

STUDIES ON WILD LIFE OF NARBADA VALLEY- PART II. REPTILIA

By

H. KHAJURIA AND H. P. AGRAWAL

Central Regional Station, Zoological Survey of India, Jabalpur, M. P.

(With two Plates)

INTRODUCTION

This report deals with reptiles of Narbada Valley and is based on collection made during the survey of Narbada River from 1962 to 1972 and its adjoining areas within about 15 km. of the river from its origin in Amarkantak (Shahdol district, M. P.) to its fall in the Arabian Sea in Baroach district (Gujarat State). The collection was made under the leadership of the authors. There are 145 specimens comprising 25 species. Smith (1931, 1935, 1943) listed about 40 species of reptiles from the area. Several interesting individual variations have been recorded. Some of them may have a geographical significance if series of specimens are available for comparison in future. Melanism in *Sitana ponticeriana* and descriptions of young ones of a number of species are also recorded for the first time. An account of snakes of Jabalpur district has already been given by one of the author of this report Agrawal (1971).

One of the important objects of the investigation was to conduct a status survey of this interesting group, very important from the point of view of wild life conservation, in this centrally located, thickly populated, and agriculturally important area of Central India. The abundance or rarity of the species in the season of collection is generally indicated by the number of specimens collected. Except in Jabalpur Dist., the surveys were generally not undertaken during rainy season because of transport difficulty. In rainy season the snakes are more commonly seen and easy to collect.

Only important variations as noted in comparison with descrip-

*Part I of this report which deals with general introduction and summary of the results and Part III which covers Birds and Mammals are being published in the same journal.

tions given by Smith are recorded. Field notes are given wherever possible. The photographs of species which were not illustrated by Smith are given from preserved specimens. Some photographs of live specimens have also been provided.

Measurements are taken of the largest specimens and are in millimetres. The scale count are given after method followed of Smith. Standard length is measured from snout to vent and total length from snout to tail tip. The abbreviations used are : A.— Anals; C.— Caudals; and V— Ventrals.

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SYSTEMATIC ACCOUNT

Order LORICATA

Family CROCODYLIDAE

1. *Crocodylus Palustris* Lesson

(Pl. iv, fig. 1.)

Crocodylus palustris Lesson, 1834, in *Belang. Voy. Ind. Or., Zool.*, p. 305 (Type loc. : Ganges).

Material : 1 ex. (young), Pariat tank, exhibited.

Measurements : Standard Length, 615.0, total length, 1235.0.

Morphological and field notes : The characters of the young do not appear to have been recorded. The specimen is young and was collected in the water supply tank about 30 km. from Jabalpur city. It is a mounted specimen and thus the external characters cannot be made out with accuracy. There are 18 teeth in the upper jaw instead of 19 mentioned for the adult by Smith (1935). The number of longitudinal rows of scutes with enlarged keels on the dorsal surface varies from 2 to 9 reaching the maximum on the middle of the back. In the posterior part of the tail, the two rows of scutes have converged to form a single ridge for about two third of the posterior portion of tail. There are four rows of scutes with enlarged keels on the dorsal surface. A gradual enlargement of the keel can be seen on the lateral sides of this portion of the tail. On the neck, four such scutes can be recognised while on the shoulder six such scutes are present arranged in two rows, four scutes in the anterior row and two in the posterior row. A serrated fin on the outer side of the limbs is visible in one of the leg only.

These crocodiles were reported to be quite common in the Narbada

River but now have been hunted down except in protected places of religious or tourist interest. At Bheraghat, a tourist resort, a few can generally be seen while boating. There are no authentic records of attack on humans by these animals. The present record shows that it may rarely be found in smaller streams and tanks. The collecting locality is a deep water reservoir formed by damming stream for water supply to Jabalpur city and is far away from human habitations. It is surrounded by low forested hills and is a holiday resort.

Order TESTUDINES

Family TRIONYCHIDAE

2. *Lissemys punctata granosa* (Schoepff)

Testudo granosa Schoepff, 1992, *Hist. Test.*, p. 127, pls. XXX A and B (Type loc. : Coromandel coast).

Material : Jabalpur district : 2 ex., Narbada river at Gwarighat, 14. x. 1962, Coll. R. C. Sharma; 1 ex., Sita Pahad, 22. i. 1965, *Purchased*; 1 ex., Pachpedi, Jabalpur, 13. viii. 1965, Coll. H. Khajuria; 1 ex., Budagar tank, 27. iv. 1974, Coll. D. S. Mathur; 1 ex., 24. v. 1974, *purchased*.

Measurements of largest specimen : Length of carapace, 17.5; Breadth, 16.7.

Morphological and field notes : The collection shows three steps in growth from the young to the adult. The smallest specimen is reddish on the under surface and dark brown on the dorsal surface without any indication of plastral callosities, green spots and black streaks on the head. The dorsal disc is longitudinally striated or plated. In two larger specimens, the plastral callosities are present, but the entoplastral callosity is small (length 7.5 mm., breadth 3.5 mm.) and is semicircular. The granulation of the adult is slightly visible. The carapace shows lateral striation but the dorsal region is faintly granulated. The colour of older specimens resembles more or less that of the smallest specimen given above. In the largest specimen the colour and marking of the adult are visible. There are three black streaks on either side of the head in one of the adult specimen. The lower most streak is a furrow radiating from the snout. The uppermost is zigzag. The granulation of plastral callosities is very irregular and is confined to a few spots. Two callosities are entirely free from granulation. The entoplastral callosity is smaller than shown by Smith (1931, p. 146). Plastron of one of the specimen is more extensively granulated than in others where it is confined to a few worn out spots. The later specimen is paler than the others. The tortoise is sold in the market for the table. As it is easily caught, it is rare and needs protection.

Order SQUAMATA

Family GEKKONIDAE

3. *Hemidactylus Brooki* Gray

(The House Gecko)

Hemidactylus brooki Gray, 1845, *Cat. Liz. Brit. Mus.*, p. 153 (Type loc: Borneo; London).

Material : Jabalpur district: 1 ex., Pachpedi, Jabalpur city, 21. vii. 1960, Coll. R. C. Sharma; 1 Ex., Lodhiana mohalla, Jabalpur city, 27. x. 1960, Coll. P. Singh; 1 ex., Bargi Hills, 28. xii. 1960, 1 ex., Bijadandi vill., 2. i. 1961, 1 ex., Pachpedi, Jabalpur city, 9. i. 1961.

1 ex., Padaria vill., 17. II 1961, Coll. S. Chakrapany. 1 ex., Lamataghat, 22. vii. 1961, Coll. S. Chakrapany; 1 ex., Madan Mahal, 27. xi. 1961; Coll. R. C. Sharma; 1 ex., Rani Durgavati Samadhi Road, 22. iii. 1962, Coll.: S. Chakrapany; 1 ex., Sibia vill., 23. vii. 1962, Coll. P. Singh; 6 ex., 5th mile stone on Jabalpur Rani Durgavati Samadhi road, 23. ii. 1962, Coll. P. Singh; 2 ex., Khamaria vill., 24. ii. 1962, Coll. H. Khajuria; 1 ex., Ghat area, Nagpur road, 26. iii. 1962 Coll. P. Singh; 4 ex., Gwarighat, 23. vii. 1962, Coll. S. Chakrapany; 5 ex., Udaipur vill., 24. vii. 1962, Coll. P. Singh; 2 ex., Madan Mahal, 26. vii. 1962, Coll. S. Chakrapany; 1 ex., near Sone nanda river (Shahdol distt.), 8. v. 1962, Coll. P. Singh; 1 ex., Bhriagu Kamandal (Shahdol Distt.), 27. v. 1962, Coll. S. Chakrapany.

Measurements of largest specimen : Standard length, 61; Total length, 96.

Remarks : In recently preserved specimens which appear to be subadult, a dark streak along the side of the head cannot easily be made out. Specimens are brownish with dark brown spots. In contrast, specimens from Nidigul and Nandikanda (Nagarjunsagar area) are milky white, with dark brown spots on the dorsum and the sides (Sharma, 1971). Characters of the tail present a bewildering variety, possibly due to its loss and regeneration. It is rare in most of the specimens examined. There are very few specimens with verticellate tail. In the newly hatched young, the tail length and head length are proportionately much longer than in the adults. It is a common species in the area.

4. *Hemidactylus leschenaulti* Dum. & Bibr. (Pl. IV, fig. 2)

(The Tree Gecko)

Hemidactylus leschenaulti Dum. & Bibr., 1836, *Exp. Gen.*, IV, p. 364 (Type loc. : Ceylon; Paris).

Material : Jabalpur district : 1. ex., Pachpedi, Jabalpur city, 24. iv. 1960, Coll. H. Khajuria; 1 ex., Napier Town, Jabalpur city, 23. iii. 1961, Coll. R. C. Sharma.

Measurements of largest specimen : Standard length, 63-Total length, 89.

Remarks : In one of the specimen the inner pair of post mentals is indistinct. Whole of the undersurface of the head is covered with small scales and the granules on the back are indistinct. However, it appears that the specimen is apparently moulting because some of its parts are covered by whitish mould. The details of colouration cannot be made out, possibly because of action of preservative. The identification of specimens has been confirmed by the head office (Reptile Section). The measurements given by Smith (1935) are: snout to vent- 83 mm., tail also 83 mm.

5. *Hemidactylus flaviviridis* Ruppell. (Pl. IV, fig. 3.)

Hemidactylus flaviviridis Ruppell, 1835, *Neue Wirb. Faun Abyss.*, p. 18, pl. VI, fig. 2 (Type loc.; Massana I).

Material : Jabalpur district; 1 ex., Pachpedi. Jabalpur city, 2. v. 1961, Coll. S. Chakrapany; 2 ex., Lamataghat, 26. vi. 1961, Coll. S. Chakrapany; 1 ex., Pachpedi, Jabalpur city, 28. vi. 1961, Coll. H. Khajuria; 1 ex., Lamataghat, 29- ix. 1961, Coll. S. Chakrapany.

Measurements of largest specimen : Standard length; 77, Total length, 147.

Remarks : Enlarged tubercles on the back are indistinct. The colouration has faded probably due to the action of preservative.

Family AGAMIDAE

6. *Calotes versicolor* (Daudin)

(Garden lizard : Bloodsucker)

Agama versicolor Daudin, 1802, *Hist. Nat, Rept.*, III : 395, Pl. XLIV (Type loc. : India ; Paris).

Material : Jabalpur district: 1 ex., Lodiana Mohalla, Jabalpur city, 26. ix., 1960; 2 ex., Chamanpura, Jabalpur city. 27. ix. 1960; 1 ex., Godwana village, 11. x. 1960; 2 ex., Lodiana Mohalla, Jabalpur city, 27. x. 1960, Coll. P. Singh; 1 ex., Napier Town, 14. xi. 1960, Coll. R. C. Sharma; 2 ex., Chamanpura, 29. xi. 1960, 5 ex., Garha, 23. xii. 1960, Coll. P. Singh; 2 ex., Pachpedi, 2. v. 1961, Coll. P. Singh, 1 ex., Lamataghat, 6. iv. 1961, Coll. H. Khajuria; 1 ex., Mergong, 25. v. 1961. Coll. P. Singh; 1 ex., Kundan village, 30. v. 1961, 1 ex., Balsagar, 30. v. 1961, 1 ex., Amkhas village, 28. viii. 1961, Coll. S. Chakrapany; 1 ex., Sita Hill, 18. i. 1962, Coll. P. Singh; 1 ex., Rani Durgavati Samadhi, 15. xii. 1962, Coll. J. S. Bhatti; 1 ex., Pachpedi. 11. iii. 1968, Coll. M. L. Koshta; Baroach dist.: 1 ex., Gavana village, 5 km. N. E. of Garudeshwar, 3. i.

1972, Coll. *D. K. Ghosal*; Hoshangabad distt: 1 ex., Joga Forest ca. about 1 km. of Joga forest rest house, 12.xii.1965, Coll. *H. P. Agrawal*.

Measurements of largest specimen : Total length, 350; Standard length, 117.

Remarks : Dark spots or bars and caudal annulate are generally confined to younger individuals. Some of the gular pouches were found to be darker in colouration. Because of the action of the preservative further details of colouration cannot be noted. In one case there is a distinct lighter band around the root of the tail and in another more than half of the tail is of lighter colour distally. The double spines above the tympanum, an important distinguishing character of the species, may be broken in some cases or there may be a group of smaller spines around the longer ones.

It is a common species around Jabalpur district and can often be observed in the gardens at a very close range. Khajuria (in press) has given a (Tiwari and Sharma, 1970) found it common in Maharashtra. detailed account of its feeding and breeding habits in Jabalpur city.

7. *Psammophilus blanfordanus* (Stoliczka), (Pl. IV, fig. 4.)

Charasia blanfordanus Stoliczka? *Proc. Asist. Soc. Bengal*, p. 194 (type loc. : Central India).

Material : Jabalpur district: 1 ex., Dhobi vill., 11.x.1961, Coll. *P. Singh*; 1 ex., Balsagar, 17.ii.1962, Coll. *P. Singh*; 1 ex. Madan Mahal, 21.iv.1962, Coll. *S. Chakrapany*; 26.vii.1962, Coll. *S. Chakrapany*; 1 ex., Amkhas village, 23.v.1968, Coll. *H. S. Sharma*; Shahdol dist.: 1 ex., 3 km. from the origin of Narbada river, 30.v.1962, Coll. *S. Chakrapany*; 1 ex., Doodhadhara, Narbada river, 25.v.1962, Coll. *S. Chakrapany*; 1 ex., Panchdhara, Amarkantak, 30.v.1962, Coll. *P. Singh*; Hoshangabad dist. : 1 ex., Sonctaline village ca about 20 km E of Joga Forest Rest House, Coll. *H. P. Agarwal*.

Measurements of largest specimen : Standard length, 99; Total length, 210.

Remarks : In all the specimens there is a black spot usually with one or more smaller spots on either side on the snout between the inner borders of the eye. In the largest specimen of which measurements are given above, the colour pattern has faded away except on the tail. In this specimen as well as in some other larger specimens there are prominent swellings below the ears converging on the undersurface of the head. There is a newly born young measuring—Total length, 64.0; standard length, 23.0 collected on 11.x.1961. If the breeding season is in May (Smith, 1935 p. 10) the incubation period appears to be prolonged.

8. *Agama minor* Hardwicke & Gray

Agama Minor Hardwicke & Gray, 1827, *Zool. Journ.* III : 218 (Type loc. : 1 Chittagong).

Material : 6 ex., Madan Mahal (Jabalpur Distt.), 19.iv.1961, Coll. R. C. Sharma.

Measurements of largest specimen : Standard Length, 88; Total length, 168.

Remarks : In these specimens fold in front of the shoulder extend far down to throat almost joining with the one from opposite side. The colour pattern on the back is not distinct possibly due to action of preservative, although the white streak from the angle of the mouth can be made out in some specimens. The one on each side of the nape is indistinct. In the younger specimens the colour pattern is more distinct on the hinder part of the body and the tail.

9. *Sitana ponticeriana* Cuvier (Pl. IV, fig. 5.)
(The Sargota lizard)

Sitana ponticeriana Cuvier, 1844, *Guerian, Icon. Reg. Anim., Rept., pl. X. fig. 2* (Type loc. : pondicherry: Paris)

Material : 1 ex., Chapla village on Mandla Road, 20.xii.1969, Coll. S. Chakrapany; 1 ex., Chopda village on Madan Mahal, 19.iv.1961, Coll. R. C. Sharma; 1 ex., Padaria village, 27.ix.1961, Coll. S. Chakrapany; 1 ex., Rani Durgavati Samadhi Road, 25.iv.1962, Coll. R. C. Sharma; 2 ex., Padaria village, 27.ix.1961, Coll. R. C. Sharma; 1 ex., Ghat area on Nagpur road, 26.iii.1962, Coll. P. Singh; 1 ex., Padaria village, 25.iv.1962, Coll. P. Singh; 1 ex., Ghat area on Nagpur road, 28.vii.1962, Coll. P. Singh; Khargone distt.: 5 ex., A slope of hill 3 km. N. of Barwani. 7.ii.1971, Coll. V. V. Rao; 2 ex., Eastern face of hill behind Barwani rest house, 18.ii.1971, Coll. D. K. Ghosal; Baroach distt: 5 ex., a small canal about 2 km. N of Gurudeshwar 18.xii.1971, Col. H. Khajuria.

Remarks : The largest specimen in the collection (measurements given above) has a gular appendage. In a specimen collected on 25th April the gular appendage extends from the throat to a point about 5 mm. posterior to exila. Gular fold as well as the underside of the head and chest are sharply marked off by their dirty yellowish colouration from rest of the undersurface which is much lighter. Also a broad edge bordering the underside of the lower jaw is contrasted from the dirty yellow area described above by its light yellow colouration. In an another specimen collected on the some date but 10 years later, a differently coloured area on the lower jaw is distinct but there is no gular fold. Two specimens collected in the end of February and March are melanistic.

The one collected on 21.ii.1961 in Jabalpur district is very dark all over with obliteration of all colour patterns but the underside is slightly paler. The youngest specimen measuring 59 mm. in total length has been collected in September in Jabalpur district. A number of juveniles has been collected in Broach district, Gujarat and Khargone district, M. P. in February. In most of the these young individuals colour pattern except on the head and neck is distinguishable but in others colour pattern particularly the dorsal stripes are indistinct. In many specimens a white stripe starting from below the eye and extending to the sides of neck can be distinguished but it is entirely absent in the young specimens. Some of the keels on the lateral scales in adults project as spine like structures. Chopra (1964) has made interesting studies on its breeding habits, ecology and behaviour of this lizard.

Family CHAMAELEONIDAE

10. *Chamaeleon zeylanicus* Laurenti

Chamaeleon zeylanicus, Laurenti 1768, *Syn. Rept.* p. 46 (based on Seba, i, pl. 82, fig. 3) *J. Asiat. Soc.*

Material : 1 ex. Near Jabalpur city.

Family SCINCIDAE

11. *Mabuya dissimilis* (Hallowell)

Euprepis dissimilis Hallowell, 1857, *Tran. Amer. Phil. Soc.*, (2) XI : 78. (Type loc. : Bengal; philadelphia).

Material : 1 ex., near Madhawari village (Mandla Distt.), 4.xi.1963, Coll. J. S. Bhatti.

Measurements : Standard length, 99; Total length, 226.

Remarks : The vertebral stripe is distinct. The black lines are broken up into spots which are arranged in longitudinal rows but the black lines along the left lateral white stripes is distinct. There is a greenish tinge on the ventral parts.

12. *Mabuya macularia* (Blyth), (Pl. IV, fig 6.)

Euprepes macularius Blyth, 1853, *J. Asiat. Soc. Bengal*, XXII. 652 (Type loc. : Rangpur, Bengal).

Material : Jabalpur district : 1 ex., Panagar village, 25.x.1960, Coll. P. Singh; 2 ex., Nagaghati, 22.xii.1961, Coll. R. C. Sharma; 1 ex., Gwarighat, 23. vii. 1962, Coll. S. Chakrapany; Shahdol dist.: 1 ex., Panchdhara, Amarkantak, 30.v.1962, Coll. P. Singh.

Measurements of largest specimen : Standard length, 70, Total length, 167.

Remarks : A pair of nuchals are present. A minute postnasal is present in some specimens. Ear opening is almost circular. Two young specimens are very dark while two including the largest are much paler. This colour variation does not appear to be due to season or age or to the action of preservative. There is also considerable variation in the distribution of spots and stripes (HQ. identification). Khajuria (in press) has given an account of its habits.

13. *Mabuya carinata* (Schneider)

Scincus carinatus Schneider, 1801, *Hist. Amphib. II* : 183,

Material : Jabalpur district : 1 ex., Garha, Jabalpur city, 16.xii.1960, Coll. P. Singh; 1 ex., Bargi village, 28.xii.1960, Coll. S. Chakrapany; 1 ex., 30 km. on Jabalpur-Nagpur road, 31.i.1961, Coll. R. C. Sharma.

Measurements of largest specimen : Standard length, 95; Total length, 172.

Remarks : In the lower eyelid no enlarged central scales can be distinguished. In the largest specimen one of the eye lid shows a circular spot. Ear opening is smaller than a middle lateral scale. Only few temporal scales are feebly keeled. No longitudinal streaks along the lateral margin of the scales can be distinguished. Frontoparietals are distinct. It is a common species.

Family LACERTIDAE

14. *Ophisops jerdoni* Blyth (Pl. IV, fig. 7.)

Ophisops jerdonii Blyth, 1853, *J. Asiat. Soc. Bengal*, XXII : 653 (Type loc.: Mhow, Indore).

Material : Jabalpur district: 1 ex., Katangi village, 15.vi.1966, Coll. H. S. Sharma.

Measurements : Standard length, 42, Total length, 125.

Family VARANIDAE

15. *Varanus bengalensis* (Daudin), (Pl. V, fig. 1.)

Tupinambis bengalensis Daudin, 1802, *Hist. Nat. Rept. III*: 67 (Type loc.: Bengal; Paris).

Material : Jabalpur district: 1 ex., Pachpedi, Jabalpur city, 30.iii.1960, Coll. D. P. Sanyal; 1 ex., Pachpedi, 14.vi.1961, *Purchased*; 1 ex., Pachpedi, 18.vi.1963, *purchased*; 1 ex., Ricchai village, 2.viii.1963, Coll. D. N. Basu; Hoshangabad district: 1 ex., Bijanwada village, 6.xii.1974, Coll. Haridas.

Measurements of the largest specimen : Standard length, 426, Total length, 960.

Morphological and field notes : The six specimens listed above represent a good series of age groups. There is a considerable variation in colour pattern. In the youngest the undersurface (chest, abdomen and anterior parts of the tail) are whitish with reddish tinge but the undersurface of head and neck is marked with loop-shaped dark bands which are bent in opposite direction from the middle of undersurface of head. On the dorsal side there are transverse rows of black bars separated by rings of white spots. In one of the older young specimen the pattern on the ventral side is more or less the same (though more dark spots on the throat are present), but on the dorsal sides the whole body is covered with irregularly shaped dark spots generally arranged in transverse rows particularly on the back where rows of such spots with whitish centre alternate with rows of dark spots. The underside is markedly yellowish with irregularly arranged dark spots. However, the underside of the head and neck is much darker. On the dorsal side of this specimen the spots are much lighter. In the adults also the intensity of spotting varies considerably, collections of very young ones in June shows that porturition appears to take place mostly in summer.

The stomach contents of two youngest specimens showed a lizard and some insects. The species is caught by villagers for its hide and also by some tribals for its meat. It is reported to be getting rare.

Family TYPHLOPIDAE

16. *Typhlops braminus* (Daudin), (Pl. V, fig. 3.)
(Common blind snake; Brahming blind snake)

Eryx braminus Daudin, 1803, *Hist. Nat. Rept.*, VII : 279.

Material : Jabalpur district: 1 ex., Gwarighat, 19th July, Coll. H. P. Agrawal.

Measurements : Total length, 178, Tail length, 57.

Scale counts : 20 scales round the body; 292 transverse rows.

Family BOIDAE

17. *Python molurus* (Linnaeus), (Pl. IV, fig. 8.)
(Indian Python : Rock Python)

Coluber molurus Linnaeus, 1758, *Syst. Nat.* 10th ed., p. 225. (Type loc. : India)

Material: Jabalpur dist. 1 ex., (exhibited), Jabalpur city, 8.ii.1965, purchased.

Measurements : Total length, 1480; Tail length, 186.

Scale counts : 67 scales round the body; V 251; C. 68.

Remarks : A number of important variations from the description given by Smith (1935) have been found in this specimen which on

account of its geographical distribution is referable to the nominate race *molurus* : (i) 6th and 7th superlabials are separated from the eye by suboculars an important character of *P. m. bivittatus*., (ii) instead of being pitted, posterior infralabials are prominently grooved (length of groove is 18 mm. on the right infralabial and 13 mm. on the left); (iii) there is a pit on 3rd supralabial; and (iv) there are 19 infralabials. Besides there are following other important variations (i) no longitudinal division on the frontal; (ii) mental groove in preserved specimen is 3 mm. wide; (iii) 3 infralabials pitted, (iv) anal is having a wide depression in the middle; (v) the dark spots on the border of the outermost row of scales on the ventral side irregularly disposed; (iv) there are several dark spots on the dorsal side with much paler portions in the middle. The species is very rare in unprotected areas and is extensively collected for its skin despite legal protection. Only young specimens were seen.

18. *Eryx conicus* (Schneider)
(Russell's sand Boa)

Boa conica Schneider, 1801, *Hist-Amphib.*, II : 268 (type loc: Madras).

Material : Jabalpur Dist. 1 ex., immature, 1 ex., adult, Jabalpur city, 31.viii.1970, Coll. *D. K. Ghosal*. 1 ex., immature, Jabalpur city. 10.iv.1968, Coll. *purchased*.

Measurements of largest specimen : Total length, 713, Tail length 52.

Scale counts : Scales in 45 to 52 rows; V 169-185; C. 17-21.

Remarks: The outer scale rows on lower parts in the adult specimen are marked with black spots and not with brown only as recorded by Smith (1943). The variation in colour may be due to the action of preservative. The large amount of orange fat was found inside the adult specimen. The intestine showed numerous lumps of hairs and bones of small mammals possibly of rats, mice and shrews.

The adult female appears to be collected along with immature specimen as shown by the collection data. There does not appear to be any record of the description of the young of this species. The immature specimen which appears to have been collected with the adult female has been practically acquired the characters of the adult. Another immature specimen collected on 10th April and provisionally referred to this form is very different in colour pattern (plate 1 fig. 8). The colour is light brown on the dorsal side marked by black-edged irregular whitish spots. These spots originate from the ventral white surface on either side and encircle the dorsal surface mostly incompletely. 29 such bands can be distinguished. 6 of these have coalesced or practically so with the fellows of their opposite side on the dorsal surface, mostly towards the anterior portion. Many are, however, unpaired. If all the bands have coalesced with their fellows of opposite side, the result would have

been a series of whitish black-edged rings separated by about a centimeter of light-brown space. The tail on the dorsal surface and the snout is darker.

Family COLUBRIDAE

19. *Elaphe helena* (Daudin), (Pl. IV, fig. 9.) (Trinket Snake)

Coluber helena Daudin, 1803, *Hist. Nat. Rept.*, VI : 277 (Type loc. : Vizagapatnam)

Material : Jabalpur dist. : 1 ex., adult unsexed (viscera removed), Jabalpur city, 10.viii.1962, purchased.

Measurements : Total length, 1322; Tail length, 212.

Scale counts : Midbody 25; V 247; C. 79; A.1

Remarks : Vertical stripe below the eye is indistinct. It is also not clearly visible in another specimen. Lower surface show with light blackish spots here and there anterior to vent. There are two longitudinal black stripes converging posteriorly on the neck are completely united anteriorly.

20. *Ptyas mucosus* (Linn.) (Dhaman; Rat Snake)

Colour mucosus Linnaeus, 1758, *Syst. Nat.*, 10th Ed., P. 226 (type loc. : India).

Material : Jabalpur district: 1 ex., Pachpedi, Jabalpur 9.viii.1962, purchased. 1 ex., Pachpedi, Jabalpur, 30.vi.1967, Purchased; 1 ex., Pachpedi, Jabalpur, 30.vi.1967, purchased; 1 ex., Pachpedi, Jabalpur, 5.x.1967, Coll. M. L. Koshta; 1 ex., Pachpedi, Jabalpur, 1.viii.1970, Coll. Mohan; 1 ex., Pachpedi, Jabalpur, 10.xii.1970, purchased.

Measurements of largest specimen : Total length, 2438; Tail length, 650.

Scale counts : Midbody 18; V 197- 210; C. 116-127.

Remarks : In one of the young specimens there are five loreals on one side and four on the other side. In one of the larger specimens there are ten thick black bars encircling the ventral surface. In other specimens these black bars are more pronounced but not complete in the anterior and posterior ventral surface. In two young specimens the right and left halves of these bars fail to meet on the ventral side of the tail. In one young specimen the stomach content show a young gecko and in two others a part of the intestine showed blackish matter.

It is a very common species found in gardens and houses. It is very active during rains.

21. *Natrix stolata* (Linn.), (Pl. IV, fig. 10.)
(Striped keel back)

Coluber stolatus Linn., 1758, *Syst. Nat.*, 10 Ed. P. 219.

Material : Jabalpur district : 2 ex., Mandla road, 10 km. from Jabalpur, 24.viii.1964, Coll. H. P. Agrawal; 1 ex., Panagar village, 19.vi.1968, Coll. H. P. Agrawal; 1 ex., Pachpedi, 12.viii. 1969, purchased.

Measurements of largest specimen : Total length, 578; Tail length, 132.

Scale counts : Scales in 19 rows: V. 162-183, C. 85-97.

Remarks : Smith (1943) has included this snake in his key p. 283, under category 3, with internasals broadly truncate anteriorly. However, under the same category, he includes this species with internasals much narrowed anteriorly. The constriction of frontals is distinct in our specimens. There are six supralabials, 3rd and 4th touching the eye. In three specimens out of four examined the black spots on the either side of the ventrals are distinct. The colour pattern is not clear because of action of preservative. However, one of the specimen without black spots on either side of the ventrals is more brightly tinge with much more distinct markings on the dorsal side and with yellowish white ventral surface. Dorsally white stripes in this specimen are marked with white spots which are more distinct anteriorly and the black stripes are marked with black spots which also fade away posteriorly. In other specimens this pattern is fainter. It is a common species.

22. *Natrix piscator* (Schneider)
(Checkered keelback)

Hydrus piscator Schneider, 1799, *Hist. Amphib.*, I : 247 (Type loc. : East Indies).

Material : Jabalpur dist.: 1 ex., adult, Jabalpur city, 5.viii.1963, purchased; 1 ex., adult, Gosalpur (Jabalpur distt., M. P.), 10.i.1968, Coll. H. S. Sharma, Indore dist.: 1 ex., adult, Choral, 5.xi.1969, Coll. H. Khajuria. Khargone dist.: 1 ex., left bank of Narbada river, 13.ii.1971, Coll. V V. Rao.

Measurements of largest specimen : Total length, 2422; Tail length, 275.

Scale counts : Scales in 19 rows; V. 144-152; C. 66-86.

Remarks : In the larger specimen the colour is much paler and the dark spots on the dorsal side are conspicuous. The rows of dark spots and their form and size is very variable. On the dorsal surface of the tail of the larger specimen the black spots are in the form of crescents while in case of another slightly smaller specimen they are practically absent on the tail posteriorly. In the smallest specimen provision-

ally referred to this form, the colour pattern is very different. On the dorsal surface, it is practically black with two rows of white spots, and a couple of lateral rows of black spots but the tail is free from these spots. Also the tail is comparatively longer, possibly the difference in colour pattern is related to age. Intestine of one of the specimen contained two toads (*Bufo* sp.) while in another the body cavity was full with large number of orange yellow masses of fat.

Family ELAPIDAE

23. *Naja naja* (Linn.) (Pl. V, figs, 4 and 5.)
(Indian cobra)

Coluber naja Linn., 1758, *Syst. Nat.* 10th ed., p. 221.

Material : Jabalpur district: 1 adult, Jabalpur city. 18.vii.1967, purchased; 1 adult, Jabalpur city, 23.x.1962, purchased.

Measurements of largest specimen : Total length, 1087; Tail length, 220.

Scale counts : Head 22, 23; Midbody 19 to 22; V. 176 to 195; C. 60-62.

Remarks : Two black spots on the left side of the hood are present. The black cross bars on the belly behind the hood are indistinct but spectacle mark on the hood is distinct. In larger specimen, Reg. No. V 2726, the markings on the hood on the dorsal side are absent. Colour of preserved specimens is yellowish brown. Stomach contents of this specimen showed bones and remains of beetles and those of another a large toad. It is a common species.

24. *Bungarus caeruleus* (Schneider)
(Common Indian Krait)

Pseudoboa caeruleus Schneider, 1801, *Hist. Amphib.*, II : 284.

Material : Jabalpur dist.: 1 ex., adult, Jabalpur city, 19.ix.1970, purchased; 1 ex., Jabalpur city 2.iv.1974, Coll. S. K. Misra.

Measurements of largest specimen : Total length, 870; Tail length, 115.

Scale counts : Mid body 15; V. 209-224; C. 51-63.

Remarks: There is no white preocular spot in both the specimens. In the younger specimen in the anterior one fourth of the body there are large whiter spots on the white ventral side on either side. In between each pair of white spots on the dorsal side there is a smaller white spot. In the posterior region the larger white spots break up into pairs of bars which completely encircle the body. In the older specimen the pairs of bars are visible only in the posterior region. In the anterior region their

presence is indicated by white mid dorsal spots which are either in pairs or in the form of coalesced pairs more or less forming a bar. In one case there are three spots instead of two. The older specimen has been collected in the act of swallowing a large toad (*Bufo* sp.) at least two and half times broader than its body. Only one of the hind leg of the toad have been swallowed. An interesting point to be noted is that the part of the leg of the toad which is inside the snake lacks both bones and muscles with skin intact.

Family VIPERIDAE

25. *Vipera russelli* (Shaw), (Pl. IV, fig. 11) (Russell's viper; Daboia; Tic-Polonga)

Coluber russelli Shaw, 1797, *Nat. Misc.*, VIII, Pl. 291.

Material : Jabalpur dist.: 1 ex., adult, Jabalpur city, 24.xi.1967, purchased.

Measurements : Total length, 1265; Tail, 280.

Scale counts : Scales in 28 rows, V 165; C. 58.

Remarks : The ventral side is yellowish-white much lighter on the tail. Very few (only 4) semilunar markings are confined to the anterior most part of the body. There is, however, a number of larger black spots on the lateral side above the ventral scales but not on the tail region. Also there are three blackish large areas on the ventral side. The ventral side of the lower jaw is marked with numerous small black spots in this specimen. There are black spots on the sides of upper jaw also. The markings on the head are indistinct but a pair of curved black streaks can be recognised in the parietal region. The stomach contents of the specimen show some unidentifiable blackish matter and a young house shrew (*Suncus murinus* Linn.) in its intestine. The anterior part of the skull of the shrew was found missing. It is very rare.

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