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New data on the distribution range of *Hemidactylus turcicus* in Portugal

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RESUMEN: En Portugal, la salamandrosa rosada *Hemidactylus turcicus* solamente está presente en la costa sur y en zonas interiores del sudeste. En este trabajo se describe la existencia de una nueva población que expande la distribución de esta especie por la costa portuguesa. El hallazgo ocurrió en primavera y verano de 2010 durante los inventarios de fauna realizados en una cantera restaurada en Setúbal. La nueva localidad se halla a 70 km de la población más cercana hasta ahora conocida y se especulan dos posibles hipótesis para su aparente aislamiento: (1) un deficiente esfuerzo de prospección en la zona, o (2) una dispersión a larga distancia debida al transporte humano involuntario.

The Turkish gecko (*Hemidactylus turcicus*) is native to countries surrounding the Mediterranean Sea and is very frequently associated to humanized habitats (Arnold & Oviden, 2002). They live in warm, dry areas and often thrive in anthropogenic landscape including rock piles, stone walls, cliffs, ruins and around or inside houses (Mateus & Jacinto, 2008; Lisičić *et al.*, 2012). In Portugal, its known distribution range is until now restricted to the south coast and

southeastern inland territories, generally below 400 masl (Mateus & Jacinto, 2008). In this study we describe a recent location of the Turkish gecko in Portugal far from the nearest known locations.

We surveyed geckos in spring and summer of 2010 at SECIL-Outão cement plant (38°29'48"N / 8°56'24"W; UTM 10 x 10 km NC06) as a part of an inventory of faunal communities occurring at SECIL-Outão's property. Two sampling techniques were carried out: diur-



Fotos Pedro A. Salgueiro

Figure 1: A detail on the distinctive characteristics of a specimen of the Turkish gecko (*H. turcicus*) found during the surveys: a double strand of longitudinal sub-digital lamellae and the presence of nails on every finger.

Figura 1: Detalle de las características distintivas de la salamandrea rosada (*H. turcicus*) encontrada durante los muestreos: una doble banda de laminillas digitales y presencia de uñas en cada dedo.

nal surveys consisting on 90 min prospection and nocturnal surveys involving twenty 300 m linear transects (Corn & Bury, 1990). Transects covered different stages of restoration in two lithological soil types - marl and limestone. Although the areas have been revegetated, the habitat is markedly rocky since most of the slopes are exposed (mainly in limestone areas) and there is high availability of rock piles left from exploitation.

A total of 14 observations of the Turkish gecko were gathered between March and September 2010 (Figure 1, Table 1). Geckos were observed in both lithological soil types although a wider distribution of records was found in limestone. Individuals were found in rock piles and exposed slopes. In marl, seven individuals were observed in an unused beehive. Altitude for most observations ranged from 100 to 200 masl, even though two were recorded up to 350 masl, which is in accordance with other published data (Loureiro *et al.*, 2008).

The importance of the records reported in the present study is related with their distance to the nearest locations known in Portugal. About 70 km separate the most northwestern population of this species, described here, from the limits of its known distribution (Loureiro *et al.*, 2008) (Figure 2). Nonetheless, this population already extends at least within an area of about 0.6 km².

Meshaka *et al.* (2006) reported that climate is thought to be a major factor preventing the northward spread of this species and weather data and climate models suggest that its geographical ranges could increase. Taking into account the data published since Malkmus

Table 1. Records of the Turkish gecko at SECIL-Outão's property. Whenever age was not possible to determine it was classified as not identified (NI). Date, lithology, vegetation and altitudinal range by class are indicated for each observation. Alt. class = Altitudinal class (masl).

Tabla 1. Registros de la salamandrea rosada en la propiedad de SECIL-Outão. Cuando no fue posible determinar la edad, se clasificó como no identificado (NI). Se indica la fecha, litología, vegetación y rango altitudinal por clase para cada observación. Alt. class = Clase altitudinal (msnm).

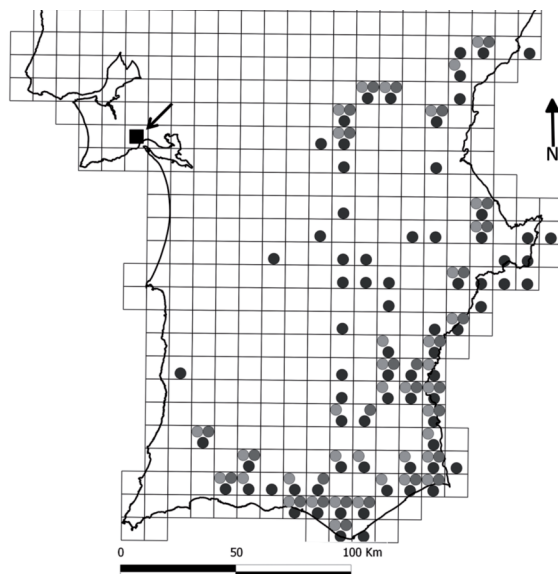
Season	Sampling technique	Age	Nº of individuals	Lithology	Vegetation	Alt. class
Spring	Diurnal prospection	5 adults, 2 juveniles	7	Marl	Young pine plantation	100-110
Spring	Diurnal prospection	NI	1	Limestone	Young pine plantation	100-110
Spring	Diurnal prospection	Adult	1	Limestone	Shrubs	340-350
Summer	Nocturnal transects	Adult	1	Limestone	Young pine plantation	140-150
Summer	Nocturnal transects	NI	1	Limestone	Shrubs	340-350
Summer	Nocturnal transects	NI	1	Limestone	Shrubs	160-170
Autumn	Diurnal prospection	Juvenile	1	Limestone	Young pine plantation	200-210
Autumn	Diurnal prospection	Juvenile	1	Limestone	Young pine plantation	140-150

Figure 2: Distribution of the Turkish gecko (*H. turcicus*) in southern Portugal (10 x 10 km UTM grid). Adapted from Malkmus (1995) (light grey circles, 38 presences), Godinho *et al.* (1999) (medium grey circles, 29 presences) and Loureiro *et al.* (2008) (dark grey circles, 74 presences). The newest location detected in the current study is represented by a black square (NC06).

Figura 2: Distribución de la salamanesca rosada (*H. turcicus*) en el sur de Portugal (malla UTM 10 x 10 km). Adaptado de Malkmus (1995) (círculos gris claro, 38 presencias), Godinho *et al.* (1999) (círculos gris intermedio, 29 presencias) y Loureiro *et al.* (2008) (círculos gris oscuro, 74 presencias). La nueva localidad detectada en el presente estudio se representa mediante un cuadrado negro (NC06).

(1995) (see also Godinho *et al.*, 1999; Loureiro *et al.*, 2008), it seems that the distribution range might be increasing and that the Turkish gecko may be expanding from southern and southeastern known locations to the northwest (Figure 2). If true, this suggests that the gaps may represent an unbalanced survey effort (Mateus & Jacinto, 2008) rather than true absence of Turkish geckos. Then, in this case, the actual vulnerable (VU) status posted in the Portuguese Red Data Book (Cabral *et al.*, 2005) should be re-evaluated since the possible continued decline of the distribution area is no longer an issue.

However, Carranza & Arnold (2006) reported that human-mediated dispersal is thought to be the major cause of this species' range expansion based on direct observations and genetic markers. The same may hold true in this case and the species may have arrived to the study area this way. The long distance dispersal hypothesis would explain the scattered distribu-



tion of the species as well as the lack of recent records in the vicinity of the study area, despite the recent efforts on mapping reptile distribution in Portugal (Loureiro *et al.*, 2008).

Thus, further studies including detailed gecko surveys and genetic data are needed to understand the origin of these new records. Only then we will be able to truly evaluate the implications of our new finding for the conservation assessment of the species.

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Atlas de distribución de los anfibios del Parque Nacional de Monfragüe y su Zona Periférica de Protección

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Los parques nacionales en España son zonas de máximo interés paisajístico, geológico o de biodiversidad y, por ello, el conocimiento de la fauna que albergan es prioritario. El *Atlas y Libro Rojo de los Anfíbios y Reptiles de España* (Pleguezuelos *et al.*, 2002) actualizó la distribución de las especies de anfibios y reptiles en España, pero publicaciones sobre la distribución detallada de anfibios y reptiles en los parques nacionales han sido más recientes (Galán, 2003; Díaz-Paniagua *et al.*, 2005; Ayllón *et al.*, 2010).

El estudio de los anfibios en el Parque Nacional de Monfragüe se puede considerar muy escaso pues, a excepción de un trabajo no publicado (Muñoz, 2002), no existe ninguno que haya tenido por objeto el estudio de este grupo de vertebrados en este espacio protegido. Varios trabajos recogen datos del mismo pero con un área de estudio mayor (Barberá *et al.*, 2006; Muñoz, 2002; Muñoz *et al.*, 2005; Muñoz *et al.*, 2012; Palomo, 1993). El presente trabajo tiene

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Figura 1: Provincia de Cáceres y situación del Parque Nacional de Monfragüe y su Zona Periférica de Protección.

como objetivo unificar los datos conocidos referentes a la zona de estudio y añadir nuevas localidades para conocer la situación de los anfibios en este espacio natural.

El Parque Nacional de Monfragüe está situado en la provincia de Cáceres y tiene una superficie de 183,96 km². Su Zona Periférica de Protección se sitúa en torno a él y conjuntamente forman un área con una extensión de 1.161,60 km² (Figura 1). La Zona