

## THE AMPHIBIANS OF CHOTA NAGPUR (BIHAR), INDIA

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### INTRODUCTION

Chota Nagpur hills in the State of Bihar are not very high in altitude (614-1366 m.) but are noted for their natural beauty, thick evergreen and moist deciduous forests. These hills are situated between latitudes 22° - 25° N and longitudes 83° 30' - 87°E. The area comprises eight administrative districts namely, Ranchi, Gumla, Lohardaga, Singhbhum, Hazaribagh, Giridih, Palamau and Dhanbad. Rivers Koel (a large branch of the River 'Son'), Subarnarekha, Sankh, Barakar, etc. traverse the area. The mean annual rainfall of Ranchi and its surroundings is about 1513 mm., and its daily mean temperature is about 23° 7 C. The area is also important for its rich resources like coal, iron, bauxite and mica. Hazaribagh National Park, Palamau Tiger Reserve, Netarhat touring spot, Hundru and Zohna Water-falls, Maithon and Tilaiya Water-Reservoirs fall within this area.

Boulenger (1890 & 1920), Annandale and Rao (1918), Daniel (1963 & 1975) and Parker (1934) have recorded amphibians from different parts of India and adjoining Countries, but there is no mention of any amphibian from Chota Nagpur Hills in these works. Venkateswarlu and Murthy (1972) have published a list of amphibians occurring in Bihar, but they also do not mention of any species from this area.

This is the first account of the amphibians of Chota Nagpur (Bihar), and is based on 2000 examples available in the Zoological Survey of India and collections made by author during a field trip to Ranchi district in November-December, 1967. Eleven species belonging to seven genera and four families of Order Anura have been determined and reported for the first time from the area. Tadpoles of three species namely, *Rana cyanophlyctis*, *Rana limnocharis* and *Microhyla ornata* have also been recorded from the area. The Order Apoda and Caudata are not reported in these collections.

Where the collections are large, only localities with dates are given under "Material"

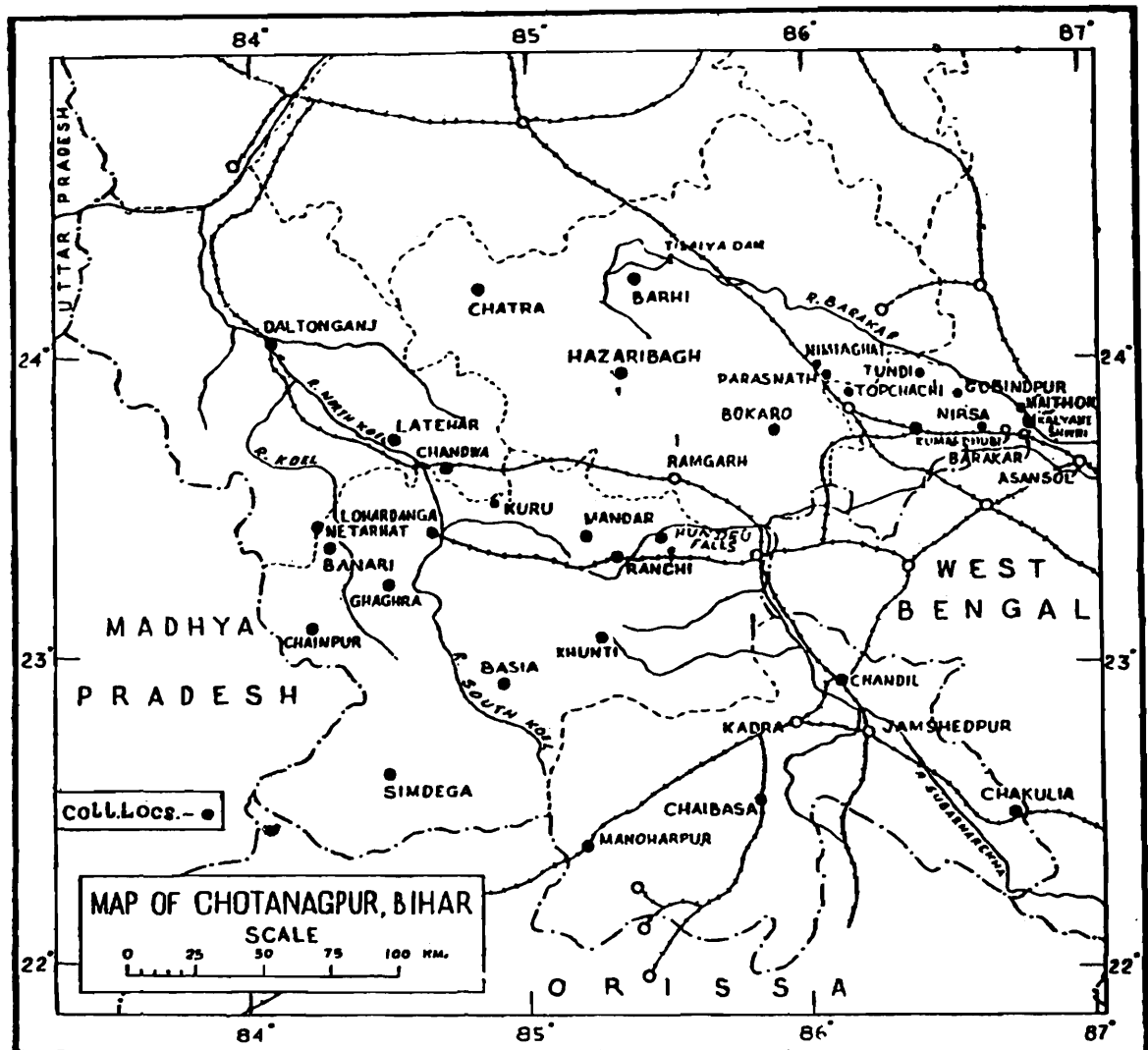
### SYSTEMATIC ACCOUNT

Class AMPHIBIA

Order ANURA

Key to the families

- |                        |   |
|------------------------|---|
| 1. Upper jaw toothless | 2 |
| Upper jaw toothed      | 3 |



2. Skin rough with spiny warts, parotoids present .. BUFONIDAE  
 Skin more or less smooth, parotoids absent .. MICROHYLIDAE
3. No intercalary cartilage between the distal and penultimate phalanges .. RANIDAE  
 An intercalary cartilage present between the distal and penultimate phalanges .. RHACOPHORIDAE

### Family 1. BUFONIDAE

This family is represented in Chota Nagpur by two species of the genus *Bufo* which can be distinguished by the following key.

#### Genus 1. *Bufo* Laurenti

- Head with bony ridges .. *melanostictus*  
 Head without bony ridges .. *stomaticus*

#### 1. *Bufo melanostictus* Schneider (Common Indian Toad)

1799. *Bufo melanostictus* Schneider, *Hist. Amph.*, 1:216

*Material* : Total 54 examples (toads). Dhanbad district : Maithon Dam site, 15.xi.1948 (under stone); Kalyaneshwari, 16.xi.1948; Maithon pahar, 16.xi.1948;

Inanpur, Nov.-Dec., 1948; base of Panchet Hill at Inanpur, 25-26.xi.1948; Panchet Hill at Inanpur, Nov.-Dec., 1948 (under stone). All coll. B. Nath. Barakar river bank at Maithon, 15 & 20. viii. 1969; Tundi, 11.ix.1969 (under stone); nala at Topchachi, 16.ix.1969; pond at Topchachi, 20.ix.1969. All coll. Raj Tilak. Ranchi district : Tikoo river side near Kuru town, 12.xii.1967 (under stone), coll. Raj Tilak and A.K. Sarkar. Singhbhum district : B.D.O.'s Office campus at Chakulia, 28.x.1968, coll. Raj Tilak.

*Measurements* : Length (snout to vent) 19-133 mm.

*Distribution* : Chota Nagpur : As above. It is common throughout the plains of India; Sri Lanka; Burma, and extends to Southern China, Malay Peninsula and Archipelago.

*Remarks* : It is nocturnal in habit and has been collected from inside burrows and dark corners of dwellings during the day. Barring the winter months they are commonly seen in the area and can be used for dissection in educational institutions.

## 2. *Bufo stomaticus* Lutken (Marbled Toad)

1863. *Bufo stomaticus* Lutken, *Vidensk. Meddr dansk naturh - Foren.* 14 : 305.

*Material* : Dhanbad district : 2 ex., Chirkunda, 7.xi.1948; 16 ex., paddy-field at Mugma, 9.xi.1948; 20 ex., Maithon Dam site (under stone), 12, 13 & 15.xi.1948; 1 ex., Maithan, 16.xi.1948; 1 ex., Kanja Pahar, 20.xi.1948; 2 ex., Inanpur, 25.xi.1948; 1 ex., Inanpur, 26.xi.1948. All coll. B. Nath. Ranchi district : 2 ex., Horhap, 3.ii.1954, coll. A.P. Kapur and T.G. Vazirani. 4 ex., Simdega, 14.xi.1966; 10 ex., Kuru, Chainpur, 18.ix.1966; 1 ex., under wooden logs at Banari, 22.ix.1966; 10 ex., Kuru, 13.xii.1967; 1 ex., Basia, 25.xii.1967. All coll. Raj Tilak and A.K. Sarkar.

*Measurements* : Length (snout to vent) 27-79 mm.

*Distribution* : Chota Nagpur : As above. *Elsewhere* : Assam, West Bengal, Uttar Pradesh, Himachal Pradesh, Andhra Pradesh, Rajasthan, Gujarat and Maharastra in India. Also Nepal, Sri Lanka, Pakistan and Arabia. This species is also fairly common.

## Family II. MICROHYLIDAE

This family is represented by two genera, each represented by a single species.

Key to the genera :

- |  |       |                    |
|--|-------|--------------------|
| 1. Two normal metatarsal tubercles present                           | ...   | 2                  |
| Two large, shovel-shaped metatarsal tubercles (inner larger) present | ..... | .. <i>Uperodon</i> |
| 2. Tips of fingers with triangular dilatations                       |       | <i>Ramanella</i>   |
| Tips of fingers without dilatations                                  | ..... | <i>Microhyla</i>   |

Genus 2. **Uperodon** Dumeril & Bibron.3. **Uperodon globulosus** (Gunther)  
(Balloon Frog)

1864. *Cacopus globulosus* Gunther, *Rept. Br. India*, p. 416.

*Material* : Dhanbad district : 1 ex., (under stone) inside I.B. Compound at Tundi, 11.ix.1969, coll. Raj Tilak.

*Measurements* : Length (snout to vent) 68 mm.

*Distribution* : Chota Nagpur : As above. *Elsewhere* : Karnataka, Andhra Pradesh, Madhya Pradesh and Orissa in India. Also Sri Lanka.

*Remarks* : This is a rare microhylid found in the area. It leads a secretive subterranean life and surfaces only during breeding season (Monsoon months).

Genus 3. **Ramanella** Rao and Ramanna4. **Ramanella variegata** (Stoliczka)

1872. *Callula variegata* Stoliczka, *Proc. Asiat. Soc. Bengal*, : 111.

*Material* : Singhbhum district : 1 ex., Chakradharpur, 29.ix.1911, coll. F.H. Gravely.

*Measurements* : Length (snout to vent) 14 mm.

*Distribution* : Chota Nagpur : As above. *Elsewhere* : Assam, West Bengal, Orissa, Madhya Pradesh, Maharashtra, Gujarat and Karnataka in India.

Genus 4. **Microhyla** Tschudi5. **Microhyla ornata** (Dumeril & Bibron)  
(Ornate Microhylid)

1841. *Engystonina ornata* Dumeril and Bibron, *Erpet. Gen.*, 8 : 745.

*Material* : Total : 139 examples (67 frogs and 72 tadpoles). Dhanbad district : Chirkunda, 7.xi.1948; 5 ex., Mugma, 9.xi.1948; Nirsa, 10.xi.1948; near Maithan Dam, 12-13.xi.1948; Maithan Dam site (under stone), 15.xi.1948; forest near Kalyaneshwari, 16.xi.1948; Gobindpur, 22 miles west of Barakar, 18.xi.1948; Inanpur, 24.xi.1948; base of Panchet Hills, 2.4 km. west of Inanpur, 25.xi.1948; Chaurasi, 4 km. west of Inanpur, 26.xi.1948; stream near Panchet Hill, 3 km. west of Inanpur, 4.xii.1948; ponds on the east of Inanpur, 9.xii.1948. All coll. B. Nath. Chas, Bokaro, 21.xi.1968; stream about 1.5 km. north of Maithan Dam, 19.vii.1969; Khudia nala, 1 km. north of Gobindpur, 6.ix.1969; rain water pond, 1 km. north of Gobindpur, 7.ix.1969. All coll. Raj. Tilak. Ranchi district : Simdega, 12.ix.1966; union of Sankh and Palmara rivers, 10 km. north-west of Simdega, 13.ix.1966; Chainpur, 19.ix.1966; under logs inside I.B. Compound at Lohardaga, 19.xii.1967; grassy soil, 8 km. south-east of Basia town, 25.xii.1967; Basia, 27.xii.1967. All coll. Raj Tilak and A.K. Sarkar.

*Measurements* : Length (Snout to vent) 13-21 mm.

*Distribution* : Chota Nagpur : As above. *Elsewhere* : It is a widely distributed species found all over the plains of India upto an altitude of 1524 meters. Also Nepal, Sri Lanka, Bangladesh, Burma, South China, South-east Asia and Taiwan.

*Remarks* : This is an active toad-like tiny frog mostly found in grass and under dry leaves in moist soil. In contrast to its tiny size, it can cover considerable distance by jumping. It is attracted to night light and occasionally enters houses during monsoon days.

### Family, III. RANIDAE

This family is represented in Chota Nagpur by four species of genus *Rana*, and one of genus *Tomopterna*.

#### Key to the genera of family Ranidae

- |  |                   |
|--|-------------------|
| Outer metatarsals separated by web at least in the distal half       | <i>Rana</i>       |
| Outer metatarsals united or separated only in their distal extremity | <i>Tomopterna</i> |

#### Genus 5. **Rana** Linnaeus

##### Key to the species of genus **Rana**

- |   |                      |
|---|----------------------|
| 1. Toes webbed upto the tips, inner metatarsal tubercle digitiform (toe-like) | <i>cyanophlyctis</i> |
| Toes not webbed upto the tips, inner metatarsal tubercle not digitiform       | 2                    |
| 2. Both inner and outer oval-shaped metatarsal tubercles present              | <i>limnocharis</i>   |
| Inner metatarsal tubercle present, Outer metatarsal tubercle absent           | 3                    |
| 3. Inner metatarsal tubercle blunt and not shovel-shaped                      | <i>tigerina</i>      |
| Inner metatarsal tubercle crescentic and shovel-shaped                        | <i>crassa</i>        |

#### 6. **Rana cyanophlyctis** Schneider (Skipping Frog)

1799. *Rana cyanophlyctis* Schneider, *Hist. Amph.* 1 : 137

*Material* : Total 1316 examples (1275 frogs and 41 tadpoles). Dhanbad district : Chirkunda, Barakar, Nirsa, Kumar Dhubi, Mithon Dam site, Kalyaneshwari, Inanpur, Panchet Hill site, Raghunathpur; Collected during November, 1948; all coll. B. Nath. Chas (Bokaro), Ganga Dam site (Bokaro), Damodar river, Barakar river near Mithon Dam, Bamhor river near Mithon Dam, Gobindpur, Topchachi Lake; collected during November, 1968 and Aug. Sept., 1969; all coll Raj Tilak. Hazaribagh district : Chatra, Hazaribagh lake, Suraj Kund (Cold sulphur spring), Ramgarh; collected during February, 1954; all coll. A.P. Kapur and T.G. Vazirani. Hazaribagh Lake, Hazaribagh National Park, Chherva Dam and Konar river near Hazaribagh town, Burhi, Barakar river, Jamni river at Nimiaghat, Parasnath hill base; collected during November-December, 1968; all coll. Raj Tilak. Palamau

district : Amanat river and North Koel river near Daltangunj, Latehar, Mugaldaha river near Chandwa; collected during Sept.-Oct., 1966; all coll. Raj Tilak. Ranchi district : Koel river at Netarhat, Mandar, Bala Nadi near OPA, Ranchi town, Namkun, Subarnrekha river at Ranchi, Khatnahi Dah at Horhap, Khunti; collected during January-February, 1954; all coll. A.P. Kapur and T.C. Vazirani. Simdega, Chainpur, Banari, Subarnrekha river, Hinoo river, Bundu Bund, Kanke Bund, Hatia Dam, Hundru Falls, South Koel river near Mandar, Tikko river near Kuru town, Lohardaga, Bagru Hills, Ghaghra town, Basia town; collected during November-December, 1967; all coll. Raj Tilak and A.K. Sarkar. Singhbhum district : Hirani Falls near Chaibasa, Chiria Coal mines, Monoharpur, Tholkabad Reserve Forest, Karampada, Old Angua, Koel river at Monoharpur; collected during Feb., 1954 and Feb., 1955; all coll. A.P. Kapur. South Koel river and Koena river near Manoharpur, Chakulia, Barkunda river and Kojo river near Chaibasa, Chandil; collected during December, 1967 and Oct.-Nov., 1968; all coll. Raj Tilak.

*Measurements* : Length (Snout to Vent) 26-71 mm.

*Distribution* : Chota Nagpur : As above. *Elsewhere* : Throughout the plains of India, upto 1846 m. in the Himalayas. Also Pakistan, Afghanistan, Iran, South Arabia, Nepal, Thailand and Sri Lanka.

*Remarks* : It is a very common species and are found to float in ponds, ditches, canals and rivers.

### 7. *Rana limnocharis* Wiegmann (Indian Cricket frog)

1835. *Rana limnocharis* (Boie) Wiegmann, *N. Acta. Ac. Leop. - Carol.*, 17 (i) : 255.

*Material* : Total 319 examples (289 frogs and 30 tadpoles). Dhanbad district : Chirkunda, Kumar Dhubi, Mugma, Maithon Dam site, Inanpur, Panchet Hill-base, Chaurasi; collected during November, 1948; all coll. B. Nath. Chas (Bokaro), Mithon Dam site, Gobindpur, Topchachi; collected during August-September, 1969; all coll. Raj Tilak. Hazaribagh district : Hazaribagh National Park, Chherva Dam, Parasnath Hill-base near Nimiaghat ; collected during November-December, 1968; all coll. Raj Tilak. Palamau district : Chandwa, 5-6.x.1966, Raj Tilak. Ranchi district : Bala Nadi, Horhap, Khunti; collected during February, 1954; all coll. A.P. Kapur and T.G. Vazirani. Simdega, Chainpur, Banari, in and around Ranchi town, Hatia Dam, Mandar, Kuru, Lohardaga, Ghaghara, Basia; collected during September, 1966 and November-December, 1967; all coll. Raj Tilak and A.K. Sarkar. Singhbhum district : Chaibasa, Chiria Coal Mines, Manoharpur, Tholkabad, Old Angua; collected during February, 1954 and February, 1955; all coll. A.P. Kapur. Mahoharpur, Chaibasa, Chakulia; collected during December, 1967 and November, 1968; all coll. Raj Tilak.

*Measurements* : Length (Snout to Vent) 13-61 mm.

*Distribution* : Chota Nagpur : As above. The species is recorded for the first time from the area. *Elsewhere* : It is a widely distributed species in India, found in almost all biotopes. Also Eastern Asia from Pakistan, Nepal, Sri Lanka and China to Japan.

*Remarks* : This is also a common species mostly found on bunds in paddy-

fields, burrows on moist soil, and under stones near water. it is terrestrial in habit and jumps into water when disturbed only to return to the bank soon being a poor swimmer. In Ranchi district these frogs are frequently seen inside the bushes grown on the banks of rivers like Subarnarekha, Hinoo, Tikoo, Mukri, South Koel etc.

### 8. *Rana tigerina* Daudin (Indian Bull Frog)

1803. *Rana tigerina* Daudin, *Hist. Rain. Gren. Crap.*, p. 64.

*Material* : Ranchi district : 1 ex., Jungle, 3.5 Km. west of Chainpur, 17.ix.1966; 1 ex., Bundu Bund, 4.8 km. south-east of Ranchi town, 1.xii.1967. All coll. Raj Tilak and A.K. Sarkar.

*Measurements* : Length (Snout to Vent) 89-137 mm.

*Distribution* : Chota Nagpur : As above. The species is recorded for the first time from the area. *Elsewhere* : It is common throughout India, from the base of the Himalaya to South India. Also Nepal, Sri Lanka, Burma, Thailand, South China and Taiwan.

*Remarks* : Bhattacharya (1936) reports its tadpoles feeding on mosquito larvae. The frogs have been collected from Ranchi district only.

### 9. *Rana crassa* Jerdon (Jerdon's Bull Frog)

1853. *Rana crassa* Jerdon, *J. Asiat. Soc. Bengal*, 22 : 531.

*Material* : Dhanbad district : 3 ex., Mugma, 5.5 km. from Barakar, 9.xi.1948; coll. B. Nath. 1 ex., Khudia nala, 1.5 km. north of Gobindpur, 5.ix.1969; coll. Raj Tilak.

*Measurements* : Length (Snout to Vent) 57-73 mm.

*Distribution* : Chota Nagpur : As above. The species is recorded for the first time from the area. *Elsewhere* : Uttar Pradesh, Bihar, Orissa, West Bengal, Tamil Nadu and Kerala in India. Also Sri Lanka.

*Remarks* : This is an uncommon form and has been collected only from Dhanbad district from burrows on the elevated banks of ponds and ditches. The species is allied to *Rana tigerina* and can be distinguished by its toad-like form and the shovel-shaped metatarsal tubercles.

## Genus 6. *Tomopterna* Dumeril and Bibron

### 10. *Tomopterna breviceps* (Schneider) (Burrowing Frog)

1799. *Rana breviceps* Schneider, *Hist. Amph.*, 1 : 140

*Material* : Dhanbad district : 1 ex., Inanpur, 24.xi.1948, coll. B. Nath. 1 ex., Chas, Bokaro, 20.xi.1968, coll. Raj Tilak.

*Measurements* : Length (Snout to Vent) 34-41 mm.

*Distribution* : Chota Nagpur : As above. The species is recorded for the first time from the area. *Elsewhere* : Himachal Pradesh, Uttar Pradesh, Gujarat, Rajasthan, Maharashtra, Madhya Pradesh, Orissa, West Bengal, Andhra Pradesh, Karnataka, Tamil Nadu and Kerala. Also Sri Lanka, Nepal and upper Burma.

*Remarks* : This frog is rarely seen. The tibiotarsal tubercle seen by Bhaduri and Kripalani (1954) has not been observed in the present examples.

#### Family IV RHACOPHORIDAE

This family is represented in Chota Nagpur by one species of the genus *Polypedates*.

#### Genus 7. *Polypedates* Tschudi

#### 11. *Polypedates maculatus* (Gray) (Tree Frog)

1832. *Hyla maculata* Gray, *Ill. Indian Zool.*, 1, pl. 82, Fig. 1

*Material* : Dhanbad district : 1 ex., Nirsa, 10.xi.1948; 1 ex., Maithon Dam site, 13.xi.1948; 1 ex., Chaurasi, 4 km. west of Inanpur, 26.xi.1948; 1 ex., Inanpur, 26.xi.1948. All coll. B. Nath. Palamau district : 4 ex., around Chandwa, 6-8.x.1966 coll. Raj Tilak, Ranchi district : 1 ex., Kanka Bandh, 8.5 km. north of Ranchi town, 3.xii.1967; Coll. Raj Tilak and A.K. Sarkar. Singhbhum district : 1 ex., under decaying and wetlog of Sal at Tholkabad, 9.ii.1955; coll. A.P. Kapur. 2 ex., Chaibasa, 1-2.xi.1968 ; 1 ex., at light at Chandil, 11.xi.1968. All coll. Raj Tilak.

*Measurements* : Length (Snout to Vent) 11-62 mm.

*Distribution* : Chota Nagpur : As above. The species is more or less common in the area. *Elsewhere* : South India and Plains of North India in general. Also Sri Lanka.

*Remarks* : It is the only species of tree-frog found in the area. It is nocturnal in habit. During day-time frogs are collected from holes on tree-trunks, burrows on the walls of old houses and roofs of thatched village huts.

#### SUMMARY

This paper deals with the amphibians collected from Chota Nagpur (Bihar). Eleven species of Anura (frogs and toads) belonging to four families and seven genera are recorded for the first time from the area with notes wherever available. Keys for determination of the species, and a map showing localities of collection have also been provided.

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