Mauritanian Toad (*Sclerophrys mauritanica*)

Ecological Risk Screening Summary

U.S. Fish and Wildlife Service, February 2022
Revised, February 2022
Web Version, 6/14/2023

Organism Type: Amphibian
Overall Risk Assessment Category: Uncertain

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1 Native Range and Status in the United States

Native Range

From Hassine and Escoriza (2017):

"[…] found throughout northern Algeria in an apparently continuous distribution between the Tunisian and the Moroccan border […] Schleich et al. (1996) considered that *S. mauritanica* is the only toad species that could be found in the Tassili Mountains, […] The exact southern limits of *S. mauritanica* in Algeria are not known."

From IUCN SSC Amphibian Specialist Group (2021):

"In Algeria, its distribution is continuous across the north of the country between the pre-Saharan Atlas and the Mediterranean coast (Ben Hassine and Escoriza 2017). In Tunisia, it occurs continuously in the north of the country, being localized in the centre and south, reaching the pre-Sahara around Gafsa and Tozeur (Ben Hassine and Nouira 2012). In Morocco, it is present in most of the country, but in the pre-Sahara is confined to river valleys, oases, and the coastal belt (Bons and Geniez 1996)."

Status in the United States

No records of *Sclerophrys mauritanica* in trade or in the wild in the United States were found.

Means of Introductions in the United States

No records of *Sclerophrys mauritanica* in the wild in the United States were found.

Remarks

The valid name of this species, *Sclerophrys mauritanica*, as well as synonyms listed below were used for the information searches for this screening.

From ITIS (2022):

"Synonym(s): *Bufo mauritanicus* Schlegel, 1841
Amietophrynus mauritanicus (Schlegel, 1841)"

Some authors refer to this species by the common name "Berber Toad" (e.g., Hassine and Escoriza 2017).

2 Biology and Ecology

Taxonomic Hierarchy and Taxonomic Standing

From ITIS (2022):

"Current Standing: valid"

Kingdom Animalia
Subkingdom Bilateria
Infrakingdom Deuterostomia
Phylum Chordata
Subphylum Vertebrata
Infraphylum Gnathostomata
Superclass Tetrapoda
Class Amphibia
Order Anura
Family Bufonidae
Genus *Sclerophrys*

Size, Weight, and Age Range

From iNaturalist Luxembourg (2022):

"The Berber toad [*Sclerophrys mauritanica*] is a large toad, reaching 13–15 cm in body length."

Environment

From IUCN SSC Amphibian Specialist Group (2021):

"Terrestrial, Freshwater (=Inland waters) […] Forest, Shrubland, Wetlands (inland), Artificial/Terrestrial"

"[…] occurs in a wide variety of habitats including rocky and stony areas, meadows, cork oak groves, Mediterranean scrub, agricultural land and peri-urban areas (Ben Hassine and Nouira 2012, Escoriza 2018)."

"The species ranges from around sea level up to 2,650 m asl in the Atlas Mountains (an upper elevational limit of 2,600 m asl."

From Hassine and Escoriza (2017):

"The Berber toad inhabits all types of landscapes ranging from 0 to 1378 m above sea level."

Climate

From Bezaz et al. (2021):

"Mediterranean"

From IUCN SSC Amphibian Specialist Group (2021):

"The species is relatively tolerant of aridity [...]"

From Hassine and Escoriza (2017):

"Its ecological range included humid Mediterranean forests (cedar and oaks), agricultural lands and semi-arid steppes. It occurs in sites where mean annual precipitation varies between 146 and 955 mm/year and mean annual temperatures of 18.4°C […]."

Distribution Outside the United States

Native

From Hassine and Escoriza (2017):

"[…] found throughout northern Algeria in an apparently continuous distribution between the Tunisian and the Moroccan border […] Schleich et al. (1996) considered that *S. mauritanica* is

the only toad species that could be found in the Tassili Mountains, […] The exact southern limits of *S. mauritanica* in Algeria are not known."

From IUCN SSC Amphibian Specialist Group (2021):

"In Algeria, its distribution is continuous across the north of the country between the pre-Saharan Atlas and the Mediterranean coast (Ben Hassine and Escoriza 2017). In Tunisia, it occurs continuously in the north of the country, being localized in the centre and south, reaching the pre-Sahara around Gafsa and Tozeur (Ben Hassine and Nouira 2012). In Morocco, it is present in most of the country, but in the pre-Sahara is confined to river valleys, oases, and the coastal belt (Bons and Geniez 1996)."

Introduced

No records of introductions were found for *Sclerophrys mauritanica*.

Means of Introduction Outside the United States

No records of introductions were found for *Sclerophrys mauritanica*.

Short Description

From iNaturalist Luxembourg (2022):

"The upperparts are beige to olive with large orange or red spots. The underparts are white with small grey spots. It can be found in a variety of colour morphs, with the back colour varies from dark patches of brown, olive, orange, or reddish brown to just a plain sandy colour. [Encyclopedia of Life 2016]"

Biology

From Bezaz et al. (2021):

"Insectivorous"

From IUCN SSC Amphibian Specialist Group (2021):

"It breeds in fresh slow-flowing waterbodies, including those colonized by invasive fish (Escoriza and Ben Hassine 2017). It exhibits crepuscular and nocturnal behaviour, but can be diurnal during the breeding season (Escoriza and Ben Hassine 2019). In Beni Belaid in Jijel, males are sexually active year-round but successful breeding is limited by seasonal availability of water, from September to May and June to August (Kisserli et al. 2017). The females deposit approximately 5,000-10,000 eggs. In some oases it co-occurs with related species (Ben Hassine and Nouira 2012), although in pre-Saharan oases in Tunisia its presence may be negatively impacted by the presence of the African green toad (*Bufotes boulengeri*) (Escoriza 2018). In the north of its range it reproduces in mid to late spring, often later than other amphibian species with which it co-occurs (Escoriza and Ben Hassine 2019). Conversely in southern Morocco its breeding period begins at the end of winter (Pasteur and Bons 1959)."

From Hassine and Escoriza (2017):

"Doumergue (1901) commented that the breeding season in Oran depends on the onset of the rains and that *S. mauritanica* could start breeding from early April or mid May. However, isolated reproductive episodes may occur over summer; tadpole metamorphosis occurs within 45 days (Doumergue, 1901). We observed tadpoles at different Gosner's stages between March and April in northern Algeria and recently metamorphosed toads were observed during early April in Tlemcen. The Berber toad breeds in small to large water bodies, including temporary and semi-permanent to permanent ponds and streams and rivers […]"

Human Uses

No information found on trade or other human uses for *Sclerophrys mauritanica*.

Diseases

This species has been linked to the OIE reportable disease chytridiomycosis (OIE 2022), which is caused by the fungus *Batrachochytrium dendrobatidis*.

From IUCN SSC Amphibian Specialist Group (2021):

"The chytrid fungus *Batrachochytrium dendrobatidis* has been detected in this species in Morocco (El Cadi et al. 2019), but it is unknown whether this species is susceptible to this disease and there has been no testing in this country for the related *B. salamandrovirens* (D. Donaire pers. comm. 2020)."

From El Cadi et al. (2019):

"We detected a mass mortality of amphibians in two localities (*S. mauritanica* in Dam d'Ouled Abbas and *P. saharicus* in Dam-Oukaimden) and some of the sampled individuals tested positive for *Bd* [*Batrachochytrium dendrobatidis*] infection."

Threat to Humans

No information was found on threats to humans.

3 Impacts of Introductions

No information on introductions was found, therefore there are no impacts of introductions to report.

4 History of Invasiveness

There is no information regarding an introduction of *Sclerophrys mauritanica* outside of its native range. There is also no information on trade of *Sclerophrys mauritanica*. The history of invasiveness is therefore classified as No Known Nonnative Population.

5 Global Distribution

Figure 1. Known global distribution of *Sclerophrys mauritanica*. Observations are reported from Algeria, Morocco, and Tunisia. Map from GBIF Secretariat (2022). Points in Libya, Yemen, and Burkina Faso are preserved specimens not representative of established populations and were not used in the climate matching analysis. The point in Spain was removed as no information was found to confirm that observation as an established introduced population.

6 Distribution Within the United States

No records of *Sclerophrys mauritanica* in the wild or in trade in the United States were found.

7 Climate Matching

Summary of Climate Matching Analysis

There were areas of both high and low match throughout the contiguous United States. The Pacific Northwest, south along the West Coast, and east to Texas had mostly areas of high match. The areas just east and west of the Cascade Mountains had low local climate match along with areas in the Sierra Nevada range. The Great Plains had generally medium climate match. Most of the east had low local climate matches, especially areas near coastlines and along the Appalachian Mountains. The overall Climate 6 score (Sanders et al. 2021; 16 climate variables; Euclidean distance) for the contiguous United States was 0.288, High (scores greater than or equal to 0.103, are classified as high). All States had a Low individual Climate 6 score except for Kansas, Montana, and Wyoming, which had a Medium individual Climate 6 score, and Arizona, California, Colorado, Idaho, New Mexico, Nevada, Oklahoma, Oregon, Texas, Utah, and Washington, which had a High individual Climate 6 score.

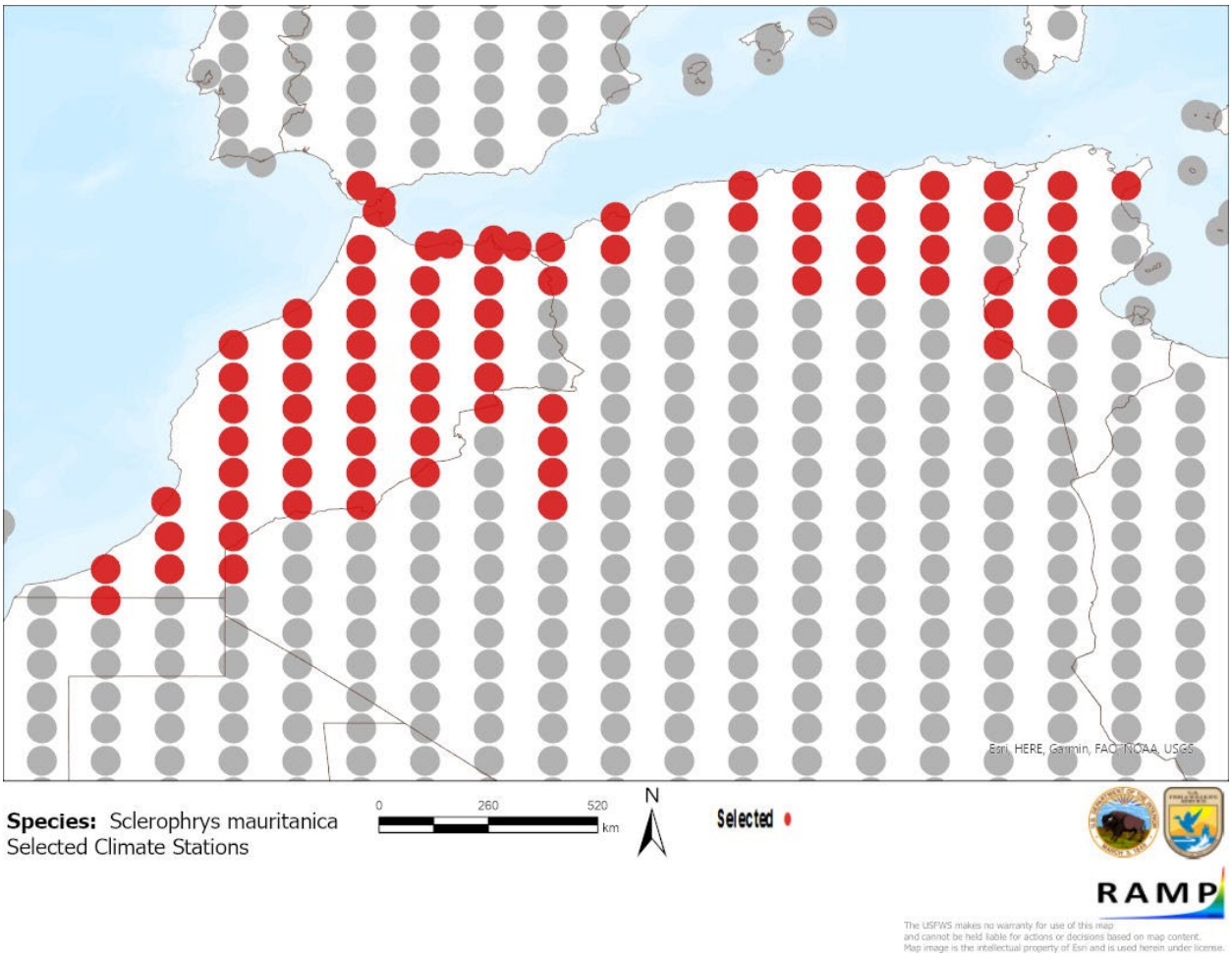

Figure 2. RAMP (Sanders et al. 2021) source map showing weather stations in Northwestern Africa selected as source locations (red; Morocco, Algeria, Tunisia, Spain) and non-source locations (gray) for *Sclerophrys mauritanica* climate matching. Source locations from GBIF Secretariat (2022). Selected source locations are within 100 km of one or more species occurrences, and do not necessarily represent the locations of occurrences themselves.

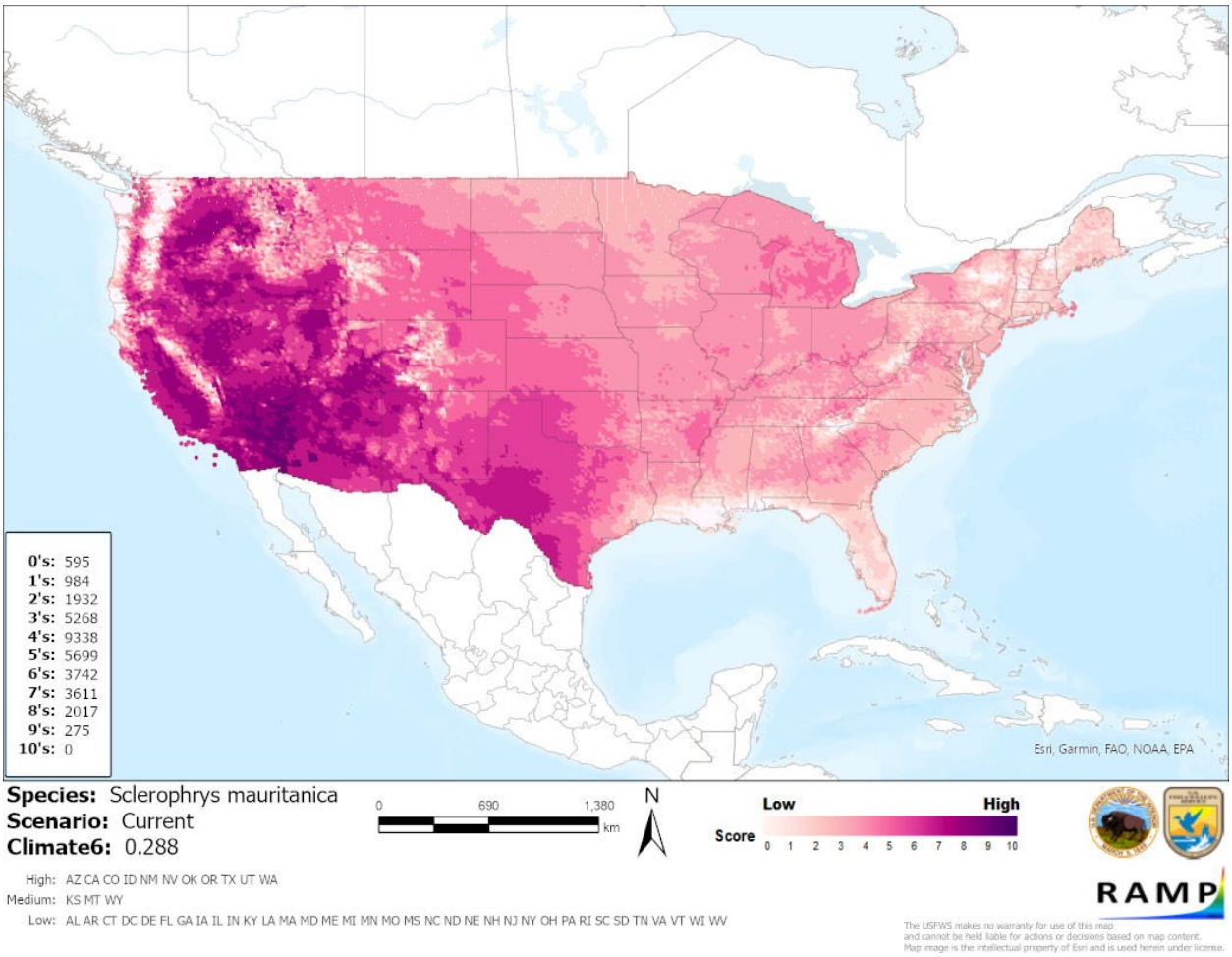

Figure 3. Map of RAMP (Sanders et al. 2021) climate matches for *Sclerophrys mauritanica* in the contiguous United States based on source locations reported by GBIF Secretariat (2022). Counts of climate match scores are tabulated on the left. 0/Light Pink = Lowest match, 10/Dark Purple = Highest match.

The High, Medium, and Low Climate match Categories are based on the following table:

Climate 6: (Count of target points with climate scores 6-10)/ (Count of all target points)	Overall Climate Match Category
0.000≤X≤0.005	Low
0.005<X<0.103	Medium
≥0.103	High

8 Certainty of Assessment

The certainty of assessment is Low. There was some biological information available for this species. There were no records of introductions found, so impacts of introductions are unknown. There was no information regarding trade of this species.

9 Risk Assessment

Summary of Risk to the Contiguous United States

Mauritanian Toad (*Sclerophrys mauritanica*) is a toad that is native to the Atlas Mountains of Algeria and extends into Morocco and Tunisia. No records of established nonnative populations were found, therefore impacts of introductions are unknown. No human use or trade information was found. The History of Invasiveness is therefore classified as No Known Nonnative Population. The fungus causing chytridiomycosis has been detected in *S. mauritanica*, although the species susceptibility to the disease is unknown. The Overall Climate Match within the contiguous United States was High, with much of the West recording a high match. The Certainty of Assessment is Low due to lack of introduction information outside of its native range and information on impacts of introductions. The Overall Risk Assessment Category is Uncertain.

Assessment Elements

- **History of Invasiveness (Sec. 4): No Known Nonnative Population**
- **Overall Climate Match Category (Sec. 7): High**
- **Certainty of Assessment (Sec. 8): Low**
- **Remarks, Important additional information: This species has been linked to chytridiomycosis, an OIE reportable disease (OIE 2022).**
- **Overall Risk Assessment Category: Uncertain**

10 Literature Cited

Note: The following references were accessed for this ERSS. References cited within quoted text but not accessed are included below in Section 11.

Bezaz YI, Hadjab R, Khammar H, Redjaimia L, Saheb M. 2021. First data on the diversity of the herpetofauna of the Oum El Bouaghi Region (northeast of Algeria). Ecology, Environment and Conservation 27:983–989.

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Sanders S, Castiglione C, Hoff M. 2021. Risk Assessment Mapping Program: RAMP. Version 4.0. U.S. Fish and Wildlife Service.

11 Literature Cited in Quoted Material

Note: The following references are cited within quoted text within this ERSS, but were not accessed for its preparation. They are included here to provide the reader with more information.

Bons J, Geniez P. 1996. Amphibiens et reptiles du Maroc (Sahara Occidental compris) Atlas Biogéographique. Barcelona, Spain: Asociación Herpetológica Española.

Doumergue F. 1901. Essai sur la faune Erpétologique de l'Oranie: avec des tableaux analytiques et des notions pour la détermination de tous les reptiles et batraciens du Maroc, de l'Algérie et de la Tunisie. Bulletin de la Société Géographie Archéologie d'Oran, T. XIX à XXI. Oran, Algeria: Imprimerie Typographique et Lithographique L. Fouque.

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Escoriza D. 2018. Processes structuring amphibian assemblages along a subtropical arid gradient. Acta Oecologica 91:43–49.

Escoriza D, Hassine BJ. 2017. Diversity of guilds of amphibian larvae in north-western Africa. PLoS ONE 12:e0170763.

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Hassine BJ, Nouira S. 2012. Répartition géographique et affinités écologiques des Amphibiens de Tunisie. Revue d'Écologie (Terre & Vie) 67:437–457.

Kisserli O, Moudilou E, Exbrayat JM. 2017. Sexual cycle and seasonal expression of testosterone (T) in the testes of *Sclerophrys mauritanica* (Schlegel, 1841). African Journal of Herpetology 66(2):106–121.

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