ON A COLLECTION OF AQUATIC BEETLES (ORDER: COLEOPTERA: GYRINIDAE, DYTISCIDAE AND HYDROPHILIDAE) OF RENUKA WILDLIFE SANCTUARY, HIMACHAL PRADESH, INDIA

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INTRODUCTION:

The Renuka Wildlife Sanctuary (RWLS) is situated in the low subtropical zone and located about 60 kilometres from Nahan in Sirmour district of Himachal Pradesh. The total area of the sanctuary is about 4.028 square kilometres. The aquatic insects were collected between the Longitude of 77.4509 and Latitude of 30.6105 at an altitude of 668 meters. The entire sanctuary is Renuka Reserve Forest and has been declared as Abhayaranya. An area of roughly about 3 square kilometres that lies outside the sanctuary has been declared as a buffer belt.

The present studies on aquatic beetles from Renuka Wildlife Sanctuary deal with 13 species referable to 10 genera and 3 families (Gyrinidae, Dytiscidae and Hydrophilidae) of aquatic Coleoptera were recorded is based on a small collection, collected from different parts of Sanctuary of Himachal Pradesh by authors in October 2012. The species Rhantaticus congestus (Klug) and Hydaticus ricinus Wewalka are first time recorded from Himachal Pradesh state and 9 species among 13 species are first recorded from Renuka Wildlife Sanctuary. The current knowledge of aquatic beetle fauna of Renuka Wildlife Sanctuary of Himachal Pradesh are conducted by High Altitude Station, Zoological Survey of India, Solan. Biswas (2000) treated Hydroglyphus flammulatus Macleay as a synonym for Hydaticus fabricii Macleay; altogether, a list of 28 aquatic species belonging 6 families (Gyrinidae, Dytiscidae, Hydrophilidae, Georyssidae, Byrrhidae and Elmidae) of aquatic Coleoptera currently known from Renuka Wildlife Sanctuary and few photographs of the species are also appended.

SYSTEMATIC LIST

Family GYRINIDAE
1. Dineutus (Protodineutus) indicus Aube, 1938
2. Rhantaticus congestus (Klug, 1833)
3. Hydaticus (Prodaticus) ricinus Wewalka, 1979
4. Hydroglyphus flammulatus (Sharp, 1882)
5. H. pradhami (Vazirani, 1969)
6. L. inefficiens (Walker, 1859)
7. L. sharpi Regimbart, 1889

Family DYTISCIDAE
8. Sternolophu srufipes (Fabricius, 1792)
9. Amphiope spadestris Sharp, 1890
10. Holochara sanchoralis Sharp, 1890
11. Berosu sindicus Motschulsky, 1861
12. B. pulchellus Mcleay, 1825
13. Regimbartia attenuata Fabricius, 1801
SYSTEMATIC ACCOUNT

Key to the families of aquatic Coleoptera known from examined materials of Renuka WLS.

1. Metacoxae fused with metasternum. Maxillary palpi not longer than antennae. .............................. 2
   - Metacoxae not fused with metasternum. Maxillary palpi often elongated and longer than antennae. Last glabrous joint obconic or more or less asymmetrical cuplike, embracing the pubescent club. ...........................................Hydraphilidae

2. Eyes divided, appearing as dorsal and ventral pair; antennae short and stout; middle and hind legs short and flattened, tarsi folding fanwise .............................................................................Gyrinidae
   - Eyes not divided, antennae elongate, slender; middle and hind legs with tarsi not modified. ...........................................................Dytiscidae

I. Family GYRINIDAE

(1) Genus Dineutus Macleay, 1825


1. Dineutus (Protodineutus) indicus Aube, 1938


   Distribution: India: Himachal Pradesh, Andhra Pradesh, Bihar, Gujarat, Karnataka, Jammu & Kashmir, Kerala, Madhya Pradesh, Maharashtra, Orissa, Rajasthan, Tamil Nadu, Uttar Pradesh and West Bengal.

   Elsewhere: Pakistan.

   Remarks: This species is recorded for the first time from this Sanctuary.

II. Family DYTISCIDAE

Key to the species of Dytiscidae known from examined materials of Renuka WLS.

1. Scutellum visible. ....................................................... 2
   Scutellum not visible. .............................................. 3

2. Suture between the metepisternum and metasternal wings straight; apical spurs of the hind tibiae simple, pointed. ............ Hydaticus ricus Wewalka
   - Suture between the metepisternum and metasternal wings traight; apical spurs of the hind tibiae simple, pointed. ....... Hydaticus vicinus Wewalka

3. Fourth segment of the pro and mesotarsi much reduced, hardly visible; prosternal process arched and oblique. .............................................. 4
   - Fourth segment of the pro and mesotarsi not reduced and sub-equal to the 3rd tarsal segment, prosternal Process straight, occasionally a little depressed. .............................................. 5

4. Laterobasal plica on pronotum not continued on elytra, Length 2.4 mm. ........................................... Hydroglyphus flammulatus (Sharp)
   - Laterobasal plica on pronotum, minutely continued (as small point) on elytra, Length 2.3 mm. ........................................... Hydroglyphus pradhani (Vazirani)

5. Elytra testaceous, with solid brown/black irrotations. .......... Laccaphilus inefficiens (Walker)
   - Elytra markings consisting of zigzag double lines, clear and thick but never coalescent .........................................................Laccaphilus sharpi Regimbart

(2) Genus Rhantaticus Sharp, 1882


2. Rhantaticus congestus (Klug, 1833)


   Distribution: India: Andhra Pradesh, Arunachal Pradesh, Delhi, Madhya Pradesh, Maharashtra, Manipur, Orissa, Rajasthan, Tamil Nadu, Uttar Pradesh and West Bengal.

   Elsewhere: Bangladesh, Nepal, China, Japan, Madagascar, Philippines, Saudi Arabia, Sunda Islands, Taiwan, Afro tropical region, Australian region and North Africa.

   Remarks: This species is recorded for the first time from Himachal Pradesh.
(3) Genus *Hydaticus* Leach, 1817


3. *Hydaticus* (*Prodaticus*) *ricinus*

Wewalka, 1979


**Material Examined:** Himachal Pradesh, Sirmour district, Renuka Wildlife Sanctuary, 77.4509N, 30.6105E, alt. 668 meters, 3.X.2012, coll. S.K. Ghosh & V.D. Hegde (2ex.).

**Distribution:** India: Assam and Tamil Nadu.


**Remarks:** This species is first time recorded from Himachal Pradesh state.

(4) Genus *Hydroglyphus* Motschulsky, 1853


4. *Hydroglyphus flammulatus* (Sharp, 1882)


**Material Examined:** Himachal Pradesh, Sirmour district, Renuka Wildlife Sanctuary, 77.4509N, 30.6105E, alt. 668 meters, 3.X.2012, coll. S.K. Ghosh & V.D. Hegde (2ex.).

**Distribution:** India: Bihar and Himachal Pradesh.

Elsewhere: Not yet recorded.

**Remarks:** This species is recorded for the first time from this Sanctuary.

(5) Genus *Laccophilus* Leach, 1817


**Material Examined:** Himachal Pradesh, Sirmour district, Renuka Wildlife Sanctuary, 77.4509N, 30.6105E, alt. 668 meters, 3.X.2012, coll. S.K. Ghosh & V.D. Hegde (2ex.).

**Distribution:** India: Andaman & Nicobar Islands, Andhra Pradesh, Assam, Bihar, Goa, Gujarat, Himachal Pradesh, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Manipur, Meghalaya, Orissa, Punjab, Rajasthan, Sikkim, Tamil Nadu, Tripura, Uttar Pradesh and West Bengal.

Elsewhere: Bangladesh, Bhutan, Myanmar, Nepal, Pakistan, Sri Lanka, Indonesia, Iran and Malaysia.

**Remarks:** This species is recorded for the first time from this Sanctuary.
7. Laccophilus sharpi Regimbart, 1889


Distribution: India: Andaman & Nicobar Islands, Assam, Bihar, Delhi, Gujarat, Haryana, Himachal Pradesh, Kerala, Madhya Pradesh, Maharashtra, Manipur, Meghalaya, Orissa, Pondicherry, Rajasthan, Sikkim, Tamil Nadu, Tripura, Uttarakhand, Uttar Pradesh and West Bengal.

Elsewhere: Myanmar, Nepal, Pakistan, Sri Lanka, China, Hong Kong, Indonesia, Iran, Iraq, Japan, Philippines, Saudi Arabia, South Korea, Taiwan, Vietnam, African region and Australian region.

Remarks: Biswas (2000) recorded this species from the Sanctuary.

III. FAMILY HYDROPHILIDAE

Key to the species of Hydrophilidae known from examined materials of Renuka WLS.

1. Antennae 9-segmented; Scutellum not longer than its width at base................................................ 2
   - Antennae 8-segmented; Scutellum a long triangle ........................................................... 3

2. Meso and metasternal carinae united intimately and forming only one ridge .................................. Sternolophus rufipes (Fabricius)
   - Meso and metasternal carinae not united intimately, maxillary palpi more or less slender............. Helochares anchoralis Sharp

3. Eyes divided by a conspicuous, complete canthus reaching vertex behind; posterior legs without swimming hairs ............ Amphiops pedestris Sharp
   - Eyes very convex, prominent canthus; posterior legs with swimming hairs.................................. 4

4. Antennae composed of 8 segments (5+3) ........................................ Regimbartia attenuata Fabricius
   - Antennae composed of 7 segments (4+3) ............ 5

5. Elytra apex with spin, smaller species, elytra shining ......................... Berosus indicus Motschulsky
   - Elytra apex without spin, pronotum with black patch............................................. Berosus pulchellus Mcleay

(6) Genus Sternolophus Solier, 1834


8. Sternolophus rufipes (Fabricius, 1792)


Distribution: India: Jammu & Kashmir, Andhra Pradesh, Bihar, Maharashtra, Meghalaya, Manipur, Punjab, Sikkim, Tripura, Uttar Pradesh and West Bengal.

Elsewhere: Myanmar, Philippines, Japan, Formosa, Indonesia, Indochina, China and Sri Lanka.

Remarks: Biswas (2000) recorded this species from the Sanctuary.

(7) Genus Amphiops Erichson, 1843


9. Amphiops pedestris Sharp, 1890


Distribution: India: West Bengal and Himachal Pradesh.

Elsewhere: Sri Lanka.

Remarks: Biswas (2000) recorded this species from the Sanctuary.

On Genus Helochares Mulsant, 1844


10. Helochares anchoralis Sharp, 1890

On A Collection of Aquatic Beetles


**Material Examined:** Himachal Pradesh, Sirmour district, Renuka Wildlife Sanctuary, 77.4509N, 30.6105E, alt. 668 meters, 3.X.2012, coll. S.K. Ghosh & V.D. Hegde (1ex.).

**Distribution:** India: Andhra Pradesh, Assam, Bihar, Manipur, Tripura, Uttar Pradesh and West Bengal.

**Elsewhere:** Sri Lanka, Indochina, Indonesia, Philippines, Laos, Tonkin, Cambodia and China.

**Remarks:** This species is first time recorded from this Sanctuary.

(9) Genus **Berosus** Leach, 1817


11. Berosus sindicus Motschulsky, 1861


**Material Examined:** Himachal Pradesh, Sirmour district, Renuka Wildlife Sanctuary, 77.4509N, 30.6105E, alt. 668 meters, 3.X.2012, coll. S.K. Ghosh & V.D. Hegde (3ex.).

**Distribution:** India: Andhra Pradesh, Bihar, Goa, Karnataka, Kerala, Manipur, Pondicherry, Punjab, Rajasthan, Sikkim, Tamil Nadu, Tripura, Uttar Pradesh and West Bengal.

**Elsewhere:** Sri Lanka, China, Myanmar, Formosa, Indonesia, Philippines, Cambodia, Laos, Indochina, Tonkin, Pakistan, Nepal and Bangladesh.

**Remarks:** Biswas (2000) recorded this species from the Sanctuary.

12. Berosus pulchellus Mcleay, 1825


**Material Examined:** Himachal Pradesh, Sirmour district, Renuka Wildlife Sanctuary, 77.4509N, 30.6105E, alt. 668 meters, 3.X.2012, coll. S.K. Ghosh & V.D. Hegde (1ex.).

**Distribution:** India: Andhra Pradesh, Assam, Bihar, Delhi, Haryana, Karnataka, Kerala, Maharashtra, Manipur, Meghalaya, Nagaland, Pondicherry, Punjab, Rajasthan, Sikkim, Tamil Nadu, Uttar Pradesh and West Bengal.

**Elsewhere:** Philippines, Myanmar, Indonesia, Sri Lanka and Indochina.

**Remarks:** This species is recorded for the first time from this Sanctuary.

On Genus **Regimbartia** Zaitzev, 1908


13. **Regimbartia attenuata** Fabricius, 1801


**Material Examined:** Himachal Pradesh, Sirmour district, Renuka Wildlife Sanctuary, 77.4509N, 30.6105E, alt. 668 meters, 3.X.2012, coll. S.K. Ghosh & V.D. Hegde (2ex.).

**Distribution:** India: Andhra Pradesh, Andaman Is., Bihar, Manipur, Nicabor Is., Punjab, Rajasthan, Sikkim, Tamil Nadu, Tripura, Uttar Pradesh and West Bengal.

**Elsewhere:** Sri Lanka, S. Asia, Philippines, Sunda Is., Australia, Japan, Formosa, Indonesia, Cambodia, Cochinchina and Indochina.

**Remarks:** This species is recorded for the first time from this Sanctuary.

**SUMMARY**

This paper deals with thirteen species under ten genera and 3 families of Gyrinidae, Dytiscidae and Hydrophilidae. Two species from Himachal Pradesh and nine species from Renuka WLS are first time recorded in this paper. Biswas (2000) recorded 20 aquatic beetles species under 6 families from Renuka Wildlife Sanctuary. Altogether, a list of 28 aquatic species belonging 6 families of aquatic Coleoptera currently known from Renuka Wildlife Sanctuary.
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REFERENCES


Wewalka, G. 1979: Revision der Artengruppe des Hydaticus (Guignotites) fabricii (Macleay), (Col., Dytiscidae). Koleopterologische Rundschau 54: 119-139.
List of species known from Renuka Wildlife Sanctuary:

**Family GYRINIDAE**
1. *Dineutus (Protodineutus) indicus* Aube
2. *Orectochilus (s.str.) murinus* Regimbart
3. *O. (Patrus) neglectus* Ochs

**Family DYTISCIDAE**
4. *Rhantaticus congestus* (Klug)
5. *Sandracottus dejani* (Aube)
6. *S. festivus* (Illiger, 1801)
7. *Hydaticus (Prodaticus) ricinus* Wewalka
8. *Hydroglyphus flammulatus* (Sharp)
9. *H. pradhani* (Vazirani)
10. *Hydrovatus* sp.
11. *Hyphoporus elevates* Sharp
12. *Laccophilus flexuosus* Aube
13. *L. inefficiens* (Walker)

**Family HYDROPHILIDAE**
14. *L. parvulus parvulus* Aube
15. *L. sharpi* Regimbart

**Family GEORYSSIDAE**
16. *Georyssus* sp.
17. *Byrrhus* sp.

**Family BYRRHIDAE**
18. *Byrrhus* sp.

**Family ELMIDAE**
19. *Berosus indicus* Motschulsky
20. *B. pulchellus* McLay
21. *Regimbartia attenuata* Fabricius
22. *Hydrodora* sp.
23. *Laccobius* sp.
24. *Coelostoma* sp.