Fauna of Rajasthan, India. Part 6. Amphibia

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(With 1 Text-figure and 1 Plate)

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I.—INTRODUCTION

The amphibian fauna (frogs and toads) of the large tract of land known as Rajasthan (ca. 1,32,077 sq. miles), the western three-fifths of which form the great Indian Desert, has hitherto been hardly known except for McCann's (1943) short account of the fauna in the Abu Hills of Rajasthan. Lately the desert has been reported to be changing physiologically and climatically. It has, therefore, become imperative to study it from all points of view. The area has been systematically surveyed by various parties of the Zoological Survey of India during the last few years (1956-1961) although some surveys were done in earlier years also (1941 onwards). The present account is based on the following collections, but in addition a few specimens from earlier sources present in the Z.S.I. were also utilised.


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Text-fig. 1.—Map of Rajasthan, showing the collecting localities for Amphibians.

As a result of these surveys, about 660 specimens have been accumulated, which have been studied. As a result of this study 8 species belonging to 3 families and 3 genera are recorded as follows. Keys for identification are given.

Family Ranidae
1. *Rana hexadactyla* Lesson
2. *R. cyanophlyctis* Schneider
3. *R. limnocharis* Wiegmann
4. *R. tigrina tigrina* Daudin
5. *R. breviceps* Schneider

Family Bufonidae
6. *Bufo melanostictus* Schneider
7. *B. andersoni* Boulenger

Family Microhylidae
8. *Microhyla ornata* (Dumeril & Bibron)
Of these 8 species, *R. hexadactyla* and *R. breviceps* are recorded here for the first time from Rajasthan. Two species, viz., *R. cyanophlyctis* and *B. andersoni*, are palaeartic, while the rest are Oriental. Out of these, *R. hexadactyla* is confined to India, while the rest extend eastwards to Burma, some of them further east up to Japan and Lombok.


The following abbreviations have been used:—*Alt.*, altitude above mean sea-level; *Coll.*, collected by; collection; *Coll. Sin.*, Collecting Station; *Dist.*, district; *ex.*, *exs.*, example, examples; *lat.*, latitude; *long.*, longitude; *Z. S. I.*, Zoological Survey of India, Calcutta.

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II.—SYSTEMATIC ACCOUNT

1. **Key to the families and genera of Rajasthan Amphibia**

1. Upper jaw toothed, tongue bifid and notched behind  
   Ranidae (*Rana*)

   Jaws toothless, tongue not bifid and not notched  
   behind

2. Skin rough with tubercles and spiny warts  
   Bufonidae (*Bufo*)

   Skin smooth, without tubercles and warts  
   Microhylidae (*Microhyla*)

2. Family **RANIDAE**

   This family is represented in the collection by five species of *Rana* which can be distinguished by the following key.

   **Key to the species of genus Rana from Rajasthan**

1. Outer metatarsals united  
   R. *beviceps*

   Outer metatarsals separated at least in the distal half

2. Inner metatarsal tubercle digitiform  
   *R. hexadactyla*

   Inner metatarsal not so

3. First finger longer than second; throat and belly with granules and small warts  
   *R. cyanophlyctis*

   First finger equals second; throat and belly smooth

4. Outer metatarsal tubercle absent  
   *R. tigrina tigrina*

   Outer metatarsal tubercle present  
   *R. limnocharis*

1. **Rana hexadactyla** Lesson

   (Pl. 2, Fig. 1)


Distribution.—RAJASTHAN (first record): Jaipur Dist. Elsewhere : West Bengal, southern India and Ceylon.

Remarks.—The specimens measure 32 mm. and 47 mm. in length. They have pointed toes and an inner metatarsal tubercle which is digitiform. Head broader than long. Colour dark brown. Lower parts granulate, with enlarged porous warts under the thighs and along each side of belly; skin smooth above, with small porous warts on sides.

2. Rana cyanophlyctis Schneider

(Pl. 2, Fig. 2)


Remarks.—Length 52-61 mm. in males and 50-70 mm. in females. Form moderately robust. All specimens have separated outer metatarsals, fully webbed toes, pointed fingers and toes, and distinct tympanum. Head broader than long. Sexes distinct, males with swollen thumbs and a pair of external vocal sacs. Colour usually greyish above. Skin of upper surface with dark olive rounded spots. Specimens from Udaipur Dist. (E. Rajasthan) are reddish brown; those from Nagaur Dist. (W. Rajasthan) are olive.

This species is clearly distinguished from Rana hexadactyla, its closest ally, by the absence of series of small porous warts on lower parts.

Tadpoles: Largest one ca. 11 mm. long. Tadpole with the tail twice as long as body. Horny teeth arranged in two rows—one marginal series in front and two series behind beak.

3. Rana tigrina tigrina Daudin

(Pl. 2, Fig. 3)


Distribution.—RAJASTHAN.—Districts of Ganganagar, Jaipur, Nagaur and Udaipur (new records) ; also Sirohi (McCann 1943). Elsewhere : Ceylon, India from the base of the Himalayas through Punjab, Uttar Pradesh to south India, Assam, Burma, Siam, Southern Yunnan and Nepal.

Remarks.—Length 178-188 mm. in males and 133-152 mm. in females. Toes entirely webbed ; inner metatarsal tubercle not digitiform but compressed and large ; head broader than long. Sexes distinct ; male with a pair of external vocal sacs and a strong pad on the inner side of first finger. Colour yellowish in some specimens, green in others. Skin with dark spots disposed in longitudinal series on back ; lower parts white.

Largest tadpole ca. 44 mm. long. Tadpoles with tail ending in fine point and about twice as long as body. Teeth in 4 upper and 5 lower series—the outer upper long and uninterrupted the outer lower short and uninterrupted.

4. Rana limnocharis Weigmann

(Pl. 2, Fig. 4)


Distribution.—RAJASTHAN.—Districts of Jaipur, Nagaur, Pali, Sirohi (McCann, 1943) and Udaipur. Elsewhere : Eastern Asia from Japan and China to India (generally), Ceylon, Malay Peninsula and Archipelago, eastward to the Philippines, Borneo and Lombok.
Remarks.—Tadpoles: Largest ca. 24 mm.; with tail about twice as long as body. Teeth in six rows—or long marginal series of upper labial teeth with a short series on each side and three long uninterrupted series of lower labial teeth.

5. *Rana breviceps* Schneider

(Pl. 2, Fig. 5).


*Distribution.*—Rajasthan (first record): Jodhpur, Nagaur and Udaipur Districts. Elsewhere: India, Ceylon and Upper Burma. Mostly found in the plains of the southern India. Known also from U. P. and Assam.

Remarks.—Length of the male and female specimens, 63 mm. and 44 mm. respectively. Body stout, toad like. Both the specimens have united outer metatarsals, small subarticular tubercles and half webbed toes. Head broader than long. Sexes are distinct. Male with a vocal sac forming folds on sides of throat. Colour usually yellowish or brownish above. The specimen from Jodhpur (W Rajasthan) is greenish above whereas the one from Udaipur (E. Rajasthan) is brownish. A yellow vertebral streak is present in the specimen from Jodhpur. Skin with longitudinal folds in both the specimens. This species is distinguished clearly from *Rana limnocharis*, its closest ally, by the presence of large and shovel-shaped inner metatarsal tubercle which is used for burrowing.

3. Family BUFONIDAE

Genus *Bufo* Laurenti

Key to the species of genus *Bufo* Laurenti from Rajasthan

Head without bony ridges.
A tarsal fold.
Parotid glands flat

B. *andersoni*

Head with bony ridges.
No tarsal fold.
Parotid glands elongate. . . . . . *B. melanostictus*
6. Bufo melanostictus Schneider

(Pl. 2, Fig. 6)


Distribution.—RAJASTHAN.—Districts of Jaipur, Sirohi (McCann, 1943) and Udaipur. Elsewhere : Commonest throughout India, Ceylon and Burma. Its range extends to Southern China, Malaya peninsula and Archipelago.

Remarks.—All specimens are juveniles. Length 22–24 mm. All have prominent spiny warts on upper surface. Parotids prominent and kidney-shaped. Colour brownish above, spines of warts black; lower surface spotted.

7. Bufo andersoni Boulenger

(Pl. 2, Fig. 7)


Distribution.—RAJASTHAN.—Districts of Bikaner, Ganganagar, Jaipur, Jaisalmer, Jodhpur, Nagaur and Udaipur. Elsewhere.—Northern India (Agra, Rajasthan and Sind) to Arabia.
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*Remarks.*—Length 35-78 mm. in males and 39-91 mm. in females. All specimens have a crown without bony ridges and a tarsal fold. The parotids are large and flat. Sexes are distinct, males with a subgular vocal sac. Colour olive grey in some specimens and brownish in others. Some specimens from Nagaur (W. Rajasthan) are olive grey whereas those from Jaipur and Udaipur (E. Rajasthan) are brownish. Skin of upper surface with regular flat warts but without spines. It is clearly distinguished from its ally, *B. melanostictus* by absence of bony ridges on head and presence of a tarsal fold.

The species is already known from Rajasthan in Ajmer and Sirohi districts.

4. Family **Microhylidae**

Genus **Microhyla** Tschudi

8. **Microhyla ornata** (Dumeril & Bibron)

(Pl. 2, Fig. 8)


*Distribution.*—**RAJASTHAN.**—Districts of Pali and Sirohi (McCann, 1943). **Elsewhere:** Ceylon, India, Burma, Malay peninsula, Thailand, Formosa, Tonkin and Hainan. Occurs generally in India.

*Remarks.*—Length of the specimens are 21 mm. and 18 mm. In both specimens toes are webbed at base and metatarsal tubercles are very small. Both specimens are males with black pigmented throats. Skin smooth, greyish olive above with characteristic dark marking.

**III—Summary**


2. *Rana hexadactyla* and *R. breviceps* are recorded from Rajasthan for the first time.


ANNANDALE, N. L. and RAO, C. R. N. 1918. The tadpoles of the families Ranidae and Bufonidae found in the plains of India.—Rec. Indian Mus., Calcutta, 15, pp. 26-40, pl. 2, figs. (1-5a).


MURRAY, J. A. 1884. The Vertebrate Zoology of Sind. A systematic account. xvi + 424 pp., Illusts.—London (Richardson & Co.)


PARKER, H. W 1934. A Monograph of the Frogs of the Family Micr...hylidae. viii + 208 pp., text-figs. London (British Museum Trustees).