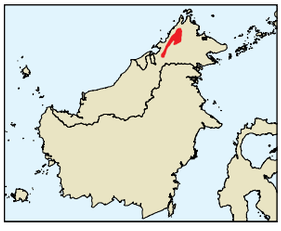
Endangered B1ab(iii)+2ab(iii)
Order, Family: Anura, Megophryidae
Country Distribution: China
Current Population Trend: Decreasing

© Fei, L., Ye, C.-Y., Huang, Y.-Z. and Liu, M.-Y. 1999

Geographic Range This species is restricted to Jingdong County in central Yunnan Province, China, at around 2,400m asl.
Population It is a very rare species.
Habitat and Ecology It inhabits broadleaf forests, and breeds in streams.
Major Threats The major threat is habitat loss and degradation, primarily due to small-scale subsistence wood extraction.
Conservation Measures It occurs in Wuliangshan National Nature Reserve, although there is a need for improved management outside the core area.
Bibliography: Fei, L. *et al.* (1999), Fei, L., Ye, C.Y. and Huang Y.Z. (1990), MacKinnon, J. *et al.* (1996)
Data Providers: Yang Datong, Wu Guanfu

VU *Leptolalax arayai* Matsui, 1997

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

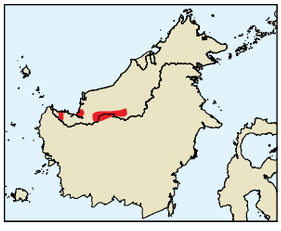


© Andreas & Christel Nöllert

Geographic Range This species is known from Gunung Kinabalu, Trus Madi, the Crocker Range and Mendolog, in Borneo, Malaysia. It might also occur in the central mountains of Borneo. It has an altitudinal range of 350-1,700m asl.
Population It is generally believed to be uncommon, although Malkmus *et al.* (2002) report that it is common on the banks of streams crossing through oak-chestnut forests on Gunung Kinabalu.
Habitat and Ecology It is a little-known terrestrial species of sub-montane and montane forest. Breeding takes place in forest streams.
Major Threats The major threat is the rapid logging of sub-montane forests, which contain valuable timber. The resultant increased siltation of forest streams is also a threat to larval habitat.
Conservation Measures It has been recorded from the protected areas of Gunung Kinabalu National Park, Teman Negara National Park, and the Crocker Range.
Bibliography: Malkmus, R. (2000), Malkmus, R. *et al.* (2002), Malkmus, R. and Kosuch, J. (1999), Matsui, M. (1997)
Data Providers: Robert Inger, Djoko Iskandar, Indraneil Das, Robert Stuebing, Maklarin Lakim, Paul Yambun

VU *Leptolalax hamidi* Matsui, 1997

Vulnerable B1ab(iii)+2ab(iii)
Order, Family: Anura, Megophryidae
Country Distribution: Indonesia, Malaysia
Current Population Trend: Decreasing

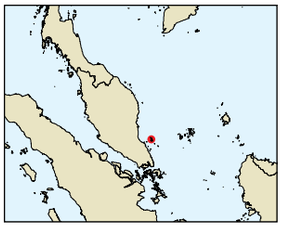


© Rob Stuebing

Geographic Range This Bornean endemic is known from western Sarawak, Malaysia and adjacent parts of west Kalimantan, Indonesia. It probably occurs more widely than current records suggest. It is a lowland species found from 100-500m asl.
Population There is no information on the current population status of this species.
Habitat and Ecology It is restricted to closed-canopy hilly rainforest and does not occur in disturbed habitats. Adults and juveniles occupy the forest floor and shrub strata. Adults breed along the banks of clear, rocky streams and the larvae develop in the riffles of such streams.
Major Threats The major threat is logging, which also results in increased siltation of forest streams and thereby poses a threat to larval habitat.
Conservation Measures It is present in Lanjak Entimau Wildlife Sanctuary in central Sarawak. However, there is a need for more effective preservation and protection of lowland rainforest in western Kalimantan. Further survey work is needed to determine the current population status of the species.
Bibliography: Inger, R.F. and Stuebing, R.B. (1997), Matsui, M. (1997)
Data Providers: Robert Inger, Djoko Iskandar, Indraneil Das, Robert Stuebing, Maklarin Lakim, Paul Yambun

VU *Leptolalax kajangensis* Grismer, Grismer and Youmans, 2004

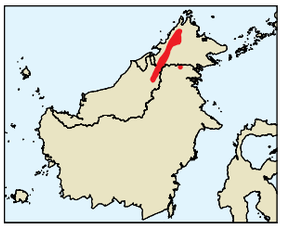
Vulnerable D2
Order, Family: Anura, Megophryidae
Country Distribution: Malaysia
Current Population Trend: Unknown



Geographic Range This species is only known with certainty from Gua Tengkuk Air cave at the top (1,000m asl) of Gunung Kajang, Pulau Tioman, Pahang, West Malaysia. Larvae matching the morphology, but not coloration, of this species have also been found at 400m asl on this mountain, so either *L. kajangensis* is not restricted to its highest elevations, or an additional species of *Leptolalax* might occur lower down. At most, it seems likely that the species is restricted to this island, so has a very small range.
Population There is no information on the current population status of this species.
Habitat and Ecology The species occurs in a subterranean, obliquely oriented cavern, formed from the overhang of a pile of large boulders. The cave contains a small pond (3m by 4m) drained by a small subterranean stream (1-3m in width by 2-4cm in depth) that runs for 3-4m along the cave floor. Tadpoles of this species are found in the pond. Adults have been found sitting on large rocks next to the stream, 10m from the cave entrance and 10m below the external ground level.
Major Threats There is no information available on threats to this species.
Conservation Measures Pulau Tioman is designated as a wildlife reserve. There is a need for close monitoring of the population of this species, given its apparently extremely restricted range, and further research is needed to determine whether or not there are any major threats to this species.
Bibliography: Grismer, L.L., Grismer, J.L. and Youmans, T.M. (2004)
Data Providers: Simon Stuart

VU *Leptolalax pictus* Malkmus, 1992

Vulnerable B1ab(iii)
Order, Family: Anura, Megophryidae
Country Distribution: Indonesia, Malaysia
Current Population Trend: Decreasing

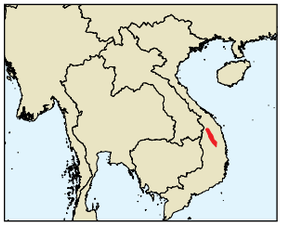


© Alexander Haas

Geographic Range This species has been recorded from a number of sites in northern Borneo. Most records are from Sabah (Malaysia), but it is also known from north-eastern Kalimantan (Indonesia) and north-eastern Sarawak (Malaysia). It has an altitudinal range of 500-1,500m asl.
Population There is no information on the current population status of this species.
Habitat and Ecology It occurs in the leaf-litter and lower shrub layer of closed-canopy forests. It breeds in small, clear, rocky streams.
Major Threats The major threat to this species is logging of lowland rainforest.
Conservation Measures The species is known from the protected areas of the Crocker Range and Gunung Kinabalu National Park. There remains a need for greatly improved protection of lowland rainforest habitat at sites where this species is known to occur. Further survey work is needed to determine the current population status of this species.
Bibliography: Inger, R.F. and Stuebing, R.B. (1997), Iskandar, D.T. (2004), Malkmus, R. (1992), Malkmus, R. (2000), Malkmus, R. *et al.* (2002), Malkmus, R. and Riede, K. (1993)
Data Providers: Robert Inger, Djoko Iskandar, Indraneil Das, Robert Stuebing, Maklarin Lakim, Paul Yambun, Mumpuni

VU *Leptolalax tuberosus* Inger, Orlov and Darevsky, 1999

Vulnerable B1ab(iii)+2ab(iii)
Order, Family: Anura, Megophryidae
Country Distribution: Viet Nam
Current Population Trend: Decreasing



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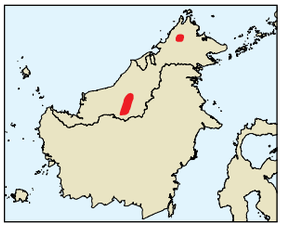
Geographic Range This species is known from the vicinity of Kon Cha Rang and Tram Lap villages on the Kon Tum plateau of southern Viet Nam, as well as Ngoc Linh Mountain, Quang Nam Province, from 900-1,200m asl. It might range a little more widely than records suggest.
Population There is no information on the current population status of this species.
Habitat and Ecology It is known from montane forest, and breeding takes place in streams.
Major Threats The Kon Tum plateau is suffering substantial forest loss from agriculture and clear-cutting, with much resultant stream degradation.
Conservation Measures Herpetological surveys are required to determine whether or not this species is present in existing protected areas on the Kon Tum Plateau. Additional protected areas might need to be established in the Buen Luoi-Tram Lap-Kon Cha Ran area. Further survey work is needed to determine the current population status of the species.
Bibliography: Bain, R.H. and Truong, N.Q. (2002), Inger, R.F., Orlov, N. and Darevsky, I.S. (1999), Orlov, N.L. *et al.* (2000)
Data Providers: Peter Paul van Dijk, Nguyen Quang Truong

VU *Megophrys edwardinae* Inger, 1989

ROUGH HORNED FROG

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



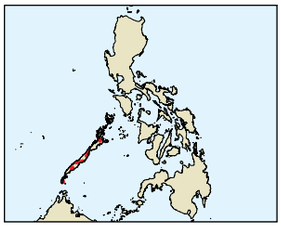
© Björn Lardner

Geographic Range This species is known only from western Sabah and east-central Sarawak in Malaysian Borneo at elevations of 200-700m asl. It probably occurs more widely than current records suggest.
Population It does not appear to be common or abundant at any site.
Habitat and Ecology It is known only from primary, hilly, lowland rainforest. Adults and juveniles live on the forest floor. Breeding presumably takes place in small, clear streams as with other species of the genus.
Major Threats The major threat is the loss of habitat through clear-cutting, and most suitable lowland habitat in Sabah has now been logged.
Conservation Measures The species exists in protected areas in Sabah, but remains unprotected in Sarawak. There is an urgent need for the protection of remaining suitable lowland forest habitats at sites where this species is known to occur.
Bibliography: Inger, R.F. and Stuebing, R.B. (1997), Malkmus, R. *et al.* (2002)
Data Providers: Robert Inger, Djoko Iskandar, Indraneil Das, Robert Stuebing, Maklarin Lakim, Paul Yambun

EN *Megophrys ligayae* (Taylor, 1920)

PALAWAN HORNED FROG

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



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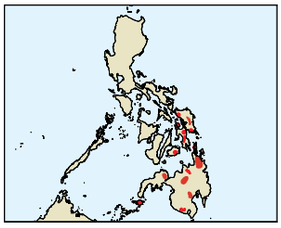
Geographic Range This species occurs on Balabac and Palawan Islands, in the western Philippines. It probably occurs more widely than current records suggest, although its distribution does appear to be patchy.
Population It is often common.
Habitat and Ecology It inhabits the forest floor litter of montane and lowland rainforests and appears to be dependent on mountain streams where it breeds. The larvae are suspension feeders and prefer quiet pools in streams.
Major Threats The major threat is the loss of lowland rainforest habitat to shifting agriculture, and the pollution of mountain streams and rivers due to agricultural effluents and mine-tailings.
Conservation Measures It is present in several protected areas. Required conservation measures include the regulation and proper disposal of pesticides and herbicides, and the effective protection of remaining rainforest, especially riverine habitats and gallery forests.
Notes on taxonomy: This species was removed from the synonymy of *Megophrys montana* by Iskandar (1998), where it had been placed by Inger (1954).
Bibliography: Alcala, A.C. and Brown, W.C. (1985), Brown, R.M., Diesmos, A.C. and Alcala, A.C. (2001), Crombie, R.A. (n.d.), Frost, D.R. (1985), Inger, R.F. (1954), Inger, R.F. (1999), Iskandar, D.T. (1998), Taylor, E.H. (1920)
Data Providers: Arvin Diesmos, Angel Alcala, Rafe Brown, Leticia Afuang, Genevieve Gee, Katie Hampson, Mae Leonida Diesmos, Aldrin Mallari, Perry Ong, Dondi Ubaldo, Baldwin Gutierrez

VU *Megophrys stejnegeri* (Taylor, 1920)

MINDANAO HORNED FROG

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



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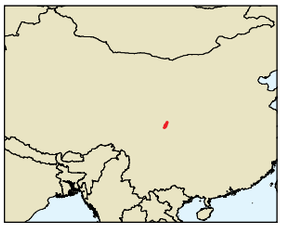
Geographic Range This species is known from Basilan, Biliran, Bohol, Dinagat, Leyte, Samar, and many parts of Mindanao, in the southern and eastern islands of the Philippines. It probably occurs more widely than current records suggest.
Population It is generally common.
Habitat and Ecology It is usually found on the forest floor in leaf-litter of montane and lowland rainforests and is dependent on mountain streams where it breeds. Tadpoles are suspension feeders and prefer quiet pools in streams.
Major Threats Major threats include the loss of the lowland rainforest due to logging, and the pollution of mountain streams and rivers, due to agricultural effluents and mine-tailings.
Conservation Measures Some populations of this species are protected in national parks, such as Mount Malindang National Park, and other protected areas, although there is a need for improved protection on Mindanao, Leyte, Samar, and Bohol to protect the remaining forest on these islands.
Notes on taxonomy: This species was removed from the synonymy of *Megophrys montana* by Iskandar (1998), where it had been placed previously by Inger (1954).
Bibliography: Alcala, A.C. and Brown, W.C. (1985), Brown, R.M., Diesmos, A.C. and Alcala, A.C. (2001), Crombie, R.A. (n.d.), Frost, D.R. (1985), Inger, R.F. (1954), Inger, R.F. (1999), Iskandar, D.T. (1998), Taylor, E.H. (1920)
Data Providers: Arvin Diesmos, Angel Alcala, Rafe Brown, Leticia Afuang, Genevieve Gee, Mae Leonida Diesmos, Aldrin Mallari, Perry Ong, Marisol Pedregosa, Dondi Ubaldo, Baldwin Gutierrez

EN *Oreolalax chuanbeiensis* Tian, 1983

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



© Fei, L., Ye, C.-Y., Huang, Y.-Z. and Liu, M.-Y. 1999

Geographic Range This species is restricted to Ping Wu and Maoxian Counties, in northern Sichuan Province, China, between 1,300 and 2,000m asl.
Population There is no information on its current population status.
Habitat and Ecology It inhabits forests, and breeds in small hill streams where the larvae also develop.
Major Threats The major threat is habitat loss and degradation, due in particular to the activities of smallholder farmers.
Conservation Measures The range of this species overlaps several nature reserves. Further survey work is needed to determine the current population status of this species.
Bibliography: Fei, L. *et al.* (1999), Fei, L. and Ye, C.Y. (2001), MacKinnon, J. *et al.* (1996), Tian, W.S. (1983)
Data Providers: Fei Liang, Wu Guanfu

VU *Oreolalax granulosus* Fei, Ye and Chen, 1991

Vulnerable D2
Order, Family: Anura, Megophryidae
Country Distribution: China
Current Population Trend: Stable

© Fei, L., Ye, C.-Y., Huang, Y.-Z. and Liu, M.-Y. 1999

Geographic Range This species is restricted to Jingdong County, in south-western Yunnan Province, China, from 2,300-2,450m asl.
Population This is a very rare species.
Habitat and Ecology It inhabits evergreen broadleaf forests and breeds in streams, where the larvae also develop.
Major Threats The habitat of this species is relatively well protected at present, and there are currently no major threats. However, its restricted range renders it particularly vulnerable to stochastic events.
Conservation Measures This species occurs in the Ailao Shan National Nature Reserve. There is a need for close monitoring of the population status of this species given its very limited range.
Bibliography: Fei, L. *et al.* (1999), Fei, L., Ye, C.Y. and Huang Y. Z. (1990), MacKinnon, J. *et al.* (1996)
Data Providers: Fei Liang, Yang Datong

VU *Oreolalax jingdongensis* Hu, Yang and Li, 1983

Vulnerable B1ab(iii)+2ab(iii)
Order, Family: Anura, Megophryidae
Country Distribution: China
Current Population Trend: Decreasing

© Fei, L., Ye, C.-Y., Huang, Y.-Z. and Liu, M.-Y. 1999

Geographic Range This species is restricted to Jingdong, Shuangbai and Xingping counties, in south-western Yunnan Province, China, from 1,500-2,450m asl.
Population This is probably not an uncommon species.
Habitat and Ecology It inhabits evergreen broadleaf forests, and breeds in slow-flowing streams where the larvae also develop.
Major Threats Habitat loss is taking place within the range of this species, mainly due to agricultural development.
Conservation Measures This species occurs in the Ailao Shan National Nature Reserve.
Bibliography: Fei, L. *et al.* (1999), MacKinnon, J. *et al.* (1996), Yang, D.-T. (1991b)
Data Providers: Wu Guanfu, Lu Shunqing, Yang Datong

CR *Oreolalax liangbeiensis* Liu and Fei, 1979

Critically Endangered B1ab(iii,v)+2ab(iii,v); C2a(ii)
Order, Family: Anura, Megophryidae
Country Distribution: China
Current Population Trend: Decreasing

© Fei, L., Ye, C.-Y., Huang, Y.-Z. and Liu, M.-Y. 1999

Geographic Range This species is known from a single small stream in Puxiong in Yuexi County, in southern Sichuan province, China, from 2,850-3,000m asl.
Population The only known population comprises probably less than 100 individuals, and is declining.
Habitat and Ecology It inhabits mixed forests, and breeds in small streams where the larvae also develop.
Major Threats Habitat loss and degradation, due to logging and hill fires, represents the major threat to this species. The disappearance of forests has also caused a reduction in rainfall in the region and many streams have dried up in the area as a result.
Conservation Measures The range of this species does not overlap with any protected areas, making protection of the remaining habitat in the area a priority to ensure the species' survival.
Notes on taxonomy: Zhao and Adler (1993) considered this species to be synonymous with *Oreolalax major* but did not give any reason.
Bibliography: Fei, L. and Ye, C.Y. (2001), Liu, C.-C., Hu, S.-Q. and Fei, L. (1979), MacKinnon, J. *et al.* (1996), Ye, C.-Y, Fei, L. and Hu, S.Q. (1993)
Data Providers: Fei Liang, Ye Changyuan

VU *Oreolalax major* (Liu and Hu, 1960)

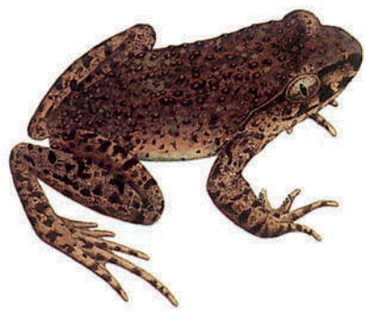
Vulnerable B2ab(iii)
Order, Family: Anura, Megophryidae
Country Distribution: China
Current Population Trend: Decreasing

© Li Cheng

Geographic Range This species is endemic to central Sichuan Province, China, and occurs from 1,200-2,000m asl. It probably ranges slightly more widely.
Population There is little information on the population status of this species, but it is known to be relatively rare.
Habitat and Ecology It is a forest inhabitant that breeds in streams (which is also where the larvae develop).
Major Threats The major threat is habitat loss and degradation due to agriculture, collection of firewood, and infrastructure development.
Conservation Measures The range of this species overlaps with several protected areas, including: Emeishan, Wawushan, Gonggashan, Wolong, and Dujiangyan.
Bibliography: Fei, L. *et al.* (1999), Liu, C.-C. and Hu, S.-Q. (1960), MacKinnon, J. *et al.* (1996), Ye, C.-Y, Fei, L. and Hu, S.Q. (1993)
Data Providers: Fei Liang, Xie Feng

VU *Oreolalax multipunctatus* Wu, Zhao, Inger and Shaffer, 1993

Vulnerable B1ab(iii)+2ab(iii)
Order, Family: Anura, Megophryidae
Country Distribution: China
Current Population Trend: Decreasing



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Geographic Range This species is endemic to Emei and Hongya counties in central Sichuan Province, China, from 1,520-1,920m asl. However, it might occur more widely than records suggest.
Population It is so far known from only two locations, and it is rare at both of these.
Habitat and Ecology It inhabits forests and breeds in streams.
Major Threats The major threat to this species is habitat loss and degradation, partly due to infrastructure development associated with increased tourism.
Conservation Measures The range of this species overlaps with two protected areas; Emeishan Natural Heritage Reserve (a World Heritage Site) and Wawushan Mountain National Forest Park.
Bibliography: Fei, L. *et al.* (1999), MacKinnon, J. *et al.* (1996), Wu, G.F. *et al.* (1993)
Data Providers: Li Cheng, Wu Guanfu

EN *Oreolalax omeimontis* (Liu and Hu, 1960)

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

© Jiang Jianping

Geographic Range This species is known only from two locations in Emei and Hongya Counties in central Sichuan Province, China, at 1,050-1,800m asl.
Population It is relatively abundant at both locations.
Habitat and Ecology It inhabits forests, breeding in streams where the larvae also develop.
Major Threats The major threat is habitat loss and degradation due primarily to smallholder farming activities; disturbance from tourists is an increasing threat.
Conservation Measures The range of this species partly overlaps two protected areas, namely Emeishan Natural Heritage Reserve and Wawushan National Forest Park.
Bibliography: Fei, L. *et al.* (1999), Inger, R.F. *et al.* (1990), Liu, C.-C. and Hu, S.-Q. (1960), MacKinnon, J. *et al.* (1996)
Data Providers: Xie Feng, Wu Guanfu

EN *Oreolalax pingii* (Liu, 1943)

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

© Fei, L., Ye, C.-Y., Huang, Y.-Z. and Liu, M.-Y. 1999

Geographic Range This species is known only from two locations in Daliangshan in Zhaojue and Yuexi Counties, southern Sichuan Province, China, at 2,700-3,300m asl.
Population There is no information on its current population status.
Habitat and Ecology It is a stream-breeding amphibian that inhabits forest and shrubland habitats.
Major Threats The major threat is habitat loss and degradation due to the impacts of nomadic livestock farming and wood extraction.
Conservation Measures It is not known to occur in any protected areas, so there is a clear need for the protection of the montane habitat of this species. Further survey work is needed to determine the current population status of this species.
Bibliography: Fei, L. *et al.* (1999), Liu, C.C. (1943), MacKinnon, J. *et al.* (1996)
Data Providers: Fei Liang, Ye Changyuan

EN *Oreolalax puxiongensis* Liu and Fei, 1979

Endangered A2a; B1ab(iii,v)
Order, Family: Anura, Megophryidae
Country Distribution: China
Current Population Trend: Decreasing

© Fei, L., Ye, C.-Y., Huang, Y.-Z. and Liu, M.-Y. 1999

Geographic Range This species is known only from Yuexi (Puxiong) County in south Sichuan Province, China, from 2,600-2,900m asl.
Population It is rare, and there are only two populations, both of which are declining.
Habitat and Ecology It inhabits marshes, streamside pools, backwater pools, small streams and the surrounding forest. Breeding occurs in streams.
Major Threats The major threat is forest loss due to subsistence wood collection, but fire is also a serious threat (one fire event led to an overall population decline of more than 70%).
Conservation Measures It is not known to occur in any protected areas, and there is a need for urgent protection of its habitat.
Notes on taxonomy: Inger *et al.* (1990) considered *Oreolalax puxiongensis* to be synonymous with *O. schmidti*.
Bibliography: Fei, L. *et al.* (1999), Inger, R.F. *et al.* (1990), Liu, C.-C., Hu, S.-Q. and Fei, L. (1979), MacKinnon, J. *et al.* (1996), Ye, C.-Y, Fei, L. and Hu, S.Q. (1993), Zhao, E.-M. and Adler, K. (1993)
Data Providers: Fei Liang, Ye Changyuan

VU *Oreolalax rhodostigmatus* Hu and Fei, 1979

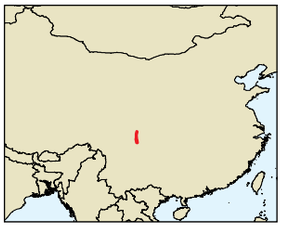
Vulnerable B2ab(iii,v)
Order, Family: Anura, Megophryidae
Country Distribution: China
Current Population Trend: Decreasing

© Fei, L., Ye, C.-Y., Huang, Y.-Z. and Liu, M.-Y. 1999

Geographic Range This species is known from Hubei, Sichuan, Guizhou, and Hunan provinces in central China, from 1,000-1,790m asl.
Population There is limited information on the population status of this species, but it is known from only a few sites within its apparently large range.
Habitat and Ecology It inhabits limestone caves in forested habitats. Breeding takes place in springs and stream pools inside the limestone caves.
Major Threats The major threat to this species is posed by the disturbance and degradation of its limestone cave habitat, mainly due to increased tourism. Tadpoles of this species are also collected for food.
Conservation Measures The range of this species overlaps with several protected areas, but there is a need to promote awareness amongst tourists of the need to minimize their disturbance of cave habitats.
Bibliography: Fei, L. *et al.* (1999), Liu, C.-C., Hu, S.-Q. and Fei, L. (1979), MacKinnon, J. *et al.* (1996), Ye, C.-Y, Fei, L. and Hu, S.Q. (1993)
Data Providers: Fei Liang, Wu Guanfu

EN *Scutiger chintingensis* Liu and Hu, 1960

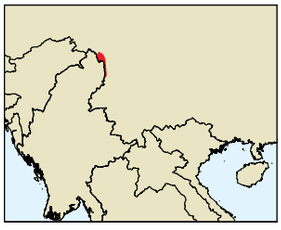
Endangered A2ac; B2ab(iii,v)
Order, Family: Anura, Megophryidae
Country Distribution: China
Current Population Trend: Decreasing

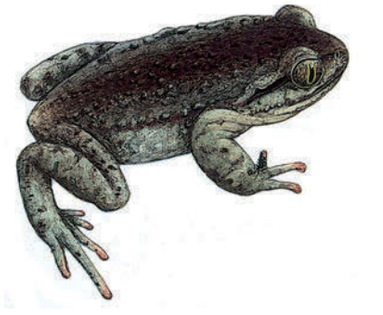


Geographic Range This species is only known from three locations in Emei, Hongya and Wenchuan in Sichuan Province, south-western China, at 2,700-3,400m asl.
Population The population is small and declining.
Habitat and Ecology It is a stream-breeding amphibian that inhabits small streams and the surrounding habitat, near the peak of mountains.
Major Threats The major threat is habitat loss and degradation due mainly to infrastructure development for tourist activities; water pollution is an additional threat.
Conservation Measures Three protected areas are present within the range of this species, namely Wolong Nature Reserve, Emeishan Natural and Historical Heritage Reserve, and Wawushan National Forest Park.
Bibliography: Fei, L. *et al.* (1999), Feng, X., Fei, L. and Zheng, M. (2000), Liu, C.-C. and Hu, S.-Q. (1960), MacKinnon, J. *et al.* (1996), Ye, C.-Y, Fei, L. and Hu, S.Q. (1993)
Data Providers: Xie Feng, Ye Changyuan

VU *Scutiger gongshanensis* Yang and Su, 1979

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





Geographic Range This species is only known from Gongshan and Biluoxueshan, in north-western Yunnan Province, China, from 2,500-3,850m asl. It is likely to be found in neighbouring northern Myanmar, but there are no records to date.
Population It is probably quite a rare species.
Habitat and Ecology It inhabits spring-fed marshes in conifer forests, and breeds in very small streams.
Major Threats The major threat is habitat encroachment for agriculture and human settlement.
Conservation Measures Part of the range of this species is within the Gaoligong Shan Nature Reserve, now part of the Three Parallel Rivers World Heritage Site.
Bibliography: Fei, L. *et al.* (1999), MacKinnon, J. *et al.* (1996), Yang, D.-T. (1991b), Yang, D.-T., Su, C.Y. and Li, S.M. (1979)
Data Providers: Yang Datong, Michael Wai Neng Lau

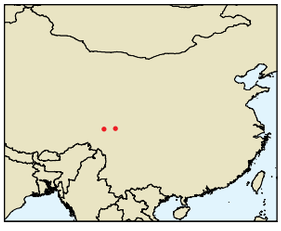
VU *Scutiger liupanensis* (Huang, 1985)

Vulnerable D2
Order, Family: Anura, Megophryidae
Country Distribution: China
Current Population Trend: Stable

Geographic Range This species is only recorded from Liupanshan, in Jinyuan County, Ningxia Huizu Zizhiqu Autonomous Region, China, from 1,900-2,500m asl.
Population It is common within its small range.
Habitat and Ecology It inhabits forest where it breeds in small- to medium-sized, spring-fed streams.
Major Threats Its habitat is within a protected area so it is not presently threatened by habitat destruction or degradation. Nonetheless, its restricted range renders it vulnerable to stochastic threatening processes.
Conservation Measures Much of the range of this species lies within the Liupanshan National Nature Reserve. There is a need for close population monitoring of this species given its very limited range.
Bibliography: Fei, L. *et al.* (1999), Huang, Y.-Z. (1985), MacKinnon, J. *et al.* (1996)
Data Providers: Fei Liang, Liang Gang

CR *Scutiger maculatus* (Liu, 1950)

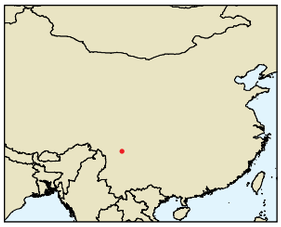
Critically Endangered B2ab(iii,v)
Order, Family: Anura, Megophryidae
Country Distribution: China
Current Population Trend: Decreasing



Geographic Range This species is known only from Garze County, in north-western Sichuan province, and Jiangda, in eastern Xizang province, China, from 3,300-3,500m asl.
Population Only three specimens have ever been collected (including the type specimen), two of which were collected in the 1970s. It has not been found in its natural range since the 1970s despite repeated searches by herpetologists, and it is possible that it is now extinct.
Habitat and Ecology It inhabits and breeds in small hill streams, low-gradient spring-fed streams, and low-gradient medium-sized streams. The surrounding habitats are a mosaic of alpine meadows and forests.
Major Threats The species is threatened by ongoing habitat loss due to agricultural expansion (livestock and crops) and human settlement; climate change might also pose a future threat. Poor recruitment as a result of these threats might be a factor contributing to the species' disappearance.
Conservation Measures It is not known to occur in any protected areas, and survey work is needed to determine whether or not this species still survives in the wild.
Bibliography: Fei, L. *et al.* (1999), Hu, S.-Q., Zhao, E.M., Jiang, Y.-M., Fei, L., Ye, C.-Y., *et al.* (1987), Liu, C.C. (1950), MacKinnon, J. *et al.* (1996), Ye, C.-Y, Fei, L. and Hu, S.Q. (1993)
Data Providers: Fei Liang, Zhao Wenge

EN *Scutiger muliensis* Fei and Ye, 1986

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



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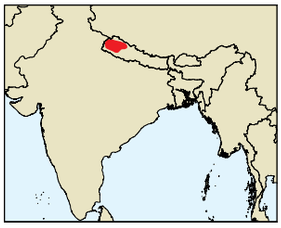
Geographic Range This species is only known from Muli, in south-western Sichuan Province, China, from 3,050-3,400m asl.
Population There is no information on its current population status.
Habitat and Ecology It inhabits low-gradient streams and riparian habitats (mainly shrublands), and breeds in streams.
Major Threats The major threat is habitat loss and degradation due to overgrazing from livestock and increasing human settlement.
Conservation Measures The range of this species is not within any protected area, and the montane habitat of this species is in need of protection. Further survey work is needed to determine the current population status of this species.
Notes on taxonomy: Zhao and Adler (1993) regarded this species to be synonymous with *Scutiger ruginosus* (= *S. mammatus*) without discussion.
Bibliography: Fei, L. *et al.* (1999), Fei, L. and Ye, C.-Y. (1986), MacKinnon, J. *et al.* (1996), Zhao, E.-M. and Adler, K. (1993)
Data Providers: Fei Liang, Ye Changyuan

VU *Scutiger nepalensis* Dubois, 1974

Vulnerable B2ab(iii)
Order, Family: Anura, Megophryidae
Country Distribution: Nepal
Current Population Trend: Decreasing



Geographic Range This species is restricted to the mountains of north-western Nepal, where it has been recorded from 3,000-5,000m asl.
Population It is considered a rare species.
Habitat and Ecology It is an alpine species strongly associated with streams in grassland habitats. While the species is known to breed in streams there is little information available on the site of egg deposition or larval ecology.
Major Threats The main threat to this species is the diversion of water from breeding streams for agricultural use (irrigation). There is also ongoing habitat loss for agriculture and human settlement.
Conservation Measures It is not known whether or not this species occurs in protected areas, but it might occur in Rara National Park or Shey-Phoksundo National Park.

Bibliography: Das, I. and Chanda, S. (2000), Dubois, A. (1974), Schleich, H.H. (1993)
Data Providers: Annemarie Ohler, Tej Kumar Shrestha

EN *Scutiger ningshanensis* Fang, 1985

Endangered B2ab(iii)
Order, Family: Anura, Megophryidae
Country Distribution: China
Current Population Trend: Decreasing

© Li Pipeng

Geographic Range This species is only recorded from Ningshaan County, southern Shaanxi Province, China, where it has been recorded from 1,970-2,550m asl.
Population The population status of this species is not known; only two specimens have ever been collected.
Habitat and Ecology It is found near streams among grasses in mixed forest. The breeding habitat is unknown, but it is presumably in streams where it breeds by larval development.
Major Threats There is little direct information on threats; however, it is likely to be impacted by habitat loss due to smallholder farming activities.
Conservation Measures The range of this species is just outside Niubeiliang National Nature Reserve. Further survey work is needed to determine the population status of this species.
Bibliography: Fang, R.S. (1985), Fei, L. *et al.* (1999), MacKinnon, J. *et al.* (1996)
Data Providers: Liang Gang, Li Pipeng

EN *Scutiger pingwuensis* Liu and Tian, 1978

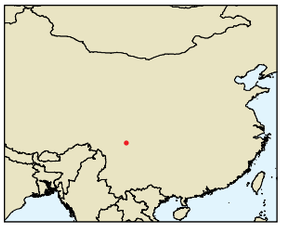
Endangered B1ab(iii)+2ab(iii)
Order, Family: Anura, Megophryidae
Country Distribution: China
Current Population Trend: Decreasing

© Fei, L., Ye, C.-Y., Huang, Y.-Z. and Liu, M.-Y. 1999

Geographic Range This species is only known from Pingwu County, in north-eastern Sichuan Province, China, at about 2,200m asl.
Population It is common, although the population is believed to be small.
Habitat and Ecology It lives close to villages in secondary vegetation and in small streams fringed by dense shrubs. It breeds under rocks in streams.
Major Threats The major threat is habitat loss and degradation due to agricultural development and human settlement.
Conservation Measures The range of this species overlaps several reserves, including Jiangshan, Tangjiahe and Wanglang Nature Reserves.
Bibliography: Fei, L. *et al.* (1999), Liu, C.-C. *et al.* (1978), MacKinnon, J. *et al.* (1996)
Data Providers: Fei Liang, Xie Feng

VU *Scutiger ruginosus* Zhao and Jiang, 1982

Vulnerable D2
Order, Family: Anura, Megophryidae
Country Distribution: China
Current Population Trend: Stable

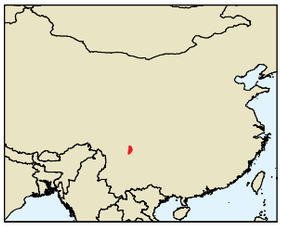


Geographic Range This species is reported from Kangding and Muli, in western Sichuan Province, China, at about 3,400m asl. The population from Muli might actually be *S. muliensis*.
Population At the one confirmed location the species is considered to be rare.
Habitat and Ecology It inhabits small, slow-flowing streams surrounded by lush vegetation in forest or grassland habitat. It probably breeds in streams like other species of the genus.
Major Threats There are no major threats to the species at present. However, its restricted range renders it more vulnerable to threatening processes.
Conservation Measures The only known confirmed location is within the Jintangkongyu Nature Reserve. There is a need for close monitoring of the population status of this species given it is known from only one protected area.

Notes on taxonomy: Fei, Ye and Chen (1986) considered that this taxa is just a polymorphic form of *Scutiger gladulatus* and *Scutiger mammatus*. It has been reported from two locations but one of these might refer to *S. muliensis*.
Bibliography: Fei, L., Ye, C.-Y. and Chen, S.-W. (1986), MacKinnon, J. *et al.* (1996), The Comprehensive Scientific Expedition to the Qinghai-Xizang Plateau (1997), Zhao, E.-M. and Adler, K. (1993), Zhao, E.-M. and Jiang, Y.-M. (1982)
Data Providers: Wu Guanfu, Wang Yuezhao

VU *Scutiger tuberculatus* Liu and Fei, 1979

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

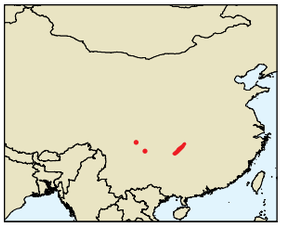



© Li Cheng

Geographic Range This species is only known from Yuexi, Mianning, and Xichang in southern Sichuan Province, China, from 2,600-3,750m asl.
Population There is no information on the currrent population status of this species.
Habitat and Ecology It inhabits small- to medium-sized streams and the surrounding riparian forest. It sometimes also occurs in marshes and at the marshy edges of lakes. Breeding takes place in streams.
Major Threats The major threat to this species is habitat destruction and degradation caused by logging in the Yuexi area.
Conservation Measures It is recorded from the Luojishan, and Panzhihua-Sutielin Nature Reserves.
Bibliography: Fei, L. *et al.* (1999), Liu, C.-C., Hu, S.-Q. and Fei, L. (1979), MacKinnon, J. *et al.* (1996), Ye, C.-Y, Fei, L. and Hu, S.Q. (1993)
Data Providers: Fei Liang, Xie Feng

EN *Vibrissaphora boringii* Liu, 1945

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

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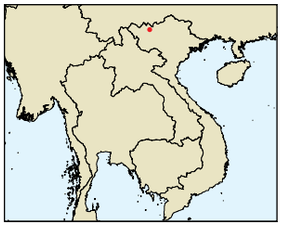
Geographic Range This species is known from Emei Shan and Junlian in Sichuan Province, Jiangkou and Yinjiang in Guizhou Province, and Sangzhi in Hunan Province, China, from 600-1,700m asl.
Population It is a rare species, and has nearly disappeared from Emei Shan.
Habitat and Ecology It breeds in slow-flowing streams surrounded by forest, cultivated fields, and grassland.
Major Threats The major threats to this species are over-collecting for the pet trade and habitat loss and degradation.
Conservation Measures The species' range overlaps with a few protected areas, including Pinghushan and Badagongshan National Nature Reserves, and Emei Shan Natural and Historical Heritage Reserve. It is a protected species in Sichuan, Hunan and Guizhou Provinces.
Bibliography: Fei, L. *et al.* (1999), Liu, C.C. (1945), MacKinnon, J. *et al.* (1996), Ye, C.-Y, Fei, L. and Hu, S.Q. (1993), Zhao, E.-M. (1998)
Data Providers: Fei Liang, Wu Guanfu

EN *Vibrissaphora echinata* Dubois and Ohler, 1998

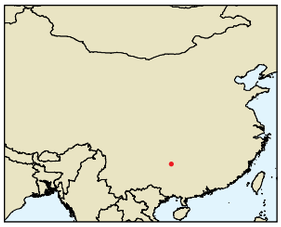
Endangered B1ab(iii)
Order, Family: Anura, Megophryidae
Country Distribution: Viet Nam
Current Population Trend: Decreasing

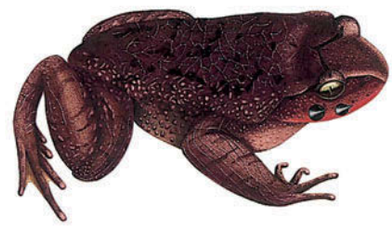


Geographic Range This species is known from the Fan Si Pan mountain area of extreme northern Viet Nam, at about 1,900-2,500m asl.
Population It is not uncommon in suitable habitat (S. Swan pers. comm.).
Habitat and Ecology It inhabits closed-canopy forests; adults live on the forest floor up to 15m away from streams, while during the breeding period the animals move to small, slow-moving streams. Males construct and guard nests under rocks in the stream. Water temperatures may be as low as 11°C during egg development.
Major Threats The larvae of this species are at least one year old before metamorphosis, which may result in this species being more susceptible to degradation of its forest and stream habitats. The area of occurrence, which includes Hoang Lien Son National Park, is under significant threat from over-exploitation of natural resources, land clearance for cultivation, and accidental fire. The habitat type most threatened is lower montane evergreen forest, which has already been significantly reduced in extent. Remaining areas of natural habitat at all elevations are being degraded by selective timber extraction, collection of firewood and establishment of cardamom plantations. An additional potential threat is tourism development (Tordoff 2002).
Conservation Measures Although one population inhabits the Hoang Lien Son National Park, and the adjacent Hoang Lien Nature Reserve, there is a need for improved management of these existing protected areas to halt ongoing degradation of habitat within them.
Notes on taxonomy: This species was synonymized with *Vibrissaphora ailaonica* by Cuc *et al.* (1999), although this was rejected by Ohler *et al.* (2000).
Bibliography: Birdlife International (2001), Cuc, T.H. *et al.* (1999), Dubois, A. and Ohler, A. (1998), Ohler, A. *et al.* (2000), Orlov, N.L. *et al.* (2000), Tordoff, A.W. (ed) (2002)
Data Providers: Peter Paul van Dijk, Steven Swan

EN *Vibrissaphora leishanensis* Liu and Hu, 1973

Endangered B1ab(v)
Order, Family: Anura, Megophryidae
Country Distribution: China
Current Population Trend: Decreasing





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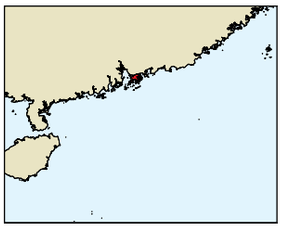
Geographic Range This species is known from only two locations at Leishan, in south-eastern Guizhou Province, China, from 800-1,800m asl.
Population It is now considered to be a very rare species.
Habitat and Ecology It inhabits broadleaf forests, and breeds in slow-flowing streams.
Major Threats Over-collecting by local villagers for consumption is a major threat to this species, and habitat destruction and degradation due to collection of wood is also a potential threat.
Conservation Measures It occurs in Leigongshan Nature Reserve, which is reported to be highly degraded, and there is clearly a need for improved management of this area. There is also a need to carefully monitor and regulate local trade in this species. All frogs, including this species, are protected in Guizhou.
Bibliography: Fei, L. *et al.* (1999), Hu, S.-Q., Zhao, E.M. and Liu, C.C (1973), MacKinnon, J. *et al.* (1996), Ye, C.-Y, Fei, L. and Hu, S.Q. (1993), Zhao, E.-M. (1998)
Data Providers: Zhao Ermi, Wu Guanfu

EN *Xenophrys brachykolos* (Inger and Romer, 1961) SHORT-LEGGED HORNED TOAD

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



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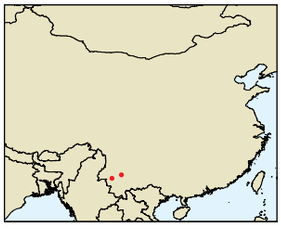
Geographic Range This species was, until very recently, thought to be restricted to Hong Kong, southern China. A specimen from Fujian Province in China was reported in the original description, but there are no recent records from there (and it is not mapped as occurring there). Animals tentatively referrable to this species have also been reported from Lang Son and Ha Bac Provinces of north-eastern Viet Nam by Orlov *et al.* 2000 (also not included in the map). This species has been recorded from 20-750m asl.
Population In Hong Kong it is uncommon; there is no information on the status of populations from Viet Nam.
Habitat and Ecology It inhabits forests, and breeds in hill streams.
Major Threats The major threats are habitat loss and degradation, caused by urbanization and water pollution (as a result of chemicals used in mosquito control programmes).
Conservation Measures Much of the range of this species falls inside country parks in Hong Kong.
Notes on taxonomy: Fei *et al.* (1999) considered this taxon to be a subspecies of *Megophrys minor* but did not provide any explanation.
Bibliography: Fei, L. *et al.* (1999), Inger, R.F. and Romer, J.D. (1961), Lau, M.W.N. (1998), Orlov, N.L. *et al.* (2000), Zhao, E.-M. and Adler, K. (1993)
Data Providers: Michael Wai Neng Lau, Zhao Ermi, Annemarie Ohler, Peter Paul van Dijk

VU *Xenophrys giganticus* (Liu, Hu and Yang, 1960) GREAT PIEBALD HORNED TOAD

Vulnerable B1ab(iii)+2ab(iii)
Order, Family: Anura, Megophryidae
Country Distribution: China
Current Population Trend: Decreasing



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Geographic Range This species is known only from Jingdong and Yongde counties in south-western Yunnan Province, China, from 1,400-2,400m asl. It might occur a little more widely than records suggest.
Population It is a very rare species.
Habitat and Ecology It inhabits the forest floor of evergreen broadleaf forests. It breeds in the head of streams and the larvae are then washed some distance downstream.
Major Threats The major threat to this species is habitat loss and degradation due to agriculture (including plantations) and subsistence wood collection.
Conservation Measures The range of this species includes the Great Snow Mountain National Nature Reserve (Yongde County), and the Wuliangshan National Nature Reserve (Jingdong Country).
Bibliography: Fei, L. *et al.* (1999), Liu, C.-C., Hu, S.-Q. and Yang, F.H. (1960), MacKinnon, J. *et al.* (1996), Yang, D.-T. (1991b)
Data Providers: Wu Guanfu, Yang Datong

VU *Xenophrys nankiangensis* (Liu and Hu, 1966) NANKIANG HORNED TOAD

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

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Geographic Range This species is known from Kuang-wu Shan in Nankiang County and Qingchuan in Sichuan Province, and Wenxian, in Gansu Province, China, from 1,600-1,850m asl.
Population There is no information on the population status of this species.
Habitat and Ecology It inhabits hill streams and surrounding shrubland habitat. It probably breeds in streams like other species of the genus.
Major Threats The major threat to this species is habitat destruction and degradation, especially due to infrastructure development for touristic activities.
Conservation Measures The three localities where this species has been recorded are all inside nature reserves: Jiangshan, Tangjiahe, and Daxiaonanshan.
Bibliography: Fei, L. *et al.* (1999), Hu, S.-Q., Zhao, E.M. and Liu, C.C (1966), MacKinnon, J. *et al.* (1996)
Data Providers: Fei Liang, Wu Guanfu