

Alytes muletensis

Taxonomic Authority: (Sanchiz and Adrover, 1979 "1977")

Synonyms:

Order: Anura

Notes on taxonomy:

Region: 10

Common Names:

Ferreret Spanish

Mallorcan Midwife Toad English

Family: Discoglossidae

General Information

Biome

Terrestrial

Freshwater

Marine

Geographic Range of species:

This species is restricted to the Sierra Tramuntana of northern Mallorca, Balearic Islands, Spain. The present altitudinal range is from 10 - 850m asl. The area of occurrence is 180 km², the area of occupancy < 10 km², but slowly increasing as a result of intensive conservation action.

Habitat and Ecology Information:

It is currently found only in small streams deeply carved into limestone mountains. The presence of the species is positively associated with steep slopes. Breeding takes place in the small streams that persist as pools in summer. A few populations occur by man-made water sources (cattle troughs, containers, rain tanks etc.) in open mountainous country; these are within the river basins of nearby canyon living populations. Animals are generally found in rock crevices and under stones. This species does not tolerate serious habitat degradation. The distribution of predators on the species is negatively associated with elevation, and reproductive success is positively associated with elevation.

Conservation Measures:

The species is protected by sub-national and national legislation. It is listed on Appendix II of the Berne Convention, listed on Annexes II and IV of the EU Natural Habitats Directive and on the national and sub-national Red Data Books. It is present in the protected areas of the Tramuntana mountains. The Balearic Government and Jersey Wildlife Preservation Trust have undertaken captive breeding, re-introduction and other conservation initiatives. At least 10 populations have been successfully reintroduced. Re-introductions of animals from the Jersey Wildlife Preservation Trust stopped in 2002, but a new captive-breeding facility now exists on Mallorca, and re-introductions are expected to resume. However, as a result of the recent discovery of diseases, a recommendation was made in 2004 to the Balearic Government to halt re-introduction programme. A new recovery programme for the species is being developed. A systematic programme is in place to remove *Natrix maura* from the range of the species.

Threats:

The major threats are predation and competition for space by the introduced Viperine Snake (*Natrix maura*) and Perez's Frog (*Rana perezi*) respectively. Development of tourism and human settlements, specifically the increased need for water resources (including damming and canalisation of streams). The threats are not likely to decrease, and so the current recovery programme needs to be continued more or less indefinitely. One isolated re-introduced population was impacted by an unidentified non-fungal disease in 2002 which killed some tadpoles. This disease did not recur in 2003 and 2004.

Species population information:

The population is approximately 500 to 1,500 adult pairs (Gasc et al., 1997; Arnold, 2002). There are approximately 25, mostly isolated, populations. The total population is slowly increasing following co-ordinated recovery efforts, following a long period of decline and near extinction. The current increase, which probably started around the time that the first re-introductions were made in 1989, has been maintained even during years of drought, notably in 1999 - 2000. The population trends in this species are monitored through annual tadpole counts, the counts for 2004 (over 30,000 tadpoles) being the highest on record. The increase in numbers in established populations is not dependent upon continued re-introductions. However, it is unlikely that new populations would be established without re-introductions.

Country Distribution

Spain

Native -
Presence
Confirmed

Native -
Presence
Possible

Extinct

Reintroduced

Introduced

Vagrant



FAO Marine Habitats

Native -
Presence
Confirmed

Native -
Presence
Possible

Extinct

Reintroduced

Introduced

Major Lakes

Major Rivers

Upper Level Habitat Preferences

Score

Lower Level Habitat Preferences

Score

5.1	Wetlands (inland) - Permanent Rivers/Streams/Creeks (includes waterfalls)	1
5.18	Wetlands (inland) - Karst and Other Subterranean Hydrological Systems (inland)	1
11.2	Artificial/Terrestrial - Pastureland	1
12.1	Artificial/Aquatic - Water Storage Areas (over 8ha)	1

Major threats

Code	Description of threat	Past	Present	Future
1	Habitat Loss/Degradation (human induced)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
1.3	Extraction	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
1.3.6	Groundwater extraction	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
1.4	Infrastructure development	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
1.4.1	Industry	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
1.4.2	Human settlement	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
1.4.6	Dams	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
2	Invasive alien species (directly affecting the species)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
2.2	Predators	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
7	Natural disasters	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
7.1	Drought	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
8	Changes in native species dynamics	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
8.5	Pathogens/parasites	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
9	Intrinsic factors	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
9.7	Slow growth rates	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
9.9	Restricted range	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Conservation Measures

Code	Conservation measures	In place	Needed
1	Policy-based actions	<input checked="" type="checkbox"/>	<input type="checkbox"/>
1.1	Management plans	<input checked="" type="checkbox"/>	<input type="checkbox"/>
1.2	Legislation	<input checked="" type="checkbox"/>	<input type="checkbox"/>
1.2.1	Development	<input checked="" type="checkbox"/>	<input type="checkbox"/>
1.2.1.1	International level	<input checked="" type="checkbox"/>	<input type="checkbox"/>
1.2.1.2	National level	<input checked="" type="checkbox"/>	<input type="checkbox"/>
1.2.1.3	Sub-national level	<input checked="" type="checkbox"/>	<input type="checkbox"/>
1.2.2	Implementation	<input checked="" type="checkbox"/>	<input type="checkbox"/>
1.2.2.1	International level	<input checked="" type="checkbox"/>	<input type="checkbox"/>
1.2.2.2	National level	<input checked="" type="checkbox"/>	<input type="checkbox"/>
1.2.2.3	Sub-national level	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2	Communication and Education	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2.2	Awareness	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3	Research actions	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3.1	Taxonomy	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3.2	Population numbers and range	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3.3	Biology and Ecology	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3.4	Habitat status	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3.5	Threats	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3.8	Conservation measures	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3.9	Trends/Monitoring	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4	Habitat and site-based actions	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4.1	Maintenance/Conservation	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4.2	Restoration	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4.4	Protected areas	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4.4.1	Identification of new protected areas	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4.4.3	Management	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5	Species-based actions	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5.1	Re-introductions	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5.4	Recovery management	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5.7	Ex situ conservation actions	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5.7.1	Captive breeding/Artificial propagation	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Utilisation of Species

Purpose/Type of Use	Subsistence	National	International	Other purpose:
Primary forms removed from the wild	100%	>75%	51-75%	26-50% <25%
Source of specimens in commercial trade	100%	>75%	51-75%	26-50% <25%

Trend in wild offtake/harvest in relation to total wild population numbers over last five years:

Trend in offtake/harvest produced through domestication/cultivation over last five years:

CITES: Not listed

Red Listing

Red List Assessment: Vulnerable (VU) Possibly Extinct

Red List Criteria: D2

Rationale for the Red List Assessment: Listed as Vulnerable because it is known from fewer than five locations, and its Area of Occupancy is less than 20 km².

Current Population Trend: Increasing Date of Assessment: 12/17/2004

Assessor(s): Joan Mayol Serra, Richard Griffiths, Jaime Bosch, Trevor Beebee, Benedikt Schmidt, Miguel Tejedo, Miguel Lizana, Iñigo Martín

Notes on Red listing: The population of this species is slowly increasing through intensive conservation efforts.

Bibliography

- Alcover, J.A., Mayol, J., Jaume, D., Alomar, G., Pomar, G. and Jurado, J., 1984, *Biología i ecologia de les poblacions relictas de Baleaphryne muletensis a la muntanya mallorquina*, , *Història biològica del ferreret*, Hemmer, H. and Alcover, J.A., , pp. 129-15, Editorial Moll, Palma de Mallorca
- Moore, R.D., Griffiths, R.A. and Román, A., 2004, Distribution of the Mallorcan midwife toad (*Alytes muletensis*) in relation to landscape topography and introduced predators, *Biological Conservation*, , , 116, 327-332, ,
- Arnold, E.N., 2003, , , *Reptiles and amphibians of Europe*, , , 288, Princeton University Press,
- Halliday, T., 1992, *United Kingdom Aids Recovery*, *FrogLog*, , , 2, 3, ,
- Arntzen, J.W. and García-París, M., 1995, Morphological and allozyme studies of midwife toads (Genus *Alytes*), including the description of two new taxa from Spain, *Contributions to Zoology*, , , 65(1), 5-34, ,
- , 1997, , , *Atlas of Amphibians and Reptiles in Europe*, Gasc, J.-P., , 494, Societas Europea Herpetologica & Museum National d'Histoire Naturelle, Paris
- Pleguezuelos, J.M., Márquez, R. and Lizana, M., 2002, , , *Atlas y Libro Rojo de los Anfibios y Reptiles de España*, , , pp 584, Dirección General de la Conservación de la naturaleza-Asociación Herpetológica Española, Madrid
- Mejias, R. and Amengual, J., 2000, , , *Libro rojo de los vertebrados de las Baleares (2ª ed.)*, , , 152 pp, Govern de les Illes Balears, Conselleria de Medi Ambient, Palma de Mallorca
- Martínez-Solano, I., Gonçalves, H.A., Arntzen, J.W. and García-París, M., 2004, Phylogenetic relationships and biogeography of midwife toads (Discoglossidae: *Alytes*), *Journal of Biogeography*, , , 31(4), 603-618, ,
- Roca, V., García, G., Carbonell, E., Sánchez-Acedo, C. and Del Cacho, E., 1998, Parasites and conservation of *Alytes muletensis* (Sanchiz et Adrover, 1977) (Anura: Discoglossidae), *Revista Española de Herpetología*, , , 12, 91-95, ,
- Román, A. and Mayol, J., 1997, La recuperación del ferreret, *Alytes muletensis*, , *Documents Tècnics de Conservació*, II(1). Conselleria de Medi Ambient, Ordenació del Territori i Litoral, , , 80 pp, Govern Balear, Palma de Mallorca
- Schley, L., Griffiths, R.A. and Román, A., 1998, Activity patterns and microhabitat selection of Mallorcan midwife toad (*Alytes muletensis*) tadpoles in natural torrent pools, *Amphibia-Reptilia*, , , 19(2), 143-151, ,
- Fromhage, L., Vences, M. and Veith, M., 2004, Testing alternative vicariance scenarios in Western Mediterranean discoglossid frogs, *Molecular Phylogenetics and Evolution*, , , 31(1), 308-322, ,
- Bush, S., 1996, The reproductive behaviour of the Ferreret *Alytes muletensis*, *Boletín de la Asociación Herpetológica Española*, , , 7, 35-37, ,
- Pleguezuelos, J.M., 1997, , , *Distribucion y Biogeografía de los Anfibios y Reptiles en España y Portugal*, , , , Asociación Herpetologica Española, Las Palmas de Gran Canarias
- Lea, J., Dyson, M. and Halliday, T., 2002, The effects of cohort structure and density on larval growth and development in *Alytes muletensis*: Implications for conservation, *Herpetological Journal*, , , 12(4), 155-161, ,