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The feeding ecology of *Cyrtodactylus kotschyi* in an insular ecosystem of the Aegean.

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INTRODUCTION

Cyrtodactylus kotschyi (Reptilia- Gekkonidae) is the commonest reptile species in the ecosystems of the Aegean archipelago.

Although the distribution and the taxonomy of C. kotschyi has been well studied in the Aegean islands (Werner 1930, Wettstein 1953 , Beutler 1981 et.al.), on the contrary its ecology in the Aegean ecosystems has been studied less . Some data on its ecology are refered on Beutler (1981),Beutler and Gruber(1977,1979) and recently (1987) by the authors of this report.

Here the first data on the feeding ecology of C. kotschyi in an insular ecosystem of the Aegean are reported from July 1986, November 1986 and March of 1987.

LOCALITIES and METHODS

Animals were collected from an insular ecosystem located on the eastern part of Naxos island (the largest of Cyclades) , 6 km south of the small village of Moutsouna. The area was described by Valakos (1983,1986).

Thirty one individuals were collected in July ,10 in November and 10 in March,by hand or by airgun . Body length (snout-vent) and weight are recorded for each gecko. Geckos were fixed in 75% alcohol.

The contents of each stomach were examined under dissecting microscope in the laboratory and every food item was recorded and measured to the nearest 0.01mm with an ocular micrometer, fitted to a dissecting microscoope . The volume of each measured prey item was estimated using the equation for the volume of a prolate spheroid (Dunham A. 1984) $V=4/3\pi(a/2)(b/2)^2$ where a= the greatest length and b=the greatest width of the prey.

For statistical analysis non parametric tests used as described by Zar (1984).

RESULTS

The types, the numbers and the volumes of the prey are given in table 1.

C. kotschyi feeds mainly on arthropoda. The major food items in the stomachs are the insects. In July, the geckos feed on melolonthforms larvae of coleoptera . In this month sone groups of arthropoda whose abundance in the biotope is high (e.g. orthoptera Valakos 1986) are absent from the prey.

In November C.kotschyi feeds mainly on spiders (30% by number) and ants (30% by number). In March the major food items are larvae of hemiptera (68.42% by number , 45.11% by volume). In those months the number of food items was small because the geckos were active only a few hours and their activity was dependent on ambient temperatures (Valakos et. al. 1987).

The mean prey length is about 10mm (table 2) . There was positive corellation between prey length and body length (rs=0.58 fig.1). The females feed on larger prey than the males (Mann-Witney U test P<0.05).

DISCUSSION

Cyrtodactylus kotschyi belongs to the insectivorous lizards like the other geckos in Europe (Scebac 1960) in Israel (Perry and Werner 1981) or in other regions where Gekkonidae are distributed (Pianka and Huey 1978).

The difference in the food mainly between spring and summer show the geckos' opportunism. In the sympatric species Podarcis erhardii (Reptilia-Lacertidae) there was a stable contribution every month by some groups of prey (Valakos 1986).

Gekkonidae are some of the best examples of the sit wait predators (Ananjeva N. et.al.1986). From our observations it seems that C.kotschyi belongs to this type of predators because there were mobile animals in its prey (Diptera, ants spiders) and the percentage of some groups was much higher than all other groups (Huey and Pianka 1981).

Also , the foraging technique assosiated to the morphological and behavioural characters are as described by Pianka (1981). Mode of escape from the predators: Cammouflage and cryptic behaviour (Valakos et.al.1987). Morphology : Stocky (sort tail). Predators : widely foraging (Valakos et.al. 1987).

Many researchers have found that there is a positive corellation between prey size and body length in lizards (Shoener1968, Roze 1976 et.al.). Rose assumes that this happens mainly in sit-wait predators . From our results it seems that this happens in C.kotschyi contrary to the sympatric widely foraging species P.erhardii where there was no correlation between prey length and body length (Valakos 1986).

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Table 1 : The food items found in the stomachs of 51 C. kotschyi. Number in paranthesis = the number of the Geckos, n = number of food items , % n = percentage of the number of food items , V = volume of the food items in mm^3 , % V = percentage of the total volume

A:

Food category	July(31) n	% n	V	% V	November (10) n	% n	V	%V
Spiders	22	8.03	76.67	0.08	8	30.77	6.07	1.83
Acarina	2	0.73	17.08	0.02	-	-	-	-
Chilopoda	-	-	-	-	1	3.85	3.88	1.19
Coleoptera	20	7.3	89.16	0.09	3	11.54	24.80	7.39
Ants	10	3.64	109.36	0.10	8	30.77	7.21	2.18
Diptera	2	0.73	-	-	2	7.69	3.65	1.10
Colembola	1	0.36	0.13	-	2	7.69	-	-
Hymenoptera	1	0.36	-	-	1	3.85	9.58	2.89
Mantidae	1	0.36	54.87	0.05	-	-	-	-
Larvae of Coleoptera	210	76.6	98592.3	98.07	1	3.85	276.1	83.42
Larvae of Hymenoptera	5	1.82	1593.78	1.58	-	-	-	-
Larvae of Hemiptera	-	-	-	-	-	-	-	-
Total	274		100532.8		26		330.9	

B:

Food category	March (10) n	% n	V	% V
Spiders	1	2.63	3.02	0.98
Coleoptera	5	13.60	22.30	7.21
Hymenoptera	1	2.63	0.13	0.04
Larvae of Coleoptera	5	13.6	143.42	46.36
Larvae of Hemiptera	26	68.42	140.47	45.41
Total	38		309.34	

Table 2 : The mean body length of males and females . N:number of geckos , SV:mean body length, x = mean prey length

	N	$\overline{SV}$ mm	SD	$\bar{x}$ mm	SD
Males	10	41.42	6.49	9.45	4.6
Females	31	43.21	3.63	10.33	4.7