

**Results of the Austrian-Indian Hydrobiological Mission 1976 to the
Andaman-Islands:
Part V: Taxonomy and Ecology of the Decapoda-Caridea**

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The previous work done on the crustacean fauna from Andaman islands has been already referred to by TIWARI & PILLAI (1971) in their description of the atyid shrimps of the Genus *Caridina* from the Andaman islands. Several carcinologists have made collections from these islands and these include C. G. ROGERS (1911), H. S. RAO (1934), K. K. TIWARI (1959) and B. S. LAMDA (1964). However, these collections have been made mainly for taxonomical studies and hence no description of the ecological conditions prevailing in the places of collection has been given. The most recent collections of the Decapod Crustacea of the Andaman islands have been made by the Austrian-Indian Hydrobiological Mission (1976) led by Prof. Dr. F. STARMÜHLNER. During these collections detailed studies were also made of the physical and chemical conditions prevailing in the various biotopes of the collecting localities.

I am very thankful to Prof. Dr. F. STARMÜHLNER for placing at my disposal the crustacean collection of the expedition for study and description.

The present work is one in a series of studies on the ecology and distribution of Decapoda-Caridea in the Indian Ocean islands (COSTA, 1979).

List of Species collected by the Austrian Expedition 1976

Atyidae -

Caridina brachydactyla brachydactyla DE MAN 1878

Caridina gracilirostris gracilirostris DE MAN 1892

Caridina prashadi, TIWARI & PILLAI 1971

Caridina typus, H Milne EDWARDS 1837

Caridina weberi variety sumatrensis DE MAN 1892

Atya spinipes, NEWPORT 1847

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Palaemonidae -

Macrobrachium lar (FABRICIUS, 1798)*Macrobrachium latidactylus* (THALLWITZ, 1891)*Macrobrachium scabriculum* (HELLER, 1862)*Macrobrachium* spp young

Physico Chemical characteristics of the Collecting Stations

South Andamans

S.-And. 1/3. 12. 1976 June Creek, South of Port Blair near Coreyn's Cove.
Altitude: 5-10 m; Breadth: 5 m; Depth: 2-3 cm pools upto 500 m; Temp.: 30° C; pH: 7.3; El. Conduc.: 470 μ S; Total Hardness: 4° dH; Bottom with mud and sand.

Species collected:

*Macrobrachium lar**Macrobrachium* spp. Juveniles

S.-And. 2/4. 12. 1976 School lane Creek near Port Blair Airport.
Breadth: 1-4 m, Depth: 5-10 cm upto 50 cm in pools; Temp.: 25.6° C; pH: 6.25; El. cond.: 140 μ S; Total Hardness: 7° dH; Bottom with sand.

Species collected:

*Caridina brachydactyla brachydactyla**Caridina gracilirostris gracilirostris**Caridina serratirostris**Caridina typus*

S.-And. 3/4. 12. 1976 River Nayachal coming from Dhanikari-reservoir.
Breadth: 3-8 m; Depth: 15-20 cm; pH: 7.2; El. cond.: 75 μ S; Total Hardness: 1° dH; Bottom with sand and pebbles.

Species collected:

*Caridina brachydactyla brachydactyla**Caridina typus**Caridina weberi* var. *sumatrensis*

S.-And. 4/5. 12. 1976 Small stream from the Chediatop area.
Breadth: 2-3 m; Depth: 50 cm upto 15-30 cm; Temp.: 25.7° C; pH: 7.4; El. cond.: 30° S; Total Hardness: 10° dH.

Species collected:

*Caridina brachydactyla brachydactyla**Macrobrachium lar**Macrobrachium scabriculum**Macrobrachium* juveniles spp.

S.-And.: 5/5. 12. 1976 River close to Bhatrapur on the east coast.
Breadth: 2-3 m; Depth: 10-20 cm; Temp.: 26° C; pH: 7.1; El. cond.: 160 μ S; Total Hardness: 3° dH; Bottom with sand and rock.

Species collected:

Caridina brachydactyla brachydactyla

S.-And. 6/6. 12. 1976 River near Mongeletu, S.C.

Breadth: 15–10 m; Depth: 5 cm; in pools above 50 cm; Temp.: 36.8° C; pH: 7.2; El. cond.: 175 μ S; Total Hardness: 1.6° dH; Bottom muddy.

Species collected:

Caridina brachydactyla brachydactyla

Caridina typus

Caridina weberi var. *sumatrensis*

Atya spinipes

Macrobrachium scabriculum

S.-And. 8/7. 12. 1976 Stream near Guptapura on the East Coast.

Breadth: 3–10 m; Depth: 5–10 cm; upto 50 cm in pools; Temp.: 24° C; pH: 7.2; El. cond.: 97 μ S; Total Hardness: 1° dH; Bottom stony and sandy.

Species collected:

Caridina brachydactyla brachydactyla

Caridina prashadi

Caridina typus

Macrobrachium lar

Macrobrachium juveniles spp.

S.-And. 10/18. 12. 1976 Stream near Bimbleton.

Breadth: 2–10 m; Depth: 3–5 cm upto 50 cm in pools; Temp.: 25.7° C; pH: 7.8; El. cond.: 278 μ S; Total Hardness: 5.9° dH; bottom muddy.

Species collected:

Caridina brachydactyla brachydactyla

Caridina weberi var. *sumatrensis*

Macrobrachium latidactylus

Macrobrachium scabriculum

S.-And. 11/8. 12. 1976 Small stream near Doligung, Port Blair.

Breadth: 20 cm – 1 m; Depth: 2–10 cm upto 50 cm in pools; Temp.: 25.2° C; Total Hardness: 3° dH; bottom muddy.

Species collected:

Caridina brachydactyla brachydactyla

S.-And. 11/9. 12. 1976 Stream near Asmadabed.

Breadth: 1–5 m; Depth: 1–3 cm upto 50 cm in pools; Temp.: 23.2° C; pH: 6.8; El. cond.: 150 μ S; Total Hardness: 1.8° dH; Current: 30 cm/sec.

Species collected:

Caridina brachydactyla brachydactyla

S.-And. 13/8. 12. 1976 Mithrakai Creek NW Port Blair.

Breadth: 2.5 m; Depth: upto 1 m; Bottom with mud and sand; Temp.: 25.4° C; pH: 7.0; El. cond.: 17° S; Total Hardness: 2.8° dH; bottom covered with water plants.

Species collected:

Caridina brachydactyla brachydactyla

Caridina gracilirostris gracilirostris

Macrobrachium lar

Macrobrachium spp. juveniles

S.-And. 15/11. 12. 1976 Forest stream near N. Bay.

Breadth: 50 cm – 1 m; Depth: 3–10 cm; Temp.: 28° C; pH: 6.9; El. cond.: 100 ° S; Total Hardness: 0.8° dH; bottom with mud and sand.

Species collected:

Caridina typus

Macrobrachium spp. juveniles

S.-And. 16/19. 2. 1976 Stream in a rice field near Metra NW of Port Blair.

Breadth: 2–3 m; Depth: 5–10 cm; Temp.: 25.1° C; Stream bordered by bamboos and other plants.

Species collected:

Caridina gracilirostris gracilirostris

Caridina serratirostris

S.-And. 19/21. 12. 1976 Stream near Dhanikari; Primary forest.

Altitude: 150–200 m; Breadth: 3–10 m; Depth: 10–20 cm upto 50 cm in pools; Temp.: 24.6° C; pH: 6.5; El. cond.: 148 µ S; Total Hardness: 4° dH.

Species collected:

Caridina brachydactyla brachydactyla

Marcobrachium latidactylus

(Numerous amphipod crustaceans were also collected.)

North Andaman (Diglipur region)

N.-And. 1/12. 12. 1976 Magher Nalah River 7 km from Diglipur.

Breadth: 2–3 m; Depth: 10–50 cm; current 30 cm/sec; Temp.: 27.5° C; pH: 7.2; El. cond.: 250 µ S; Total Hardness: 5.9° dH; Bottom: pebbles, silt & mud.

Species collected:

Caridina gracilirostris

N.-And. 2/13. 12. 1976 River Kalimpong.

Breadth: 30–40 cm; Depth: 5–20 cm; Temp.: 24.9° C; pH: 8.4; El. cond.: 310 µ S; Total Hardness: 10° dH.

Species collected:

Caridina brachydactyla brachydactyla

Caridina gracilirostris

Caridina weberi var. *sumatrensis*

Macrobrachium latidactylus

N.-And. 3/10. 12. 1976 River Kalimpong.

Breadth: more than 10 m; Depth: 10–30 cm; to 1 m; Current: 30–50 cm/sec; Temp.: 26.7° C; pH: 7.8; El. cond.: 315 µ S; Total Hardness: 7° dH.

Species collected:

Caridina typus

Caridina weberi var. *sumatrensis*

Macrobrachium spp young

N.-And. 4/14. 12. 1976 River Lakshmipur, 5 km from Diglipur.

Breadth: 2–5 cm; Depth: 3–5 cm; Current: 30–50 cm/sec; Temp.: 25.6° C; pH: 7.4; El. cond.: 200 μ S; Total Hardness: 4.4° dH.

Species collected:

Caridina brachydactyla brachydactyla

Caridina gracilirostris gracilirostris

Caridina weberi var. *sumatrensis*

N.-And. 5/14. 12. 1976 Stream between R. K. Nagar and Keralampuram.

Depth: 5–10 cm; Temp.: 27.2° C; pH: 7.4; El. cond.: 210 μ S; Total Hardness: 36° dH.

Species collected:

Caridina brachydactyla brachydactyla

N.-And. 6/15. 12. 1976 River Durgapur.

Breadth: 2.3 m; Depth: 1–5 cm upto 1 m in pools; Current: 20–30 cm/sec; Temp.: 26.4° C; pH: 7.8; El. cond.: 260 ° S; Total Hardness: 5° dH.

Species collected:

Caridina brachydactyla brachydactyla

Caridina weberi var. *sumatrensis*

N.-And. 7/15. 12. 1976 Middle section of River Kalimpong.

Breadth: 5–10 m; Depth: 10–30 cm; Current: 30–35 cm/sec; Temp.: 28° C; pH: 7.5; El. cond.: 242 μ S; bottom with pebbles and rocks.

Species collected:

Caridina brachydactyla brachydactyla

Caridina serratirostris

Caridina weberi var. *sumatrensis*

General Comments

With the present description, it is now established that there are around five species of *Caridina*, one species of *Atya* and five species of *Macrobrachium* in the Andaman islands. The range of ecological conditions of the habitats of these decapod crustacea are summarised in Table I. Of the *Caridina* species collected, *Caridina brachydactyla brachydactyla* has the widest distribution being widely distributed both in the southern and northern parts of the island. *C. prashadi* seems to have a very limited distribution and was collected from one station situated in the east coast of South Andamans. Although all the known species of *Caridina* found in the Andamans have been collected by the present expedition, only three species of the five known *Macrobrachium* species found in the Andaman islands (TIWARI 1952, TIWARI personal communication, 1973) have been collected by the present expedition. Although TIWARI & PILLAI (1971) indicated that *Caridina*

serratiostris may be restricted to S. Andamans, the present expedition has collected this species from the northern part of Andaman islands as well. *Caridina weberi* var. *sumatrensis* is recorded for the first time from Andaman Islands.

Table I: Summary of the range of conditions in the collecting habitats of the Decapod crustaceans in the Andaman Islands.

	Temp. ° C	pH	Electrical Conductivity μ S at 20° C	Total Hardness ° dH	Current cm/sec
<i>C. brachydactyla</i>					
<i>brachydactyla</i>	24-28	6.1-8.4	70-306	1-13	10-50
<i>C. gracilirostris</i>					
<i>gracilirostris</i>	25-28	7.0-7.4	170-310	2-38	10-30
<i>C. prashadi</i>	24-25	7.2	91	1	10-50
<i>C. serratiostris</i>	25-28	6.6-7.5	126-240	2-5	10-50
<i>C. typus</i>	24-28	6.1-7.8	73-315	1-9	30-50
<i>C. weberi</i> var.					
<i>sumatrensis</i>	24-28	6.1-7.8	73-315	1-9	30-50
<i>Atya spinipes</i>	26.8	7.2	175	1.6	30-50
<i>Macrobrachium lar</i>	26-30	6.9-7.6	170-470	1-10	30-50
<i>M. latidactylus</i>	25-28	6.5-7.8	148-306	1-10	30-50
<i>M. scabriculum</i>	25-28	6.8-7.8	175-350	1-10	30-50

The range of distribution of the Decapoda crustacea described from the Andaman islands in relation to India, Sri Lanka, Indonesia and Malaysia is as follows:

	India	Sri Lanka	Andamans	Indonesia	Malaysia
<i>Caridina brachydactyla</i>					
<i>brachydactyla</i>	-	-	×	×	×
<i>C. gracilirostris</i>					
<i>gracilirostris</i>	×	×	×	×	×
<i>C. serratiostris</i>	-	-	×	×	×
<i>C. weberi</i> var. <i>sumatrensis</i>	×	-	×	×	×
<i>C. prashadi</i>	-	-	×	-	-
<i>C. typus</i>	-	-	×	×	×
<i>Atya spinipes</i>	×	×	×	×	×
<i>Macrobrachium</i>					
<i>andamanicum</i>	-	-	×	-	-
<i>M. australe</i>	×	×	×	×	-
<i>M. lar</i>	-	-	×	×	×
<i>M. latidactylus</i>	-	×	×	×	×
<i>M. scabriculum</i>	×	×	×	×	-

So far *C. prashadi* and *M. andamanicum* have been described only from the Andaman islands and it appears that these species are endemic to these islands.

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