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CERTAIN AQUATIC INSECTS OF REWA WITH NOTES
ON THEIR HABITAT

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INTRODUCTION

This paper presents an account of the aquatic insects of Mauganj, Teonthar, Sirmour and Huzur tahsils of Rewa district. Trips were made to various tahsils for collections. At Teonthar tahsil specimens were collected from river Tamas, at Sirmour from Semaria pond, at Mauganj from Mauganj pond, at Huzur tahsil from river Behar and Lalpa, Lakhoriabag, Bahurian ponds.

Paper lists seventeen species of aquatic insects representing four families under two orders.

SYSTEMATICS

Order : HEMIPTERA
Family : NEPIDAE

1. *Laccotrephes ruber* (Linn.)

1764. *Laccotrephes ruber*, Linn., (Nepa) *Mus. Lud. Utr.* p., 165. 2.

1939. *Laccotrephes ruber*, Distant., *Fauna of British India. Rhynchota. III*, p. 18.

Femora of all the legs are marked with fuscus shading but the shadings of anterior femora are much more prominent. Length of the body is greater than that of respiratory siphons. Total length of head and thorax is greater than the anterior femora. Other characters as in Hafiz and Pradhan (1947).

Measurements : Length of male and female specimens vary from 25-27 and 35.5-39 mm. respectively.

Locality : Specimens were collected from Chirahula pond and ditches near Sanik School, Rewa.

Habitat : These are lentic and live in between *Hydrilla verticillata* plants.

Distribution : India : West Bengal, Bihar, Uttar Pradesh, Madras, Bombay.

2. *Laccotrephes griseus* (Guer.)

1829. *Laccotrephes griseus*, Guer., *Iconogr. Règne. Anim ; Ins*, P. 352.

1939. *Laccotrephes griseus*, Distant., *Fauna of British India. Rhynchota. V*, p. 314.

These have fuscus shadings on the femora, shadings on the anterior femore are much more prominent. Length of the respiratory siphons is greater than the body. Length and breadth of the pronotum are equal. Total length of the head and thorax is greater than the anterior femora. Other characters as in Hafiz and Pradhan (1947).

Measurements : Length of male and female, specimens vary from 14-17 and 17-19 mm. respectively.

Locality : Specimens were collected from Lalpa, Bahurian and Mauganj ponds.

Habitat : These are lentic and live in between *Hydrilla Verticillata* plants.

Distribution : India ; West Bengal, Bihar, Orrisa, Uttar Pradesh, Punjab, Bombay and Madras.

3. *Laccotrephes maculatus* (Fabr.)

1775. *Laccotrephes maculatus*, Fabr. (Nepa), *Syst. Ent*, p. 692.

1939. *Laccotrephes maculatus*, Distant., *Fauna of British India. Rhynchota. III*, p. 19.

Femora of all the legs with fuscus shadings. Respiratory siphons a little longer than the body. Total length of the head and the thorax is greater than the anterior femora.

Measurements : Length of male and female specimens vary from 49.5-50.5-60 mm. respectively.

Locality : Specimens were collected from Lakhauribag, Bahurian and Mauganj ponds.

Habitat : These are lentic and live in between *Hydrilla verticillata* plants.

Distribution : India : West Bengal, Assam, Bombay. It is unreported from Patna State (Orrisa).

4. *Ranatra elongata* (Fabr.)

1790. *Ranatra elongata*, Fabr., *Skrivt. of Naturh, Selsk. I*, i, p. 228.

1908. *Ranatra elongata*, Distant., *Fauna of British India. Rhynchota. III*, pp. 20, 21.

Respiratory siphons longer than the body. Total length of the head and the thorax is greater than the anterior femora. Dorsal surface of

pronotum bears a pair of dull coloured dotted longitudinal streaks. The vertex bears a 'Y' shaped elevation. Other characters as in Hafiz and Pradhan (1947).

Measurements : Length of male and female specimens vary from 95-100 and 101-102 mm. respectively.

Locality : Specimens were collected from Behar, Tamas rivers and Lalpa, Lakhauribag ponds.

Habitat : These are lotic and lentic in habitat and live in between *scirpus articulatus* and *Hydrilla verticillata* plants respectively.

Distribution : India : Kashmir, West Bengal, Bombay, Nilgiri hills.

5. *Ranatra digitata* (Hafiz and Pradhan)

1947. *Ranatra digitata*, Hafiz and Pradhan., *Rec. Ind. Mus. Vol. XLV*, p. 364.

Total length of the head and thorax is greater than the anterior femora. Hook shaped paramer broadest in the middle, narrow and semi-circularly curved in distal parts with narrow apical upward and backwardly directed blunt process. Other characters as in Hafiz and Pradhan (1947).

Measurements : Length of male and female specimens vary from 54-55 and 57-58 mm. respectively.

Locality : These specimens were collected from Chirahula pond.

Habitat : These are lentic and live in between *Hydrilla verticillata* plants.

Distribution : India : Patna state (Orrisa).

6. *Ranatra sordidula* (Dohrn.)

1860. *Ranatra sordidula*, Dohrn., *Stett. ent. Zeit. XXI*, p. 409.

1906. *Ranatra sordidula*, Distant., *Fauna of British India. Rhynchota III*, p. 25.

The description of the species (*vide* distant 1906) is meagre. The characters observed in the examples collected are noted below.

The posterior femora reach upto the middle of the genital segment. Prothoracic sterna bear two shallow grooves at their anterior end, meta sternal process ovate, a little foveate with a central longitudinal carinata line. Second antennal joint thumb shaped and blackish at the tip. The third elongate and curved. Respiratory siphons shorter than the body. Length of the head and thorax is greater than the anterior femora.

Measurements : Length of male and female specimens vary from 46-47 and 47.5-48 mm. respectively.

Locality : Specimens were collected from Lalpa pond and ditches near Chirahula temple Rewa.

Habitat : These are lentic and live in between *Hydrilla verticillata* plants.

Distribution : India : West Bengal, Madhya Pradesh.

7. *Ranatra titiaensis* (Hafiz and Pradhan)

1947. *Ranatra titiaensis*, Hafiz and Pradhan., *Rec. Ind. Mus. Vol. XLV* p. 369.

Total length of the body is greater than the respiratory siphons. Length of the head and the prothorax is equal to that of anterior femora. Other characters as in Hafiz and Pradhan (1947).

Measurements : Length of male and female specimens vary from 33-34 and 34.5-35 mm. respectively.

Locality : Specimens were collected from Semaria and Lalpa ponds.

Habitat : These are lentic and live in between *Hydrilla verticillata* plants.

Distribution : India : Patna state (Orrisa), Madhya Pradesh.

Family : BELOSTOMATIDAE

8. *Sphaerodema annulatum* (Fabr.)

1803. *Sphaerodema annulatum*, Fabr. (Nepa) *Syst. Rhyng.* p. 106.

1939. *Sphaerodema annulatum*, Distant., *Fauna of British India. Rhynchota. III*, p. 35.

Hemelytra lacking the spot of fine bristles, hind wing lacking the fold, Hemelytra bears a row of fine hair at its distal end. Anterior tarsus two jointed and bear a pair of claws. Antennal foveae lie comparatively at a shorter distance from eyes than in *Sphaerodema molestum*. Antenna are four segmented, the third segment is slightly prolonged on its inner and outer sides.

Measurements : Length of male and female specimens vary from 25-26 and 26-27 mm. respectively.

Locality : Specimens were collected from Lalpa, Lakhauribag and Bahurian ponds.

Habitat : These are lentic and live in between *Nymphioides cristatum* and *Hydrilla verticillata* plants.

Distribution : India : West Bengal, Uttar Pradesh, Bombay.

9. **Sphaerodema molestum** (Duf.)

1863. *Sphaerodema molestum* Duf. (Appasus) *Ann. Soc. Ent. Fr.*, p. 395.

1939. *Sphaerodema molestum*, Distant., *Fauna of British India. Rhynchota. III*, p. 36.

Hemelytra bears a spot of fine bristles on the middle towards its inner side. Hind wing bears a fold. The fold is shorter than that of *Sphaerodema rusticum*. Anterior tarsus one jointed and bears a pair of claws. Antennae four segmented, second and the third segments are prolonged to form processes on their inner sides. Antennal favae lie comparatively at a farer, distance from the eyes, than in *Sphaerodema annulatum*.

Measurement : Length of male and female specimens varies from 16-17 and 19-20 mm. respectively.

Locality : Specimens were collected from Lakhauribag, Bahurian, Lalpa ponds and ditches near Chirahula temple Rewa.

Habitat : These are lentic and live in between *Nymphoides cristatum* and *Hydrilla verticillata* plants.

Distribution : India : West Bengal, Bombay, Uttar Pradesh.

10. **Sphaerodema rusticum** (Fabr.)

1803. *Sphaerodema rusticum*, Fabr. (Nepa) *Syst. Rhynq.*, p. 106.

1939. *Sphaerodema rusticum*, Distant., *Fauna of British India. Rhynchota. III*, p. 36.

Hemelytra bears a spot of the fine bristles on the middle towards its inner side. Hind wing bears a distinct fold. Anterior tarsus one jointed and bears a pair of claws. In *Sphaerodema rusticum* antennal fovae lie at a comparatively shorter distance from the eye than in *Sphaerodema annulatum* and *Sphaerodema molestum*. Antennae four segmented, second and third segments are prolonged to form processes on their inner sides.

Measurements : Length of the male and female specimens varies from 17-18 and 18-19 mm. respectively.

Locality : Specimens were collected from Lakhauribag, Bahurian, Lalpa ponds and also from river Behar.

Habitat : These are lotic and lentic in habitat and live in between *Scirpus articulatus* and *Hydrilla verticillata* plants respectively.

Distribution : India : West Bengal, Bihar, Uttar Pradesh.

11. **Belostoma indicum** (Lep. et Serv.)

1775. *Belostoma indicum*, Lep. & Serv., *Encycl. Meth.* X, p. 272.

1939. *Belostoma indicum*, Distant., *Fauna of British India. Rhynchota. III*, p. 38.

Elongate giant, bugs, Antoculus moderately developed. Eyes longer than its width, beak relatively shorter and stout. Second, third and fourth antennal segment bear dorsally a finger like appendage, the fourth segment in addition to appendages also bears a pair of small projections. Front femur strongly dilated and bears two grooves for reception of tibia, front tarsus three segmented, tarsus and tibia dorsally and laterally compressed. Corium with strong anastomosing longitudinal veins, with numerous branches which form elongate narrow cells.

Measurements : Length of male and female specimens vary from 67-68 and 84-85 mm. respectively.

Locality : Specimens were collected from river Behar and Bahurian, Lalpa, Lakhauribag ponds.

Habitat : These are lotic and lentic in habitat and live in between *scirpus articulatus* and *Hydrilla verticillata* plants, respectively.

Distribution : India : Bombay, West Bengal, Uttar Pradesh.

Order : ODONATA

Family : COENAGRIIDAE

12. Larva : **Copera marginipes** (Ramb.)

1842. *Platycnemis marginipes*, Ramb., *Ins. Ne'vrop*, p. 240.

1890. *Copera marginipes*, Kirby., *Cat. odon*, p. 129.

1933. *Copera marginipes*, Fraser., *Fauna of British India. odonata. I*, p. 192.

Length of the tracheal gills is equal to the total length of the head and thorax. These are dark brown in colour. A peculiar feature of these larvae is that their tracheal gills are carried spread over their abdomen like the sting of a scorpion. The tracheal gills are flat, triangular structures and bear filamentous processes. These are ornamented with brown patches. Other characters as in Kumar (1973).

Measurements : Length of male and female specimens vary from 13-16 and 16-18 mm. respectively.

Locality : Specimens were collected from Behar and Tamas rivers.

Habitat : These are lotic and prefer to live in between *Ipomea crossicaulis* plants.

13. Larva : **Pseudagrion decorum** (Rambur.)

1842. *Agrion decorum*, Ramb., *Ins. Nevrop*, p. 258.

1876. *Pseudagrion decorum*, Selys., *Bull. Acad. Belg. (2)* Vol. XIii, p. 504.

1933. *Pseudagrion decorum*, Fraser., *Fauna of British India. Odonata, I*, p. 286.

Length of the tracheal gill is less than the total length of head and the thorax. These are yellowish green in colour. Each of the dorsal and ventral margin of the tracheal gill bears a mid dorsal and a mid ventral spine. Other characters as in Kumar (1973).

Measurements : Length of male and female specimens vary from 22-25 and 22-26 mm. respectively.

Locality : These specimens were collected from Behar and Tamas rivers and also from Lakhauribag pond.

Habitat : These are lotic and lentic in habitat. Animals living in ponds are found in between *Hydrilla verticillata* and those living in river in between *Polygonum barbatum* plants.

14. Larva : **Ceriagrion coromandelianum** (Fabr.)

1798. *Agrion coromandelianum*, Fabr., *Ent. Syst. Suppl.*, p. 287.

1876. *Ceriagrion coromandelianum*, Selys., *Bull. Acad. Belg. (2)* Vol. XIii, p. 528.

1933. *Ceriagrion coromandelianum*, Fraser., *Fauna of British India. Odonata. I*, p. 314.

Length of the tracheal gill is less than the total length of head and the thorax. Tracheal gills are lanceolate in shape. Other characters as in Kumar (1973).

Measurements : Length of male and female specimens vary from 19-21 and 22-22 mm. respectively.

Locality : These specimens were collected from Bahurian pond.

Habitat : These are lentic and live in between *Trapa bispinosa* and *Najas minor* plants.

15. Larva : **Ischnura delicata** (Hagen.)

1858. *Agrion delicatum*, Hagen., *Verh. Zool. bot. Ges. Wien*, Vol. Viii, p. 479.

1876. *Ischnura delicata*, Selys., *Bull. Acad. Belg. (2)* Vol. Xli, p. 281.

1933. *Ischnura delicata*, Fraser., *Fauna of British India. Odonata. I*, p. 360.

Length of the tracheal gills is less than the total length of the head and the thorax. The tracheal gills are oblong in shape. Tips of the tracheal gills in *Ischnura delicata* are more pointed in comparison to

the tracheal gills of *Ischnura senegalensis*. Other characters as in Kumar (1973).

Measurement : Length of male and female specimens vary from 15-16 and 17-19 mm, respectively.

Locality : These specimens were collected from Lalpa, Lakhauribag ponds and also from river Behar.

Habitat : These are lotic and lentic in habitat, those in habiting ponds live in between *Hydrilla verticillata* and those of river live in between *Polygonum barbatum* plants.

16. Larva : *Ischnura senegalensis* (Rambur.)

1876. *Agrion senegalensis*, Ramb. *Ins. Nevrop*, p. 276.

1876. *Ischnura senegalensis*, Selys., *Bull. Acad. Belg. (2)* Vol. Xli, p. 273.

1933. *Ischnura senegalensis*, Fraser., *Fauna of British India. Odonata. I*, p. 348.

Length of the tracheal gills is less than the total length of the head and the thorax. Tips of the tracheal gills in *Ischnura senegalensis* are less pointed in comparison to the tracheal gills of *Ischnura delicata*. Other characters as in Kumar (1973).

Measurements : Length of male and female specimens vary from 14-17 and 18-19 mm. respectively.

Locality and Habitat : Is similar to that of *Ischnura delicata*.

Family : ACRIIDAE

17. *Libellago lineata* (Burmeister.)

1839. *Calopteryx lineata*, Burmeister., *Handb. Ent.* Vol. ii, p. 826.

1840. *Libellago lineata*, Selys., *Mon. Lib. Eur.* p. 200.

1984. *Libellago lineata*, Fraser., *Fauna of British India. Odonata. II*, p. 60.

Length of the siphons is less than the total length of the head and the thorax. These are deep brown in colour. Posterior end of the abdomen bears a pair of cylindrical, conical structures. Tracheal gills are absent. In *Libellago lineata* epiproct is absent and is replaced by a small stumpy projection ; cerci from long cylindrical structures.

Measurements : Length of male and female specimens vary from 19-20 and 21-22 mm. respectively.

Locality : These specimens were collected from Behar and Tamas rivers.

Habitat : These are lotic in habitat and live in between *Polygonum barbatum* plants.

GENERAL OBSERVATIONS

These aquatic insects inhabit cool and undisturbed sheets of water preferably areas of shaded standing waters. These are scarce in the big lakes even having all their many fold niches for aquatic life. In big lakes, factors such as wave action, wind velocity and scarcity of emergent vegetation presumably act as deterrents (Macan 1963), small ponds with pleuston consisting of *Vallisneria*, *Hydrilla*, *Najas*, *Nymphoides*, *Polygonum* and similar but submerged vegetation on the banks, provide necessary shade and suitable retreat near the surface. The aerial mode of respiration and incapacity to remain submerged for longer time in *Nepidae* and *Belostomatidae* plays an important role in the distribution of these insects. It is then reasonable that the presence of algal scum is unfavourable to them since its growth hinders their surfacing activity.

Aquatic insect population is quite abundant and active during the months of July to March and during remaining summer months they are rather difficult to collect. It has been noticed that at cooler and much shaded places like Semaria, Mauganj and Bahurian ponds the insect population is quite abundant even in the peak summer months.

SUMMARY

The authors are grateful to Dr. B. K. Tikader, Director, Zoological Survey of India for the facilities given for the publication of this paper. Paper describes nineteen species of aquatic insects found in variety of habitats of Rewa district. Short descriptions of the insects have been given with a view to enable one to identify them even in field. The general composition is predominated by members of the family *Nepidae* and the larval forms of *Zygopterous* dragonflies.

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