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Biogeographical analysis of the Herpetofauna of the Greek Islands

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Although the herpetofauna of the Greek islands, compared with other animal groups, is one of the best known especially after the works of Werner, Wettstein, Clark, there is no attempt for a contemporary biogeographical analysis, except of a short announcement of Beutler in 1979.

The species - area relationship, the species distribution and the recent paleogeoqraphical data, gave us the opportunity to discuss the distribution pattern of the reptiles in the Greek area.

The number of species precent and the area for:

a. The Ionian eslands
b. The Aegean islands which are found close to the Greek mainland,
c. The Aegean islands which are found close to the Asia Minor,
d. Both the Aegean and the Ionian islands,
e. The Cyclades and
f. The islands of the southern Aegean arc, are strongly correlated.

Based on the equations of the species - area relationship (fig.1) we observed that:

1. Slopes, with a range from 0.18 to 0.25, are lawer for the coastal islands and higher for the central Aegean islands. But in general the relatively low z-values indicate that the factor "insularity" is not strong enough for the reptiles in this area.
2. The factor C of the species-area equation, with a range from 0.17 to 0.76, separate the six curves in three distinct groups. An upper one for the Ionian islands, a lower one for the islands of the southern arc and an in-between group for all the other curves. This is an indication that the islands of the southern Aegean arc are relatively "empty" of reptiles while the Ionian islands re latively "rich".

a:	Y = 0.76 + 0.18X	n= 5	r=0.48	0.10 < P<0.15
b:	Y = 0.54 + 0.19X	n= 8	r=0.76	P<0.05
c:	Y = 0.46 + 0.22X	n=14	r=0.59	P<0.05
d:	Y = 0.42 + 0.23X	n=54	r=0.67	P<0.05
e:	Y = 0.39 + 0.25X	n=21	r=0.71	P<0.05
f:	Y = 0.17 + 0.24X	n= 5	r=0.86	P<0.05

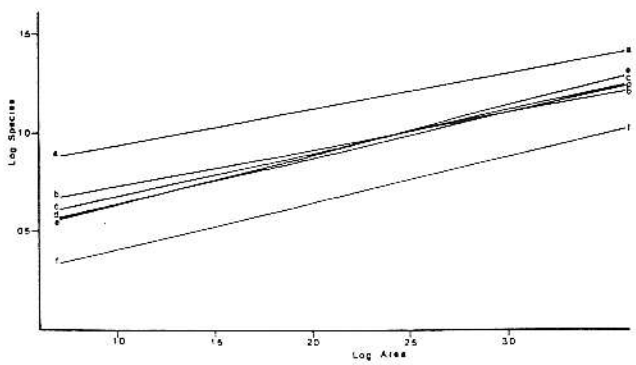

Fig. I

The recent distribution of the reptiles and their ecological requirements show that "emptiness" and "richness" are related mostly to historical events and not to recent ecological conditions.

Most of the existing data seem to be in agreement with the following hypothesis. Reptiles invated the Greek area mainly from the north. This invation influenced the Ionian islands, the Peloponnese and the central Aegean islands. A second invation from the east influenced only the islands that are found close to the Asia Minor. Non of the invations reached the islands of the southern Aegean arc, as these islands were isolated and never since the time of invation connected with the mainland. From paleogeoqraphic maps presented by Dermitzakis we know that the southern islands were connected with the mainland (Peloponnes or Asia Minor) until the Messenian, so, the history of most of the species that form the recent Greek herpetofauna could not be older than this period.

Beutler, A. 1979. General principles in the distribution of Reptiles and Amphibians in the Aegean: Biol. Gallo-Hell. VIII: 337-341.