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Reproductive Cycle of *Algyroides marchi* (Reptilia: Lacertidae)

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INTRODUCTION

Since the recent discovery /Valverde, 1958/ of this Iberian endemic, with an area of distribution in the Alcaraz and Cazorla Mountains /provinces of Albacete and Jaen, respectively, Spain/, the few communications on the species have been dedicated mainly to biometric and systematic aspects /Klemmer, 1960; Mertens and Wermuth, 1960; Bucholz, 1964/. Palacios et al. /1974/ contributed the first data on the reproduction of this lizard. The existence of a single egg-laying period /in the first half of July/, postulated in this paper on the basis of partial data of the activity period, was contradicted by the findings of Eikhorst et al. /1979/, who found young specimens of small size in the month of August and have suggested a different reproductive cycle.

In the present communication, the variation of the genital tract throughout the activity period was studied, data on egglaying were obtained and the age of the youngest specimens was determined by the skeletochronological method to establish the species reproductive cycle and clarify the controversy existing until now in the bibliography.

MATERIALS AND METHODS

Field trips were made approximately every 25 days /at the end of each month from April to November in 1984, and at midmonth from March to June in 1985/ to the Alcaraz Mountains /Albacete, Spain/, in the area of distribution described in earlier publications /Palacios et al., 1974; Manzanares, 1981/.

A total of 89 specimens /38 males, 19 females and 22 young/ was studied. The specimens were weighed and measured in situ, after treating with ether, and they were kept at 4°C no more than three hours before dissection. Gonads, epididymides and oviducts were measured with a stereoscopic microscope. The volume of the largest follicle of the two ovaries and the measurements of the largest testicle were used for comparison with the available data on this species in the literature. The variation of other features presumably associated with the sexual cycle /variation of the fatty bodies, chromatic changes, etc./ were the object of another study /Rubio and Ruiz, in press/.

After fixing the organs in Bouin's liquid, washing and paraffin inclusion, 7-micra histologic sections were made and stained with hematoxylin-eosin.

Recently captured gravid females were periodically /1978, 1981, 1984, 1985/ maintained in the laboratory to observe egglaying. The femora of the young specimens were decalcified with nitric acid for 6 hours, washed, frozen-sectioned in 20-micra slices and stained with Delafield's hematoxylin.

RESULTS

The activity period is from the first days of March to the end of September or beginning of October.

Figs 1 and 2 show, respectively, the male and female gonadal variations. Throughout the activity period, a unimodal distribution was observed for both sexes.

Fig. 1 shows the variation in testicular volume, which reached its maximum between June and July. The testicles decreased in size until the minimum was attained between July and August, and then increased until the beginning of September, when the size was similar to that at the onset of spring.

The curve of Fig. 1 reflects the seasonal variation observed in the histologic study of the testicles. The maximum testicular development coincided with the peak of the graph, presenting at this moment an important growth of the seminiferous tubules /Fig. 3/.

In Fig. 4 is shown the state of the epididymis in June. Its involution was delayed with respect to the testicle, with its diameter beginning to decrease in July, when numerous spermatozoa are still seen in the lumen.

Fig. 2 represents the variation in the volume of the largest follicle of the ovaries. The maximum dimensions were encountered between the end of June and beginning of July, coinciding with ovulation, which accounts for the marked disperson of follicular volumes at this period. In the same sample there were females with well-developed ovules in the ovary and females with ovules in the oviduct.

The minimum size of the ovary appeared in July, coinciding with egg-laying. The different phases of the reproductive cycle have been represented on the graph. Vitellogenesis commenced shortly after hibernation concluded and continued until the end of June. Fig. 5 shows an ovary with follicles in vitellogenesis on June 30th. Ovulation occurred at the end of June and beginning of July. Fig. 6 shows maximum oviduct development in the ovulatory period.

In the overall study of egg-laying, the first egg-laying was observed in the second half of June and the last at the end of July. Within this period, annual egg-laying took place and lasted about one month.

From the 31 egg-layings obtained in the laboratory, the eggs measured 8.6 x 5.5 mm to 11.8 x 6.2 mm. Three egg-layings had 1 egg, 15 had 2 eggs, 12 had 3 eggs and 1 had 4 eggs.

Although we have had no eclosion to the moment, the appearance of young of the year from August to the beginning of September indicates an incubation period of 4 to 6 weeks.

Although the skeletochronological study /Castanet, 1982/ was not made in all the age classes /study in preparation/, it was done in the young. From March to July, all the young specimens studied presented 1 growth arrest line /LAC/ /Fig. 7/, suggesting that all of them had passed a hibernation. In contrast, this line was not encountered

in the young of the year /in August-September/ /Fig. 8/, demonstrating the existence of a single generation of newly eclosioned lizards.

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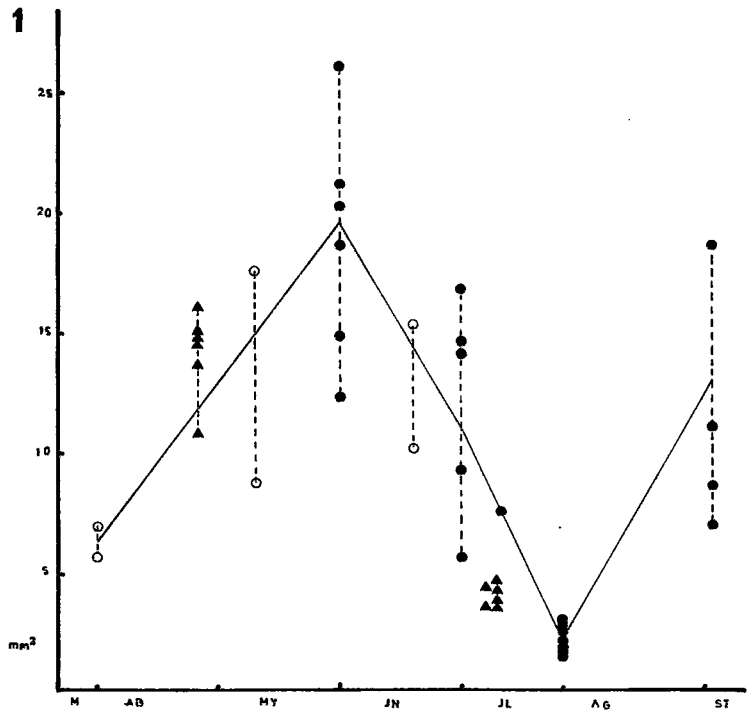

Fig. 1: Variation in testicular volume throughout the activity period. ●: 1984 sample. O: 1985 sample . ▲: data from Palacios et al. /1974/. The continuous line unites the arithmetic means of the 1984 data.

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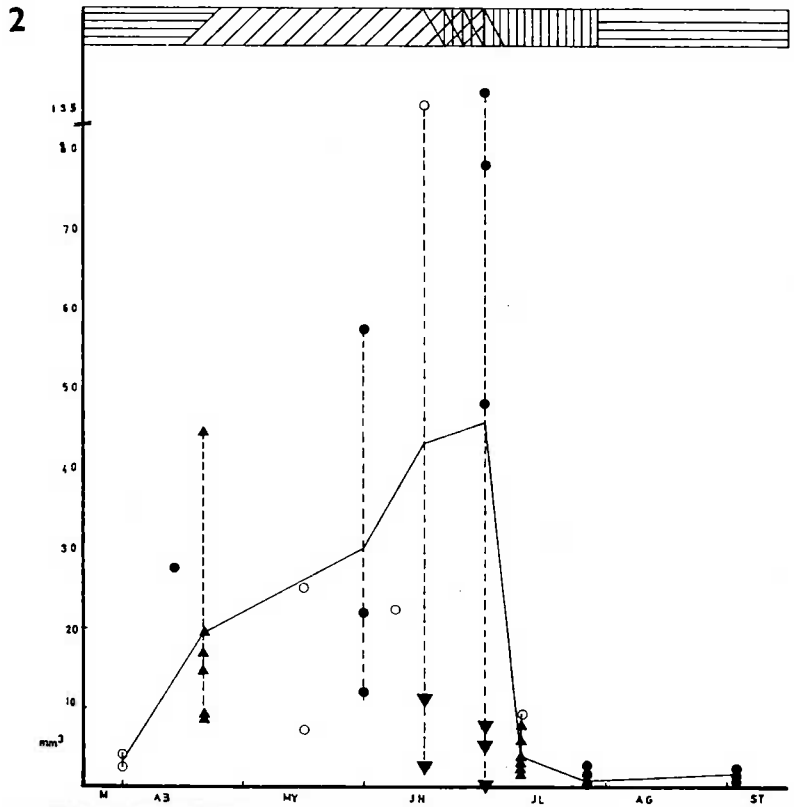
Fig. 2: Variation in follicular volume. ▼: females with eggs in the oviduct. The continuous line unites the means. ZZZZ : vitellogenesis. SSSSS : ovulation. IIIII : laying period. Other symbols as in Fig. 1. Fig. 3: Section of testicle of a specimen from May. Fig. 4: Transversal section of an epididymis in June. Fig. 5: Aspect of an ovary with vitellogenic follicles at the end of June. Fig. 6: Transversal section of an oviduct at the onset of ovulation. Fig. 7: Transversal section of a femur of a young specimen captured in spring. Fig. 8: Transversal section of a young specimen captured at the end of August.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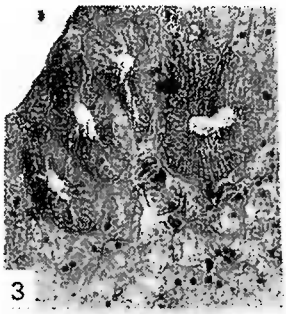
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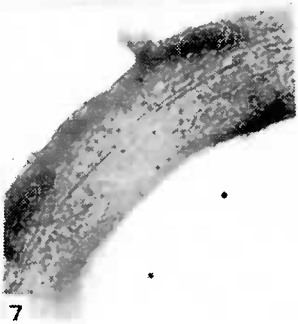
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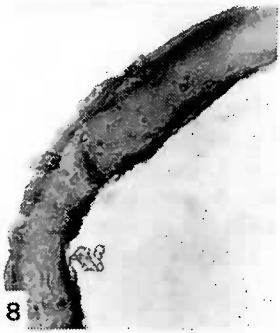
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