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## Dytiscidae collected by M.A. Jäch in Bhutan, 2005 (Coleoptera: Dytiscidae)

M. BRANCUCCI & G. WEWALKA

### Abstract

The species of Dytiscidae collected by M.A. Jäch in Bhutan in November 2005 are listed. Eleven species were found in Bhutan for the first time: *Allopachria* sp., *Hydaticus incertus* RÉGIMBART, *Hydrovatus confertus* SHARP, *H. seminarius* MOTSCHULSKY, *Hyphydrus birmanicus* RÉGIMBART, *Lacconectus nicolasi* BRANCUCCI, *Laccophilus parvulus* AUBÉ, *Nebrioporus melanogrammus* RÉGIMBART, *Platambus kempfi* (VAZIRANI), *P. satoi* BRANCUCCI, and *Rhantus sikkimensis* RÉGIMBART. An updated checklist of the species of Dytiscidae from Bhutan is provided.

**Key words:** Coleoptera, Dytiscidae, Bhutan, distribution.

### Introduction

In terms of aquatic entomology, Bhutan is still regarded as one of the least explored countries on earth. With the exception of WEWALKA (1975) no comprehensive contribution on the Dytiscidae of Bhutan has ever been published. Only 17 species of Dytiscidae had so far been recorded from this Himalaya kingdom before 2005.

In November 2005, Manfred A. Jäch (Vienna) spent two weeks in Bhutan and in only a few days (22.–28.XI.2005) collected 24 species of Dytiscidae, which are listed herein. Detailed data are provided for their localities.

### Material and methods

The material studied here was collected by Manfred A. Jäch in November 2005 in the course of an EU-supported hydrobiological project in Bhutan (“Development of an Assessment System to evaluate the Ecological Status of Rivers in the Hindu Kush-Himalaya Region”; see acknowledgements for project details). The specimens are deposited in the Naturhistorisches Museum Wien, Austria (some duplicates are stored in various other collections). Several adults of *Rhantus ovalis* GSCHWENDTNER preserved in alcohol have been sent to M. Balke.

### List of localities

Coordinates and elevations were taken with GPS (Garmin eTrex Summit personal navigator) and subsequently adjusted with Google Earth Computer Programme. Distances are given as bee-line distances.

**BHUTAN loc. 8:** Wang Chhu [river], ca. 20–30 m wide, flowing through wide valley (mostly cultivated, with settlements), with wide gravel banks, furcations, and residual pools, hardly impacted, north of Timphu Town, at Indian Embassy (“India House Estate”); Timphu Prov.; ca. 2270 m a.s.l.; 27°29'58"N/89°38'25"E; 22.XI.2005.

**BHUTAN loc. 9:** pool, unshaded, with bulrush, at road west of Indian Embassy ("India House Estate"), ca. 10x3 m, north of Timphu Town; Timphu Prov.; ca. 2300 m a.s.l.; 27°30'11.58"N/ 89°38'8.58"E; 22.XI.2005.

**BHUTAN loc. 11:** Chubar Chhu [river], ca. 2 m wide (and very small tributary), fast flowing, cold water, through dense pine forest; near Timphu Takin Zoo, Mutithang, west of Timphu Town; Timphu Prov.; ca. 2600 m a.s.l.; 27°28'49"N/89°36'47"E; 22.XI.2005.

**BHUTAN loc. 12:** Cheri Chhu [river], ca. 10–20 m wide, flowing through almost undisturbed pristine forest; and Wang Chu (similar to Cheri Chu, but with furcations and residual pools); in Jigme Dorji National Park (JDNP), below Cheri Monastery, ca. 13 km north of Timphu Town; Timphu Prov.; ca. 2600 m a.s.l.; 27°35'35"N/89°37'37"E and 27°35'40.53"N/ 89°37'47.04"E; 23.XI.2005.

**BHUTAN loc. 14:** Wang Chhu [river], ca. 25 m wide, gravel banks, springfed pools near shore; Taba, north of Timphu Town; Timphu Prov.; ca. 2360 m a.s.l.; 27°31'12"N/89°38'34"E; 23.XI.2005.

**BHUTAN loc. 16:** small stream, ca. 1–2 m wide, flowing from forest, crossing street, eastern slope of Dochu La [pass]; ca. 12 km east of Timphu Town; Timphu Prov.; ca. 2800 m a.s.l.; 27°29'15"N/89°45'50"E; 24.XI.2005.

**BHUTAN loc. 17:** stream, ca. 2–3 m wide, and springfed pools, flowing from forest, crossing street, eastern slope of Dochu La [pass]; ca. 15 km ENE of Timphu Town; Timphu Prov.; ca. 1940 m a.s.l.; 27°30'29"N/89°47'31"E; 24.XI.2005.

**BHUTAN loc. 18:** stream, ca. 2 m wide, flowing through cultivated land (upper course through forest); Lhaku, ca. 6 km NNW of Punakha; Punakha Prov.; ca. 1300 m a.s.l.; 27°37'31"N/89°49'31"E; 24.XI.2005.

**BHUTAN loc. 20:** Mo Chhu [river], ca. 50 m wide, large gravel banks, furcations, residual pools; Lhaku, ca. 5 km NNW of Punakha; Punakha Prov.; ca. 1250 m a.s.l.; 27°37'04"N/89°50'20"E; 24.XI.2005.

**BHUTAN loc. 22:** Nyara Chhu [river (right tributary of Puna Tsang Chhu)], ca. 8 m wide, furcations, residual pools, fast flowing, through unforested valley; ca. 44 km SSE of Wangdi Phodrang Town; Tsirang Prov.; ca. 550 m a.s.l.; 27°10'22"N/90°03'48"E; 25.XI.2005.

**BHUTAN loc. 25:** Tsirang Ragchhu, stream, ca. 5 m wide, and small tributary, ca. 50 cm wide, flowing through forest; ca. 7 km SE of Damphu Town; Tsirang Prov.; ca. 1730 m a.s.l.; 26°58'17"N/90°09'25"E; 25.XI.2005.

**BHUTAN loc. 26:** small stream, ca. 1 m wide, through steep and narrow, forested gorge; eastern slope of Damphu–Sarpang Pass; ca. 14 km SE Damphu Town; Sarpang Prov.; ca. 1365 m a.s.l.; 26°56'21"N/90°13'32"E; 26.XI.2005.

**BHUTAN loc. 28:** stream, left tributary of Sarpang Khola, ca. 2 m wide, flowing through cultivated land and settlements; Sarpang; Sarpang Prov.; ca. 330 m a.s.l.; 26°52'05"N/90°15'52"E; 26.XI.2005.

**BHUTAN loc. 29:** stream, ca. 3 m wide, with several furcations, steep, flowing from forest; Geylephug–Shemgang road, ca. 10 km NNE of Geylephug Town; Sarpang Prov.; ca. 400 m a.s.l.; 26°56'43"N/90°31'29"E; 26.XI.2005.

**BHUTAN loc. 30:** Bhur Khola [river], ca. 30 m wide, gravel banks, furcations; 11 km NW of Sarpang; Sarpang Prov.; ca. 350 m a.s.l.; 26°55'23"N/90°23'51"E; 27.XI.2005.

**BHUTAN loc. 31:** Dhara Chhu [stream], ca. 2 m wide, through steep gorge, large boulders, degraded forest; eastern slope of Sarpung – Damphu Pass; ca. 13 km SE of Damphu Town; Tsirang Prov.; ca. 1700 m a.s.l.; 26°56'52"N/90°12'35"E; 27.XI.2005.

**BHUTAN loc. 32:** Mo Chhu [river], ca. 30 m wide, large gravel banks, springfed and residual pools; JDNP, at suspension bridge to Chhephu, ca. 16 km NW of Punakha; Punakha Prov./Timphu Prov.; ca. 1450 m a.s.l.; 27°41'54"N/89°46'01"E; 28.XI.2005.

**BHUTAN loc. 34:** pools in meadow, Mo Chhu Valley; ca. 2 km NW of Punakha; Punakha Prov.; ca. 1230 m a.s.l.; 27°35'46.00"N/89°51'17.00"E; 28.XI.2005; see Fig. 1.

**BHUTAN loc. 35:** furcation of Mo Chhu [river], ca. 3–5 m wide; ca. 2 km NW of Punakha; Punakha Prov.; ca. 1230 m a.s.l.; 27°35'45"N/89°51'19"E; 28.XI.2005; see Fig. 2.

*Copelatus freudei* GUIGNOT

Bhutan loc. **20** (1 ♂)

*Lacconectus nicolasi* BRANCUCCI

Bhutan loc. **29** (23 exs.), **26** (2 exs.), **31** (1 ex.); first record for Bhutan (see BRANCUCCI 2006)

*Platambus (s.str.) nepalensis* GUÉORGUIEV

Bhutan loc. **12** (1 ex.), **20** (7 exs.)

*Platambus (s.str.) satoi* BRANCUCCI

Bhutan loc. **16** (1 ex.); first record for Bhutan

*Platambus (s.str.) wittmeri* WEWALKA

Bhutan loc. **11** (1 ex.), **20** (1 ex.), **22** (1 ex.)

*Platambus (Agraphis) kempii* (VAZIRANI)

Bhutan loc. **12** (3 exs.), **25** (3 exs.), **32** (1 ex.); first record for Bhutan

*Platambus (Anagabus) lineatus* GSCHWENDTNER

Bhutan loc. **20** (13 exs.)

*Platynectes kashmiranus* BALFOUR-BROWNE

Bhutan loc. **8** (1 ex.), **17** (2 exs.), **26** (1 ex.), **31** (5 exs.)

*Rhantus ovalis* GSCHWENDTNER

Bhutan loc. **8** (1 ♂, 2 ♀♀), **14** (3 ♂♂, 1 ♀)

*Rhantus sikkimensis* RÉGIMBART

Bhutan loc. **32** (1 ♀); first record for Bhutan

*Cybister sugillatus* ERICHSON

Bhutan loc. **34** (3 ♂♂, 1 ♀)

*Cybister tripunctatus* ssp. *lateralis* FABRICIUS

Bhutan loc. **34** (2 ♂♂, 1 ♀)

*Hydaticus incertus* RÉGIMBART

Bhutan loc. **20** (1 ♀), **34** (2 ♂♂, 1 ♀); first record for Bhutan

***Hydaticus satoi* WEWALKA**

Bhutan loc. **18** (1 ♀); **32** (2 ♀♀), **34** (4 ♂♂, 3 ♀♀)

***Hydroglyphus geminus* (FABRICUS)**

Bhutan loc. **8** (4 exs.), **9** (1 ex.), **14** (1 ex.), **20** (2 exs.), **22** (2 exs.), **28** (1 ex.), **34** (8 exs.)

***Hydroglyphus inconstans* (RÉGIMBART)**

Bhutan loc. **18** (1 ex.), **20** (4 exs.), **28** (1 ex.), **34** (44 exs.)

***Nebrioporus melanogrammus* (RÉGIMBART)**

Bhutan loc. **35** (1 ex.); first record for Bhutan

***Hydrovatus confertus* SHARP**

Bhutan loc. **34** (1 ♀); first record for Bhutan

***Hydrovatus seminarius* MOTSCHULSKY**

Bhutan loc. **30** (1 ex.), **34** (6 exs.); first record for Bhutan

***Hyphydrus birmanicus* RÉGIMBART**

Bhutan loc. **8** (1 ex.), **9** (1 ex.), **32** (1 ex.), **34** (3 exs.); first record for Bhutan

***Allopachria* sp.**

Bhutan loc. **26** (1 ♀)

***Microdytes elgae* HENDRICH, BALKE & WEWALKA**

Bhutan loc. **29** (7 exs.)

***Laccophilus chinensis* BOHEMAN**

Bhutan loc. **28** (2 exs.)

***Laccophilus parvulus* AUBÉ**

Bhutan loc. **34** (18 exs.); first record for Bhutan

**Conclusions**

Our knowledge of the distribution of certain dytiscid genera in the Himalayas is still very incomplete, particularly in the eastern parts. The present study shows how poorly-known the aquatic fauna of this entire region indeed is. In only a few days, M.A. Jäch collected 24 species of Dytiscidae, 11 of which were not known from Bhutan before.



Fig. 1: Bhutan, Punakha Prov.: pool in meadow near Mo Chhu [river], ca. 2 km NW of Punakha, ca. 1230 m a.s.l. (Bhutan loc. 34). This is the richest water beetle location known from Bhutan so far. A total of 11 dytiscid species were discovered here on November 28, 2005 [photograph: M.A. Jäch].



Fig. 2: Bhutan, Punakha Prov.: Mo Chhu NW of Punakha (near Bhutan loc. 35). Four species of *Platambus* were collected in this river. *Nebrioporus melanogrammus* was here found in Bhutan for the first time [photograph: M.A. Jäch].

	Pakistan, Kashmir	Uttaranchal	Nepal	Bihar	Sikkim	West Bengal	Bhutan	Arunachal Pradesh
<i>Platambus</i> (s.str.) <i>nepalensis</i>			X			X	X	X
<i>Platambus</i> (s.str.) <i>satoi</i>			X				X	
<i>Platambus</i> (s.str.) <i>wittmeri</i>			X			X	X	
<i>Platambus</i> ( <i>Agraphis</i> ) <i>kempi</i>			X		X	X	X	
<i>Platambus</i> ( <i>Anagabus</i> ) <i>lineatus</i>	X	X	X	X			X	X

Tab. 1: *Platambus* species recorded from Bhutan and their distribution.

With a total of five species, the genus *Platambus* is the most speciose dytiscid genus in Bhutan. Except *Platambus satoi*, Jäch collected all Bhutanese species of this genus in the Mo River near Punakha. Three of these species (*P. nepalensis*, *P. wittmeri*, *P. lineatus*) were even found within a few square meters (Bhutan loc. 20; see Fig. 2).

Definitely, we can still expect a number of undescribed species to be discovered in Bhutan in the future. Densely forested areas and high altitude swamps are still most inadequately sampled. The single female of *Allopachria* listed above (Bhutan loc. 26) might well be new to science. In December 2005, Austrian hydrobiologists collected several specimens of *Agabus* sp. in a swamp not far from Timphu, at an elevation of 4100 m. These specimens shall be described as a new species in a forthcoming paper (Brancucci, in prep.).

### Checklist of the species of Dytiscidae from Bhutan

Including the unidentified *Agabus* sp. and the *Allopachria* sp. (see above), 29 species of Dytiscidae are presently known from Bhutan.

*Hydaticus vittatus* FABRICIUS and *Laccophilus inefficiens* WALKER were erroneously recorded from Bhutan by WEWALKA (1975); in fact, these specimens represent *Hydaticus satoi* resp. *Laccophilus chinensis* (see BRANCUCCI 1983: 331).

*Copelatus freudei* GUIGNOT

*Cybister sugillatus* ERICHSON

*Cybister tripunctatus lateralis* FABRICIUS

*Eretes sticticus* L. (recorded after a single female by WEWALKA 1975; very probably it refers to *E. griseus* (F.))

*Hydaticus incertus* RÉGIMBART

*Hydaticus satoi* WEWALKA

*Hydroglyphus geminus* (FABRICUS)

*Hydroglyphus inconstans* (RÉGIMBART)

*Hydrovatus confertus* SHARP

*Hydrovatus seminarius* MOTSCHULSKY

*Hyphydrus birmanicus* RÉGIMBART

*Hyphydrus holmeni* BISTRÖM

*Hyphydrus renardi* SEVERIN

*Lacconectus nicolasi* BRANCUCCI (first recorded from Bhutan by BRANCUCCI 2006, based on specimens collected by M.A. Jäch in 2005)

*Laccophilus chinensis* BOHEMAN  
*Laccophilus parvulus* AUBÉ  
*Microdytes elgae* HENDRICH, BALKE & WEWALKA  
*Nebrioporus melanogrammus* (RÉGIMBART)  
*Platambus kempi* (VAZIRANI)  
*Platambus lineatus* GSCHWENDTNER  
*Platambus nepalensis* GUÉORGUIEV  
*Platambus satoi* BRANCUCCI  
*Platambus wittmeri* WEWALKA  
*Platynectes kashmiranus* BALFOUR-BROWNE  
*Rhantus gogonensis* WEWALKA  
*Rhantus ovalis* GSCHWENDTNER  
*Rhantus sikkimensis* RÉGIMBART

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Dr. Michel BRANCUCCI  
Natural History Museum, Entomology, Augustinergasse 2, CH – 4001 Basel, Switzerland (michel.branucci@bs.ch)

Prof. Dr. Günther WEWALKA  
Starkfriedgasse 16, A – 1190 Wien, Austria (g.wewalka@gmx.at)

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Autor(en)/Author(s): Brancucci Michel, Wewalka Günther

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