

THE LIFE CYCLES OF TWO SYMPATRIC SPECIES OF *ICHNOTROPIS* (SAURIA: LACERTIDAE)

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The sand-lizards *Ichnotropis squamulosa* and *I. capensis* are widespread and common in southern Africa, although not found south of the Orange River. They often occur together, but one species is invariably represented only by adults and the other only by subadults or juveniles. This phenomenon was analysed by recording the snout-vent length and month of collection for 124 specimens of *I. squamulosa* and 74 specimens of *I. capensis* in the Umtali Museum. The material is from Bechuanaland, Rhodesia, Zambia and Mozambique. The size range and mean snout-vent lengths for each month are shown in Table 1 and the growth curves for the two species are plotted in Fig. 1.

These data indicate that both lizards have remarkably short life cycles of less than one year's duration, so there is no overlap between generations, the species surviving in the egg form for a period of three to four months. These life cycles are staggered so that there is never inter-specific competition between lizards of similar size, the two species thus being segregated by size of prey. Competition between sympatric congeneric species of lizards is often reduced by differences in microhabitat (e.g. *Platysaurus torquatus* and *P. imperator*, Broadley 1962) or diet (e.g. *Pseudocordylus subviridis* and *P. langi*, Broadley 1964). Staggered life cycles can be equally effective for "annual" species.

Data on the life spans of lizards are meagre, but tropical forms are relatively short-lived when compared with temperate species which hibernate for nearly half the year. M. Smith (1951) considered the Palearctic species *Lacerta agilis* to be full grown when 4 or 5 years old and the same is probably true of *Lacerta vivipara*. Males of both species may be sexually mature when 22 months old.

Most African lacertids probably live for two or three years. With regard to *Nucras tessellata ornata*, *Eremias lugubris* and *Eremias namaquensis*, I have examined series which include at least two generations.

If factors like predation levels are similar for the local genera of lacertids, one could expect to find an indication of life expectancy in the number of eggs laid. FitzSimons (1943) gives approximate clutch sizes of 10-12 for *Ichnotropis squamulosa* and 6 for *I. capensis*, compared with 4-6 for *Eremias* spp., 4-6 for *Meroles* spp. and 4 for *Nucras* spp. It is significant that *Ichnotropis squamulosa* has both the shortest known life expectancy (8 months) and the largest clutch size, while the species of *Nucras*, which probably live for 2-3 years, have the lowest average clutch size.

There is plenty of scope for research on the ecology of local lizards, and their life cycles may prove to be particularly interesting.

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TABLE 1.

VARIATION IN SNOUT-VENT LENGTH FOR SAMPLES OF *Ichnotropis squamulosa* AND *I. capensis* BY MONTH OF COLLECTION.

Month	N	<i>I. squamulosa</i>		N	<i>I. capensis</i>	
		Snout-vent Lengths			Snout-vent Lengths	
		Range	Mean		Range	Mean
January	12	40-61	51.7	—	—	—
February	11	50-70	58.3	—	—	—
March	21	55-75	61.2	2	24-27	25.5
April	19	59-75	66.8	5	22-36	31.2
May	16	55-71	63.6	7	30-38	34.0
June	14	60-76	66.2	4	36-39	37.7
July	1	76	76.0	3	38-47	41.3
August	—	—	—	—	—	—
September	—	—	—	3	41-48	45.3
October	—	—	—	11	48-60	52.2
November	10	24-35	30.4	19	40-65	54.7
December	20	25-49	38.3	20	52-62	56.8

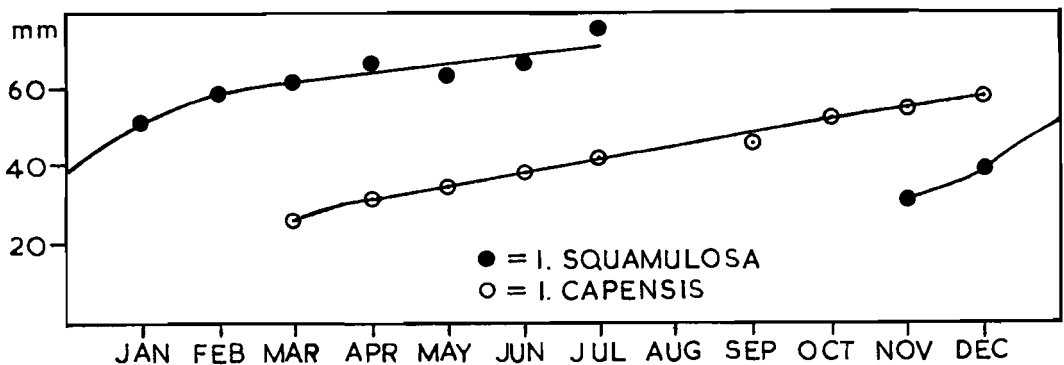


Fig. 1. Growth curves for *Ichnotropis squamulosa* and *I. capensis* based on mean snout-vent lengths of samples for each calendar month.