

AN ACCOUNT OF THE BREEDING OF THE SPANISH GREEN LIZARD, *LACERTA SCHREIBERI*, IN CAPTIVITY, WITH NOTES ON REARING

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INTRODUCTION

During September 1988 I was fortunate to purchase a pair of adult Spanish Green Lizards. Both were received in good condition, albeit with regenerated tails. Their size approximated those of the European Sand Lizard, *Lacerta agilis*. The colour plates shown in A. Salvador's book on the Iberian reptile and amphibian fauna, typifies the female; however the male does not present the black marbling on its dorsal surface, rather a sprinkling of irregular black spots. The male in my possession may well be rather old judging by the deep sulcations separating head shields. Both sexes exhibit the same green ground colouration.

HOUSING AND ENVIRONMENT

Accommodation is a vivarium constructed of 13mm contiboard measuring 75 x 45 x 75cm. Lighting is supplied by 2 x 18 watt "truelight" fluorescent tubes. Heating is via a 40 watt spotlight, positioned at one end of the vivarium. Fluorescent unit and tubes are housed in a detachable hood of contiboard and 5 plywood. Joints are screwed and sealed with silicone sealant. Ventilation grills have been installed in the back and hood. As *L. schreiberi* shows a preference for moister environments than others of the "green lizard" group, a terrace effect has been incorporated. A strip of acrylic sheet 40 mm. deep has been sealed diagonally in place, thereby dividing the floor area in two. The area furthest from the light source has a substrate composed of a mixture of peat, sand and potting compost, topped with a generous supply of bark chippings. This area is kept moist by regular spraying. Within this area a small specimen of the Weeping Fig, *Ficus benjamina*, offers cover and also permits climbing - this allows the inmates to get within 5 cm of the "truelight" tubes. A similar substrate is used at the opposite end of the vivarium, which is kept moderately dry. Branches are supplied to give the opportunity of basking under the spotlight. Cork bark provides ground cover. Water is supplied ad libitum in a shallow dish.

The vivarium is accessed by two sliding glass doors, running in plastic tracking, raised 8 cm above the base by a contiboard plinth. The combination of heating and lighting provides a temperature gradient of 20 - 30°C. For their first winter, temperatures were maintained within that range, on a 12 hr cycle. With lights and heating turned off during the hours of darkness, temperatures did not drop below 15°C.

DIET

Throughout the winter months a basic diet of crickets, *Acheta domesticus*, and various mealworm species, all dusted with a vitamin/mineral supplement. Additional items by way of spiders, moths and other invertebrates were offered when available; most were readily accepted. Occasionally a "pinkie mouse" was accepted, usually by the male. Although suitably sized locusts were offered they did not find favour.

MATING

Early observations indicated only limited gregarious or social behaviour; whilst no conflicts were observed each avoided the other. Only rarely would both be seen at the same time. This may have been due to the rather small area available, inhibiting normal interactions. During the first week of May '89, the pair were observed mating early one evening. No further copulations were noted although both stayed in close proximity to one another for a further two weeks. By late May it was evident that the female was gravid.

EGG INCUBATION

On the 30th May '89 it was noted that the female had regained her slim shape. Searching through the substrate revealed 12 eggs in a healthy hydrated condition. They were carefully removed, the upper surface marked before transference to a previously prepared incubator, as described by Elke Zimmermann. Temperatures within the incubator were kept at $29^{\circ}\text{C} \pm 2^{\circ}\text{C}$, controlled by an aquarium heater/thermostat. Humidity was maintained at 95%. At relocation egg size ranged from 9-11 mm x 7-8 mm.

HATCHING

According to Norrie and Langerwerf (1987), incubation period ranges from 41-65 days. The longer incubation periods relating to indoor incubation and a seasonally abnormal egg laying period. Forearmed with this information I had anticipated an incubation period of 50 days, in view of a seasonally normal egg laying and a relatively high incubation temperature. At 40 days, to allow better observation of hatching, eggs were transferred to a smaller incubator at the same temperature but with reduced humidity (75%). Eggs ranged in size from 15-21mm x 13-17mm at 40 days.

- EGG 1 Shell collapse at 42 days; 2 days later no sign of emergence, egg opened; fully developed dead foetus. No abnormality detected.
- 2 Shell swelled excessively at 43 days, at 46 days shell collapsed, at 48 days egg opened; large fully developed dead foetus.
- 3 } Shell collapse at 51 days, no emergence; at 53 days eggs opened all three contained
4 } recently dead fully formed foetuses
5 }
- 6 } Commenced hatching 53 days post laying, both assisted from shell 6 hrs post
7 } pipping.
8 }
- 9 } Successful assisted hatch four healthy active young, 53 days post laying
10 }
11 }
12 }
13 }

After dead embryos were found on day 53 and to avoid the risk of further fatalities, I decided with some trepidation to open the remaining eggs. This assistance resulted in six healthy and active young. A possible cause for the poor natural hatch may have resulted from the environmental change initiated at 40 days. Reducing humidity at 40 days may have prevented emergence by interfering with shell pliability. No foetus alive or dead presented a large yolk sac, indicating hatching was imminent.

HATCHLINGS

The six survivors were housed in a vivarium measuring 60 x 15 x 20 cm. Access was gained via a detachable hood in which was housed an 18" "truelight" tube. A 25 watt pigmy bulb supplied heat. At hatching the young ranged in size from 30-35mm. SVL, with a tail length of approximately 45mm. Within 48 hrs all six were feeding avidly on young crickets and, especially, spiders, mainly *Zygiella x-notata* and *Enaplognatha ovata*. As the days passed these were supplemented with a regular supply of the small Magpie Moth caterpillar, *Eurrhypara hortulata*, found in abundance on *Convolvulus*, *Calystegia sepium*.

By the end of September '89 all six were progressing well. Sizes ranged from 60-65mm. SVL, with a tail of approximately 125mm. The distinctive juvenile pattern has gradually given way to the adult patterning, i.e. bold reticulations on a grass green or olive green background or a ground colour of green, speckled with irregular dark spots. There are two males and four females.

Six weeks after hatching they were transferred to a 120 x 30 x 45cm vivarium planted with Ivy, *Hedera helix*. When young these lizards are especially attractive and striking with broken white or yellow vertical bars on flanks over an olive green-brown background. The tail has a yellowish tint which stands out boldly. Unlike the parents these young are friendly, climbing on fingers and taking food from them. However, slow movements are required to prevent them from dashing off into the undergrowth.

FUTURE GENERATIONS

My intention was to prepare all for hibernation during December '89, as growth had been considerable, with plenty of fat as reserve. Measurements at this time were, for males 80-90mm.SVL. and females 65-75mm., tail lengths ranged from 150-170 (including one regenerated).

As both males had shown signs of territoriality I decided to transfer the whole group to a more spacious vivarium measuring 90 x 60 x 90cm high. Both males were in breeding condition; even this larger vivarium failed to stop the territorial disputes, on the contrary, only adding fuel to their fire. One male sustained a bite wound to its neck, posterior to the parietal shields. To prevent further injury he was separated. Attention of the dominant male was drawn towards the females, copulation was observed with one female (mid January '90).

The male received in September '88 died for no apparent reason, (possibly old age), this left the original female which was accommodated with her offspring where she became more tolerant of disturbance - taking food from forceps. The young remain tame.

Adult colour patterns have now been established. Both males are very similar and reflect that seen in A. Salvador's book mentioned earlier in the text. Each of the females is different: the larger shows large bold reticulations on a leaf green background; another has smaller black markings on a similar green background; the third shows an apple green back with a few scattered black spots; the smallest of the group has small black blotches on a light brown background.

Late January 1990 it was noted that two of the females were gravid. On 1st February '90 a female laid 5 eggs in damp vermiculite placed inside a margarine carton with a 2cm² hole cut into its side. Another laid 7 eggs on 9th February in the dampened substrate. Both clutches were transferred to fresh dampened vermiculite for incubation.

GROWTH AND DEVELOPMENT, A SUMMARY

Rapid maturation, from hatching to achieving adult status in just six months, reflects the abundance of food on offer. This fare, dusted with a multivitamin mix, together with "truelight" illumination has resulted in six robust and apparently healthy young adults. Such rapid and sustained growth may not be desirable as it is not a natural phenomenon. In the wild, with hatching in May-June, such speedy development is unlikely. Certainly, in their natural habitat, six months would coincide with the hibernation, sexual activity not occurring until the following spring at the earliest. Therefore a minimum of twelve months is likely to be the norm, before the next generation is conceived. The omission of a hibernation period made early maturation possible, as photoperiod, temperature and food intake were maintained without interruption. Hopefully this does not give rise to a shortened life span. To reduce that possibility hibernation will be arranged for late October 1990. Throughout captivity I have attempted to optimize their microhabitat to approximate, as far as is possible within the confines of an artificial environment, a natural setting. In so doing one reaps the benefits of an aesthetically pleasing vision. In addition valuable insights are gained from uninhibited behaviour.

In order to minimize inbreeding depression and/or genetic defects as a result of sibling matings, I would be happy to hear from anyone in the UK whom may wish to exchange information and/or specimens of *L. schreiberi* for continued breeding success.

PRODUCTS MENTIONED IN TEXT

"Truelight" fluorescent tubes, Duro-Test International Corp., 700 Godwin Avenue, Midland Park, NJ. 07432 USA.

"Cricket Plus", Monkfield Nutrition, Cambridge, England.

REFERENCES

- Salvador, A. (1985) *Guia De Camp De Los Anfibios Y Reptiles De La Peninsular Iberica, Islas Baleares Y Canarias.*
- Zimmermann, E. (1986) *Breeding Terrarium Animals.* T.F.H.
- Norrie, S. and Langerwerf, B. (1987) *Lacerta schreiberi* In Spain, Portugal And Captivity. In *Proceedings Of The 1986 U.K. Herpetological Societies Symposium On Captive Breeding*, Edited by Coote, J. British Herpetological Society, London.

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