



DIVING BEETLES OF KARNALA BIRD SANCTUARY, MAHARASHTRA, INDIA (COLEOPTERA: DYTISCIDAE)

SUJIT KR. GHOSH AND V.D. HEGDE*

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

sujitghosh45@yahoo.com, *hegde67@yahoo.co.in

INTRODUCTION

Karnala Bird Sanctuary (KBS) with an area of 12.1 square kilometers, inhabits more than 180 species of resident and migratory birds. The sanctuary is located 60 kilometers south of Mumbai, on the Mumbai-Goa highway of Raigad district, Maharashtra, India. The sanctuary is centered on the historic Karnala Fort.

The current knowledge of diving beetles fauna of protected area of Maharashtra state is very limited. To the works Vazirani (1977), Sharma (2002) and Miller & Wewalka (2010) reported diving beetles from this state. The present study is based on a small collection of dytiscid beetles, collected from different parts of the sanctuary by first author in September 2012. This is the first time diving beetles are recorded from this sanctuary. The species *Hydaticus satoi satoi* Wewalka are first report from Maharashtra state. All together 9 species belonging to 6 genera of family Dytiscidae were recorded during this survey.

1. *Sandracottus dejeanii* (Aube, 1938)

1838. *Hydaticus dejeanii* Aube, in *dejean's species Coleopteres*, 6: 165.

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

Material examined: 2 exs. (Regd. No. 19898-99/H4A), Karnala Birds Sanctuary (KBS), Raigad district, 18°89'N, 073°11'E, 15.IX.2012.

Distribution: India: Arunachal Pradesh, Andhra 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.

2. *Sandracottus festivus* (Illiger, 1801)

1801. *Dyticus festivus* Illiger, *Magazin für Insektenkunde, Braunschweig*, 1(1-2): 166.

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

Material examined: 1ex. (Regd. No. 19900/H4A), KBS, Raigad district, 18°89'N, 073°11'E, 15.IX.2012.

Distribution: India: Andhra Pradesh, Arunachal Pradesh, Assam, Himachal Pradesh, Jharkhand, Madhya Pradesh, Maharashtra, Odisha, Punjab and Tamil Nadu. *Elsewhere*: China, Pakistan and Sri Lanka.

3. *Hydaticus luczonicus* Aube, 1938

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

Material examined: 1ex. (Regd. No. 19901/H4A), KBS, Raigad district, 18°89'N, 073°11'E, 15.IX.2012.

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.

4. *Hydaticus satoi satoi* Wewalka, 1975

1975. *Hydaticus satoi* Wewalka, *Koleopterologische Rundschau* 52: 91.

2012. *Hydaticus (Prodaticus) satoi satoi*: Ghosh & Nilsson, *Skorvnoppam Umel supplement 3*: 27.

Material examined: 1ex. (Regd. No. 19902- 04/H4A), KBS, Raigad district, 18°89'N, 073°11'E, 15.IX.2012.

Distribution: India: Kerala, Sikkim, Tamil Nadu and West Bengal. *Elsewhere*: Bhutan, Myanmar, Nepal, Sri Lanka; China, Indonesia, Japan, Philippines, Saudi Arabia, Taiwan and Thailand.

Remarks: This species is first time recorded from Maharashtra state.

5. *Clypeodytes (s. str.) bufo* (Sharp, 1890)

1890. *Bidessus bufo* Sharp, *Trans. Entom. Soc. Lond.* 344.

1899. *Clypeodytes bufo*: Regimbart, *Ann. Soc. Ent. Fr.* (6) 9: 217.

2012. *Clypeodytes (s. str.) bufo*: Ghosh & Nilsson, *Skorvnoppam supplement 3*: 28.

Material examined: 1ex. (Regd. No. 19905/H4A), KBS, Raigad district, 18°89'N, 073°11'E, 15.IX.2012.

Distribution: India: Assam, Goa, Jharkhand, Maharashtra, Meghalaya, Odisha, Tamil Nadu and West Bengal. *Elsewhere*: Bangladesh, China, Myanmar, Sri Lanka and Vietnam.

6. *Peschetius toxophorus* Guignot, 1942

1942. *Peschetius toxophorus* Guignot, *Bull. Soc. d'Etude Sci. Nat. Vaucluse*, 13(1-2): 20.

Material examined: 1ex. (Regd. No. 19906/H4A), KBS, Raigad district, 18°89'N, 073°11'E, 15.IX.2012.

Distribution: India: Andhra Pradesh, Bihar, Gujarat, Jharkhand, Karnataka, Kerala, Maharashtra, Odisha, Rajasthan and Tamil Nadu.

7. *Hyphydrus renardi* Severin, 1890

1890. *Hyphydrus renardi* Severin, *Ann. Soc. Entom. Belg.* 34, CXCI.

Material examined: 5 exs. (Regd. No. 19907-08/H4A), KBS, Raigad district, 18°89'N, 073°11'E, 15.IX.2012.

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.

8. *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.

Material examined: 13 exs. (Regd. No. 19909-12/H4A), KBS, Raigad district, 18°89'N, 073°11'E, 15.IX.2012.

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, Indonesia, Iran, Malaysia, Myanmar, Nepal, Pakistan and Sri Lanka.

9. *Laccophilus sharpi* Regimbart, 1889

1889. *Laccophilus sharpi* Regimbart, *Ann. Soc. Ent. Fr.* (6) 9: 151.

Material examined: 1ex. (Regd. No. 19913/H4A), KBS, Raigad district, 18°89'N, 073°11'E, 15.IX.2012.

Distribution: India: Andaman & Nicobar Islands, Assam, Bihar, Delhi, Gujarat, Haryana, Himachal Pradesh, Jharkhand, Kerala, Madhya Pradesh, Maharashtra, Manipur, Meghalaya, Odisha, 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.

SUMMARY

The present study reports identification of 26 examples of Dytiscidae beetles pertaining to 9 species of 6 genera from Karnala Bird Sanctuary of Maharashtra state. One species is reported for the first time from the state and all the species are first record from the sanctuary.

ACKNOWLEDGEMENTS

Authors are 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.

REFERENCES

- 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. & Nilsson A.N. 2012: Catalogue of the diving beetles of India and adjacent countries (Coleoptera: Dytiscidae). *Skorvonnoparn supplement*, **3**: 1-77.
- Miller K.B. & Wewalka G. 2010: Microdytes Balfour-Browne of India with description of three new Species (Coleoptera: Dytiscidae: Hydroporinae). *Zootaxa*, **2420**: 26-36.
- Sharma R.M. 2002: Fauna of Ujani (Maharashtra), *Zool. Surv. India, Wetland Ecosystem Series 3*. Aquatic Coleoptera (Insecta): 117-131.
- Vazirani T.G. 1969: 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. 1977: Notes on a collection of Dytiscidae (Coleoptera) from Maharashtra, with description of a new species. *Rec. zool. Surv. India*, **73**(1-4): 123-133.
- Wewalka, G. 1975: Revision der Artengruppe des *Hydaticus vittatus* (Fabricius), (Coleoptera, Dytiscidae). *Koleopterologische Rundschau*, **52**: 87-100.