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PART IV: LIST OF REPTILIA AND AMPHIBIA COLLECTED IN THE MOUNTAINS OF SOUTH-WEST CEYLON, WITH NOTES ON FINDING LOCALITIES

By

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INTRODUCTION

Ceylon is a comparatively small island (65.584 km²) within the equatorial belt of calms. There are only slight seasonal variations in temperature, air humidity and day length.

The annual mean temperature measured over a period of three decades was 27.2°C, 24·4°C and 15·4°C relatively for the lowland (Colombo, Jaffna, Hambantota and Anuradhapura), upland (Kandy) and highland (Nuwara Eliya). December or January are the coldest months with circa 26·1°C in the coastal lowland (Colombo), around 24·4°C in the interior of the lowland (Anuradhapura), about 23·3°C in the upland (Kandy) and 14·4°C in the highland (Nuwara Eliya).

The average annual rainfall varies from about 1.000 mm. on the N. W. coast to more than 7.000 mm. (Adam's Peak). The SW. monsoon greatly affects the climate in the southwestern and central part of the country (June, July and August) whereas the NE.monsoon (December, January, February) affects the northeastern lowland, upland and the adjoining flanks of the central highland.

The relief of the country and the geographic positon of the place exert a strong influence of the precipitation. The complex relief and rainfall pattern have generated a number of different biocoenoses. There are numerous man-made habitats resulting from exploitation so that only fragments are left of the original plant cover. Crops such as tea, rubber and coconut have taken the place of much of the virgin forests. Were human influence to disappear 6 generalized ecosystems should develop on the basis of the primary vegetation types.

1. **Dry zone Manilkara ecosystem**

   NW and SE lowland ; annual rainfall 600-1.200mm.

2. **Dry zone Chloroxylon ecosystem**

   Much of the remaining lowland and parts of the upland.

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3. **Intermediate zone ecosystem**

The peripheral parts of the wet zone lowland and the wet upland to about 900 m. above ase-level. Coconut plantations and food crops, clearing the forest resulted in erosion of the soil.

4. **Lowland wet evergreen forest ecosystem**

Covered the SW part of Ceylon to about 900m. above seal-level. The annual rainfall exceeds 2.000mm. and the mean temperature of the two coldest months is 20°C. Exploitation and cultivation have degraded the soil.

5. **Sub-montane wet evergreen forest ecosystem**

The area between about 900m. and 1.500m. altitude in the wet zone ; transitional between 4 and 6. The primary forests gave way to grassland and more recently to tea plantations.

6. **Montane wet forest ecosystem**

Above 1500m. Humidity and rainfall high ; temperature of the coldest months relatively low.

Ceylon's inland aquatic habitats are exceedingly varied, all types of running water are represented. There are many springs but few, if any, natural lakes. Series of reservoirs have been constructed, however, in most river systems of the lowland, and they may have greatly influenced the distribution of the freshwater biota of the lowland.

(Introduction after Brinck, Andersson, Cederholm, 1971.)

MATERIAL AND METHODS

The material treated in this paper was collected by Prof. Dr. F. Starmühlner during his expedition to Ceylon (Austrian Indo-Pacific Expedition 1970/71) from 9 November, 1970 to 28 December, 1970 and preserved in formaline. The measurements were all taken from the preserved specimens and may differ considerably from those taken from live animals.

ACKNOWLEDGEMENTS

I wish to thank Dr. J. Eiselt, Curator of Reptiles, Natural History Museum, Vienna, for his kindness in placing material for comparative purposes at my disposal. Thanks also to Mr. E. Sochurek, Vienna, for much useful advice.

SPECIMEN LIST

Of the 78 amphibians collected 55 were tadpoles and 23 frogs ; of the 4 reptiles 3 were snakes and 1 a lizard.

The specimens were collected in the following regions :—

Region Deniyaya	18 amphibians
	4 reptiles
Region Ratnapura	8 amphibians
Region Maskeliya	27 amphibians
Region Belihuloya	7 amphibians
Region Kitulgala	18 amphibians.

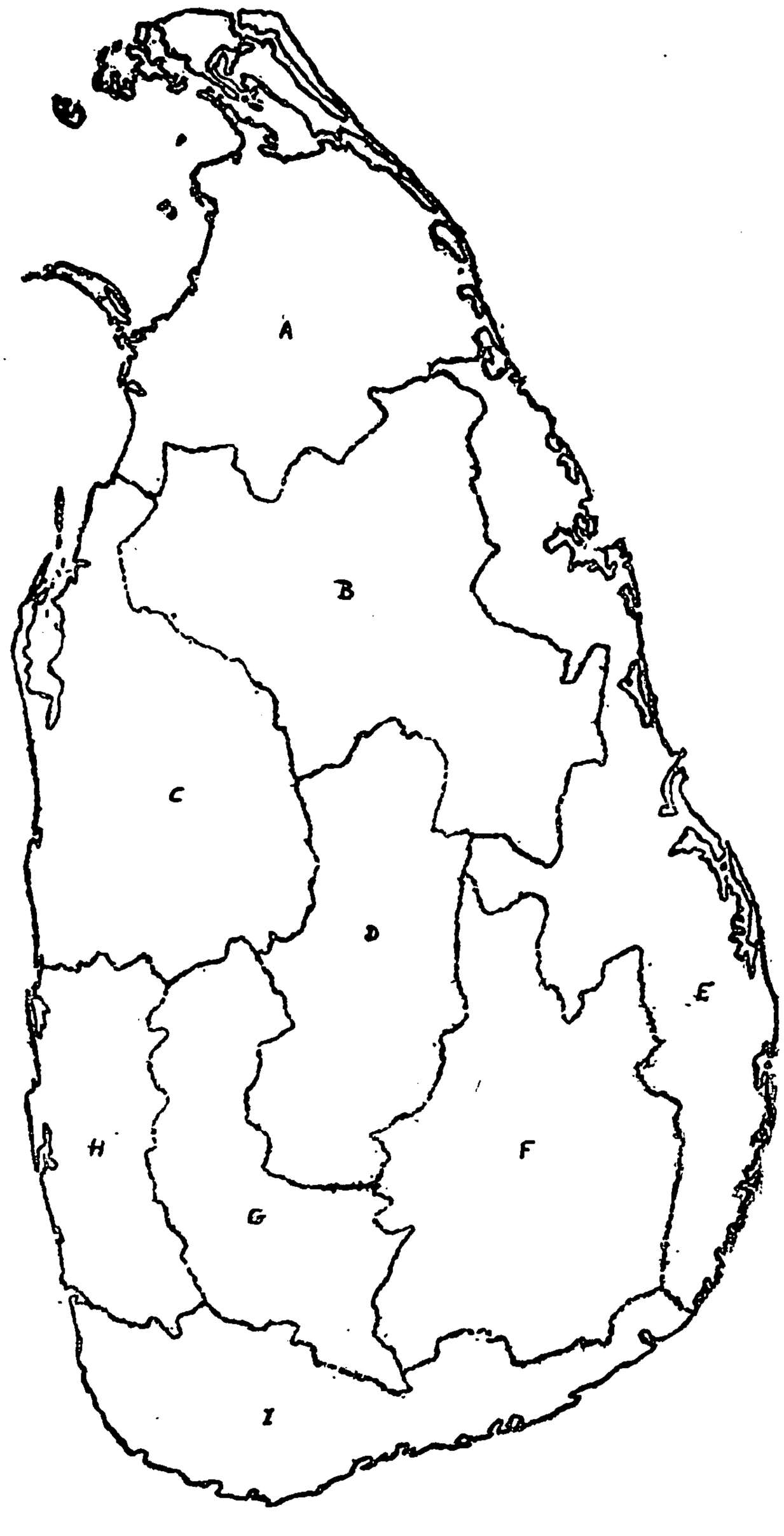


Figure 1 : Map of Ceylon showing its provinces A; Northern Province; B: North Central Province; C: North Western Province ; D : Central Province ; E : Estern Province ; F : Uva Province ; G : Sabaragamuwa ; H : Western Province ; I : Southern Province,

The amphibians collected may be divided into the following species :—

Rana cyanophlictis cyanophlictis Schneider	14 specimens
Rana tigrina crassa Jerdon	1 specimen
Rana limnocharis limnocharis Wiegmann	3 specimens
Rana (*Hylarana*) *temporalis* Günther	42 specimens
Rhacophorous cruciger cruciger Blyth	2 specimens
Rhacophorus cruciger eques Günther	16 specimens

The reptiles collected were :

Lizards—

Otocryptis wiegmanni Wagler	1 specimen

Snakes—

Boiga ceylonensis ceylonensis Günther	1 specimen
Natrix piscator asperrimus Boulenger	2 specimens

COLLECTING LOCALITIES

A. Region Deniyaya

(*a*) Localities along tributaries of the Gin-Ganga

(1) Meda Dola, altitude 1.000m. above sea level (FC/1d)

Specimens collected :

—*Rana temporalis* : 5 tadpoles

Measurements :	L.	H.B.	W.	D. +
	41.8	14.7	7.6	6.0
	29.0	10.9	6.4	4.7
	34.9	13.8	7.9	6.3
	37.4	13.4	7.8	6.2
	44.3	17.4	8.5	6.2

—*Rana temporalis* : 1 frog

L. ++
18.8

—*Rhacophorus cruciger cruciger* : 2 tadpoles

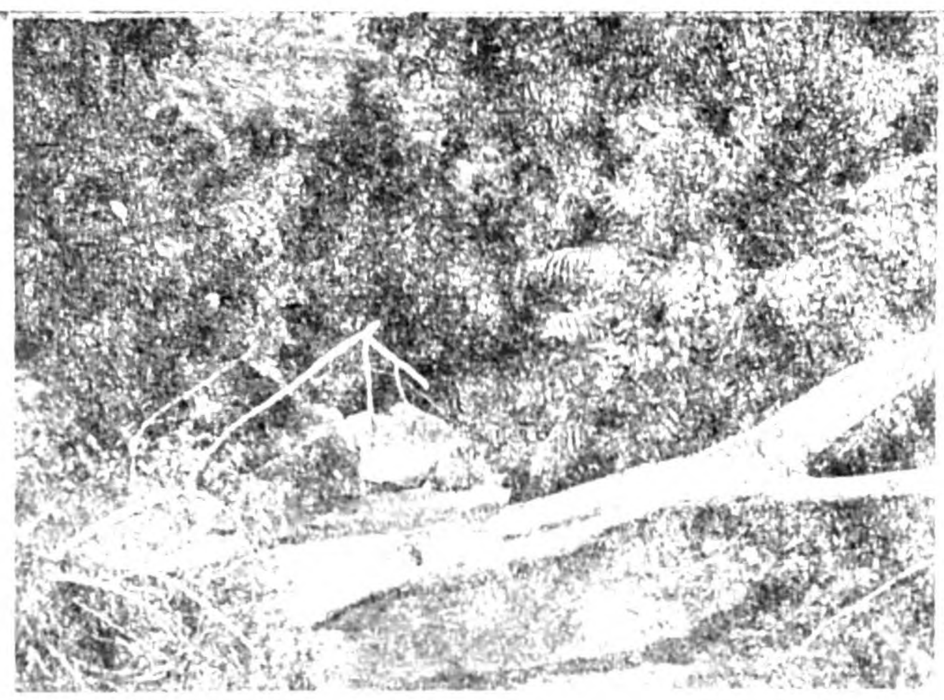
Measurements :	L.	H.B.	W.	D.
	19.4	7.1	4.1	3.0
	31.0	12.2	6.6	5.3

\+ L. : total length ; H. B.: length of head and body ; W.:width of body ; D.: depth of tail. All measurements in mm.

++L.: length from snout to vent, in mm.

The collecting locality is situated in virgin forest in the reaches of the Sinharaja Range. The ground consists mainly of granite rock, the river's edge is sandy and covered with various washed-up debris (wood, etc.).

3



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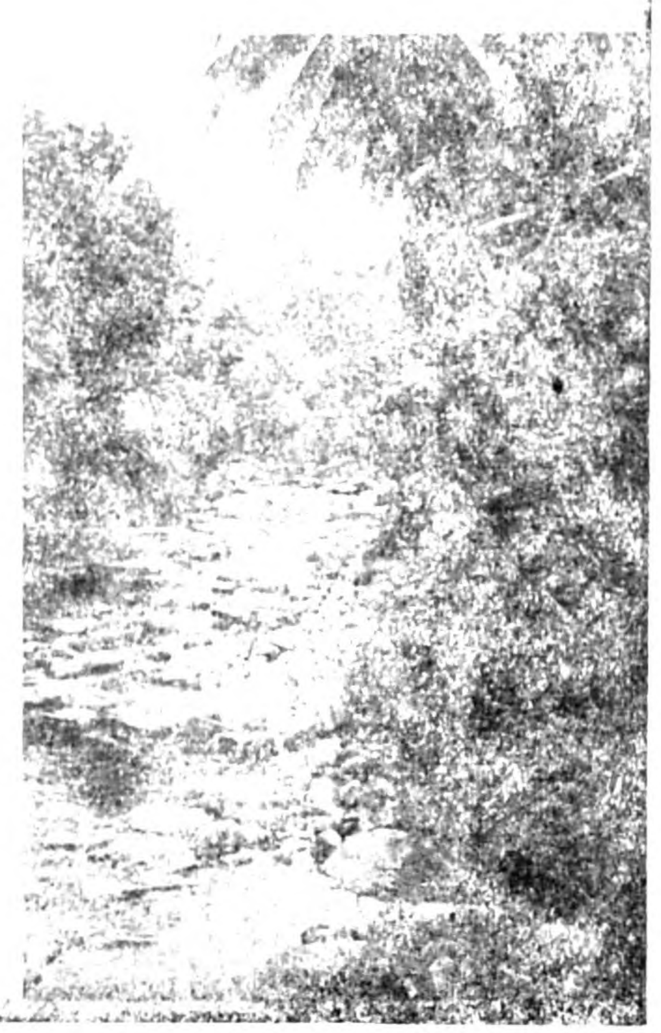

(The Numbers to figures have been altered as indicated below.)

Fig. 2. (Upper Left) Hola Dola (Deniyaya) Aa 2 (FC/3d)

Fig. 3. (Upper Right) Thanipita Dola (Deniyaya) Ab 1 (FC/7)

Fig. 4. (Bottom Left) Bodathpitiya Ela (Ratnapura) B 1 (FC/9f)

Fig. 5. (Bottom Center) Katugas Ela (Ratnapura) B 2 (FC/10e)

Fig. 6. (Bottom Right) Bibili Oya (Kitulgala), looking towards the fork with the Kelani Ganga. E 1 (FC/3i)

(2) Hola Dola, altitude 700m. above sea level (FC/3d)

Specimens collected :

—*Rana temporalis :* 2 tadpoles

L.	H.B.	W.	D.
34.3	12.7	6.5	5.2
18.2	6.1	3.7	2.7

—*Rana limnocharis limnocharis :* 1 frog

L.
27.2

Locality situated along a torrent flowing out of the forest on through the tea plantations. (Fig 2)

(3) Pasumale Dola, altitude 800m. above sea level (FC 4a, 4c)

Specimens collected :

—*Rana temporalis :* 3 tadpoles

L.	H.B.	W.	D.
25.7	9.0	4.5	2.8
40.3	14.8	8.8	6.5
30.4	15.6	7.0	5.0

—*Rana cyanophlictis :* 1 frog

L.
27.6

A cascading stream flowing over flat granite rocks, through tea plantations. There are deep pools in the open.

(*b*) Localities along tributaries of the Nilwala Ganga

(1) Thanipita Dola, altitude 600m. above sea level (FC/7f, 7i)

Specimens collected :

—*Rana temporalis :* 1 tadpole

L.	H.B.	W.	D.
33.1	14.9	8.1	8.4

—*Rana temporalis :* 1 frog

L.
35.8

—*Rana cyanophlictis :* 1 frog

L.
32.2

—*Boiga ceylonensis ceylonensis :* 1 specimen

L.
670.0

—*Natrix piscator asperrimus :* 2 specimens

L.
325.0
380.0

Stomach contents of snakes collected :

—*Boiga c ceylonensis :*

Otocryptis weigmanni : 1 specimen

L.
242.0

—*Natrix piscator asperrimus :*

1 *Rana limnocharis*, fish, rests, both specimens were nematode-infested.

The torrent flows through forest and plantations, partially in the open. (Fig. 3)

B. Region Ratnapura

Localities along tributaries and main course of the Kalu Ganga

(1) Bodathpitiya Ela, altitude 500m. above sea level (FC/9f). (Fig. 4)

Specimens collected :

—*Rana cyanophlictis :* 1 frog

L.
35.0

(2) Katugas Ela, altitude 500m. above seal evel (FC/10e).

Specimens collected :

—*Rana cyanophlictis :* 1 tadpole

L.	H.B.	W.	D.
36.1	14.4	7.7	5.4

—*Rana cyanophlictis :* 1 frog

L.
41.0

A torrent with waterfalls flowing through a narrow, shaded gorge. (Fig. 5)

(3) Rajanawa Dola (FC/11e)

Specimens collected :

—*Rana cyanophlictis :* 1 frog

L.
33.6

A strongly shaded locality along the torrent.

(4) Kalu Ganga, near Ratnapura, altitude 50m. above sea level (FC/12e).

Specimens collected :

—*Rana cyanophlictis* : 2 frogs

L.
28.8
23.7

The river flows in a deeply-cut valley with forest and cultures along the edge.

(5) Ira-Handha-Pana-Ela, altitude 100m. above sea level (FC/15e).

Specimens collected :

—*Rana cyanophlictis* : 2 frogs

L.
33.5
24.5

C. Region Maskeliya

(1) Mocha Dola, altitude 1.800m. above sea level (FC/16f).

Specimens collected :

Rana temporalis : 2 tadpoles

L.	H.B.	W.	D.
50.5	17.5	10.4	9.3
38.4	14.4	7.6	5.8

The Mocha Dola flows into the Maskeliya Dam, near Adam's Peak Estate. Situated in the open it flows over shingle and sand, through the tea plantations.

(2) Gartmore Dola, altitude 2.000m. above sea level (FC/17e).

Specimens collected :

Rhacophorus cruciger eques : 14 tadpoles

L.	H.B.	W.	D.
16.7	7.2	4.0	2.2
24.5	10.0	7.5	5.0
29.7	12.4	7.4	6.1
22.0	8.0	4.6	4.0
26.1	10.3	5.2	4.9
28.1	11.9	7.3	5.5
22.0	9.5	5.6	4.0
17.9	7.3	4.2	3.0
26.0	12.0	7.0	5.1
27.8	11.8	6.3	5.0
24.0	11.0	6.2	5.5
20.9	8.5	5.8	3.8
36.8	14.7	9.1	7.0
38.6	16.9	9.6	9.4

The stream flows on the plateau towards a 100m. high waterfall. The collecting locality lies exposed.

(3) Gartmore Dola, altitude 1.800 m. above sea level (FC/18a).

Specimens collected :

Rana temporalis : 1 tadpole

L.	H.B.	W.	D.
20.0	6.4	3.3	2.0

Collected was, down-stream from the waterfall, where the stream flows through plantations.

(4) Tributary to the Gartmore Dola, 1,800m. above sea level (FC/19d).

Specimens collected :

Rana temporalis : 6 tadpoles

L.	H.B.	W.	D.
20.8			
56.5	17.4	10.8	8.1
51.6	16.2	9.6	8.5
33.1	11.0	5.9	5.0
34.9	12.0	6.2	5.4
35.5	12.4	7.0	5.4

The stream flows near the Manager's bungalow, through tea plantations and gardens.

(5) Maskeliya Dola, at the foot of Adam's Peak, 1,800m. altitude (FC/20d).

Specimens collected :

Rana temporalis 2 tadpoles

L.	H.B.	W.	D.
22.5	7.8	3.8	3.1
11.8	5.5	2.9	1.6

(6) Hakgala Dola, altitude 2.000m. above sea level (FC/21a, 21e).

Specimens collected :

Rhacophorus cruciger eques : 1 tadpole

L.	H.B.	W.	D.
44.0	20.4	9.0	5.1

Rhacophorus cruciger eques : 1 frog

L.
35.6

D. Region Belihuloya

(a) Localities along tributaries of the Walawe Ganga

(1) Belihul Oya, 650m. above sea level (FC/24e).

Specimens collected :

Rana temporalis : 1 tadpole

L.	H.B.	W.	D.
44.8	14.7	6.3	5.3

Rana limnocharis limnocharis : 2 frogs

L.
28.0
26.4

(2) Kirikatu Oya, 700m. above sea level (FC/25e).

Specimens collected :

Rana cyanophlictis : 2 frogs..

L.
43.2
37.6

(3) Veli Oya, 700m. above sea level (FC/26d).

Specimens collected :

Rana temporalis : 1 tadpole

L.	H.B.	W.	D.
39.7	13.5	8.3	7.2

(b) Localities along tributaries of the Menik Ganga

(1) Kuda Oya (FC/27d)

Specimens collected :

Rana tigrina crassa : 1 frog

L.
20.0

E. Region Kitulgala

Localities along tributaries and main course of the Kelani Ganga

(1) Bibili Oya (FC/34a, 34c). (Fig. 6)

Specimens collected :

Rana temporalis : 1 tadpole

L.	H.B.	W.	D.
22.0	6.8	3.9	2.3

Rana temporalis : 1 frog

L.
33.8

(2) Hal Oya, near Ginigathhena, 700m. above sea level (FC/35a, 35d).

Specimens collected :

Rana temporalis : 2 tadpoles

L.	H.B.	W.	D
25.5	9.1	5.3	3.6
24.5	8.3	5.0	3.1

Rana temporalis : 2 frogs

L.
18.2
18.9

(3) Rambukpoth Oya, near Pitawela, 650m. above sea level (FC 36a, 36d).

Specimens collected :

Rana temporalis : 10 tadpoles

L.	H.B.	W.	D.
18.2	6.2	3.8	2.2
21.8	8.0	3.9	2.4
19.0	7.5	3.6	2.2
35.7	12.7	7.1	4.9
36.5	13.6	7.2	4.8
27.2	10.4	5.5	3.3
36.5	13.7	7.1	4.5
20.4	7.5	4.2	2.2
30.3	10.5	5.7	3.4
38.6	14.0	8.0	4.3

Rana cyanophlictis : 1 frog

L.
31.7

(4) Kelani Ganga near the Kitulgala Resthouse (FC/37e).

Specimens collected :

Rana cyanophlictis : 1 frog

L.
23.7

Numbers in brackets, e.g. (FC/23e) refer to the numbers used by the collector in his specimen list.

Loc. No.	Altitude m.	Breadth river m.	River Depth m.	Current m/sec.	Water Temp. °C	Water Temp. Time	pH
Aa 1	1.000	3–6	0, 05–0, 16	0, 30–0, 75	M 20,2	11h	5,8
Aa 2	700	5–8	0, 05–0,30	0,75–1,0	M 21,1	9h 30	5,8
			P. deeper	P. 0, 30–0,50	M 21,7	12h	
				E.<0,10	E 21,5	9h 30	
					E 22,2	12h	
Aa 3	800	10–20	C.0,0005–0,01	C.1–1,5	C 27,7	15h	5,8
			P. to 0,50	P.0–0,30	P 28,2	15h	
Ab 1	600	3–5	0,05–0,20	0,50	25,1	9h 30	6,0
				C.>1,0	27,3	12h	
B 1	500	5–30	0,10–>0,50	C.0,75–>1,0	26,0	10h 30	6,0
				M.0,50	27,2	13h	
				E.0–0,25			
B 2	500	1,0	C.0,01	C.>1,0	25,1	9h 30	5,8
		P.5,0–10,0	P. to 1,0	P. 0,30–0,50	25,3	12h	
B 3		0,80–3,0	C.0,01–0,03	C>1,0	24,6	9h	5,8
			M.0,10–0,50	M.0,30–0,75	25,8	12h	
				P.0–0,10	26,1	12h 30	
B 4	50	20–30	to>3,0	M.0,30–0,50	26,1	10h	6,5
				C.>1,0	26,6	11h 30	
				E.0			
B 5	100	2–4	0,10–0,20	C.1,0	25,6	9h	6,7
			P.0,30–0,40	M.0,30–0,50	26,6	12h	
C 1	1.800	2–5	0,20–0,50	C.>1,0	18,7	9h 30	6,1
				P.0,50	20,7	12h	
C 2	2.000	2–5	0,05–0,50	0,10–0,50	16,1	10h	5,68
					17,2	12h	
C 3	1.800	10–20	0,20–>0,50	E.0,10–0,50	16,9	10h	5,95
				M.>1,0			
C 4	1.800	2–3	0,01–0,05	C.>1,0	15,3	7h	6,28
			P (dam) 0,10–0,40	P (dam) 0,10–0,30	18,9	15h	
					19,4	15h	
					16,3	23h	
C 5	1.800	5–8	0,20–0,50	0,30–0,75	18,3	11h	6,36
			P. to–>1	C. >1,0	19,9	13h	
				P. 0–0,30			
C 6	2.000	1–1,5	0,01–0,05	0,50–1,0	14,9	11h	6,9
			P. to 0,30	P. 0,10	15,2	13h	
Da 1	650	5–6	0,30–0,50	C.>1,0	21,3	15h	6,6
			P. to 1,0	M.0,50–0,80	21,4	17h	
				E. 0–0,30	18,3	7h	
Da 2	700	5–8	0–20–>1,0	C.>1,0	18,8	9h	7,1
				M. 0,40–0,50	19,6	12h	
				E. 0–0,20			
Da 3	700	10–15	0,20–>1,0	C.>1,0	21,0	16h	7,0
				M. 0,50–1,0	20,8	17h	
				P. 0–0,20			
Db 1		10–15	0,20–>1,0	0,30–0,50	25,5	11h	7,7
				C. 1,0			
E 1		6–10	0,20–1,0	0,50–1,0	25,4	14h	±6
E 2	700	1–5	0,10–0,50	0,30–0,50	22,5	9h	6,8
			P. to 1,0	C. to>1,0	23,1	11h	
				P. 0–0,20			
E 3	650	5–8	0,05–0,30	0,30–0,75	25,1	13h	6,7
			P. to 0,50	C.>1,0			
E 4		30	0,30–0,50	0,50–1,0	26,4	18h	6,65
					24,3	7h	
					25,8	11h	

P. – poo l; E. – edge ; M. – middle ; C. – cascades.

SUMMARY

A description is given of the amphibian and reptile material brought back from the Austrian Indo-Pacific Expedition, 1970–71. Some notes on the habitat of the animals are included.

ZUSAMMENFASSUNG

Beschreibung der von der Österreichischen Indo-Pazifik-Expedition gesammelten Tiere (Amphibien und Reptilien) mit Angaben über die Fundorte.

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