

## Herpetofaunal inventory of Kuriat and Jbel islets (Tunisia)

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### ABSTRACT

The present paper provides the results of the herpetological investigations carried out on the Kuriat Archipelago, in the Khnis Bay, and the islet of Jbel, off the harbor of Echebba. Six reptile species on the whole have been found on the studied islets. *Tarentola fascicularis* (Daudin, 1802), familia Phyllodactylidae, occurring on Great Kuriat, and *Trachylepis vittata* (Olivier, 1804), familia Scincidae, detected on all the three islets, are recorded for the first time for the islands of Tunisia.

### KEY WORDS

Reptiles; faunal list; new records; *Tarentola fascicularis*; *Trachylepis vittata*; islands; Tunisia.

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## INTRODUCTION

Within the framework of the international program Mediterranean Small Islands Initiative PIM ([www.initiative-pim.org](http://www.initiative-pim.org)), in 2014 March, we had the opportunity to take part to a scientific mission for the naturalistic exploration of the islets distributed along the central sector of the Tunisian shoreline. During this mission were visited Great Kuriat (or Qûrya El Kabira) and Small Kuriat (or Qûrya Essaghira), that form a small archipelago in the Khnis Bay; and Jbel, in front of the harbor of Echebba.

Except for the record of the nesting of loggerhead sea turtle, *Caretta caretta* Linnaeus, 1758, (Reptilia Cheloniidae) on Kuriat Archipelago (Jribi et al., 2006), no data on their herpetofauna are given in literature.

The aim of this paper is therefore to provide the first information about the occurrence of terrestrial reptiles on these islets, with some comments on their distribution.

## MATERIAL AND METHODS

### Study area

The Kuriat (Qûrya, or Kuriate) Archipelago lies in the Khnis Bay, 16 km off the Cape of Monastir, and includes two islets: Great Kuriat or Qûrya El Kabira (35°47'49"N, 11°02'01"E) and Small Kuriat or Qûrya Essaghira, also called Conigliera (35°46'06"N, 11°00'26"E). The surface is 2.7 and 0.7 km<sup>2</sup> respectively. Both are characterized by a flat morphology, with a maximum elevation of less than 5 m a.s.l., and are formed by limestone substrate overlain by calcareous and sandstone crusts (Oueslati, 1995). Along the coastline, there are also sandy dunes and thick deposits of organic matter (sea-grass litter). The islets lie in the semi-arid superior bioclimatic belt, with an annual precipitation of 300-400 mm (Posner, 1988). Salt-marsh plant communities (Salicornietea) are widely distributed around the low lands (sebkhas), alternated by bare sandy areas, while agarrigue with scattered

shrubs occupies the calcareous outcrops (Posner, 1988). Over-population of gulls and intense grazing, due to the massive occurrence of introduced goats (only on Great Kuriat) and rabbits (in both islands), seem to be the main anthropogenic factors which affected the structure of the vegetation.

Kuriat are uninhabited, except for a small military out post in the light house of the larger island. However, several historical sources attest their more intense frequentation in past (Scalia, 1984), which is also evidenced by the ruins of a Punic port and of a fishermen settlement, respectively, on Great and Small Kuriat.

Jbel ( $35^{\circ}12'26''\text{N}$ ,  $11^{\circ}10'00''\text{E}$ ) is the outermost islet of a micro-archipelago located near the harbor of Echebba, which includes also the larger islet Gataya (where however no herpetofauna has been found). Jbel has a surface of  $0.09 \text{ km}^2$  and a maximum elevation of 2 m a.s.l. Despite its proximity to the mainland, from which is only 1.7 km, it is certainly the less anthropized site among those visited

and that characterized by a strong environmental homogeneity, due to the almost exclusive covering of halo-psammophilous vegetation and sea-grass litter on the sandy substrate.

Kuriat and Jbel (Fig. 1) are continental islets and lie in the isopleth of -20 m, therefore their isolation from the mainland should be occurred in a very recent time (see Oueslati, 1995; Lambeck & Purcell, 2005).

### Field work

Field work was done from 27 to 29 March 2014, spending one day on each island; furthermore, Great Kuriat was visited also nocturnally. We carried out visual encounter surveys as well as active searching by lifting stones and by checking the potential shelters of animals. All the finding specimens have been identified, photographed and released at the place of capture. Species identification was done following the keys given by Schleich

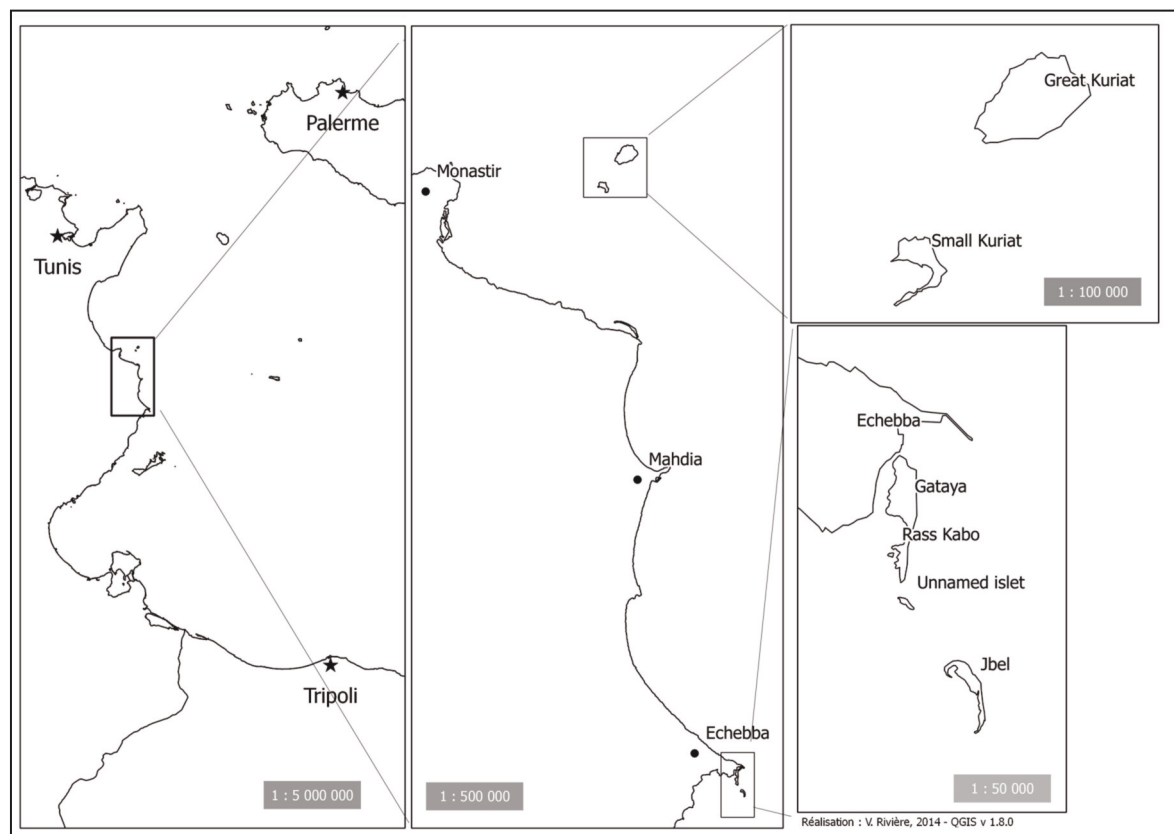


Figure 1. Geographical setting of the study area.

et al. (1996). For Phyllodactylidae and Lacertidae were also used those given by Joger (1984) and Szczerbak (1989), respectively.

### *Herpetofaunal data*

The nomenclature follows Sindaco & Jeremčenko (2008) and Sindaco et al. (2013), except for the species formerly included in the genus *Mabuya* Fitzinger, 1826, that according to Bauer (2003) is here referred to *Trachylepis* Fitzinger, 1843.

## RESULTS

### *Species list*

#### Familia GEKKONIDAE

##### *Hemidactylus turcicus* Linnaeus, 1758

This species has been detected in both the Kuriat islets. On Great Kuriat it seems widely distributed in the calcareous outcrops which cover almost one third of the island surface, while only one specimen was found on Small Kuriat, near the shacks on the beach that are used by daily visitors in summer.

#### Familia PHYLLODACTYLIDAE

##### *Tarentola fascicularis* (Daudin, 1802)

The identification of this species was done according to the diagnostic characters reported by Joger (1984; see also Joger & Bshaenia, 2010) and was kindly confirmed by the colleague Wadid Tlili on the basis of detailed photos of some of them (Fig. 2). During the present research, it has been found just on Great Kuriat, which results to be the first record for the Tunisian islands (see Tlili et al., 2012). However, *T. fascicularis* certainly inhabits other insular areas, such as Djerba and Kerkennah (W. Tlili, unpubl. data), and its distribution on continental Tunisia needs to be clarified. On Great Kuriat the species seems to be relatively common in the calcareous outcrops, where it is syntopic with *Hemidactylus turcicus*.



Figure 2. *Tarentola fascicularis* from Great Kuriat.

#### Familia SCINCIDAE

##### *Chalcides ocellatus* (Forsskål, 1775)

This species has been found both on Small Kuriat and Jbel. Most of the observations were done in the proximity of the shoreline, where the Ocellated skink use as shelter the dry litter of sea-grass within the halophile scrubs (Fig. 3).

##### *Trachylepis vittata* (Olivier, 1804)

This species (Fig. 4) had never been previously reported for the Tunisian islands (see Boulenger, 1891; Escherich, 1896; Mayet, 1903; Lanza & Bruzzone, 1959; Schneider, 1969; Blanc, 1988; Blanc & Nouira, 1988; Schlüter, 2002; Delaugerre et al., 2011). It has been found in all the islets investigated during the present research, including the tiny Jbel, where together with *Chalcides ocellatus* resulted to be the only occurring reptile species. On these islets most part of the observations were done along the coastal belt, in the same habitat occupied by the Ocellated skink (see Fig. 3).

#### Familia LACERTIDAE

##### *Mesalina olivieri* (Audouin, 1829)

This lizard (Fig. 5) has been detected only on Great Kuriat, where it seems relatively common mainly within the salt-marsh plant communities around the sebkhas.

# Familia LAMPROPHIIDAE

## *Malpolon insignitus* (Geoffroy Saint-Hilaire, 1827)

During a 6-hours visit to Small Kuriat, we were able to find two individuals belonging to this species; one of them (Fig. 6) had the tail in necrosis, probably after being hit by gulls or rats. Some colleagues who visit regularly the islets have informed us that gray-green snakes, probably belonging to the same species, would be present also on Great Kuriat. Nevertheless, we explored this islet for a whole day and even in the night, and we did not observe any individual.

## DISCUSSION

The herpetofauna of the studied islets includes six species of reptiles, namely five lizards and one

snake. No amphibians have been found during the present research and, despite the occurrence of sebkhas and few other wet microhabitats (such as the well near the lighthouse on Great Kuriat), the absence of these animals seems likely probable. Species richness increases with the size of the islets and, consequently, appears to be related to their biotic capacity (see Table 1).

The skink *Trachylepis vittata* is the most frequent species and occurs on all the studied islets, although its record represents the first known for the Tunisian islands. Furthermore, the syntopy of *T. vittata* and *Chalcides ocellatus* on the tiny islet of Jbel sounds quite interesting, as they share the same habitat and even overlap in access to the scarce trophic resources available in such small micro-insular environment. During the field work has however not been possible to determine the eventual occurrence of interspecific competition. According to Kalboussi & Nourira (2004a), both skinks are the most abundant lizards in the oases of Southern



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Figure 3. Habitat of *Chalcides ocellatus* and *Trachylepis vittata* at Jbel. Figure 4. *Trachylepis vittata* from Jbel. Figure 5. *Mesalina olivieri* from Great Kuriat. Figure 6. *Malpolon insignitus* from Small Kuriat.



Species	Great Kuriat	Small Kuriat	Jbel
<i>Hemidactylus turcicus</i>	*	*	
<i>Tarentola fascicularis</i>	*		
<i>Trachylepis vittata</i>	*	*	*
<i>Chalcides ocellatus</i>		*	*
<i>Mesalina olivieri</i>	*		
<i>Malpolon insignitus</i>	?	*	

Table 1. Species distribution on the Kuriat and Jbel islands.

Tunisia. It is likely anyway that in continental areas the resource partitioning among these species could be more balanced by their different foraging mode (see also Kalboussi & Nouira, 2004b) and by the wider trophic opportunities.

Also *Tarentola fascicularis* has not been previously recorded in literature for the Tunisian islands, even if unpublished data indicate its occurrence on Djerba and Kerkennah (W. Tlili, pers. comun.); there is also a record for Lampedusa Island, in the Channel of Sicily, that belongs to the African continental shelf (Harris et al., 2009). This taxon has been considered for a long time as subspecies of *T. mauritanica*, and its evolutionary relationships with this latter, as well as its taxonomic status, are still under debate (see Joger & Bshaeia, 2010; Farjallah et al., 2013). The distribution of *T. fascicularis* includes the eastern North Africa and has its north-western boundary in central Tunisia, where it is sympatric with *T. mauritanica* (Tlili et al., 2012). On the basis of current information, this latter seems to be most common in coastal areas, while *T. fascicularis* has been found mainly in the inland ones. In this view, the occurrence of this species on islets such as Kuriat is not easily to be interpreted, and further investigations may clarify if it is effectively absent along the coast of Monastir. On the other hand, *T. mauritanica* is known to have recently expanded its distribution due to the anthropogenic dispersal (Aprea et al., 2011), therefore can not be excluded that the occurrence of *T. fascicularis* on Kuriat could have a relict significance.

The only snake found during our visits was *Malpolon insignitus*, which has been observed on Small Kuriat and whose occurrence is supposed also for Great Kuriat. However, if confirmed by further investigations, the population of this latter islet should be presumably characterized by an extremely low density.

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