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## FRESHWATER CRABS (POTAMONIDS) IN THE COLLECTION OF THE SOUTHERN REGIONAL STATION, ZOOLOGICAL SURVEY OF INDIA, CHENNAI

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### INTRODUCTION

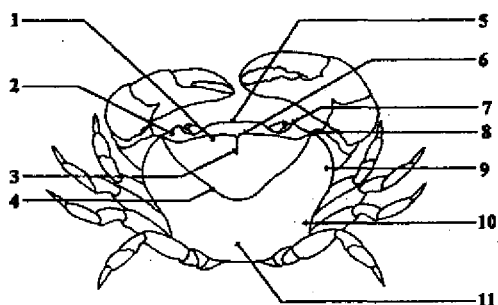
The Freshwater Decapod Brachyuran faunal resources are yet to be properly assessed for enumeration and inventorisation despite the availability of classic literature. The baseline information available to the carcinological worker date back to Wood Mason (1871), Rathbun (1904-06) and Alcock (1910), followed by Chopra (1947), Hora (1934), (1935), Dutta (1989) and a series of worker including Deb (1998) and Ghosh and Ghatak (1999, 2000). The Infraorder Brachyura has colonized a series of habitats from terrestrial, fresh water, brackish water to marine exhibiting a high degree of adaptive tendency morphologically and physiologically.

From among the taxa described under brachyuran (broad carapace crabs) the potamonids enjoy a very restricted distribution in freshwater in different altitudes and ecological conditions. As on date no concurrence of opinion exists and among worker as to the number of species of potamonids available in the Indian territory. The reasonable estimate shall be either 90 species accommodated in 3 genera *i.e.*, *potamon*, *paratelpusa* and *Gecarcinicus* accordingly to Alcock, or the same number of the species under more genera as per observation of recent worker Bott (1970). Concerning information about the number of species recorded from Southern India, the tally remains static at 13 species from the time of Alcock (1910).

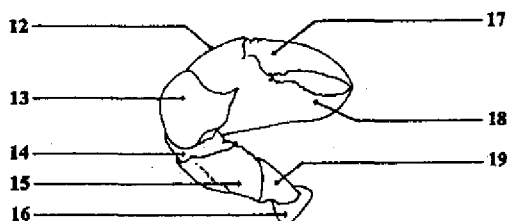
In order to know the current numerical status of species distribution in South India, the programme has been taken to study the holdings of southern regional station, Zoological Survey of India, Chennai and results are reported.

The diagnostic characters and distribution of the species state-wised have been provided. The classification is adopted from Alcock (1910) and revised after Bott (1970).

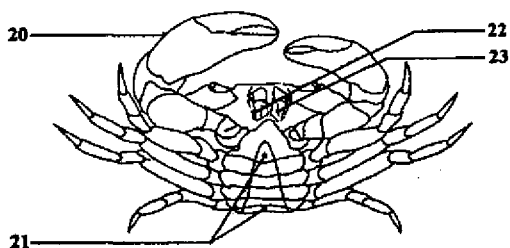
Diagrammatic sketch of a typical potamonid crab is given below :



Dorsal view



Cheliped



Ventral view

- |                               |                            |                         |
|-------------------------------|----------------------------|-------------------------|
| 1. Post-orbital crest         | 9. Antero-lateral border   | 17. Dactylus            |
| 2. External orbital angle     | 10. Postero-lateral border | 18. Pollex              |
| 3. Mesogastric groove         | 11. Carapace               | 19. Basis               |
| 4. Cervical groove            | 12. Palm                   | 20. Cheliped            |
| 5. Front                      | 13. Carpus                 | 21. Abdominal segments  |
| 6. Epigastric crest           | 14. Merus                  | 22. Exopodite           |
| 7. External orbital tooth     | 15. Ischium                | 23. External maxilliped |
| 8. Lateral Epibranchial tooth | 16. Coxa                   |                         |

## LIST OF SPECIES

Class CRUSTACEA

Order DECAPODA

Infraorder BRACHYURA

Family POTAMONIDAE Rathbun 1904

1. *Travancoriana schirnerae* Bott 1969,
2. *Barytelphusa (Barytelphusa) guerini* (Milne-Edwards 1853)
3. *Barytelphusa (Barytelphusa) cunicularis* (West Wood 1836)
4. *Oziotelphusa senex senex* (Fabricius 1798)
5. *Spiralothelphusa hydrodroma* (Herbst 1794)

## TAXONOMIC ACCOUNT

Family POTAMONIDAE Rathbun, 1904.

1. Genus *Travancoriana* Bott 1969(i) *Travancoriana schirnerae* Bott 1969

Plate I, Fig. 1

1836. *Telphusa cunicularis*, Westwood, *Trans. Entomol. Soc. London.*, 1 : 183, pl. 19, Figs. 1-6.1905. *Potamon (Potamonautes) cunicularis*, Rathbun, *Nouv. Arch. Du Museum*, (4), 7 : 184, pl. 15, fig. 10.1910. *Paratelphusa (Barytelphusa) cunicularis*, Alcock, *Cat. Ind. Decap., Ind. Mus.*, 1(2) : 83, pl. 12, fig. 56.1970. *Travancoriana schirnerae*, Bott *Abh. Senckenb. Natur. Ges* no. 526 : 41.

*Material examined* : 1 ex., Sarkarpathy, IGWLS, Tamil Nadu, 10.xii.1996, Coll. M. S. Ravichandran; 5 exs., Attingal, Trivandrum, 25.xii.97, Coll. P. T. Cherian; 1 ex., Kodai Dakshnishwar, Tamil Nadu, 9.ix.1998, Coll. M. B. Raghunathan; 1 ex., Kamuthi Koil, IGWLS, Tamil Nadu, 2.ii.1998, Coll. M. S. Ravichandran; 2 exs., Kolar Road, Karnataka, 2.ii.1999, Coll. G. Thirumalai; 25 exs., K. Gudi, Karnataka, 24.ii.1999, Coll. S. Krishnan; 7 exs., Kanakere, Karnataka, 25.ii.1999, Coll. S. Krishnan; 4 exs., Basavanagodu, 3.iv.1999, Coll. G. Thirumalai; 5 exs., Kanakere, Karnataka, 1.iii.1999, Coll. S. Krishnan; 17 exs., Basavangodu, Karnataka, 3.iv.1999, Coll. G. Thirumalai, 1 ex., BRT Hills, Karnataka, 20.ii.2000, Coll. G. Thirumalai; 4 exs., Doddasempige, Karnataka, 2.iii.2000, Coll. G. Thirumalai.

*Diagnosis* : Carapace broad and more convex, cervical groove not deeply demarcated. The front is slight deflexed. The lateral epibranchial tooth is very minute. Owing to superficial nature of cervical groove, the post-orbital crests are not clear, separated from the lateral epibranchial tooth.

*Distribution* : INDIA : Andhra Pradesh, Karnataka, Kerala, Tamil Nadu, Maharashtra (Poona to Baroda)

*Outside India* : Not recorded.

*Remarks* : This is the first record of occurrence from Kerala and Karnataka.

## 2. Genus *Barytelphusa* Alcock 1909

### (ii) *Barytelphusa (Barytelphusa) guerini* (Milne-Edwards 1853)

Plate 1, Fig. 2

1853. *Telphusa guerini*, Milne-Edwards, *Ann. Sci., nat. Zool.*, (3), 20 : 210.

1905. *Potamon (Potamonautes) guerini*, Rathbun, *Nouv. Arch. Du Museum*, (4) 7 : 186, T. 6, pl. 16, fig. 2.

1918. *Paratelphusa (Barytelphusa) guerini*, Bouvier, *Bull. Mus. Hist. Nat.*, 6 : 8.

1970. *Barytelphusa (Barytelphusa) guerini*, Bott, *Abh. Senckenb. Natur. Ges* no. 526 : 33.

*Material examined* : 3 exs., Sarkarpatty, IGWLS, Tamil Nadu, 10.xii.1996, Coll. M. S. Ravichandran; 1 ex., Kamuthi Koil, IGWLS, Tamil Nadu, 21.ii.1998, Coll. M. S. Ravichandran; 2 exs., Kolar Road, Karnataka, 2.ii.1999, Coll. G. Thirumalai; 3 exs., Honametti Bedaguli, Karnataka, 20.ii.1999, Coll. S. Krishnan; 3 exs., BRT Hills, Karnataka, 1.iii.1999, Coll. S. Krishnan; 2 exs., Basavanagodu, Karnataka, 3.iv.1999, Coll. G. Thirumalai; 2 exs., BRT Hills, Karnataka, 20.ii.2000, Coll. G. Thirumalai.

*Diagnosis* : Carapace broad, deep and strongly convex, cervical groove broad but not reaching to lateral epibranchial tooth. The epigastric and postorbital crests form one prominent ridge continuous, on either side of mesogastric furrow.

*Distribution* : INDIA : Assam, Karnataka, Madhya Pradesh, Maharashtra, Tamil Nadu.

*Outside India* : Not recorded.

*Remarks* : This is first record of occurrence from Karnataka State.

### (iii) *Barytelphusa (Barytelphusa) cunicularis* (West Wood 1836)

Plate 1, Fig. 3

1905. *Potamon (Potamonautes) jacquemontii*, Rathbun, *Nouv. Arch. Du Museum*, (4) 7 : 185, T. 6, pl. 16, fig. 1, 5.

1910. *Paratelphusa (Barytelphusa) jacquemontii*, Alcock, *Cat. Ind. Decap. Crust. Ind. Mus.*, 1(2) : 79, fig. 55.

1910. *Paratelphusa (Barytelphusa) lamellifrons*, Alcock, *Cat. Ind. Decap. Crust. Ind. Mus.*, 1(2) : 82, fig. 18.

1910. *Paratelphusa (Barytelphusa) pulvinata*, Alcock, *Cat. Ind. Decap. Crust. Ind. Mus.*, 1(2) : 86, fig. 21.

1970. *Barytelphusa (Barytelphusa) cunicularis*, Bott, *Abh. Senckenb. Natur. Ges.* No. 526 : 31.

*Material examined* : 19 exs., Mukurti Road, Silent-Valley, Kerala, 18.i.1979, Coll. R. S. Pillai; 32 exs., South of Kunti, Silent Valley, Kerala, 25.i.1979, Coll. R. S. Pillai; 6 exs., Dust Beri Lake, Pondicherry, 27.iii.1992, Coll. K. R. Rao; 3 exs., IGWLS, Tamil Nadu, 4.xi.1995, Coll. M. S. Ravichandran, 17 exs., Sarkarpathy, IGWLS, Tamil Nadu, 10.xii.1996, Coll. M. S. Ravichandran; 14 exs., Shivaete R. F., D. Kanada, Karnataka, 10.xii.1998, Coll. M. S. Ravichandran; 14 exs., Kamuthi Koil, IGWLS, Tamil Nadu, 21.xii.1998, Coll. G. Thirumalai; 5 exs., Honametti Bedaguli, Karnataka, 20.ii.1999, Coll. S. Krishnan, 14 exs., K. Gudi, Karnataka, 21.ii.1999, Coll. S. Krishnan; 3 exs., Basavanagodu, Karnataka, 20.ii.1999, Coll. S. Krishnan; 2 exs., Kanakere, Karnataka, 1.iii.1999, Coll. S. Krishnan; 4 exs., Basavangodu, Karnataka, 3.iv.1999, Coll. G. Thirumalai; 4 exs., Hosahalli, Mysore, Karnataka, 20.xi.1999, Coll. M. B. Raghunathan; 14 exs., BRT Hills, Karnataka, 22.xi.1999, Coll. M. B. Raghunathan; 6 exs., Ranganathan Koil, Chamraj nagar, Karnataka, 19.ii.2000, Coll. G. Thirumalai; 3 exs., BRT Hills, Karnataka, 20.ii.2000, Coll. G. Thirumalai; 2 exs., Dodasampige, BRT, Karnataka, 20.ii.2000, Coll. G. Thirumalai; 8 exs., K. Gudi, Karnataka, 7.iv.2000, Coll. S. Krishnan.

*Diagnosis* : Carapace flat; cervical groove very prominent and deep, broadly v-shaped, runs towards lateral epibranchial tooth. Epigastric and post orbital crests form a bold ridge from mesogastric region to the lateral epibranchial tooth. The exopodite of the external maxillipeds is much longer than ischium and carries the hairy flagellum.

*Distribution* : INDIA : West Bengal (Burger), Andhra Pradesh, Bihar (undivided), Karnataka, Kerala, Maharashtra, Tamil Nadu, Uttar Pradesh (undivided).

*Outside India* : Sri Lanka (Doflein).

### 3. Genus *Oziotelphusa* Müller 1887

#### (iv) *Oziotelphusa senex senex* (Fabricius 1798)

Plate II, Fig. 4

1904. *Potamon (Potamon) bouvieri*, Rathbun, *Nouv. Arch. Du Museum*, (4) 6 : 293, pl. 12, fig. 5.  
 1910. *Paratelpusa (Oziotelphusa) bouvieri*, Alcock, *Cat. Ind. Decap. Crust. Ind. Mus.*, 7(2) : 100, pl. 13, fig. 61.  
 1970. *Oziotelphusa senex senex*, Bott, *Abh. Senckenb. Natur. Ges.* No. 526 : 100.

*Material examined* : 11 exs., K. Peramanoor, Punch, Tamil Nadu, 14.i.1998, Coll. Mary Bai; 5 exs., Anamalai hills, Tamil Nadu, 15.xi.1990, Coll. M. S. Ravichandran; 37 exs., Koilegal Road, Mysore, Karnataka, 24.ii.2000, Coll. G. Thirumalai; 25 exs., Belu, Hasan, Karnataka, 31.iii.2001, Coll. G. Thirumalai.

*Diagnosis* : The Carapace moderately convex; its antero-lateral borders are slightly convex and the lateral epibranchial teeth are large, very prominent and sharp. The post-orbital crests straight and more transverse which runs towards the lateral epibranchial spine.

*Distribution* : INDIA : Karnataka, Tamil Nadu.

*Outside India* : Not recorded.

*Remarks* : This is the first record of occurrence from Karnataka.

#### 4. Genus *Spiralothelphusa* Bott 1968

##### (v) *Spiralothelphusa hydrodroma* (Herbst 1794)

Plate II, Fig. 5

1794. *Cancer hydrodromus*, Herbst, *Naturgesch Krabben und Krebse*, 2 : 164, T. 41, F. 2.  
 1887. *Telphusa (Oziotelphusa) hippocastanum*, Müller, *Verh. Nat. Ges. Basel*, VIII : 482, pl. 5, fig. 7.  
 1904. *Potamon (Potamon) hydrodromus* (Herbst), Senex Fabr. And Wagra Karowensis Rathbun, Rathbun, *Nouv. Arch. Du. Museum*, (4), 6 : 287.  
 1910. *Paratelphusa (Oziotelphusa) hydrodromus*, Alcock, *Cat. Ind. Decap. Crust. Ind. Mus.*, 1(2) : 97, fig. 60.  
 1970. *Spiralothelphusa hydrodroma* Bott, *Abh. Senckenh. Natur. Ges.* No. 526 : 97.

*Material examined* : 1 exs., K. Peramanoor, PUNCH, Tamil Nadu, 14.i.1998, Coll. Mary Bai; 1 ex., Tiruvalluvar, Pondicherry, 5.iii.1991, Coll. K. R. Rao; 3 exs., Karokkakulam, Pondicherry, 23.iii.1992, Coll. K. R. Rao; 1 ex., Utseri Lake, Pondicherry, 25.iii.1992, Coll. K. R. Rao; 2 exs., Dustberi lake, Pondicherry, 27.iii.1992, Coll. K. R. Rao; 4 exs., Valontariat, Pondicherry, 3.iii.1995, Coll. K. R. Rao; 4 exs., Vallioor R. F., Tirunelveli, Tamil Nadu, 25.xi.1996, Coll. M. S. Ravichandran; 2 exs., Kamuthi Koil, IGWLS, Tamil Nadu, 21.xi.1998, Coll. M. S. Ravichandran; 1 ex., Shivaete R. F., Karnataka, 10.xii.1998, Coll. M. S. Ravichandran; 26 exs., Narasipurkera, Karnataka, 18.xi.1999, Coll. M. S. Ravichandran; 87 exs., Hosuhaiti, Mysore, Karnataka, 20.xi.1999, Coll. M. B. Raghunathan; 24 exs., Chikkund, Mysore, Karnataka, 25.xi.1999, Coll. M. B. Raghunathan; 16 exs., Kolugal, Mysore, Karnataka, 26.xi.1999, Coll. M. B. Raghunathan; 5 exs., Chamrajnagar, Karnataka, 21.ii.2000, Coll. G. Thirumalai; 19 exs., Kollegal Road, Mysore, Karnataka, 24.ii.2000, Coll. G. Thirumalai; 1 ex., Attubuthupura, Karnataka, 25.xi.2000, Coll. G. Thirumalai; 2 exs., Belur, Bhomihalla, Karnataka, 31.iii.2001, Coll. G. Thirumalai.

*Diagnosis* : Carapace strongly convex, cervical groove distinct but appears superficial; it disappears behind the post-orbital crests. Orbit broad. External orbital tooth blunt and not separated by a gap from the lower margin of the orbit. The antero-lateral borders of carapace strongly convex, cristiform and smooth, postero-lateral borders ill defined. Three terminal segments of the male abdomen are slightly narrower in comparison to the basal segment.

*Distribution* : INDIA : Karnataka, Kerala, Orissa, Pondicherry, Tamil Nadu, Uttar Pradesh, West Bengal.

*Outside India* : Sri Lanka.

## SUMMARY

The present study is based on the available samples of Potamonid crabs collected during various surveys, undertaken for Karnataka, Kerala, Pondicherry and Tamil Nadu. About 550 specimens accounted for identification which comprises 5 species belonging to 4 genera, under 1 family.

The study projects the occurrence of all the 5 species in Tamil Nadu and Karnataka State followed by 4 species in Kerala, Andhra Pradesh and other states of India and 2 species from Pondicherry (Table 1).

Table 1.

Sl. No.	Name of the Species	Name of the Locations						
		1	2	3	4	5	6	7
1.	<i>Travancoriana schirnerae</i> Bott, 1969	+	+	+	-	+	+	Not recorded
2.	<i>Barytelphusa (Barytelphusa) guerini</i> (Milne-Edwards, 1853)	+	+	-	-	-	+	Not recorded
3.	<i>Barytelphusa (Barytelphusa) cunicularis</i> (West Wood, 1836)	+	+	+	+	+	+	Sri Lanka
4.	<i>Oziotelphusa senex senex</i> (Fabricius, 1798)	+	+	+	-	+	-	Sri Lanka
5.	<i>Spiralothelphusa hydrodroma</i> (Herbst, 1794)	+	+	+	+	+	+	Sri Lanka

1. Tamil Nadu

2. Karnataka

3. Kerala

4. Pondicherry

5. Andhra Pradesh

6. Other States of India

7. Outside India

The previous records on the status of distribution show the occurrence of these 5 species in throughout South India where as only 4 species i.e., *T. schirnerae*, *B. (B.) guerini*, *B. (B.) cunicularis* and *S. hydrodroma* are widely distributed throughout India. Among these *B. (B.) cunicularis*, *O. senex senex* and *S. hydrodroma* have so far been recorded from outside India.

The study leads enough scope to examine more specimens in order to know the present status of Potamonids in South India.

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PLATE I



1. *Travancoriana schirnerae* Bott



2. *Barytelphusa (Barytelphusa) guerini* (Milne-Edwards)



3. *Barytelphusa (Barytelphusa) cunicularis* (West Wood)

RECORDS OF THE ZOOLOGICAL SURVEY OF INDIA

PLATE II



4. *Oziotelphusa senex senex* (Fabricius)



5. *Spiralothelphusa hydrodroma* (Herbst)