GEOGRAPHIC DISTRIBUTION

Herpetological Review, 2003, 34(1), 76–77.
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New Records and Natural History Notes for Amphibians and Reptiles from Southern Morocco

PATRICIA A. HERRMANN
and
HANS-WERNER HERRMANN
Center for Reproduction of Endangered Species
Zoological Society of San Diego, P.O. Box 120551
San Diego, California 92112-0551, USA
e-mail: hwherrmann@sandiegozoo.org

In an historical context, Morocco has been suitably explored with herpetological expeditions dating back to Gervais (1835). The distribution of amphibians and reptiles in Morocco is thoroughly outlined in the herpetofaunal atlas by Bons and Geniez (1996); this atlas is used as a primary reference in this paper. The following is a composite of significant findings from five months of data gathered in southern Morocco during the periods of May–July 1985, October 1999, and September–October 2000. Such has resulted in notable range extensions for six species of lizards and three species of snakes and several novel comments on natural history. Voucher specimens were deposited in the Zoologisches Forschungsinstitut und Museum Alexander Koenig (ZFMK), Bonn, or the Hessisches Landesmuseum (HLMD), Darmstadt, Germany. Localities were determined by the use of a handheld Garmin© global positioning system (GPS) device or by the use of maps. Specimen identification relative to range extensions were confirmed by Wolfgang Böhme, Zoologisches Forschungsinstitut und Museum Alexander Koenig, Bonn.

Anura

Bufo brongersmai – Tafraoute, 29°43.30'N, 8°58.76'W, 11 October 1999. At ca. 2100 h hundreds of animals were encountered in the flat-packed sand basin between the rocky hills adjacent to the town. The toads were active and orienting apparently at random, along with equally abundant *Bufo viridis* and numerous *Bufo mauritanicus*. This was after the second day of heavy rain following what locals reported as a two-year drought. No amplectant pairs were observed. No standing water was encountered. In Tafraoute on 18 June 1985, during the dry summer period, only one toad was found. It was located at night under plants which were routinely watered and was within the town limits. On 9 and 10 October 2000, two nights of searching at the Tafraoute locality revealed no toads. This was also during an extended dry period. This illustrates the periodic abundance of this reportedly rare toad species (Bons and Geniez 1996).

Lacertilia

Stenodactylus petrii – Oued Tissinnt, ca. 5 km E of Mrhimina, 29°49.14'N, 7° 08.18'W, 5 October 2000. This area is characterized by low-lying sand dunes interspersed with lava flows and large lava boulders. Two specimens were collected while searching the Oued Tissinnt dunes at night (ZFMK 73504: SVL 50 mm, TL 97 mm; ZFMK 73505: SVL 38 mm, TL 72 mm). This find extends the range of this species by ca. 100 km to the west and is the first reported locality away from major sand dunes. Dry riverbed routes may be used by this psamnophilous species as dispersal pathways.

Stenodactylus sthenodactylus – Tendrara, ca. 9 km N of the town, 33°05.05'N, 1°59.27'W, 4 October 1999. This male specimen (ZFMK SA2001:1) was found during the day, in a flat, hard-packed sand desert, under a rock. This find extends the eastern range of this species by ca. 50 km in Morocco, thus bringing it to the Algerian border.

Ptyodactylus oudrii – Oued Tissinnt, ca. 5 km E of Mrhimina, 29°49.14'N, 7°08.18'W, 5 October 2000. This gecko is cited in the literature as a dweller of steep and smooth rocks, boulders, and cliffs (Bons and Geniez 1996; Schleich et al. 1996). Here we report the use of a tree as a habitat for this species. A night search revealed two specimens ca. 1.6 m above ground in an *Acacia* tree. Ants, which are a prey item of this species, were also active on the tree at this time. The immediate surrounding habit was low-lying sand dunes with occasional volcanic rocks. In the distance, larger rock formations could be found.

Tarentola hoggarensis – Oued Drâa, ca. 20 km S of Âouïnet-Torkoz, 28°29.00'N, 9°51.17'W, 4 October 2000. This species has a lengthy and involved history of taxonomic revision (Schleich et al. 1996). Due to recent findings within the *Tarentola ephippiata* group, the taxon should be elevated from subspecific status of *Tarentola ephippiata hoggarensis* to full species rank (Böhme et al. 2001; Böhme, pers. comm.). This Oued Drâa specimen (ZFMK 73503) was found by torchlight at night on an *Acacia* tree trunk. This find represents the third discovery of this species in Morocco and is ca. 50 km east of a previously documented locality (Bons and Geniez 1996).

Lacerta andreanszkyi – Imlil, ca. 5 km NE of town, 5 July 1985. The discovery of this specimen (ZFMK 44116) at an alpine meadow at ca. 2400 m elevation confirms its presence in a questionable locality as listed in Bons and Geniez (1996).

Acanthodactylus boskianus – Taroudant, ca. 3 km S of town, 25 May 1985. This species is known to be an inhabitant of dry environments (Bons and Geniez 1996; Schleich et al. 1996). The discovery of this specimen (ZFMK 44079) resting underneath some small bushes marks its first known occurrence in a relatively moist habitat, the Souss River Valley. This report contrasts the findings of Bons and Geniez (1996) whereby they state that *A. boskianus* is absent from the western parts of Morocco, as the Anti Atlas appears to constitute an insurmountable barrier. This finding shows the species to have crossed the Anti Atlas, although the westernmost portion of the Haut Atlas lies due north as a border of this locality. This find is ca. 80 km from the nearest documented locality, though more significantly, it places the species for the first time on the north side of a significantly high mountain range.

Mesalina olivieri – Oued Torkoz – Oued Drâa confluence, 28°29.00'N, 9°51.17'W, 3 October 2000. The discovery of these specimens (ZFMK 73511–512) confirms a suspected locality (Bons and Geniez 1996) in the Oued Drâa. This population is ca. 120 km from the closest confirmed population. Some authors (e.g., Le Berre 1989) regard *Mesalina pasteuri* (Bons 1960) and *olivieri*, both taxa are reported from Southern Morocco (Bons and Geniez 1996),

as conspecific.

Eumeces algieriensis – Tafraoute, 20°43.30'N, 8°58.76'W, 22 September 2000. The diet of this large endemic Mograbin skink consists of invertebrates (Schleich et al. 1996). After hand capture, our specimen regurgitated a gecko which, although partially digested, could be identified as a *Tarentola mauretanica*.

Serpentes

Leptotyphlops macrorhynchus – Amtoudi (Id-Âïssa), 29°13.66'N, 9°13.24'W, 11 June 1985. This specimen (ZFMK 44098) was found in an area lacking vegetation within this oasis village. Though suspected to be a wideranging species in Morocco, secrecy and subterranean habits have surely restricted this species from being routinely encountered and is thus far listed from but ten localities. This discovery in the southern Anti Atlas foothills represents a distance of ca. 80 km from the closest documented record.

Macropodon cucullatus – Plage Blanche, 28°57.73'N, 10°32.89'W, 28 September 2000. According to Bons and Geniez (1996), M. cucullatus is represented by three subspecies in Morocco. The Plage Blanche specimen (ZFMK SA2001:2) keys out to the subspecies *brevis* according to head coloration (Schleich et al. 1996; Wade 1988). Our specimen falls within a ca. 160 km gap between the ranges of the subspecies *cucullatus* and *brevis*.

Bitis arietans – Plage Blanche, 28°57.73'N, 10°32.89'W, 117 m elevation, 28 September 2000. A ca. 90 cm adult female gave birth two days after capture to eight live and two dead neonates. This is a very small litter size as this species is known to commonly have litters of 20–30 with litters of up to 50–60 not being rare (Schleich et al. 1996). *Bitis arietans* from southern Morocco, however, are known to be much smaller in size than their tropical conspecifics.

Echis leucogaster – Oued Torkoz–Oued Drâa confluence, 28°22.00'N, 9°50.00W', 120 m elevation, 19 October 1999. This is one of the rarest of Moroccan snakes (Bons and Geniez 1996), and although known from the Oued Drâa, ours is only the fifth Moroccan specimen (Herrmann and Herrmann 2000). Adult female (SVL 41 cm, TL 44.5 cm) (HLMD RA2888) was found dead, killed by bedouins, and hanging in a bush.

Acknowledgments.—We thank the Philipps University, Marburg, student participants in the 2000 Moroccan Desert Ecology excursion for their participation and companionship. W. Böhme verified some of our species identifications and provided discussion on the taxonomic status of Tarentola hoggarensis. We thank our Moroccan field assistants, especially Blell with his extraordinary knowledge of the herpetofauna of southern Morocco.

LITERATURE CITED

BÖHME, W., T. WILMS, H. NICKEL, AND M. MERZ. 2001. Bericht über eine herpetologische Forschungsreise in die westliche Sahara und ihre Randgebiete. Zeitschrift des Kölner Zoo 44:117–131.

BONS, J. 1960. Description d'un nouveau lézard du Sahara: *Eremias pasteuri* sp. nov. (Lacertidés). C.R. Séances mens. Soc. Sci. nat. phys. Maroc 4:69–71.

———, AND P. GENIEZ. 1996. Amphibiens et Reptiles du Maroc (Sahara Occidental compris). Atlas Biogéographique. Asociación Herpetológica Espanola, Barcelona. 320 pp.

GERVAIS, P. 1835. Communication orale sur l'énumération de quelques Reptiles envoylés de Barbarie. Bull. Soc. Sci. nat. Fr. 1:112–114.

HERRMANN, H.-W. AND P. A. HERRMANN. 2000. Zur Verbreitung von *Echis leucogaster* Roman, 1972 in Marokko. Salamandra 36:203–207.

LE BERRE, M. 1989. Faune du Sahara. l. Poissons-Amphibiens-Reptiles. Lechevalier, R. Chabaud, Paris. 332 pp.

SCHLEICH, H. H., K. WERNER, AND K. KABISCH. 1996. Amphibians and Reptiles of North Africa. Koeltz Scientific Books, Koenigstein. 630 pp.

WADE, E. 1988. Intraspecific variation in the colubrid snake genus *Macroprotodon*. Herpetol. J. 1:237-245.

Herpetological Review, 2003, 34(1), 77–78.
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The Distribution of *Nerodia erythrogaster* in the Lower Cumberland River Basin of Kentucky and Tennessee

ANGELO P. BUFALINO*
and
A. FLOYD SCOTT
The Center for Field Biology and Department of Biology
Austin Peay State University, P.O. Box 4718
Clarksville, Tennessee 37044, USA

** Corresponding author; present address: Department of Biology*
Saint Louis University, 3507 Laclede Avenue
St. Louis, Missouri 63103, USA; e-mail: bufalino@slu.edu

Scott and Snyder (1968) reported the plain-bellied watersnake (*Nerodia erythrogaster*) from the lower Cumberland River basin (LCRB) based on specimens they collected from Montgomery Co., Tennessee, USA. This population has been shown as disjunct from the remainder of the species' geographic range (Conant and Collins 1998). Scott and Snyder (1968) described their Montgomery Co., Tennessee specimens as having the copper-bellied watersnake (*N. e. neglecta*) phenotype. Conant and Collins (1998) depict the Montgomery Co., Tennessee population as *N. e. neglecta*, even though they show the yellow-bellied watersnake (*N. e. flavigaster*) occurring further down the LCRB. McCranie (1990) mapped *N. erythrogaster* from this region as *N. e. flavigaster* x *N. e. neglecta* intergrades with a continuous distribution throughout the LCRB terminating in Montgomery Co., Tennessee, near Clarksville.

Our collecting efforts, from August 1996 to June 1999, resulted in several new voucher specimens of *N. erythrogaster* from the area within and around the distributional hiatus shown in the LCRB by Conant and Collins (1998). Cheatham Co., Tennessee, specimen APSU 4316 was collected prior to this work, but is included here to document the easternmost point of this species' distribution in the LCRB. Following are the museum numbers and latitude/longitude coordinates for the new voucher specimens, all of which were verified by David H. Snyder and deposited in Austin Peay State University's Museum of Zoology (APSU). Stewart Co., Tennessee. – APSU 5459 (36°25'48"N, 87°42'05"W), 5462 (36°32'26"N, 87°53'08"W), 5465 (36°24'31"N, 87°36'44"W), 5497 (36°24'40"N, 87°36'16"W), 5498 (36°31'14"N, 87°52'53"W). Montgomery Co., Tennessee. - APSU 5457 (36°23'37"N, 87°17'18"W), 5463 (36°29'23"N, 87°27'20"W), 5481 (offspring of APSU 5463), 5488 (1–8, offspring of APSU 5463), 5491 (1–4, offspring of APSU 5463), 5492–96 (offspring of APSU 5463), 5499 (36°25'42"N, 85°37'12"W), 5977 (36°27'15"N, 87°22'31"W), 6013–14 (36°27'00"N, 87°29'25"W). Cheatham Co., Tennessee. – APSU 4316 (36°17'35"N,