



**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 limited to the work of Biswas (2000) recorded 20 aquatic beetles species under 6 families from Renuka Wildlife Sanctuary, those materials were

conducted by High Altitude Station, Zoological Survey of India, Solan. Biswas (2000) treated *Hydaticus fabricii* Macleay as a synonym for *Hydaticus ricinus* Wewalka; 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

Family DYTISCIDAE

2. *Rhantaticus congestus* (Klug, 1833)
3. *Hydaticus (Prodaticus) ricinus* Wewalka, 1979
4. *Hydroglyphus flammulatus* (Sharp, 1882)
5. *H. pradhani* (Vazirani, 1969)
6. *L. inefficiens* (Walker, 1859)
7. *L. sharpi* Regimbart, 1889

Family HYDROPHILIDAE

8. *Sternolophu sruufipes* (Fabricius, 1792)
9. *Amphiop spedestris* Sharp, 1890
10. *Helochare sanchoralis* Sharp, 1890
11. *Berosu indicus* 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.....*Hydrophilidae*
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, 18251825. *Dineutus* Macleay: *Ann. Jav.*1: 30.1. *Dineutus (Protodineutus) indicus* Aube, 19381938. *Dineutus indicus* Aube: *Species Coleopters*, 6: 772.

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: 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 wing, curved; apical spurs of the hind tibiae blunt, more or less bifid*Rhantaticus congestus* (Klug)

- Suture between the metepisternum and metasternal wings straight; apical spurs of the hind tibiae simple, pointed..... *Hydaticus ricinus* 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.....*Laccophilus inefficiens* (Walker)
- Elytra markings consisting of zigzag double lines, clear and thick but never coalescent*Laccophilus sharpi* Regimbart

(2) Genus *Rhantaticus* Sharp, 18821882. *Rhantaticus* Sharp: *Sci. Trans. R. Dublin Soc.*, 2: 691.2. *Rhantaticus congestus* (Klug, 1833)1833. *Hydaticus congestus* Klug: *Symb. Physicae, Insectes Madagascar*, p. 48.1885. *Rhantaticus congestus*: Branden, *Ann. Soc. Ent. Belg.* 29, (1): 107.2012. *Rhantaticus congestus*: Ghosh & Nilsson, *Skorvoppn supplement*, 3: 18.

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, Arunachal Pradesh, Delhi, Madhya Pradesh, Maharashtra, Manipur, Orissa, Rajasthan, Tamil Nadu, Uttarakhand, Uttar Pradesh and West Bengal.

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

Remarks: This species is recorded for the first time from Himachal Pradesh.

(3) Genus *Hydaticus* Leach, 18171817. *Hydaticus* Leach: *Zool. Miscell.*, 3: 69, 72.3. *Hydaticus (Prodaticus) ricinus*

Wewalka, 1979

1979. *Hydaticus ricinus* Wewalka: *Koleopterologische Rundschau* 54:128.2000. *Hydaticus fabricii*: Biswas, *Fauna of Renuka Wetland*, Zoological Survey of India, 2: 97-103.2012. *Hydaticus (Prodaticus) ricinus*: Ghosh & Nilsson, *Skorvopparn supplement* 3: 27.

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.

Elsewhere: Afghanistan, Bhutan, Myanmar, Nepal, Pakistan, Sri Lanka, China, Laos, Thailand, Vietnam.

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

(4) Genus *Hydroglyphus* Motschulsky, 18531853. *Hydroglyphus* Motschulsky: *Imprimerie de la Societe de Literature Finnoise*, p. 5.2012. *Hydroglyphus*: Ghosh & Nilsson, *Skorvopparn supplement* 3: 29.4. *Hydroglyphus flammulatus* (Sharp, 1882)1882. *Bidessus flammulatus* Sharp: *Sci. Trans. R. Dublin Soc.*, 2: 359.1988. *Hydroglyphus flammulatus*: Bistrom, *Acta zool. Fenn.* 184: 12.2012. *Hydroglyphus flammulatus*: Ghosh & Nilsson, *Skorvopparn supplement* 3: 29.

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, Andhra Pradesh, Bihar, Gujarat, Himachal Pradesh, Kerala, Madhya Pradesh, Maharashtra, Manipur, Meghalaya, Orissa, Rajasthan, Sikkim, Tamil Nadu, Tripura, Uttar Pradesh and West Bengal.

Elsewhere: Pakistan and China.

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

5. *Hydroglyphus pradhani* (Vazirani, 1969)1969. *Guignotus pradhani* Vazirani: *Oriental Insects* 2: 315.1988. *Hydroglyphus pradhani*: Bistrom, *Acta zool. Fenn.* 184: 14.2012. *Hydroglyphus pradhani*: Ghosh & Nilsson, *Skorvopparn supplement* 3: 31.

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, 18171817. *Laccophilus* Leach: *Zool. Misc.* 3: 69.6. *Laccophilus inefficiens* (Walker, 1859)1859. *Hydroporus inefficiens* Walker: *Ann. Mag. Nat. Hist.* 3: 51.1882. *Laccophilus inefficiens*: Sharp, *Sc. Trans. R. Dublin Soc.* 68: 287.2012. *Laccophilus inefficiens*: Ghosh & Nilsson, *Skorvopparn supplement* 3: 49.

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, Tripura, Tamil Nadu, Uttarakhand, 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

1889. *Laccophilus sharpi* Regimbart: *Ann. Soc. ent. Fr.*, 9: 151.

2012. *Laccophilus sharpi*: Ghosh & Nilsson, *Skorvonnopparn supplement* 3: 51.

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, 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

1834. *Sternolophus* Solier: *Ann. Soc. ent. Fr.*, 3: 302.

8. *Sternolophus rufipes* (Fabricius, 1792)

1792. *Hydrophilu sruufipes* Fabricius: *Entom. Syst.*, 1: 183.

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: 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

1843. *Amphiops* Erichson: *Archiv. Naturg.* 9(1): 229.

9. *Amphiops pedestris* Sharp, 1890

1890. *Amphiops pedestris* Sharp: *Trans. Ent. Soc. Lond.* p. 354.

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 (4ex.).

Distribution: India: West Bengal and Himachal Pradesh.

Elsewhere: Sri Lanka.

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

On Genus *Helochares* Mulsant, 1844

1844. *Helochares* Mulsant: *Palpi*, p. 197.

1920. *Helochares*: Tullgren & Wahlgren, *Svenska Ins.*, (2): 234-235.

10. *Helochare sanchoralis* Sharp, 1890

1890. *Helochares anchoralis* Sharp: *Trans. Ent. Soc. Lond.* p. 352.

1924. *Helochares anchoralis*: Knisch, *Col. Cat.*, 14(Pars 79): 193.

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

1817. *Berosus* Leach: *Zool. Misc.* 3: 92.

11. *Berosus indicus* Motschulsky, 1861

1861. *Berosus indicus* Motschulsky: *Bull. Soc. Ent. Fr.*, 71: 473.

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* Mcaley, 1825

1825. *Berosus pulchellus* Mcaley: *Annul. Jav.*, p. 35; ed. 2, 1833, p.140.

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

1908. *Regimbartia* Zaitzev: *Horae Soc. Ent. Ross.* 38:362.

13. *Regimbartia attenuata* Fabricius, 1801

1801. *Regimbartia attenuata* Fabricius: *Syst. Eleuth.*, 1: 253.

1924. *Regimbartia attenuata*: Knisch, *Col. Cat.*, 14 (Pars 79): 276.

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 beetle 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.

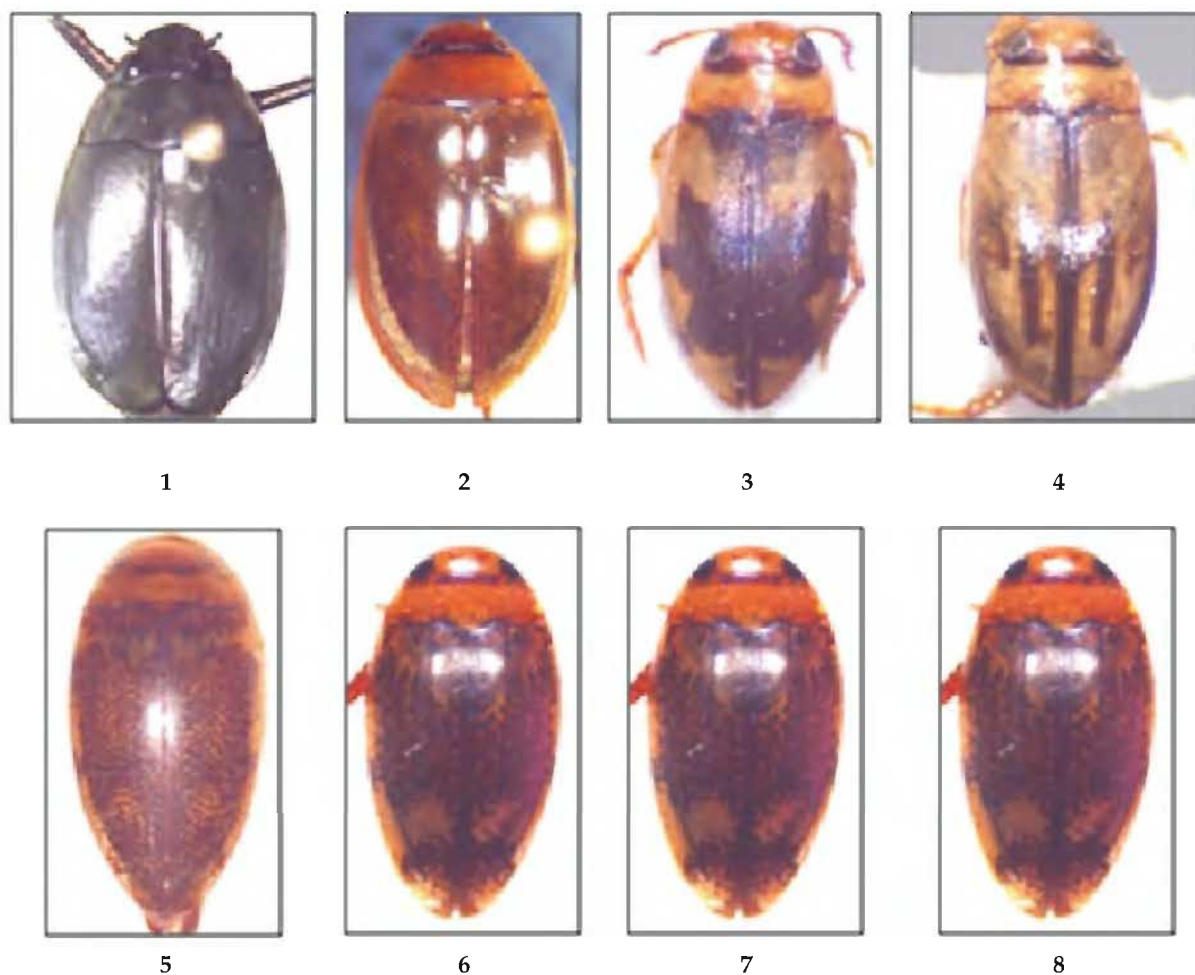
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Figs : 1. *Dineutus indicus*, 2. *Hydaticus ricinus*, 3. *Hydroglyphus flammulatus*, 4. *Hydroglyphus pradhani*, 5. *Laccophilus inefficiens*, 6. *Laccophilus sharpi*, 7. *Rhantaticus congestus*, 8. *Sternolophus rufipes*

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 dejeani* (Aube)
6. *S. festivus* (Illiger, 1801)
7. *Hydaticus (Prodaticus) ricinus* Wewalka
8. *Hydroglyphus flammulatus* (Sharp)
9. *H. pradhani* (Vazirani)
10. *Hydrovatus* sp.
11. *Hyphoporus elevatus* Sharp
12. *Laccophilus flexuosus* Aube
13. *L. inefficiens* (Walker)

14. *L. parvulus parvulus* Aube

15. *L. sharpi* Regimbart

Family HYDROPHILIDAE

16. *Sternolophus rufipes* (Fabricius)
17. *Amphiops pedestris* Sharp
18. *Helochares anchoralis* Sharp
19. *H. crenatus* Regimbart
20. *Berosus indicus* Motschulsky
21. *B. pulchellus* Mcleay
22. *Regimbartia attenuata* Fabricius
23. *Hydrochus* sp.
24. *Laccobius* sp.
25. *Coelostoma* sp.

Family GEORYSSIDAE

26. *Georyssus* sp.

Family BYRRHIDAE

27. *Byrrhus* sp.

Family ELMIDAE

28. *Stenelmis* sp.