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The reptile fauna of the Fourni Archipelago (Eastern Aegean, Greece)

Die Reptilienfauna des Fourni-Archipels (Ost-Ägäis, Griechenland)

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KURZFASSUNG

Aus der Literatur und aufgrund unserer Beobachtungen auf 10 der 11 Inseln des Fourni-Archipels (Ost-Ägäis, Griechenland) sind sieben Reptilientaxa für diese Inselgruppe bekannt. *Hemidactylus turcicus* wird erstmals von den Inseln beschrieben. Für die häufigen Arten werden Angaben über die beobachteten Individuendichten in verschiedenen Habitattypen gemacht. Die größten Dichten wurden in der Macchie beobachtet. Das Artenspektrum ist vergleichsweise arm und zeigt enge Beziehungen zu den Herpetofaunen der Inseln der Ost-Ägäis und des Dodekanes.

ABSTRACT

Based on literature data and own observations made in 10 out of 11 islands of the Fourni complex (eastern Aegean, Greece), seven reptile taxa are known to occur on this Archipelago. The presence of *Hemidactylus turcicus* was not known before. Concerning the most abundant forms, densities of individuals observed in the various habitat types are presented. Highest densities were observed in the maquis vegetation. The spectrum of reptile species is comparatively poor and indicates close affinities to the herpetofauna of the eastern Aegean and Dodecanese islands.

KEY WORDS

Reptiles; *Hemidactylus turcicus* (new record), *Cyrtopodion kotschyi*, *Laudakia stellio*, *Ablepharus kitaibelii*, *Ophisops elegans*, *Coluber caspius*, *Eirenis modestus*; Fourni Archipelago, Aegean, Greece

INTRODUCTION

The Fourni Archipelago is a complex of eleven small islands (at about 37°40''N, 26°30''E) somewhat half-way between the islands of Ikaria and Samos in the eastern part of the Aegean Sea (fig. 1). Two of these islands are clearly larger than the rest: Fourni and Thymaina. All together cover a terrestrial area of 45 km^2. The highest peak is that of Korakas mountain (514 m a.s.l.) on Fourni island. The climate is typical Mediterranean (mean annual precipitation 870 mm, mean annual minimum mean and maximum temperature 15.7, 19.3, and 22.5 °C, respectively) (DAFIS & al. 1995). The islands are covered by phrygana vegetation, with the characteristic species being *Genista acanthoclada*, *Centaurea spinosa*, *Sarcopoterium spinosum*, and low maquis vegetation with *Pistacia lentiscus* and *Juniperus phoenicea* being typical.

Information on the herpetofauna is rather scarce. WETTSTEIN (1937, 1953), WERNER (1938), ONDRIAS (1968), XYDA (1983), and CLARK (1996) contributed to the knowledge of the herpetofauna of the islands of Fourni, Thimaina, and Alatsonisi and mentioned 6 reptile taxa occurring in the Archipelago.

The present paper reports on our herpetological observations made on 10 out of 11 islands and, thus, covers the island complex more completely. Nonetheless, just one more reptile taxon could be added to the known reptile inventory.

MATERIALS AND METHODS

In autumn 1997 (6 - 10 September) and spring 1998 (26 - 31 May) the following islands of the Fourni island complex were visited: Fourni, Thymaina, Thymainaki, Alatsonisi, Kesiria, Makronisi, Plaka, Strongylo, Megalos Anthropofagos, and

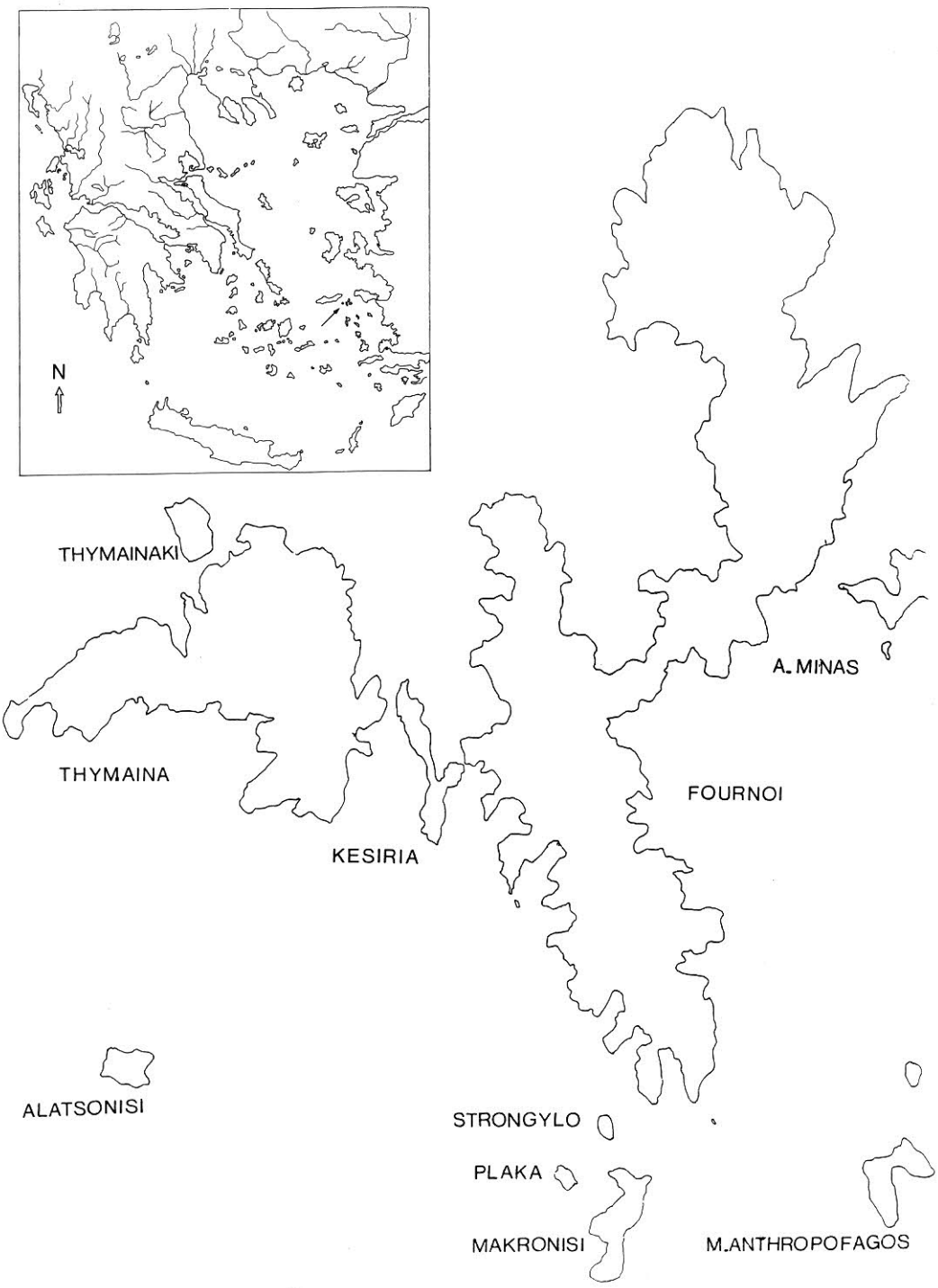

Fig. 1: The islands of the Fourni Archipelago (eastern Aegean, Greece).
Abb. 1: Die Inseln des Fourni-Archipels (Ost-Ägäis, Griechenland).

Agios Minas. Daily field work started at 08:00 / 08:30 and ended at 22:00 / 23:00. Abundance of individuals was estimated by applying the transect method (PIANKA 1970). Distances were measured with a pedometer. For transect description see table 2.

SPECIES ACCOUNT

Hemidactylus turcicus
(LINNAEUS, 1758)

This is the first report on the occurrence of this species on the Fourni island complex. Four individuals were observed on Fourni island (Fourni village, Chrysomilia) and two on Thymaina (near the village Thymaina). These geckos were exclusively found in anthropogenic environment (in stone walls, on a staircase).

Cyrtopodion kotschyi beutleri
BARAN & GRUBER 1981

Cyrtopodion kotschyi is a very common lizard in this region. Earlier reports of this species refer to Fourni island (WERNER 1938; CLARK 1996) and Alatsonisi (WERNER 1938). We observed Kotschy's Gecko almost everywhere in the phrygana and maquis vegetation under stones and on stone walls: on Fourni island (Kambi, Chrysi Akti, Fourni village, Chrysomilia), on Thimaina (Keramidou) and on the islets of Kesiria, Strongylo, and Makronisi.

Laudakia stellio daani
BEUTLER & FRÖR, 1980

This agama has been reported from Fourni island (WETTSTEIN 1953; XYDA 1983; CLARK 1996) and Thymaina (WETTSTEIN 1953; XYDA 1983). We observed it on Fourni island (Fourni village, Kamari, Kambi, Koumara, Chrysomilia), on Thymaina and for the first time on Agios Minas island. *Laudakia* was common near villages, in the maquis and phrygana vegetation, but also near cultivations and in ravines.

Ophisops elegans macrodactylus
(BERTHOLD, 1842)

ONDRIAS (1968) reports on the occurrence of this species on the Fourni islands. During our visit we found it on Thymaina, Agios Minas, and Alatsonisi. On Thymaina it was observed near the sea at Keramidou and Agios Nikolaos, on Alatsonisi in a stony region with phrygana and on Agios Minas in phrygana and low maquis.

Ablepharus kitaibelii kitaibelii
BIBRON & BORY, 1833

This species has been known from the Fourni Archipelago through WETTSTEIN (1953). We found this skink on Fourni island (Fourni village), Agios Minas and Strongylo.

Coluber caspius
GMELIN, 1789

CLARK (1996) reported on the occurrence of this species on Fourni island. We did not see it there, but were the first to find the snake on Thymaina island (near Thymaina village and Agios Nikolaos).

Eirenis modestus modestus
(MARTIN, 1838)

WETTSTEIN (1937, 1953) was the first who reported this snake species to occur on Alatsonisi island; later (1938) WERNER published a record from Fourni archipelago and CLARK (1996) found it on Fourni island. We observed *E. modestus* on Fourni (between Chrysomilia and Kamari, near Aspa and Vitsilia) and on Alatsonisi in dry regions with low shrubs and stones and in ravines with maquis vegetation. The Alatsonisi population was originally described as a subspecies of its own, *E. modestus werneri* WETTSTEIN, 1937. According to BARAN (1976) this name must be considered a synonym of *E. modestus modestus*.

RESULTS AND DISCUSSION

In the Fourni island complex, seven reptile species have been known to occur so far: from these, six were observed on Fourni island, 5 on Thymaina, 3 on Agios Minas and Alatsonisi, 2 on Strongylo, and 1 on Kesiria and Makronisi. On Thymai-

Table 1: Reptile records and number of species in the islands of the Fourni Archipelago (eastern Aegean, Greece). X - this study; + - mentioned in the literature; [1] - globally mentioned for the Fourni Archipelago in the literature.

Tab. 1: Reptiliennachweise und Anzahl der Arten auf den Inseln des Fourni Archipels (Ost-Ägäis, Griechenland). X - diese Untersuchung; + - Literaturangabe; [1] - in der Literatur allgemein für den Fourni Archipel angegeben.

Species	Fourni	Thymaina	Thymainaki	Alatsonisi	Kesiria	Makronisi	Plaka	Strongylo	Meg Anthropofagos	Ag. Minas	
Hemidactylus turcicus	X	X	-	-	-	-	-	-	-	-	2
Cyrtopodion kotschyi	+X	X	-	+	X	X	-	X	-	-	6
Laudakia stellio	+X	+X	-	-	-	-	-	-	-	X	3
Ablepharus kitaibelii [1]	X	-	-	-	-	-	-	X	-	X	3
Ophisops elegans [1]	-	X	-	X	-	-	-	-	-	X	3
Coluber caspius	+	X	-	-	-	-	-	-	-	-	2
Eirenis modestus	+X	-	-	+X	-	-	-	-	-	-	2
	6	5	-	3	1	1	-	2	-	3	

naki, Plaka, and Megalos Anthropofagos no reptiles were found (table 1).

The number of reptile species observed was highest on Fourni and Thymaina which are by far the biggest islands of the Fourni complex.

Within the archipelago, *C. kotschyi* shows a wide distribution (observed on 6 islands). This parallels the fact that *C. kotschyi* is the most widespread gecko species in the Aegean (FOUFOPOULOS 1997).

Hemidactylus turcicus appears to be rare in the Fourni Archipelago. It was exclusively observed on the main islands Fourni and Thymaina which have harbors. This may be indicative for passive human transport and, thus, for a more recent colonization of the islands by this lizard.

It is remarkable that *Ophisops elegans* was not observed on Fourni island but on Thymaina, Alatsonisi, and Agios Minas. From Asia Minor, this Levantine species colonized the eastern Aegean where it is widespread (CHONDROPOULOS 1986).

Laudakia stellio is common in the central and eastern Aegean. This seems to be true for *A. kitaibelii* as well, although there are still no records from various east Aegean islands. Their presence on various islands of the Fourni complex was to be expected (CHONDROPOULOS 1986).

Besides an unvalidated report (THANOS in MINISTRY OF YOUTH 1984) on the occurrence of *Malpolon monspessulanus* (HERMANN, 1804) on Makronisi there are only two snake species on record for the island complex: *Coluber caspius* on the two main islands Fourni and Thymaina and *E. modestus* on Fourni and Alatsonisi.

Coluber caspius is widely distributed over Greece and found in many east Aegean islands (CHONDROPOULOS 1989). From its center of distribution in Asia Minor, *E. modestus* colonized the south-east Aegean islands and has been known from Leros, Kalymnos, Symi, Lesvos, Chios, Samos and Alatsonisi (CHONDROPOULOS 1989).

As far as we know until now, the reptile fauna of the Fourni island complex is poor when comparing the number of taxa to that of the neighboring islands of Ikaria and Samos. Nonetheless, the close herpetofaunal affinities to the Eastern Aegean and Dodecanese are clearly expressed by the species composition and the presence of *Ophisops* and *Eirenis* in peculiar.

The highest density of reptiles was observed in maquis and degraded maquis vegetation with the exception of *Ablepharus*, the highest density of which was observed in the phrygana (table 2).

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Table 2: Number of individuals per 10,000 m^2 as calculated from counts (in parentheses) in four habitat types.
Tab. 2: Individuenzahl je 10.000 m^2. Berechnete Werte nach Zählungen (in Klammern) in vier Habitattypen.

Species Island/Transect [length/width (m)] Insel/Transsekt [Länge/Breite (m)]	Habitat Type / Habitattyp Phrygana	Cultivated Land Landwirtschaftsgebiet	Degraded Maquis Degradierte Macchie	Maquis Macchie
Cyrtopodion kotschyi (mean/Mittel)	4.4	7.6	12.6	41.6
Fourni/Fourni village [1083/6]	7.7 (5)			
Fourni/Fourni village [2130/3]	1.6 (2)			
Fourni/Kambi [630/6]		2.6 (1)		
Fourni/Kambi [1059/6]		12.6 (8)		
Thymaina/Thymaina village [378/5]	5.3 (1)			
Thymaina/Thymaina village [120/4]				41.6 (2)
Thymaina/Ag. Nikolaos [1953/6]			0.8 (1)	
Kesiria [375/6]			8.9 (2)	
Kesiria [246/3]			13.5 (1)	
Kesiria [246/3]			27.1 (2)	
Makronisi [657/5]	3.0 (1)			
Strongylo [450/5]	4.4 (1)			
Laudakia stellio (mean/Mittel)	0.8	7.1	1.7	9.6
Fourni/Fourni village [2130/3]	0.8 (1)			
Fourni/Kambi [630/6]		2.6 (1)		
Fourni/Kambi [457/6]		10.9 (3)		
Fourni/Kambi [1059/6]		7.8 (5)		
Fourni/Kumara [1089/6]				1.5 (1)
Fourni/Kumara [1089/6]				7.6 (5)
Thymaina/Thymaina village [120/4]				20.8 (1)
Thymaina/Ag. Nikolaos [1953/6]			1.7 (2)	
Ag. Minas [1179/4]				8.4 (4)
Ablepharus kitaibelii (mean/Mittel)	8.9			8.3
Strongylo [450/5]	8.9 (2)			
Ag. Minas [201/6]				8.3 (1)
Ophisops elegans (mean/Mittel)	5.3		2.4	20.2
Thymaina/Thymaina village [378/5]	5.3 (1)			
Thymaina/Thymaina village [120/4]				20.8 (1)
Thymaina/Ag. Nikolaos [1953/6]			0.8 (1)	
Alatsonisi [1008/5]			3.9 (2)	
Ag. Minas [1179/4]				14.8 (7)
Ag. Minas [201/6]				24.9 (3)

REFERENCES

CHONDROPOULOS, B. P. (1986): A checklist of the Greek reptiles. I. The lizards.- Amphibia-Reptilia; 7: 217-235.

CHONDROPOULOS, B. P. (1989): A checklist of Greek reptiles. II. The snakes.- Herpetozoa, Wien; 2 (1/2): 3-36.

CLARK, R. J. (1996): Some notes on the reptile fauna of Fourni, Ikaria and Schinoussa, Aegean Sea, Greece.- British Herpetol. Soc. Bull.; 56: 35-39.

DAFIS, S. & PAPASTERGIADOU, E. & GEORGHIOU K, & BABALONAS, D. & GEORGIADIS, T. & PAPAGEORGIOU, M. & LAZARIDOU, T. & TSIAOUSSI, V. (Eds). (1996): Directive 92143/EEC The Greek "Habitat" Project Natura 2000: An Overview. Life Contract B4-3200/94/756, commission of the European Communities DG XI, The Goulandris Natural History Museum - Greek Biotope / Wetland Centre / University of Athens / University of Thessaloniki / University of Patra. 917 pp.

FOUFOPOULOS, J. (1997): The reptile fauna of the Northern Dodecanese (Aegean Islands, Greece).- Herpetozoa, Wien;10 (1/2): 3-12.

LOANNIDIS, Y. & DIMAKI, M. & DIMITROPOULOS, A. (1994): The herpetofauna of Samos (eastern Aegean, Greece).- Ann. Mus. Goulandris; 9: 445-456.

MINISTRY OF YOUTH (Work Team: THANOS, C. & YIOTIS, D. & ZALAHORI, E. & MAKRYDAKIS, S. & OIKONOMOPOULOS, V. & ORFANOU, A. & PARAGKAMIAN, K & SKORDILIS, A.) (1984): Oikologikes protovoulies neon. Fourni. Meleti oikologikis kai koinonikis katastasis (Fourni islands. A study of ecological and sociological status). Athens, 112 pp. [in Greek].

ONDRIAS, J. C. (1968): Liste des Amphibiens et des Reptiles de Grèce.- Biologia Gallo-Hellenica; 1:111-135.

PIANKA, E. R. (1970): Comparative autecology of the lizard *Cnemidophorus tigris* in different parts of its geographic range.- Ecology; 51: 703-720.

WETTSTEIN, O. (1937): Vierzehn neue Reptilienrassen von den südlichen Ägäischen Inseln.- Zool. Anzeiger; 118(3/4): 79-90.

WETTSTEIN, O. (1953): Herpetologia aegaea.- Sitzungsber. Österreichische Akad. Wiss., Wien; 162: 651-833.

WERNER, F. (1938): Die Amphibien und Reptilien Griechenlands.- Zoologica; 35:1-117.

XYDA, A. (1983): Differentation among several Greek and Cyprian populations of the lizard *Agama stellio* (Reptilia: Agamidae). Doctoral Thesis. University of Athens (in Greek) 139 pp.

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