**Water cisterns as death traps for amphibians and reptiles in arid environments**

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**APPENDIX 1**

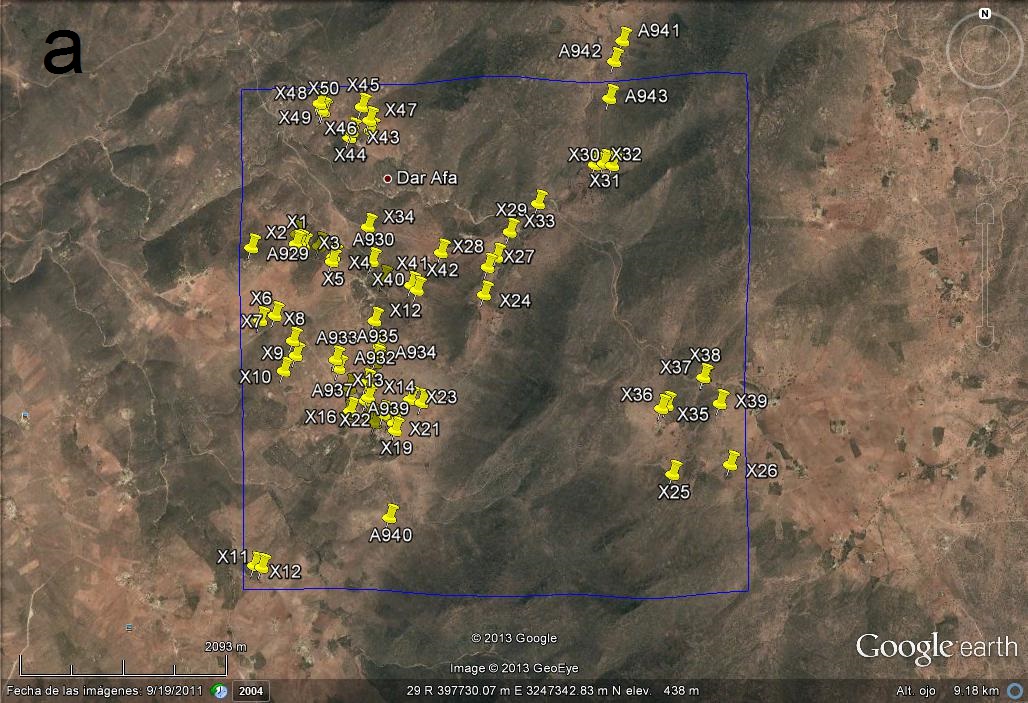
**Table S1** List of amphibians and reptiles in the study area (south-western Morocco), presence in the four regions in which the study area was divided (from Bons & Geniez 1996; Geniez *et al*. 2004; our own unpublished data), IUCN global category and criteria (from <http://www.iucnredlist.org/>), and endemic status in Morocco. \*Species found within cisterns, but not considered trapped due to their climbing abilities.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| *Species* | *Presence* | | | | *IUCN* | *Endemic* | *Trapped* |
| *Anti- Atlas* | *Ifni* | *Guelmim* | *Low Draa* |
| Amphibians Anura |  |  |  |  |  |  |  |
| *Amietophrynus mauritanicus* | 1 | 1 | 1 | 1 | LC |  | 1 |
| *Bufo brongersmai* | 1 | 1 | 1 | 1 | NT | END | 1 |
| *Bufo boulengeri* | 1 | 1 | 1 | 1 | LC |  | 1 |
| *Discoglossus scovazzi* | 1 |  |  |  | LC |  |  |
| *Hyla meridionalis* | 1 | 1 |  |  | LC |  | 1\* |
| *Pelophylax saharicus* | 1 | 1 | 1 | 1 | LC |  | 1 |
| Reptiles Chelonia |  |  |  |  |  |  |  |
| *Mauremys leprosa* | 1 | 1 | 1 | 1 | LC |  |  |
| *Testudo graeca* | 1 | 1 |  |  | LC |  | 1 |
| Reptiles Sauria |  |  |  |  |  |  |  |
| *Acanthodactylus aureus* |  |  | 1 | 1 | LC |  |  |
| *Acanthodactylus boskianus* | 1 |  | 1 | 1 | LC |  | 1 |
| *Acanthodactylus busacki* |  | 1 | 1 | 1 | LC | END | 1 |
| *Acanthodactylus dumerili* |  |  |  | 1 | LC |  |  |
| *Agama impalearis* | 1 | 1 | 1 | 1 | LC |  | 1 |
| *Chalcides boulengeri* |  |  |  | 1 | LC |  |  |
| *Chalcides manueli* |  |  |  |  | VU B1ab(iii) | END |  |
| *Chalcides mionecton* |  | 1 | 1 |  | LC | END | 1 |
| *Chalcides ocellatus* | 1 |  |  | 1 | LC |  | 1 |
| *Chalcides polylepis* |  |  | 1 |  | LC | END | 1 |
| *Chalcides sphenopsiformis* |  |  | 1 | 1 | LC |  | 1 |
| *Chamaeleo chamaeleon* | 1 | 1 | 1 | 1 | LC |  | 1 |
| *Eumeces algeriensis* | 1 | 1 |  | 1 | LC |  | 1 |
| *Mesalina guttulata* | 1 |  |  | 1 | LC |  | 1 |
| *Mesalina olivieri* | 1 | 1 | 1 | 1 | LC |  | 1 |
| *Mesalina rubropunctata* |  |  |  | 1 | LC |  |  |
| *Psammodromus algirus* | 1 |  |  |  | LC |  |  |
| *Ptyodactylus oudrii* | 1 |  |  | 1 | LC |  |  |
| *Quedenfeldtia moerens* | 1 | 1 | 1 | 1 | LC | END |  |
| *Saurodactylus brosseti* | 1 | 1 | 1 | 1 | LC | END | 1 |
| *Scincus albifasciatus* |  |  |  | 1 | LC |  |  |
| *Stenodactylus petrii* |  |  | 1 | 1 | LC |  |  |
| *Stenodactylus mauritanicus* |  | 1 | 1 | 1 | LC |  | 1 |
| *Tarentola annularis* |  |  |  | 1 | LC |  |  |
| *Tarentola boehmei* | 1 |  |  | 1 | LC | END |  |
| *Tarentola chazaliae* |  | 1 | 1 | 1 | LC | END | 1 |
| *Tarentola ephippiata* |  |  |  | 1 | LC |  |  |
| *Tarentola mauritanica* | 1 | 1 | 1 | 1 | LC |  | 1\* |
| *Timon tangitanus* | 1 |  |  |  | LC |  |  |
| *Trapelus boehmei* | 1 |  | 1 | 1 | LC |  | 1 |
| *Tropiocolotes algericus* | 1 | 1 | 1 | 1 | LC |  |  |
| *Uromastyx nigriventris* | 1 | 1 | 1 | 1 | NT |  | 1 |
| *Uromastyx dispar* |  |  |  | 1 | LC |  | 1 |
| *Varanus griseus* |  |  | 1 | 1 | LC |  | 1 |
| Reptiles Amphisbaenia |  |  |  |  |  |  |  |
| *Trogonophis wiegmanni* | 1 |  |  |  | LC |  |  |
| Reptiles Serpentes |  |  |  |  |  |  |  |
| *Bitis arietans* | 1 | 1 | 1 | 1 | LC |  |  |
| *Cerastes cerastes* | 1 |  | 1 | 1 | LC |  | 1 |
| *Cerastes vipera* |  |  | 1 | 1 | LC |  |  |
| *Daboia mauritanica* | 1 | 1 | 1 | 1 | NT |  | 1 |
| *Dasypeltis sahelensis* |  | 1 | 1 | 1 | LC |  | 1 |
| *Echis leucogaster* | 1 |  |  | 1 | LC |  |  |
| *Hemorrhois algirus* | 1 |  | 1 | 1 | LC |  | 1 |
| *Hemorrhois hippocrepis* | 1 | 1 | 1 | 1 | LC |  | 1 |
| *Boaedon fuliginosus* |  | 1 | 1 | 1 | LC |  |  |
| *Myriopholis algeriensis* | 1 |  |  | 1 | LC |  | 1 |
| *Lytorhynchus diadema* |  |  | 1 | 1 | LC |  | 1 |
| *Macroprotodon brevis* | 1 | 1 | 1 | 1 | NT |  | 1 |
| *Macroprotodon cucullatus* |  |  | 1 |  | LC |  | 1 |
| *Rhagerhis moilensis* | 1 | 1 | 1 | 1 | LC |  | 1 |
| *Malpolon monspessulanus* | 1 | 1 | 1 | 1 | LC |  | 1 |
| *Naja haje* | 1 | 1 | 1 | 1 | LC |  | 1 |
| *Natrix Maura* | 1 | 1 | 1 | 1 | LC |  | 1 |
| *Psammophis schokari* | 1 | 1 | 1 | 1 | LC |  | 1 |
| *Spalerosophis diadema* |  |  | 1 |  | LC |  |  |
| *Spalerosophis dolichospilus* | 1 | 1 | 1 | 1 | DD |  | 1 |
| *Telescopus tripolitanus* | 1 |  |  | 1 | LC |  | 1 |
| Total species | 41 | 32 | 42 | 53 |  |  | 41 |



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**Figure S1** In the study area (south-western Morocco) cisterns may act as death traps for amphibians and reptiles. The photographs show typical examples of (*a*) an old cistern, located south of Sidi Ifni, and (*b*) a modern cistern, located in Ras el Tarf.

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**Figure S2** (*a*) Image from Google Earth of a 5 × 5 km square (blue square) indicating the locations of the water cisterns detected. (*b*) Magnified image of an area containing three cisterns; the scale bar is 82 m.



**Figure S3** A dense wire mesh in the cistern inlet may prevent many amphibians and reptiles from being caught.

**References**

Bons, J. & Geniez, P. (1996) *Amphibiens et reptiles du Maroc (Sahara occidental compris)*. Atlas biogéographique. Barcelona, Spain: Asociación Herpetológica Española.

Geniez, P., Mateo, J.A., Geniez, M. & Pether, J. (2004) The amphibians and reptiles of the Western Sahara. Frankfurt and Main, Germany: Chimaira.