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On the Possible Occurrence of the Marginated Tortoise, *Testudo marginata*, in Turkey

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The possible occurrence of the marginated tortoise, *Testudo marginata* Schoepff, 1792, in Turkey was first reported by Brinckmeier et al. (1989) from the vicinity of the ancient city of Ephesus, 80 km from Vilayet Izmir, in the western part of Turkey. They based their report on a single specimen, without providing an illustration or detailed description, and the fate of this specimen was not mentioned. The area in which the specimen was found, the Küçük Menderes Delta, has been visited by many herpetologists, including ourselves on several occasions, but no further *T. marginata* have been encountered. We therefore believe that either the original identification was incorrect, or else that the specimen had been transported there by man.

The marginated tortoise occurs in southern and central Greece as far north as the Vermion Oros (Loumbourdis and Kattoulas, 1983) and on several Aegean islands including Skyros and Kyra Panagia, in the Northern Sporades, and Euboea as well as smaller islands in the Argo-Saronic Gulf (Dimitropoulos, 1985). It has been introduced on Sardinia and Tombola in southern Italy (Honegger, 1981; Kock and Storch, 1979). The distance from the Küçük Menderes Delta where the single reported Turkish specimen was found to the nearest known insular site of the species, Paros (Dimitropoulos, 1985) is nearly 250 km.

In the course of reaching maturity, *T. marginata* undergoes dramatic ontogenetic change, such that juveniles are often confused with other species, even by professional herpetologists. There is no hint of the diagnostic posterior marginal flare in hatchlings and many juveniles. The feature that hatchlings and adults have in common is the presence of paired triangular dark blotches on the plastron scutes, from the pectorals to the anals (Bour, 1983). The interpectoral seam is long, approaching or even exceeding the length of the interfemoral. Typically but not universally, *T. marginata* lacks thigh spurs, and although the coloration of the carapace varies considerably, the large carapace scutes rarely have a dark central blotch but tend to be pale in the center, surrounded by contrasting dark pigment. In some adult specimens, the carapace may be entirely black (Bour, 1983).

Methods. — In this study, the estuary of the Küçük Menderes River and the nearby wetlands located close to ancient Ephesus (Selçuk) (Fig. 1) were investigated for the presence of tortoises. The research area was visited two times, in August and September. We investigated areas in the vicinity of the ancient city of Ephesus, the Zeytinköy and Barutçu regions, as well as Meryemana and Belevi.

Tortoises were examined in the field and released after the following measurements had been taken. SCL (straight carapace length): straight-line measurement from the outermost projection of the nuchal to the outermost projection of the supracaudals; MW (median width): straight-line measurement from the center of the carapace; MWM (maximum width at marginals): straight-line measurement between the widest section of the marginals; CH (carapace height): maximum height within the bridge area parallel to horizontal level; PL (plastron length): straight-line measurement from the outermost projection of the gulars to the outermost projection of anals; PW (plastron width): maximum width across the abdominals; GuL: length of gular scute at mid-seam; HuL: length of humeral scute at mid-seam; PeL: length of pectoral scute at mid-seam; AbdL: length of abdominal scute at mid-seam; FemL: length of femoral scute at mid-seam; AnaL: length of anal scute at mid-seam.

Results. — A total of 9 tortoises were examined from Ephesus (Table 1). A combination of features led us to

Table 1. Morphometrics (in mm) of adult *Testudo graeca ibera* specimens from Selçuk (Ephesus), Turkey. For abbreviations, see text.

	overall					females					males				
	n	mean	S.E	S.D	range	*n*	mean	S.E	S.D	range	*n*	mean	S.E	S.D	range
SCL	9	190.9	10.82	32.47	121-231	5	203.0	11.79	26.37	160-231	4	176.0	18.26	36.53	121-196
MW	9	138.3	7.30	21.89	90-160	5	148.4	7.00	15.65	121-160	4	126.0	11.95	23.89	90-140
MWM	9	141.7	7.11	21.32	90-161	5	148.6	5.42	12.12	129-161	4	133.0	14.46	28.91	90-150
CH	9	94.8	4.44	13.31	70-108	5	100.4	5.39	12.05	79-108	4	87.8	6.33	12.66	70-100
PL	8	168.3	11.20	31.68	110-197	4	176.3	15.52	31.04	131-197	4	160.0	17.37	34.74	110-190
PW	9	127.1	7.20	21.61	80-153	5	135.2	7.23	16.16	110-153	4	117.0	12.76	25.52	80-137
GuL	9	26.2	1.38	4.14	17.8-30.4	5	26.6	1.52	3.40	21.3-29.8	4	25.6	2.71	5.43	17.8-30.4
HuL	9	27.2	1.72	5.17	18.7-37.2	5	28.3	2.51	5.61	21.7-37.2	4	25.8	2.48	4.96	18.7-30.1
PeL	9	12.5	1.07	3.20	7.7-16.8	5	12.7	1.59	3.55	7.7-16.8	4	12.2	1.60	3.21	8.6-16.1
AbdL	9	59.5	4.33	13.00	39.6-79.2	5	65.4	5.78	12.93	45.1-79.2	4	52.1	4.93	9.87	39.6-63.6
FemL	8	23.0	1.22	3.46	16.3-26.9	4	23.7	1.34	2.68	21.4-26.9	4	22.3	2.20	4.41	16.3-26.4
AnaL	8	21.0	2.70	7.64	11.5-32.1	4	24.3	4.54	9.09	11.5-32.1	4	17.7	2.47	4.94	12.9-23.3

antakyensis) have been described from southern parts of Turkey (Weissinger [1987] and Perälä [1996], respectively). However, the descriptions of these taxa have been based upon limited material without providing significant statistical comparisons. While Weissinger's description has received widespread acceptance, Perälä's is viewed with scepticism by Turkish herpetologists. Neither of these taxa were included in the most recent book on the Turkish herpetofauna (Baran and Atatür, 1998). Nevertheless, it is true that the study of land tortoises has been largely ignored by Turkish herpetologists.

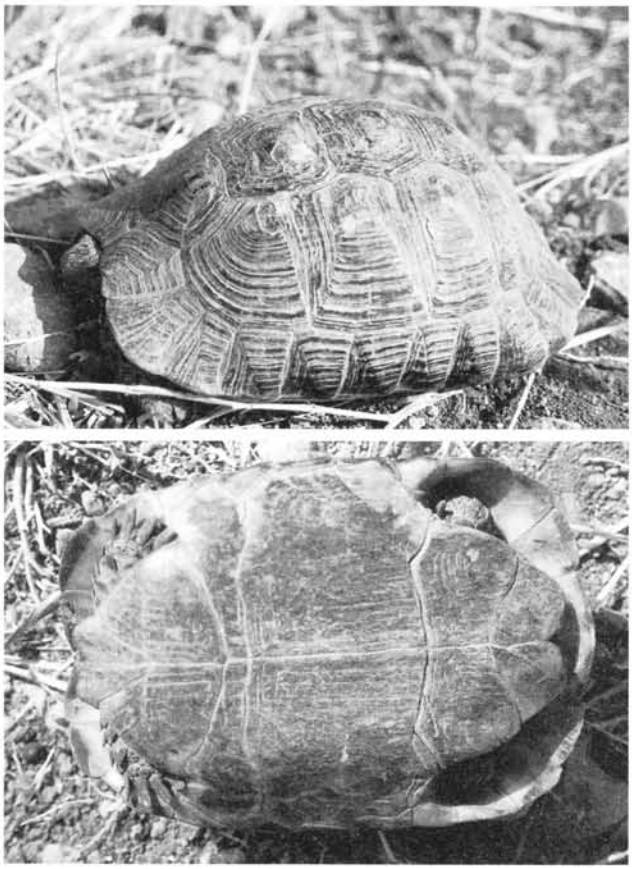

Figure 2. Adult female *T. graeca ibera* from Selçuk (Ephesus), Turkey.

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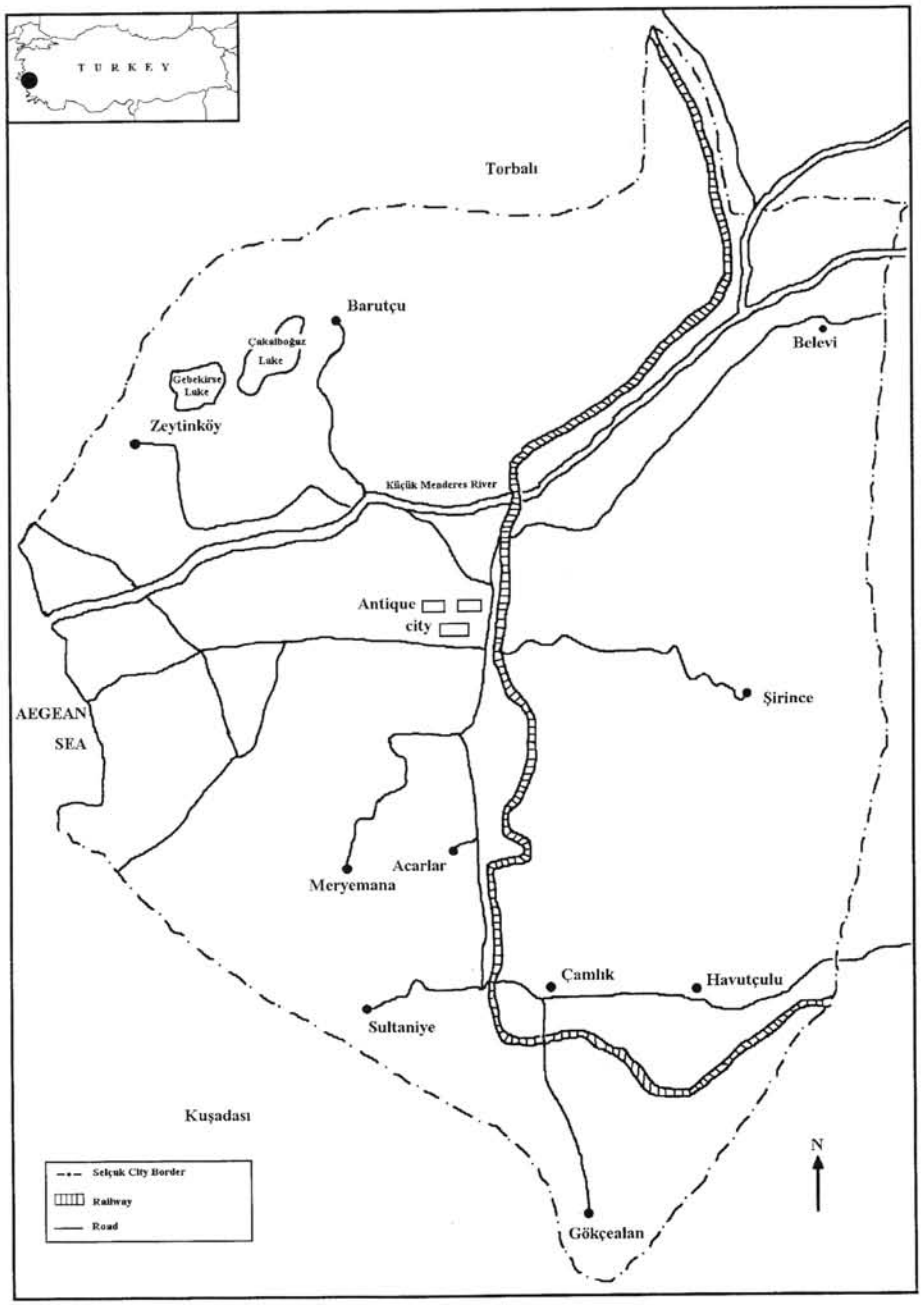

Figure 1. Map of Küçük Menderes Delta, showing town border of Selçuk (dashed line), with ancient (antique) city of Ephesus, Turkey.

conclude that all were Greek tortoises, *Testudo graeca ibera* Pallas, 1814 (Fig. 2). On all specimens, the plastron was more or less black blotched, the dark figures sometimes fused but never appearing as symmetrical dark triangles. The coloration of the carapace was highly variable; four of the specimens had a carapace that was 90% black. Conical thigh tubercles were present on all specimens. The supracaudal scute was more or less folded downwards towards the caudal region, never flaring outwards. The interfemoral seam was twice as long as the interpectoral. The ratio of maximum width at marginals to the width at mid-point was almost 1.00. The only ambiguous characteristics, that is, shared by both *T. graeca ibera* and *T. marginata,* present on all specimens examined, were clearly projecting gulars and a movable posterior lobe of the plastron. Thus, in their appearance, these tortoises from the Küçük Menderes lowlands conform to the description of *T. graeca ibera* and not to *T. marginata* (Siebenbrock, 1913; Basoglu and Baran, 1977; Baran and Atatür, 1998).

In conclusion, *T. marginata* does not appear to inhabit the Ephesus region, nor do we suspect it to occur elsewhere in Turkey. For decades, Turkey has become a regional mecca for foreign herpetologists, both amateurs and professionals. The last serious work on the tortoises of Turkey was carried out by two Austrians nearly 30 years ago (Eiselt and Spitzenberger, 1967). In recent years, two new taxa of *Testudo* (*T. g. anamurensis* and *T.*