Communication

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26 August 2020 | Vol. 12 | No. 11 | Pages: 16531–16547
DOI: 10.11609/jott.4977.12.11.16531-16547
Freshwater decapods (Crustacea: Decapoda) of Palair Reservoir, Telangana, India

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Abstract: Recent surveys conducted in 2016–2018 from the Palair Reservoir of the Indian state of Telangana resulted in the collection of 153 specimens of freshwater decapods. These specimens are assigned to 10 species: seven prawns in three genera and three families; three crabs in two genera of one family. Among these, four species are recorded here as new records to Telangana: Penaeus semisulcatus De Haan, 1844, Caridina gracilipes De Man, 1892, Barytelphusa guerini (H. Milne Edwards, 1853), and Oziotelphusa sp.

Keywords: Brachyura, Caridea, crabs, Dendrobranchiata, freshwater, prawns, systematics.
INTRODUCTION

The Palair Reservoir is located near Palair Village in the Khammam District of Telangana (17.199°–17.249° N & 79.868°–79.922° E), which is about 30 km from the district headquarters (Fig. 1). Palair is a large man-made reservoir that is up to 16 m in depth and covers an area of 1,748 ha. It has considerable economical, ecological and biological significance, being home to many freshwater invertebrate and vertebrate populations that support local fisheries which take fish and macro crustaceans like prawns and crabs (Roy et al. 2015). While ichthyofaunal resources have been properly documented, the Decapoda (crustaceans with 10 legs) are poorly known. Surveys were conducted in the Palair Reservoir between 2016 to 2018 in order to document the diversity of decapods.

Decapoda are highly diverse, with an estimated 15,000 species worldwide, 1,669 recorded from freshwater. One-hundred-and-eighteen species of freshwater prawns (Valarmathi 2017) and 122 species of freshwater crabs (Pati & Thackray 2018) have been documented from India. In a recent ongoing project started in August 2016 on “Taxonomic Studies on Freshwater Decapods of Telangana”, a total of 153 specimens of Decapoda have been collected from Palair Reservoir. One species of penaeoid prawn belonging to family Penaeidae, five species of caridean prawns belonging to Palaemonidae and Atyidae families and two species of brachyuran crabs (family Gecarcinucidae) have been identified from recent collections. The earlier studies had reported two species of caridean prawns (Palaemonidae) and three brachyuran crabs (Gecarcinucidae) among 82 examples of Decapoda collections (Roy et al. 2015).

MATERIAL AND METHODS

Four surveys were conducted in the Palair Reservoir during December 2016, February 2017, July 2017 and August 2018. A total of 153 specimens of freshwater decapod crustaceans (131 prawns and 22 crabs) were collected from running waters, submerged vegetation, and muddy/rocky habitats of 10 localities surrounding the Palair Reservoir (Figure 1, Table 1).

Crabs were either handpicked from beneath stones...
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and small rocks or dug out from burrows. Prawns were gathered from shallow waters using a D-shaped hand-net. Large-sized crabs and prawns were caught with cast nets. Collected specimens with proper collection data were preserved in 70–80 % ethyl alcohol (Ng 2017). The identification of penaeid, palaemonid, and atyid prawns was achieved by following Holthuis (1980), Jalihal et al. (1984), Chace & Bruce (1993), Wowor & Choy (2001), Mariappan & Richard (2006), and Jose (2013) whereas the crab identification was confirmed from Pati & Sharma (2014). An unknown species of crab, here referred as *Oziotelphusa* sp., has no affinities with the congeners (see Bahir & Yeo 2005; Pati & Sharma 2012; Raj et al. 2017). Confirmation of the species distribution has done from The IUCN Red List 2020.

All the identified specimens were deposited in the collections of the Zoological Survey of India, Freshwater Biology Regional Centre, Hyderabad, India (ZSI-FBRC). In addition, the previously collected material (six prawns and 15 crabs) from ZSI-FBRC was also examined. These specimens were collected between 2009 and 2011.

### RESULTS

From the present study, a total of 10 species of decapods were recognized from the Palair Reservoir; seven species of prawns in three genera of three families (Penaeidae, Palaemonidae, and Atyidae); three species of crabs in two genera of the family Gecarcinucidae. A systematic account is provided on the decapods of the Palair Reservoir.

#### Table 1. Details of the surveyed localities surrounding the Palair Reservoir.

| Locality code | Localityt | Nature of water body | Latitude (°N) | Longitude (°E) |
|---------------|-----------|----------------------|---------------|---------------|
| 1             | Naikangudem Canal | Reservoir | 17.195 | 79.890 |
| 2             | J.C. Boating and Waterpark Reservoir | Reservoir | 17.199 | 79.898 |
| 3             | Palair Reservoir near S.H. 42 Reservoir | Reservoir | 17.200 | 79.910 |
| 4             | Palair Park Reservoir | Reservoir | 17.204 | 79.918 |
| 5             | Kattamaisamma Temple, Palair Reservoir | Reservoir | 17.218 | 79.922 |
| 6             | Neradavai Canal | Reservoir | 17.236 | 79.890 |
| 7             | Thammagudem Small stream | Reservoir | 17.259 | 79.858 |
| 8             | Uruvonda Small stream | Reservoir | 17.222 | 79.904 |
| 9             | Annarigudem Reservoir | Reservoir | 17.233 | 79.883 |
| 10            | Kotuku Reservoir | Reservoir | 17.216 | 79.890 |

#### Systematics

**Order Decapoda Latreille, 1802**

**Suborder Dendrobranchiata Spence Bate, 1888**

**Superfamily Penaeoidea Rafinesque, 1815**

**Family Penaeidae Rafinesque, 1815**

1. *Penaeus semisulcatus* De Haan, 1844 [in De Haan, 1833–1850] (Image 1)

   1844. *Penaeus semisulcatus* De Haan, in Von Siebold, Fauna Japonica, Crustacea (6/7): Pl. 46.

   1900. *Penaeus ashiaka* Kishinouye

   Material examined: FBRC/ZSI/INV/1810, 16.ii.2017, 6 specimens, Palair, coll. S. Mandal.

   Diagnostic characters: Total length (TL) 130–132 mm, Rostrum length (RL) 27–30 mm, Carapace length (CL) 27–29 mm; rostral formula 7–8(5)/2, rostrum straight, rostral length is more or less equal to the carapace; carapace smooth, antennal spine and hepatic spine present, adrostral carina reaching almost posterior margin of carapace, gastrofrontal carina present; antennal carina meets with hepatic carina, hepatic carina inclined at an angle of 20° anteroventrally; cervical sulcus present, branchiocardiac carina shallow, postorbital carapace margin is oval-shaped; 3rd maxilliped is extending up to the half of antenular scale. First 3 pairs of legs forming pincer, 3rd pair is comparatively larger than 1st and 2nd pair; spine on Ischia of 1st and 2nd periopod; 5th pereopod with small exopodite. Copulatory organ on First pair of pleopod in male (petasma) and on posterior thoracic sternites in female (thelycum); abdomen with posterior part of pleura (lateral plates) covering anterior part of succeeding pleura; pleopods are with two branches.

   Remarks: In India, *P. semisulcatus* occurs along both the coasts of India, including Andaman & Nicobar Islands (Samuel et al. 2016). *Penaeus semisulcatus* is predominantly marine. The species, however, is known to exist in freshwater environments. The present specimens of *P. semisulcatus* constitute a new record to Telangana.

2. *Caridina gracilipes* De Man, 1892 (Image 2)

   1892. *Caridina Wyckiivar. gracilipes* De Man: 387 Pl. 24 Fig. 29–29e [type localities: Sulawesi (Celebes), and Selajjar, Indonesia].

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| 10            | Kotuku Reservoir | Reservoir | 17.216 | 79.890 |

#### Suborder Pleocyemata Burkenroad, 1963

**Infraorder Caridea Dana, 1852**

**Superfamily Atyoidea De Haan, 1849 [in De Haan, 1833-1850]**

**Family Atyidae De Haan, 1849 [in De Haan, 1833-1850]**

3. *Caridina gracilipes* De Man, 1892 (Image 2)

   1892. *Caridina Wyckiivar. gracilipes* De Man: 387 Pl. 24 Fig. 29–29e [type localities: Sulawesi (Celebes), and Selajjar, Indonesia].
Image 1. *Penaeus semisulcatus* De Haan, 1844 from the Palair Reservoir: (FBRC/ZSI/INV/1810) A—whole animal, lateral view (female) | B—lateral view of cephalothorax | C—telson with uropods | D—first cheliped | E—second cheliped | F—third cheliped | G—petasma (male) | H—thelycum (female). Scale bars: 20mm (A), 10mm (B–H). © Sudipta Mandal.
3. **Caridina shenoyi** Jalihal & Sankolli in Jalihal, Shenoy & Sankolli 1984 (Image 3)
1984. *Caridina shenoyi* Jalihal & Sankolli Rec. Zool. Surv. India. Occ. Paper No. 69: 1–40.
2013. *Caridina shenoyi* Jalihal & Sankolli Zool. Surv. India. State Fauna Series, 21: 63–72.
IUCN Status: Least Concern.
Material examined: FBRC/ZSI/INV/1823, two specimens, 13.vii.2017, J.C. Boating & Water Park, Palair, coll. S. Mandal.
Diagnostic characters: TL 18.0–19.3 mm, RL 3.5–3.8 mm and CL 3.2–3.7 mm. Rostrum formula 16–23(3)/8–11, rostrum is straight, slightly upturned distally, dorsal teeth interrupted by gap in the anterior side, rostrum longer than 3rd segment of antennal peduncle but shorter than antennal scale, carapace and rostrum equal in length; 3rd maxilliped crosses half of the antennal scale; 1st chelipeds stout, palm equal to finger, a tuft of hair with finger, carpus is half of chela and merus shorter than chela, carpus with deep anterior excavation, ischiium very short and stout; 2nd chelipeds longer than 1st chelipeds, finger longer than palm with tuft of hair at the end, carpus longer than chela but sub equal to merus; 3rd to 5th periopods similar in structure with simple dactyls, longer than 1st and 2nd periopods; abdomen smooth, 6th segment two times as long as 5th and sub equal to telson in length, berried females carry around 120–130 eggs measuring 0.33×0.46 mm; endopod of 1st pleopod of male acutely triangular; appendix masculine 0.3 times as long as endopod; six pairs of movable spines, terminal pair flanking the posterior-lateral angles of telson. Posterior margin ‘V’ shaped posses six long plumose setae; uropods are exceeding tip of the telson, endopod is smaller than exopod, lateral margin of exopod straight, suture in exopod is across the middle with 7–9 movable spines.
Remarks: In India, *C. shenoyi* is known from Tamil Nadu, Kerala, Andhra Pradesh, and West Bengal states. The present specimen from the Palair Reservoir is a new record to Telangana. This species is exclusively a freshwater species found in lakes and rivers.

4. **Macrobrachium equidens** (Dana, 1852)
Material examined: Reported by Roy et al. (2015).
Diagnostic Characters: Body robust, rostrum formula 10–11(2–4)/4–7, rostrum strong, reaching at end of antennal scale, dorsal teeth placed at regular interval; ridge of antennal spine extending in the direction of hepatic spine; 2nd cheliped sub equal in length, fingers covered with soft dense pubescence, not dentate on opposable margins, not gaping; out of two postero-lateral spines of telson, lower one over-reaching the telson tip.
Remarks: In India, *Macrobrachium equidens* has been reported from Kerala, Odisha, Karnataka, Andhra Pradesh, and Goa.

5. **Macrobrachium malcolmsonii** (H. Milne Edwards, 1844) (Image 4)
1844. *Palaemon malcolmsonii* H. Milne Edwards, In: Jacquemont Voyage, Inde, 4(2): 8.
Image 2. *Caridina gracilipes* De Man, 1892 from the Palair Reservoir: (FBRC/ZSI/INV/1979) A—whole animal, lateral view | B—rostrum | C—lateral view of cephalothorax | D—first cheliped | E—second cheliped | F—fifth periopod | G—telson with uropods. Scale bars: 1.0mm (A–G).
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Image 3. *Caridina shenoyi* Jalihal & Sankolli, 1984 from the Palair Reservoir: (FBRC/ZSI/INV/1823) A—whole animal, lateral view | B—rostrum | C—lateral view of cephalothorax | D—first cheliped | E—second cheliped | F—fifth periopod | G—telson with uropods. Scale bars: 5mm (A), 2mm (B–G). © Sudipta Mandal.
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2007. *Macrobrachium malcolmsonii* (H. M. Edwards, 1844) Rec. zool. Surv. India: 107(Part 2): 93–101.

IUCN Status: Least Concern.

Material examined: FBRC/ZSI/INV/1495, 1 specimen, 15.vii.2010, Neredvai, coll. Dr. S.V.A. Chandrasekhar; FBRC/ZSI/INV/1497, 2 specimens, 14.viii.2010, Palair, coll. Dr. S.V.A. Chandrasekhar; FBRC/ZSI/INV/1500, 1 specimen, 14.viii.2010, Annarigudem, coll. Dr. S.V.A. Chandrasekhar; FBRC/ZSI/INV/1524, 1 specimen, 14.viii.2010, Uralakonda, coll. Dr. S.V.A. Chandrasekhar; FBRC/ZSI/INV/1891, 4 specimens, 7.viii.2018, near S.H. 42, Palair, coll. S. Mandal.

Material examined: FBRC/ZSI/INV/1887, 5 specimens, 31.viii.2018, near S.H. 42, Palair, coll. S. Mandal; FBRC/ZSI/INV/1368, 1 specimen, 14.viii, 2010, Annarigudem, coll. Dr. S.V.A. Chandrasekhar; FBRC/ZSI/INV/1405, 7 specimens, 23 specimens, 7.xii.2016, J.C. Boating & Water park, Palair Park, Palair, coll. S. Mandal; FBRC/ZSI/INV/1495, 1 specimen, 31.viii.2018, near S.H. 42, Palair, coll. S. Mandal; FBRC/ZSI/INV/1420, 3 specimens, 30.vii.2018, Palair Park, Palair, coll. S. Mandal; FBRC/ZSI/INV/1891, 4 specimens, 31.viii.2018, near S.H. 42, Palair, coll. S. Mandal.

Diagnostic characters: TL 140–180 mm, RL 38–59 mm, CL 38–60 mm; rostral formula 9–11(2–4)/5–6, rostrum slightly upturned distally, proximal portion convex; two sub distal teeth present in dorsal arm, rest are evenly placed, rostrum more or less equal to antennal scale but longer than 3th antennular peduncle; carapace smooth, antennal spine and hepatic spine present, post antennular carapace margin evenly rounded; 3rd maxilliped does not reach up to half of antennular scale; 1st cheliped very short, equal and slender, palm equal to fingers, a dance row of setae in the lower side of palm, carpus 2.5 times as long as chela and 1.3 times as long as merus; 2nd cheliped strong, equal and well developed, movable finger covers with velvety pubescence in adults, fingers are longer than half of the palm, palm not swollen, carpus 0.8 as long as chela, 1.3 as long as merus; 3rd to 5th periopod in structure with simple dactylus; abdomen smooth, 6th segment 1.85 times as long as 5th and equal to telson; telson with two pairs of dorsal movable spines and two pairs of posterior spines with 14–16 plumose setae, posterior apex exceeds the tips of longer posteriolateral spines; uropods are exceeding tip of telson, endopod shorter than exopod in length, lateral margin of exopod straight, overreached by blunt angular lamellar end, mobile mesial spine of exopod is absent.

Remarks: In India this species is distributed in Andhra Pradesh, Karnataka, Kerala, Maharashtra, Odisha, Tamil Nadu, Tripura, and West Bengal. Apart from India it has been reported from Indonesia, Kenya, Madagascar, Mozambique, and Sri Lanka. This species is collected from the deep water of large reservoirs or rivers along with *M. malcolmsonii*.

6. *Macrobrachium rosenbergii* (de Man, 1879) (Image 5)

1879. *Palaemon rosenbergii* de Man: 167.

1950a. *Macrobrachium rosenbergii* Holthuis: 111.

Fig. 25.-Kuris, Ra’anan, Sagi, and Cohen, 1987: 219.

IUCN Status: Least Concern.

Material examined: FBRC/ZSI/INV/1420, 3 specimens, 16.ii.2017, Palair, coll. S. Mandal.

Diagnostic characters: TL 132–145 mm, RL 48–51 mm, CL 35–40 mm; rostral formula 12–16(3–4)/10–11, rostrum upturned distally, proximal portion convex, all teeth are evenly placed; rostrum longer than antennal scale and antennular peduncle; carapace smooth, antennal spine and hepatic spine present, post antennal carapace margin evenly rounded; 3rd maxilliped reaches half of antennal scale; 1st chelipeds equal, slender, shorter than 2nd cheliped, palm equal to fingers, carpus two times as long as chela and 1.3 times as long as merus; 2nd chelipeds strong, equal and well developed, carpus shorter than chela but longer than merus, palm swollen, fingers longer than half of the palm, legs entirely covered with very small dense spinules; 3rd to 5th periopod in structure with simple dactylus; abdomen smooth, 6th segment 1.85 times as long as 5th and equal to telson; telson with two pairs of dorsal movable spines and two pairs of posterior spines with 14–16 plumose setae, posterior apex exceeds the tips of longer posteriolateral spines; uropods are exceeding tip of telson, endopod shorter than exopod in length, lateral margin of exopod straight, overreached by blunt angular lamellar end, mobile mesial spine of exopod is absent.

Remarks: *M. rosenbergii* has been reported from all over India. This species is also collected from the deep water of large reservoirs or rivers along with *M. malcolmsonii*.

7. *Macrobrachium scabriculum* (Heller, 1862) (Image 6)

1862a. *Palaemon scabriculum* Heller: 527 [type locality: Sri Lanka].

1950a. *Macrobrachium scabriculum*. - Holthuis: 224.

IUCN Status: Least Concern.

Material examined: FBRC/ZSI/INV/1887, 5 specimens, 30.vii.2018, Palair Park, Palair, coll. S. Mandal; FBRC/ZSI/INV/1890, 7 specimens, 31.vii.2018, near S.H. 42, Palair, coll. S. Mandal.

Diagnostic characters: TL 9.8cm.; rostrum formula 12–15(2–3)/2–3, rostrum straight, long as 3rd segment of peduncle and 0.75 times as long as carapace; carapace rough posteriorly, antennal spine and hepatic spine present, post antennal carapace margin evenly rounded; 3rd antennular peduncle; carapace smooth, antennal spine and hepatic spine present, post antennular carapace margin evenly rounded; 3rd maxilliped does not reach up to half of antennular scale; 1st cheliped very short, equal and slender, palm equal to fingers, a dance row of setae in the lower side of palm, carpus 2.5 times as long as chela and 1.3 times as long as merus; 2nd cheliped strong, equal and well developed, movable finger covers with velvety pubescence in adults, fingers are longer than half of the palm, palm not swollen, carpus 0.8 as long as chela, 1.3 as long as merus; 3rd to 5th periopod in structure with simple dactylus; abdomen smooth, 6th segment 1.5 times as long as 5th and 0.63 as long as to telson; telson with two pairs of dorsal movable spines and two pairs of posterior spines with 12–14 plumose setae, posterior apex exceeds the tips of longer posteriolateral spines; uropods are exceeding tip of telson, endopod shorter than exopod in length, lateral margin of exopod straight, overreached by blunt angular lamellar end. The mobile mesial spine of exopod is absent.

Remarks: In India this species is distributed in Andhra Pradesh, Karnataka, Kerala, Maharashtra, Odisha, Tamil Nadu, Tripura, and West Bengal. Apart from India it has been reported from Indonesia, Kenya, Madagascar, Mozambique, and Sri Lanka. This species is collected from the deep water of large reservoirs or rivers.

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Image 4. *Macrobrachium malcolmosonii* (H.M. Edwards, 1844) from the Palair Reservoir: (FBRC/ZSI/INV/1891) A—whole animal, lateral view | B—lateral view of cephalothorax | C—first cheliped | D—second cheliped | E—chela of second cheliped | F—fifth periopod | G—telson with uropods. Scale bars: 20mm (A, B, D, E), 5mm (C, F, G). © Sudipta Mandal.
Image 5. *Macrobrachium rosenbergii* (De Man, 1879) from the Palair Reservoir: (FBRC/ZSI/INV/1420) A—whole animal, lateral view | B—lateral view of cephalothorax | C—first cheliped | D—second cheliped | E—chela of second cheliped | F—fifth periopod | G—telson with uropods. Scale bars: 20mm (A, B), 10mm (C–G). © Sudipta Mandal.
Image 6. *Macrobrachium scabriculum* (Heller, 1862) from the Palair Reservoir: (FBRC/ZSI/INV/1890) A—whole animal, lateral view | B—whole animal, dorsal view | C—lateral view of cephalothorax | D—larger 2nd cheliped | E—smaller 2nd cheliped | F—telson with uropods. Scale bars: 10mm (A–F). © Sudipta Mandal.
rounded; 3rd maxillipeds cross half of antenular scale; 1st cheliped is slender, equal and extending over the tip of the antennal scale; 2nd Cheliped stout, exhibiting sexual dimorphism in adult, in male unequal in size and shape, larger one longer than the body, much stouter than the smaller Cheliped and characterized by the presence of velvety pubescence on palm, palm longer than fingers with equal thickness, cutting edge of the fingers armed with a row of tubercles which gradually decreased in size distally, Carpus shorter than both palm and merus; smaller Cheliped shorter than the body and less pubescent, fingers longer than palm, cutting edges
8. **Barytelphusa cunicularis** (Westwood in Sykes, 1836) (Image 7)

1836. *Thelphusa cunicularis* Westwood, in Sykes & Westwood: 183; H. Milne Edwards, 1853: 209.

1970a. *Barytelphusa (Barytelphusa) cunicularis*—Bott: 335; 1970b: 31; Srivastava, 2005: 118, Pl. 1 Fig. 3.

IUCN Status: Least Concern.

Material examined: FBRC/ZSI/INV/1413, 1 specimen, Annarigudem, 14.viii.2010, coll. Dr. S.V.A. Chandrasekhar; FBRC/ZSI/INV/1455, 1 specimen, Urlakonda, 16.viii.2010, coll. Dr. S.V.A. Chandrasekhar; FBRC/ZSI/INV/1465, 1 specimen, Kotturu, 16.viii.2010, coll. Dr. S.V.A. Chandrasekhar; FBRC/ZSI/INV/1498, 2 specimens, Neredvai, 12.iv.2011, coll. Dr. S.V.A. Chandrasekhar; FBRC/ZSI/INV/1572, 2 specimens, Narasimhulugudem, 11.iv.2011, Coll. Dr. S.V.A. Chandrasekhar; FBRC/ZSI/INV/1365, one specimen, J.C. Boating & Water park, Palair, 7.xii.2016, coll. S. Mandal; FBRC/ZSI/INV/1383, 4 specimens, J.C. Boating & Water park, Palair, 16.ii.2017, coll. S. Mandal; FBRC/ZSI/INV/1889, 1 specimen, near S.H. 42, Palair, 31.viii.2018, Coll. S. Mandal.

Diagnostic characters: Carapace width 76–95 mm, CL and 0.55 as long as to telson; telson with two pairs of dorsal movable spines and 2 pairs of posterior spines with 6–7 plumose setae, posterior apex do not exceed the tips of longer posterior lateral spines; uropods are exceeding tip of telson, endopod equal to exopod in length, lateral margin of exopod straight, overreached by blunt rounded lamellar end, mobile mesial spine of exopod present.

Remarks: In India *M. scabriculum* is known from Andhra Pradesh, Karnataka, Kerala, Maharashtra, Odisha, Tamil Nadu, Tripura, Telangana, & West Bengal; Indonesia; Kenya; Madagascar; Mozambique; and Sri Lanka. This species is generally found in crevices or beneath the stones and small rocks in shallow water.

9. **Barytelphusa guerini** (H. Milne Edwards, 1853) (Image 8)

1853. *Thelphusa guerini* H. Milne Edwards, Ann. Sci. Nat. Zool., 1853: 210.

1970a. *Barytelphusa (Barytelphusa) guerini*—Bott, Abh. senckenb. naturforsch. Ges.: 33.

IUCN Status: Least Concern.

Material examined: FBRC/ZSI/INV/1411, 2 specimens, Annarigudem, 14.viii.2010, coll. Dr. S.V.A. Chandrasekhar; FBRC/ZSI/INV/1464, 1 specimen, Erragaddathanda, 16.viii.2010, coll. Dr. S.V.A. Chandrasekhar; FBRC/ZSI/INV/1496, 1 specimen, Nayakangudem, 14.viii.2010, coll. Dr. S.V.A. Chandrasekhar; FBRC/ZSI/INV/1499, 1 specimen, Neredvai, 12.iv.2011, coll. Dr. S.V.A. Chandrasekhar; ZSI/INV/1406, 3 specimens, J.C. Boating & Water park, Palair, 13.vii.2017, coll. S. Mandal, FBRC/ZSI/INV/1888, 7 specimens, Canal 1, beside Palair.
Image 8. Barytelphusa guerini (H. Milne Edwards, 1853) from the Palair Reservoir: (FBRC/ZSI/INV/1406) A—whole animal, dorsal view | B—whole animal, frontal view | C—whole animal, ventral view (male) | D—whole animal, ventral view (female) | E—third maxilliped | F—male first gonopod (G1) | G—left male second gonopod (G2). Scale bars: 20mm (A–D), 10mm (E–F). © Sudipta Mandal.

Park, 30.viii.2018, coll. S. Mandal; FBRC/ZSI/INV/1911, 1 specimen, Katta Maisamma temple, Palair, 31.viii.2018, coll. S. Mandal; FBRC/ZSI/INV/1885, 5 specimens, Small stream near agricultural field, Thammagudem, 31.viii.2018, coll. S. Mandal.

Diagnostic characters: Carapace width 49–56 mm, CL 39–43 mm, Carapace height 12–19 mm; carapace wider than long, dorsal surface is convex; anteriolateral borders...
of carapace convex and cristiform, posteriolateral borders ill-defined and convergent posteriorly; cervical groove is distinct, meets with post orbital crest (does not touch the antero lateral line); H-groove is clear; frontal width 12–16mm, frontal median triangle incomplete, epistome bilobed, without median tooth; post orbital and epigastric cristae strongly developed, fused as a continuous line, post-orbital crests trenchant, sinuous and separated from Epibranchial tooth by clearly visible cleft, external orbital tooth blunt and not separated from the lower border of the orbit, external angle of frontal median cristiform, epibranchial tooth well formed but blunt, postero-lateral borders ill-defined and convergent posteriorly; 3rd maxilliped exopod with long flagellum; suture between thoracic sternites 2–3 distinct, between 3–4 slightly visible as shallow grooves on sides; chelipeds unequal in both the sexes, Carpus has a strong sharp spine with a small accessory cusp at its inner angle, 2/3 bigger teeth in both movable and immovable fingers, rest of all apposed moderately; ambulatory legs smooth, compressed dorsoventrally, more or less same size with the chelipeds; male abdomen broad-based triangular, 6th segment broader than long, trapezoidal in shape with straight lateral margin, telson tongue-shaped, equal to 6th segment in length, abdominal cavity deep; female pleon oval-shaped, vulvae oblong, situated attached with the margin of thoracic sternite 5; G1 long, narrow, curving slightly outwards, terminal segment very long with bulged tip; G2 short, distal segment short.

Remarks: *Barytelphusa guerini* was so far only known from the states of Chhattisgarh, Gujarat, Jharkhand, Madhya Pradesh, Maharashstra, Rajasthan, and Uttar Pradesh (Pati & Thackeray 2018). The species is reported herein for the first time from Telangana based on the material from the Palair Reservoir. This species is collected from beneath the stones and small rocks in
shallow water.

10. Oziotelphusa sp. (Image 9)

Material examined: FBRC/ZSI/INV/1696, 1 specimen, 15.viii.2010, Palair Reservoir, Neradavai, coll. Dr. S.V.A. Chandrasekhar.

Diagnostic characters: Carapace greatest width 30.2mm, CL 21.4mm, carapace height 12.7mm, carapace wider than long. Dorsal surface strongly convex, surface very smooth; anterolateral borders of carapace convex, smooth and sheet-like without serration; the cervical groove distinct, disappears in a distance behind post-orbital crest, H-groove clear; frontal median triangle complete but not as broad as frontal margin, epistome trilobed, epistomal medial tooth sharp; orbit broad, external orbital tooth blunt and not separated from the lower border of the orbit, external orbital angle triangular; epigastric crest sub-trenched and slightly in advance and separated from post-orbital cristae; post-orbital crests trenchant, sinuous, separated from epibranchial tooth with visible cleft. Epibranchial tooth blunt; 3rd maxilliped exopod with strong flagellum; abdomen of the male T-shaped, suture between anterior thoracic sternites 2–3 visible as shallow, narrow groove not reaching lateral margins, but suture between sternite 3–4 indiscernible.

Remarks: The present lone male specimen from the Palair Reservoir is here referred to Oziotelphusa sp., and it has no affinities with the congeners Oziotelphusa aurantia and Oziotelphusa kerala (Bahir & Yeo 2005; Pati & Sharma 2012; Raj et al. 2017); and this unknown species are found to be new records from Telangana (cf. Pati & Thackeray 2018).

DISCUSSION

Decapods of Palair Reservoir were poorly studied until the present work. In total, 10 decapod species are currently known from the Palair Reservoir as a result of present and previous collections. Among these, four species stand as new state records: P. semisulcatus, C. gracilipes, B. guerini, and Oziotelphusa sp. Previous researchers reported 82 examples of Decapoda collected from the reservoir during the survey period of July 2009 to April 2011 (Roy et al. 2015). Among them there were two species of caridean prawns of Palaemonidae family Macrobrachium malcolmsonii (H. Milne Edwards, 1844) and M. equidens (Dana, 1852), along with three species of brachyuran crabs of Gecarcinucidae family, namely, Barytelphusa cunicularis (Westwood in Sykes, 1836), B. guerini (H. Milne Edwards, 1853), and Barytelphusa jacquemnoti ( Rathbun, 1905). B. jacquemnoti, which had a different species identity in the paper of Roy et al. (2015), has been synonymised with B. cunicularis (Pati & Sharma 2014).

In the present study, one species of Penaeid prawn and five species of caridean prawn were encountered along with two brachyuran crabs. One of the previously reported species Macrobrachium equidens has not been found in the current study period. In addition to the earlier reported prawn species Macrobrachium malcolmsonii, two other species of Palaemonidae family, i.e., M. scabriculum (Heller, 1862) and M. rosenbergii (De Man, 1879) have been encountered this time. Two species of Atyidae family, i.e., Cardinia gracilipes De Man, 1892 and C. shenoyi Jalihal, Shenoy & Sankolli, 1984 have also been recorded this time. Further discussion on Genus Cardinia will be provided elaborately in near future. Importantly, none of the species of Oziotelphusa were present in the current sampling, however, one specimen of the previous collections identified up to the genus level (Oziotelphusa sp.), barely has affinities with the congeners Oziotelphusa aurantia and Oziotelphusa kerala. Further identification up to the species level of this Oziotelphusa specimen requires further collections from the location, which will be conducted in the near future.

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ISSN 0974-7907 (Online) | ISSN 0974-7893 (Print)
August 2020 | Vol. 12 | No. 11 | Pages: 16407–16646
Date of Publication: 26 August 2020 (Online & Print)
DOI: 10.11609/jott.2020.12.11.16407-16646