



**DIVING BEETLES OF GOVIND SAGAR WILDLIFE
SANCTUARY, HIMACHAL PRADESH, INDIA (COLEOPTERA:
ADEPHAGA: DYTISCIDAE)**

SUJIT KR. GHOSH

Zoological Survey of India, 'M' Block, New Alipore, Kolkata-700 053.

sujitghosh45@yahoo.com

INTRODUCTION

The current knowledge of diving beetles fauna of protected area of Himachal Pradesh state is very limited. Biswas (2000) and Ghosh & Hegde (2013) reported aquatic beetles from Renuka Wildlife Sanctuary of this state. The Govind Sagar Wildlife Sanctuary (GSWS) is located in district Bilaspur and Mandi of Himachal Pradesh and the area of this sanctuary is about 10,000 hectares.

The present study is based on 35 examples of dytiscid beetles, collected from GSWS, Bank of Satlej River near the town Bilaspur. All the collection was made by the author in April 2012 and September 2013. An annotated checklist of the nine species belonging to seven genera of family Dytiscidae occurring in sanctuary is presented. All species are widespread in South-East Asia. This is the first time diving beetles are recorded from this sanctuary. The species *Hydaticus luczonicus* Aube is first report from Himachal Pradesh. For all species the locality data and distribution are also provided.

1. ***Sandracottus dejeanii*** (Aube, 1838)

1838. *Hydaticus dejeanii* Aube, in *Dejean's Species Coleopteres*, 6: 165.

1882. *Sandracottus dejeanii*: Sharp, *Sci. Trans. R. Dublin Soc*, 2: 686.

1980. *Sandracottus dejeanii*: Vavirani, *Bull. zool. Surv. India*, 3(1 & 2): 30.

2000. *Sandracottus dejeanii*: Biswas, *Wetland Eco, zool. Surv. India*, 2: 101.

Material examined: District Bilaspur, Govind Sagar WLS, Bank of Satlej river, Luhana Ground, alt. 600 m, 31°20'59"N, 076°45'19"E, 28.IX.2013, ex-ditch, 1ex. (Reg. No. 20257/H4A).

Distribution: India: Andhra Pradesh, Arunachal Pradesh, Gujarat, Himachal Pradesh, Jharkhand, Kerala, Madhya Pradesh, Maharashtra, Odisha, Rajasthan, Tamil Nadu, Uttarakhand, Uttar Pradesh and West Bengal; *Elsewhere*: Pakistan, Iran, Afrotropical region and Australian region.

Remarks: Vavirani (1980) recorded this species from district Bilaspur and Sirmour. In the year 2000, Biswas also reported this species from Sirmour district of Himachal Pradesh.

2. ***Cybister sugillatus*** Erichson, 1834

1834. *Cybister sugillatus* Erichson, *Beitrag zur Zoologie, Supplement* 28: 227.

2011. *Cybister (Melanectes) sugillatus*: Ghosh, *Bionotes* Vol. 13(3): 125.

Material examined: District Bilaspur, Govind Sagar WLS, Bank of Satlej river, Luhana Ground, alt. 600 m, 31°20'59"N, 076°45'19"E, 28.IX.2013, ex-ditch, 1ex. (Reg. No. 20277/H4A).

Distribution: India: Assam, Bihar, Himachal Pradesh, Madhya Pradesh, Maharashtra, Manipur, Odisha, Sikkim, Tamil Nadu, Tripura, Uttarakhand, Uttar Pradesh and West Bengal; *Elsewhere*: Afghanistan, Bhutan, China, Indonesia, Japan, Myanmar, Nepal, Pakistan, Philippines and Sri Lanka.

Remarks: Ghosh (2011) recorded this species from district Kangra of Himachal Pradesh.

3. *Cybister tripunctatus lateralis*

(Fabricius, 1798)

1798. *Dytiscus lateralis* Fabricius, *Supp. Entom. Syst.* 64.
 1980. *Cybister tripunctatus* (*Meganectes*) *asiaticus*: Vavirani, *Bull. zool. Surv. India*, **3**(1 & 2): 30.
 2001. *Cybister tripunctatus lateralis*: Nilsson, *World cat. Insects*, *Apollo Books*, **3**: 90.
 2011. *Cybister* (*Cybister*) *tripunctatus lateralis*: Ghosh, *Bionotes* Vol. **13**(3): p 125.

Material examined: District Bilaspur, Govind Sagar WLS, Bank of Satlej river, Luhana Ground, 31°20'42"N, 076°45'19"E, 17.IV.2012, 1ex. (Reg. No. 19794/ H4A).

Distribution: India: Andaman & Nicobar Islands, Andhra Pradesh, Assam, Delhi, Gujarat, Himachal Pradesh, Jammu & Kashmir, Karnataka, Madhya Pradesh, Maharashtra, Manipur, Meghalaya, Odisha, Rajasthan, Sikkim, Tamil Nadu, Tripura, Uttarakhand, Uttar Pradesh and West Bengal; *Elsewhere:* Afghanistan, Bangladesh, Bhutan, Myanmar, Nepal, Pakistan, Sri Lanka, China, Cyprus, Iran, Iraq, Japan, Kyrgyzstan, Mongolia, Russia, Syria, Tajikistan, Turkmenistan, Turkey, Uzbekistan and Europe.

Remarks: This species recorded by Vavirani (1980) as *Cybister tripunctatus asiaticus* from Solan district and Ghosh (2011) recorded from Kangra district of Himachal Pradesh.

4. *Eretes griseus* (Fabricius, 1781)

1781. *Dytiscus griseus* Fabricius, *Species Ins.* **1**: 293.
 1980. *Eretes sticticus* (Linn.): Vavirani, *Bull. Zool. Surv. Ind.* **3**(1 & 2): 30.
 2011. *Eretes griseus*: Nilsson, *Cat. Palearct. Dytiscidae*. p. 21.

Material examined: District Bilaspur, Govind Sagar WLS, Bank of Satlej river, Luhana Ground, alt. 600 m, 31°20'42"N, 076°45'19"E, 17.IV.2012, 5 exs. (Reg. No. 19778-82 / H4A); 31°20'59"N, 076°45'19"E, 28.IX.2013, ex-ditch, 4 exs. (Reg. No. 20280-83/H4A).

Distribution: India: Himachal Pradesh, Jammu & Kashmir and Uttar Pradesh; *Elsewhere:* Afghanistan, Bhutan, Nepal, Pakistan, China, Iran,

Iraq, Japan, Kuwait, Oman, Russia, Sinai, South Korea, Syria, Turkey, Yemen, Afrotropical region, Australian region, Europe and North Africa.

Remarks: This species reported from Himachal Pradesh by Nilsson (2012) and earlier, Vavirani (1980) recorded as *Eretes sticticus* (Linn.) from Solan district of the state.

5. *Hydaticus luczonicus* Aube, 1838

1838. *Hydaticus luczonicus* Aube, in *Dejean's species Coleopteres*, **6**: 179.

Material examined: District Bilaspur, Govind Sagar WLS, Bank of Satlej river, Luhana Ground, alt. 600 m, 31°20'59"N, 076°45'19"E, 28.IX.2013, ex-ditch, 1ex. (Reg. No. 20292/H4A).

Distribution: India: Bihar, Delhi, Gujarat, Jharkhand, Madhya Pradesh, Maharashtra, Meghalaya, Odisha, Punjab, Rajasthan, Tamil Nadu, Uttarakhand, Uttar Pradesh and West Bengal; *Elsewhere:* Indonesia, Philippines, Sri Lanka, Thailand and Vietnam.

Remark: This species is first time recorded from Himachal Pradesh.

6. *Hydroglyphus flammulatus* (Sharp, 1882)

1882. *Bidessus flammulatus* Sharp, *Sci. Trans. R. Dublin Soc.* **2**: 359.
 1988. *Hydroglyphus flammulatus*: Bistrom, *Acta Zool. Fenn.* **165**: 12.
 2011. *Hydroglyphus flammulatus*: Ghosh, *Bionotes*, Vol. **13**(3): 125.

Material examined: District Bilaspur, Govind Sagar WLS, Luhana Ground, Bank of Satlej river, alt. 600 m, 17.IV.2012, 6ex (Reg. No. 19854-55/ H4A); 31°20'59"N, 076°45'19"E, 28.IX.2013, 12 exs. (Reg. No. 20358-63/H4A).

Distribution: India: Andhra Pradesh, Assam, Bihar, Gujarat, Himachal Pradesh, Jammu & Kashmir, Kerala, Madhya Pradesh, Maharashtra, Manipur, Meghalaya, Odisha, Rajasthan, Sikkim, Tamil Nadu, Tripura, Uttar Pradesh and West Bengal; *Elsewhere:* China and Pakistan.

Remarks: Ghosh (2011) recorded this species from Kangra district of Himachal Pradesh.

7. *Hyphydrus renardi* Severin, 1890

1890. *Hyphydrus renardi* Severin, *Ann. Soc. Entom. Belg.* CXCI.

1980. *Hyphydrus renardi*: Vazirani, *Bull. zool. Surv. India*, **3**(1 & 2): 27.

2011. *Hyphydrus renardi*: Ghosh, *Bionotes*, **13**(3): 125.

Material examined: District Bilaspur, Govind Sagar WLS, Bank of Satlej river, Luhana Ground, alt. 600 m, 31°20'59"N, 076°45'19"E, 28.IX.2013, ex-ditch, 1ex (Reg. No. 20340/H4A).

Distribution: India: Bihar, Gujarat, Himachal Pradesh, Jharkhand, Kerala, Madhya Pradesh, Maharashtra, Odisha, Rajasthan, Tamil Nadu, Uttarakhand, Uttar Pradesh and West Bengal; *Elsewhere*: Bangladesh, Bhutan, Myanmar, Nepal, Pakistan and Sri Lanka.

Remarks: Vazirani (1980) and Ghosh (2011) recorded this species from Himachal Pradesh.

8. *Laccophilus flexuosus* Aube, 1838

1838. *Laccophilus flexuosus* Aube, in Dejean's *Species Coleopters*, **6**: 430.

1980. *Laccophilus flexuosus*: Vazirani, *Bull. Zool. Surv. India*, **3**(1 & 2): 27.

1983. *Laccophilus flexuosus*: Brancucci, *Ent. Arb. Mus. Frey* **31/32**: 318.

Material examined: District Bilaspur, Govind Sagar WLS, Bank of Satlej river, Luhana Ground, alt. 600 m, 31°20'59"N, 076°45'19"E, 28.IX.2013, ex-ditch, 1ex (Reg. No. 20411/H4A).

Distribution: India: Andaman & Nicobar Islands, Andhra Pradesh, Bihar, Delhi, Gujarat, Haryana, Himachal Pradesh, Jharkhand, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Manipur, Odisha, Pondicherry, Punjab, Rajasthan, Sikkim, Tamil Nadu, Tripura, Uttarakhand, Uttar Pradesh and West Bengal; *Elsewhere*: Bangladesh, Myanmar, Nepal, Pakistan, Sri Lanka, Cambodia, China, Hong Kong, Indonesia, Iran, Iraq, Japan, Taiwan and Vietnam.

Remarks: This species recorded from Himachal Pradesh by Vazirani (1973, 1980), Brancucci (1983) and Biswas (2000).

9. *Laccophilus inefficiens* (Walker, 1859)

1859. *Hydroporus inefficiens* Walker, *Ann. Mag. Nat. Hist.* **3**: 51.

1882. *Laccophilus inefficiens*: Sharp, *Sci. Trans. R. Dublin Soc*, **2**: 287.

1980. *Laccophilus inefficiens*: Vazirani, *Bull. zool. Surv. India*, **3**(1 & 2): 27.

Material examined: District Bilaspur, Govind Sagar WLS, Bank of Satlej River, Luhana Ground, alt. 600 m, 17.IV.2012, 1ex. (Reg. No. 19937/H4A); 31°20'59"N, 076°45'19"E, 28.IX.2013, ex-ditch, 1ex (Reg. No. 20406/H4A).

Distribution: India: Andaman & Nicobar Islands, Andhra Pradesh, Assam, Bihar, Goa, Gujarat, Himachal Pradesh, Jharkhand, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Manipur, Meghalaya, Odisha, 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: Vazirani (1980) reported this species from Sirmour district of Himachal Pradesh.

SUMMARY

The present study records 35 examples of Dytiscidae beetles pertaining to 9 species of 7 genera from Govind Sagar Wildlife Sanctuary of Himachal Pradesh. Of these, 1 species is reported for the first time from the state and all the species are first record from the sanctuary.

ACKNOWLEDGEMENTS

Author is thankful to the Director, Zoological Survey of India, for providing necessary facilities and encouragement. Thanks are also Dr. Kailash Chandra, Scientist-'F' & Divisional in charge of Ent. Div. (A) for his useful suggestions and valuable guidance. Author is grateful to Dr. V.D. Hegde, Scientist-'D' & Officer-in-charge of Coleoptera Section for his constant support.

REFERENCES

- Biström O. 1982: A revision of the genus *Hyphydrus* Illiger (Coleoptera, Dytiscidae). *Acta Zoologica Fennica*, **165**: 1-121.
- Biswas S. 2000: Aquatic Coleoptera, Wetland Ecosystem Series 2: Fauna of Renuka Wetland, *Zool. Surv. India*: 97-103.

- Brancucci M. 1983: Revision des especes est-palearctiques, Orientales et australines du Genre *Laccophilus* (Col. Dytiscidae) *Ent. Arb. Mus. Frey*, **31/32**: 241-426.
- Ghosh S. K. 2011: On A Collection of some Aquatic Beetles from Kangra Valley, Himachal Pradesh, *Bionotes*, Vol. **13**(3): p. 125.
- Ghosh S.K. & Nilsson A.N. 2012: Catalogue of the diving beetles of India and adjacent countries (Coleoptera: Dytiscidae). *Skorvnoptarn, Umea, Supplement*, **3**: 1-77.
- Ghosh S.K. & Hegde V.D. 2013: On a Collection of Aquatic Beetles of Renuka Wildlife Sanctuary, Himachal Pradesh, India (Order Coleoptera: Gyrinidae, Dytiscidae and Hydrophilidae). *Rec. zool. Surv. India*, **113**(2): 61-67.
- Miller K.B. 2002: Revision of the genus *Eretes* Laporte, 1833 (Coleoptera: Dytiscidae). *Aquatic Insects* **24**(4): 247-272.
- Nilsson A.N. 2011: Catalogue of Palearctic Dytiscidae (Coleoptera). Internet version 2011-01-01, p. 1-50.
- Nilsson A.N. 2013: A World Catalogue of the family Dytiscidae, or the Diving Beetles (Coleoptera, Adephaga). Version 1.I.2013. Umea: distributed electronically as a PDF file by the author, 304 pp.
- Vazirani T.G. 1969a: Contribution to the study of Aquatic Beetles (Coleoptera) 2. A Review of the Subfamilies Noterinae, Laccophilinae, Dytiscinae and Hydroporinae (in part) from India, *Oriental Insects*, **2**(3-4): 211-341.
- Vazirani T.G. 1970b. Contribution to the study of Aquatic Beetles (Coleoptera) V. A Review of Indian Hydroporinae (Dytiscidae) in part, from India, *Oriental Insects*, **4**(1): 93-129.
- Vazirani T.G. 1980: Dytiscidae: Coleoptera from Himachal Pradesh with description of a new species. *Bulletin of the Zoological Survey of India*, **3**: 27-30.