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ON HABITS OF SOME CENTRAL INDIAN LIZARDS WITH MORPHOLOGICAL NOTES ON EUBLEPHARIS HARDWICKII GRAY

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INTRODUCTION

(With 1 Plate)

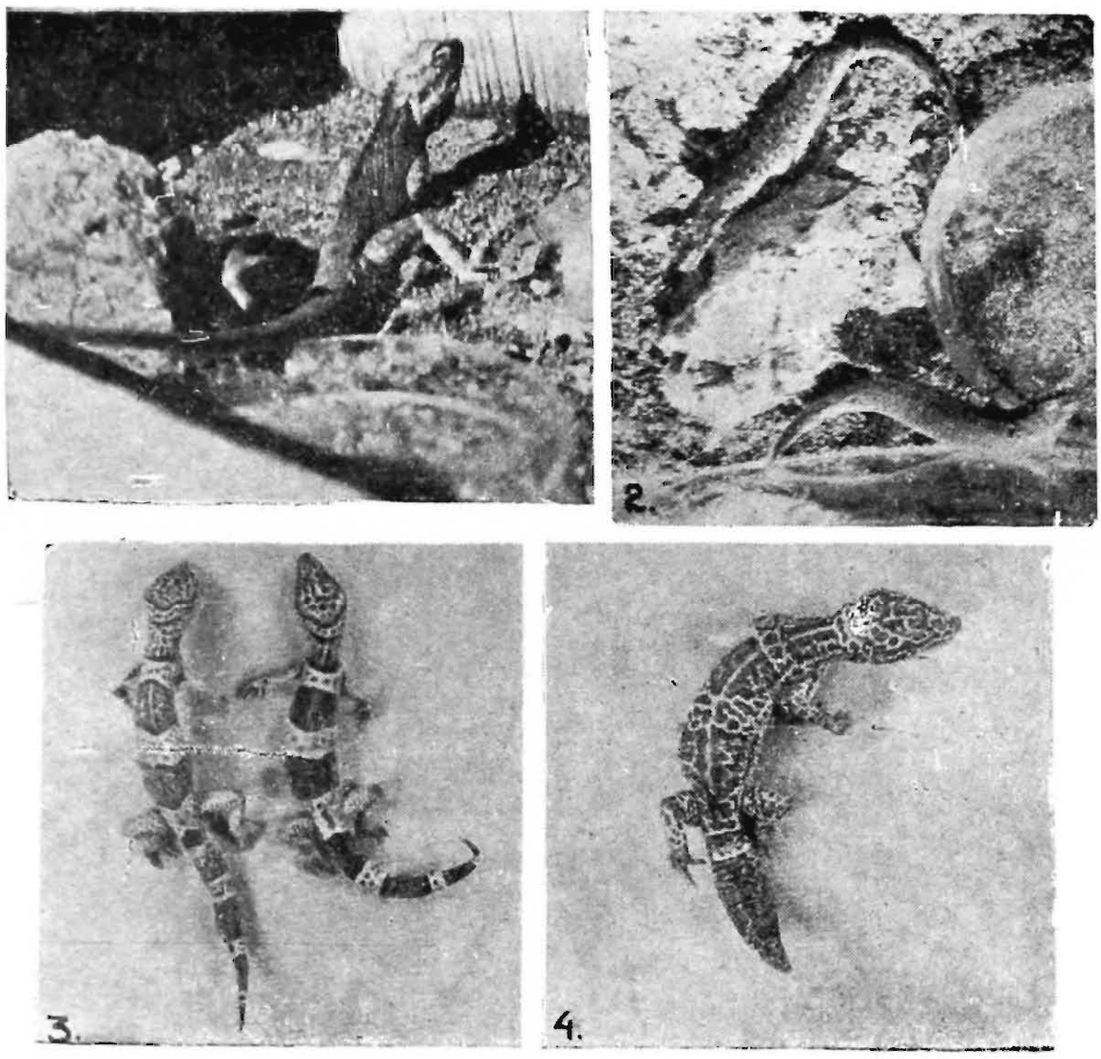
During my stay in Jabalpur city, I had an opportunity to observe during summers of 1975 and 1976 the habits of two species of lizards, *Mabuya macularia* (Blyth) (family Scincidae) and *Calotes versicolor* Daudin (family Agamidae) which were common in the area. Several unrecorded observations were made particularly on the interesting subject of feeding and breeding habits.

Another species *Eublepharis hardwickii* Gray, which appears to be very rare in the area, was observed in Bandogarh National Park.

OBSERVATIONS

(i) *Mabuya macularia* (Blyth)

This skink (plate 1, fig, 2) was seen in pairs in June. The adult male could easily be distinguished by the presence of a pair of broad ventro-lateral red bands, extending around whole of anterior ventral surface in front of hind limbs. The characters of sexes were confirmed by actual examination of specimens. Once an adult female came out of the hedge when dry leaves were being removed and menacingly moved its tongue to and fro like a snake. It even bit the stick with which it was touched. However, no eggs were found nearby. A pair was captured on 25 June and kept in captivity in a large glass jar of 2 litres capacity with its mouth covered with muslin to allow circulation of air. The bottom of the jar was covered with moist sandy earth with a few pebbles to give it a natural look. Water was provided in a petridish. The female was gravid. It soon dug a hole in earth and was mostly found burried under earth while the male remained on the surface. On 28th June, three white eggs measuring 11.5 mm×8 mm were found in the earth separated from one another by a distance of about 2 cm.



Figs. 1-4. 1. male of *Calotes versicolor macularia* in captivity, 2. male and female of *Mabuya macularia* in captivity ; 3-4. three stages in the growth of *Eublepharis hardwickii* (preserved specimens).

The female remained burried near the eggs but when it was disturbed the male took its place. The eggs were removed to a different spot in the same jar and placed close to one another. After about an hour they were found removed from that spot and separated from each other by a distance of a couple of centimetres. Both the specimens were found generally burried particularly during the night. Both avoided coming in close contact with each other. The female even chased the male at least once to avoid its advances. They took various kinds of insects but fed mostly on smaller Coleoptera and Orthoptera. They avoided large beetles. The female died on 7th July. Nothing is known about the cause of death except no food could be supplied to it for about 60 hours prior to death. Six enlarged eggs, *ca* 4 mm in diameter, with smaller eggs were found in the ovary showing that eggs are laid more than once in a breeding season.

The male died on 9.7.76. A single cockroach was found in its intestine and moths in the stomach which was greatly distended.

No sounds were given out by these specimens in captivity.

(ii) *Calotes versicolor* Daudin (Pl. I, fig. 1).

Asana (1931) has given an account of some of the habits of this lizard. The hedges, extending over about 9 metres in length, of a small garden were occupied by three individuals ; an adult male, a subadult male and a adult female. The adult male, was only an occasional visitor in the morning and evening to the portion of the hedge, *ca* 5 mts, occupied by the female, and separated from the other portion occupied by the sub adult by a small gate. The subadult male was not seen when the adult male was out. The adult male which was conspicuous by its brilliant colours and black throat patch was much larger than the other two. The subadult lacked the black throat patch but showd other colours of its sex. The female was the smallest. The subadult male and the female were not observed, to leave their territory. I am not aware of any work describing the mating in this lizard in natural state. Mating was observed twice on 15th and 16th June, On both occasions the male chased the female. The chase was preceded by usual courtship display. During the chase, the female was overtaken by the male which rode over it from behind, then swung to one side and appeared to turn by its hind legs the hinder quarters of the female so that genital opening was exposed for copulation which followed. On one of the occasions during the chase the female escaped and hid itself in dry leaves. The male unable to find the female was about to leave the hedge when its attention was directed by the slight movements of dry leaves about $\frac{1}{2}$ mt behind caused by the female which was apparently following the male

noiselessly below the leaves. It immediately turned and after giving a swift chase over-rode the female and tried copulation. However, the female after noting the presence of the observer too close immediately freed itself from the male and ran away. The male moved away slowly with its tail slightly bent upward and with a part of the hemipenis still protruding. The copulation was apparently not fully successful. On the second occasion the copulation appeared successful and the female moved away after the act slowly with its tail bent upward at the anus. The male did not show any bending of tail.

The adult male was frequently seen at the top of a long dried bamboo in the hedge where it sometimes slept. During sleep its brillinat colours disappeared so that its colour harmonised with the surroundings. The sleeping animal could not be observed at a distance of about a metre. This is apparently an adaptation to save it from enemies when asleep. The subadult male disappeared from the hedge. It was probably picked up from the hedge by an often present crow pheasant which is known to feed on this species of lizards, or it may have left because of frequent presence of the adult male in the adjoining hedge.

In another nearby garden the following observations were made.

22.6.76. A male after seeing the female partly hidden in leaves about three metres away gradually approached the latter till it was a metre away. It started its usual display of raising and lowering its head in quick succession. This habit may possibly be a courtshlp display. However, this habit does not appear to be confined only to adult males *vide infra*. The display was continued for about half an hour and was followed by a sudden rush towards the female which ran away inside the hedge for about three metres closely followed by the male. It could not be ascertained whether the chase was followed by mating because of plenty of dry leaves in which the animals were hidden.

On the same date a fight between two adult males was observed for a few minutes. They appeared to bite each other. Ultimately one of them ran away. On 29.6.76. an adult female was found moving its head up and down on a heap of manure in close proximity of an adult male. The former ran away after some time. It was not pursued by the male. This shows that the habit may also be used by unwilling females to ward of male advances. No eggs were found in the heap of the manure.

In addition to this female, there was another adult female easily distinguishable by its broken tail in the same hedge which was about 20 metres long. No mating was observed with this female. However, this may show that "territory" of each adult female may possibly extend upto about 10 metres in a hedge.

Observation in Captivity

Three adult males, one subadult male and two adult females were kept in captivity during 3rd week (exact date unrecorded) of June, 1977 in a wooden cage (*ca* 75 cm×40 cm) with a glass top. The floor of the cage was covered with earth and small stones to give it a natural look, water was provided in a large petridish. The glass top of the cage allowed easy observation. They showed remarkable tolerance towards each other and there was no fight. The males were gradually removed one after the other leaving the largest male and two females together on 24.6.76. No mating was observed. The male tried to bite, if disturbed. None of the males showed their normal bright colour in captivity but at the time of feeding some exhibition of colour could be observed. On some occasions both males and females were seen with their snouts touching each other. On one occasion a female was seen on the top of the male which did not respond. Once the male stopped feeding on an insect and allowed the female to take it. On another occasion the two females got hold of one cockroach from opposite ends and shared it. Drinking was not observed. They took a variety of insects but mainely grasshoppers, cockroaches, beetles and Lepidopteras. In hot weather, they were occasionally seen lying in water kept in dish. The female hid itself when a new female was introduced in the cage for sometime. The male was seen on a few occasions sleeping with its whole body sprawled on the ground while female was always observed with its head raised. The female sometimes gave out very loud squeels. The female escaped on 30.6.75 but was located near the cage and recaptured. Next day both were taken out from the cage and kept in the garden with twine tied to their hind legs to see whether mating can be induced outside the cage. However, during the night they were attacked by a predator (possibly a cat) and were found in the morning with heads partially eaten. Testes of the males measured 15×7 mm (right) and 12×5 mm (left). There were nine eggs (about 6 mm in diameter) in the ovary of the female four of which were blackish and yellowish in part.

Eublapharis hardwickii Gray

(Plate I, Figs 3-4)

Four specimens of this lizard, aften calied the fat-tailed lizard, were collected on 6th Sept. 1972 from shallow crevices in walls of an artificial cave in Bandogarh National Park, Rewa Dist, M. P. They were very sluggish in movements. The four specimens show three interesting stages in the development of adult colour pattern from the young.

1. Smallest specimen (2 Nos.)

General colour a shade or tint of greyish black with three yellowish bands on dorsal surface, the one at the lavel of origin of hind legs spreading on dorsal surface of legs, four white bands on the tail and one nuchal the latter spreading to lower side of the eyes. There is a lighter spinal line. One of the specimens is lighter and has whole of the surface marked with dark spots, the spots forming two lateral bands on the belly. In the darker specimen such spots harmonise with general darker colouration. The tail is ringed. Whole of the ventral surface is devoid of colour pattern, the tail is lighter or yellowish ventrally.

2. Medium sized specimen (1 No.)

General colour on dorsal surface is brownish black with reddish tinge. There are yellowish bands on the body as in previous specimens but they are absent on head and the tail. The tail is broader in the middle.

3. Largest specimen (1 No)

General dorsal colour is yellowish with black spots and ventral side of the head spotted. The bands are indistinct.

SUMMARY

Feeding, breeding and other habits of two Central Indian lizards, *Mabuya macularius* (Blyth) and *Calotes versicolor* Daudin have been studied in the wild and in captivity and a number of unrecorded observation have been made. Morphological notes on three developmental stage of *Eublepharis hardwickii* Gray have been recorded.

REFERENCE

ASANA, J. J. 1931. The natural history of *Calotes versicolor* Daudin, the common blood-sucker. *J. Bombdy nat. Hist. Soc.*, **34** : 1041-1047.

SMITH, MALCOLM, A. 1935. The Fauna of British India, Reptilia and Amphibia, Vol. II, Sauria. xiii+440 pp. London : Taylor and Francis.

*The identification of the genus *Eublepharis* was done according to Smith (1935) and confirmed by the Reptile section of Zoological Survey of India.