Linzer biol. Beitr.	31/1	63-69	30.7.1999

A new species of *Hydroglyphus* MOTSCHULSKY 1853 from Northern Australia (Coleoptera: Dytiscidae)

L. HENDRICH

A b s t r a c t : *Hydroglyphus balkei* sp. n. is described from the Kakadu National Park and the Kimberley Region in Northern Australia. The species is well characterised by its small size, the distinct almost black coloration of the pronotum and head, and the form of the male genitalia. A modified key to the ten Australian species of the genus is presented. Some details about its habitat are also included.

K e y w o r d s : Coleoptera, Dytiscidae, *Hydroglyphus*, new species, Northern Australia.

Introduction

In October and November 1996 adult water beetles were collected during a three-week faunal survey of the Kakadu National Park. The park area has not been well investigated previously for water beetles, therefore the study provided a number of new regional records. The first published result of this study treated a new and remarkable species of the genus *Cybister* CURTIS 1827 (HENDRICH 1997). The object of this paper is to describe a new species of *Hydroglyphus* MOTSCHULSKY 1853 and to give some notes on the habitat of the species. Additional material collected by T.A. Weir and I.D. Naumann (CSIRO, Canberra, Australia) in 1988 as a result of a broad-scale ecological survey of Kimberley rainforests is also included in this paper.

The genus *Hydroglyphus* MOTSCHULSKY 1853 is predominantly tropical, and is confined to the Palaearctic, Afrotropical, Oriental and Australasian regions. It includes about 80 species (BISTRÖM 1988). The Australian species were revised by WATTS (1978), who redescribed all the species then known and added two new ones. Later, one of these species was synonymized by BISTRÖM (1988). Together with the new species described herein ten *Hydroglyphus* are known from Australia. All of these occur in northern parts of Western Australia, the Northern Territories, Queensland and New South Wales (WATTS 1978 and 1985).

Material and Methods

Specimens mentioned in this work are deposited in several collections which are abbreviated in the text as follows:

ANIC ..... Australian National Insect Collection, Canberra, Australia

CB..... Collection Michael Balke, Berlin, Germany
CF..... Collection Dr Hans Fery, Berlin, Germany
CH..... Collection Lars Hendrich, Berlin, Germany
CLW..... Collection Liang-Jong Wang, Taipei, Taiwan
NMW..... Naturhistorisches Museum Wien, Vienna, Austria
OLML..... Oberösterreichisches Landesmuseum, Linz, Austria
SAM..... South Australian Museum, Adelaide, Australia

For this study specimens of the following Australian *Hydroglyphus* species have been examined:

Hydroglyphus basalis (MACLEAY 1871): Northern Territories (ANIC, CH), Queensland (ANIC); *H. daemeli* (SHARP 1882): Northern Territories (ANIC, CH), Queensland (ANIC); *H. godeffroyi* (SHARP 1882): Northern Territories (ANIC, CH), Queensland (ANIC); *H. grammopterus* (ZIMMERMANN 1928): Northern Territories (CH), Queensland (ANIC); *H. leai* (GUIGNOT 1939): Northern Territories (ANIC, CH), Western Australia, type material (SAM); *H. mastersi* (MACLEAY 1871): Queensland (ANIC, CH); *H. orthogrammus* (SHARP 1882): Western Australia, type material (SAM); *H. trifasciatus* (WATTS 1978): Northern Territories, Queensland (ANIC, CH).

Taxonomy

Hydroglyphus balkei sp. n.

Holotype: ♂: "Australia N.T. / Kakadu N.P. Gunlom Waterfall Creek, ca. 150 m, 2.11.1996 S 13°26.082′ E 132°24.929′ L. Hendrich leg. / Lok. 12" (ANIC).
Paratypes: 41 specimens: 25 exs., same label data as holotype (CB, CF, CH, CLW, NMW, OLML, SAM); 1 ex., Australia N.T., Kakadu N.P., Gubara, 50 m, 25. October 1996, L. Hendrich leg. / Lok. 1 (CH); 4 exs., Australia N.T., Kakadu N.P., Gunlom Waterfall Creek, ca. 150 m, 2.11.1996 S 13°26.082′ E 132°24.929′ L. Hendrich leg. / Lok. 13; 2 exs., Western Australia, 14.52 S 125.50 E, „The Crusher" CALM Site 9/1 4 km S by W Mining Camp Mitchell Plateau, 2.-6. June 1988, I.D. Naumann leg., at light closed forest and margin (ANIC); 1 exs., idem, at light open forest; 6 exs., Western Australia, 16.31 S 125.16 E, CALM Site 25/1 Synnot Ck., 17.-20. June 1988, T.A. Weir leg., at light closed forest margin (ANIC, CH); 1 ex., Western Australia, 14.25 S 126.40 E, CALM Site 4/3 14 km S by E Kalumburu Mission, 3.-6. June 1988, T.A. Weir leg., at light open forest (ANIC); 1 ex., Western Australia, 15.38 S 125.15 E, CALM Site 28/3, 4 km W of King Cascado, 12.-16. June 1988, T.A. Weir leg., closed forest (ANIC).

Etymology: Dedicated to Michael „George" Balke (Berlin).

Description: Measurements (N = 20). Total length of beetle 2,00 - 2,25 mm (holotype 2,05 mm); length without head 1,75 - 1,90 mm (holotype 1,80 mm); greatest width of beetle 1,00 - 1,15 mm (holotype 1,00 mm).

Diagnosis: Small, oblong, almost black *Hydroglyphus*, widest in middle.

Colour (Fig. 1): Head completely black. Pronotum black, laterally testaceous. Elytron dark brown to black with two elongate and often coalescent testaceous sub-basal spots, one sub-basolateral spot, an elongate lateral spot behind middle and one sub-apical spot. Ventral surface and epipleuron testaceous. Metacoxal plate, metasternum and visible abdominal segments dark brown to black. Metasternum along midline rufous-testaceous.

Legs rufous, with hind legs slightly darkened laterally. Antennomeres 5-11 piceous.

Sculpture: Punctation on head fine and sparse, impunctate close to pronotum. Head fairly shiny to submat with distinct microsculpture. Frontolateral depressions fairly distinct. Anterior margin rounded.

Punctation on pronotum coarse and dense. Pronotum rather shiny with fine to very fine microsculpture. Baso-lateral striae fairly strongly impressed. Pronotum broadest at posterior angles, sides rounded, anteriorly more strongly curved inwards than posteriorly. Angle between pronotum and elytra fairly distinct.

Punctation on elytron coarse and dense, regularly distributed. Submat, finely and partly indistinctly microsculptured. Striae rather weakly impressed. Sutural line distinct from apex to base of elytra.

Ventral side fairly shiny to submat, with very fine to fine, partly somewhat indistinct microsculpture. Metacoxal lines almost straight, anteriorly slightly divergent. Metasternum, metacoxal plate and the posterior parts of the abdominal segments coarse and densely punctured.

Male: Median lobe with pointed apex (Fig. 4). Protarsomeres 1-3 a little expanded, mesotarsomeres less so.

Female: Pro- and mesotarsi narrower than in male.

The specimens from Western Australia are less microsculptured making their dorsal surface more shiny than in specimens from Kakadu.

The small size, black head and the distinct coloration on the pronotum and elytron distinguish *H. balkei* sp. n. from most other Australian *Hydroglyphus*. In habitus it is closest to *H. trifasciatus* WATTS 1978 (Fig. 2) and *H. godeffroyi* (SHARP 1882) (Fig. 3) but differently coloured on the head and pronotum. Furthermore it could easily be separated from both by the strongly punctured metacoxal plate and the form of the median lobe (Fig 5, 6).

Distribution: North- and Northwestern Australia (Arnhem Land and the Kimberley Region) (Fig. 7). In the Kimberleys and in Kakadu exclusively distributed in areas where patches of rainforest are known to occur (see MCKENZIE et al. 1991 and HAYNES et al. 1991).

Habitat: A species closely related to lotic sites. Most specimens (loc. 12) were collected from an inflow and shallow rockpool without emergent vegetation, shaded by massive rocks, near an exposed, slow flowing stream above a waterfall (Fig. 8). Three specimens (loc. 13) from an isolated rockpool (1 sqm) in the river bed above the falls, partly shaded by a single tree. Bottom covered with a thick layer of mud and packs of rotten leaves. Water temperature at 10:00 am 35°C. A single specimen (loc. 1) was obtained in a slow flowing, permanent, clear and closed rainforest stream and its protected embayments where the water was still and the bottom was composed of sand with little organic debris, and floating roots. Some specimens from Western Australia were obtained in forests at light.

Apart from the new *Hydroglyphus*, the water beetle coenosis included the following species: Locality 1: *Austrodytes insularis* (HOPE 1842), *Bidessodes denticulatus* (SHARP 1882), *B. mjobergi* (ZIMMERMANN 1921), *Bidessodes* sp. n. 1, *Clypeodytes bifasciatus* (ZIMMERMANN 1921), *C. migrator* (SHARP 1882), *Clypeodytes* sp. n. 1, *Clypeodytes* sp.

n. 2, *Copelatus bakewelli* BALFOUR-BROWNE 1939, *C. irregularis* MACLEAY 1871, *Hydroglyphus godeffroyi* (SHARP 1882), *Laccophilus cingulatus* SHARP 1882, *L. seminiger* FAUVEL 1883, *Limbodessus compactus* (CLARK 1862), *Sternopriscus* sp. n. 1, *Sekaliporus kriegi* WATTS 1996, *Tiporus collaris* (HOPE 1842), *Tiporus denticulatus* (WATTS 1978) (all Dytiscidae), and Hydrophilidae as well.

Locality 12: *Hydroglyphus trifasciatus* (WATTS 1978), *Platynectes monostigma* (HOPE 1842) (all Dytiscidae) and *Macrogyrus* spec. (Gyrinidae).

Locality 13: *Batrachomatus wingi* CLARK 1866, *Bidessodes* sp. n. 2, *Copelatus bakewelli* BALFOUR-BROWNE 1939, *C. clarki* SHARP 1882, *C. irregularis* MACLEAY 1871, *C. nigrolineatus* SHARP 1882, *Hydroglyphus basalis* (MACLEAY 1871), *H. daemeli* (SHARP 1882), *Platynectes monostigma* (HOPE 1842), *Tiporus collaris* (HOPE 1842), *Tiporus denticulatus* (WATTS 1978) (all Dytiscidae), and Hydrophilidae as well.

Key to Australian Species of *Hydroglyphus* (modified after WATTS 1978)

1 Pronotal striae ½ length of pronotum. Elytral striae ¼ length of elytron. Aedeagus simple. ..... *basalis* (MACLEAY 1871)
- Pronotal striae ½ width of pronotum. Elytral striae ¼ length of elytron. Aedeagus complex. 2
2 Postcoxa virtually impunctate. Elytron and pronotum sparsely and weakly punctate. Elytron with two black stripes. ..... *signatus* (SHARP 1882)
- Postcoxa punctate. Elytron and pronotum densely punctate with or without stripes. 3
3 Disc of elytron without markings apart from some paler area near base. (small, length 2.2 mm). ..... *godeffroyi* (SHARP 1882)
- Disc of elytron with distinct markings. 4
4 Small (length < 2.5 mm). 5
- Larger (length > 2.5 mm). 8
5 Metacoxa with very strong punctures. 6
- Metacoxa weakly punctured. 7
6 Head and pronotum yellow. Pronotum with shallow sparse punctures. Elytron strongly punctured. ..... *leai* (GUIGNOT 1939)
- Head, posterior and anterior parts of pronotum black. Pronotum and elytron densely and strongly punctured. ..... *balkei* sp.n.
7 Metacoxa weakly punctured. Posterior parts of pronotum and head black. Elytral punctures weak but dense. ..... *trifasciatus* (WATTS 1978)
8 Punctures on head approximately size of facets of eye. 9
- Punctures on head small, much smaller than facets of eye. 10
9 Elytron with well marked longitudinal black lines. Elytral striae same length or a little longer than pronotal striae. ..... *mastersi* (MACLEAY 1871)
- Elytral markings usually linear only in anterior half. Elytral striae twice length of pronotal striae. ..... *orthogrammus* (SHARP 1882)
10 Elytron with three dark lines other than sutural ..... *grammopterus* (ZIMMERMANN 1928)
- Elytron with two dark lines other than sutural. ..... *daemeli* (SHARP 1882)

Acknowledgements

The Australian National Parks & Wildlife Service in Darwin is thanked for giving permission to conduct scientific research in Kakadu National Park (Permit Number: RK- 400). Dr A.A. Calder and Dr T.A. Weir (ANIC, Canberra, Australia) are thanked for the loan of specimens. Special thanks to Ingo Weckwerth (Berlin, Germany) for his enthusiastic encouragement during the Kakadu expedition and to Dr David Bilton (Plymouth, England), Dr Hans Fery and Michael Balke (Berlin,Germany) for critically reviewing the manuscript.

References

BISTRÖM O. (1988): Generic review of the Bidessini (Coleoptera, Dytiscidae). — Acta Zoologica Fennica **184**: 1-41.

HAYNES C.D., RIDPATH, M.G. & M.A.J. WILLIAMS (eds.) (1991): Monsoonal Australia. Landscape, Ecology and Man in the Northern Lowlands. — Balkema, Rotterdam. 231 pp.

HENDRICH L. (1997): A new species of *Cybister* CURTIS from the Kakadu National Park in Northern Australia. — Entomological Problems **28**(2): 105-107.

MCKENZIE N.L., JOHNSTON R.B. & P.G. KENDRICK (eds.) (1991): Kimberley Rainforests of Australia. — Surrey Beatty & Sons, Norton, Australia. 490 pp.

WATTS C.H.S. (1978): A revision of the Australian Dytiscidae (Coleoptera). — Australian Journal of Zoology, Supplementary Series **57**: 1-166.

WATTS C.H.S. (1985): A Faunal Assessment of Australian Hydradephaga. — Proceedings of the Academy of Natural Sciences of Philadelphia **137**: 22-28.

Anschrift des Verfassers: Lars HENDRICH,
Berlin-Forschung, Freie Universität Berlin,
Gärtnerstraße 3, D-12207 Berlin, Germany.
E-mail: hendrich1@aol.com

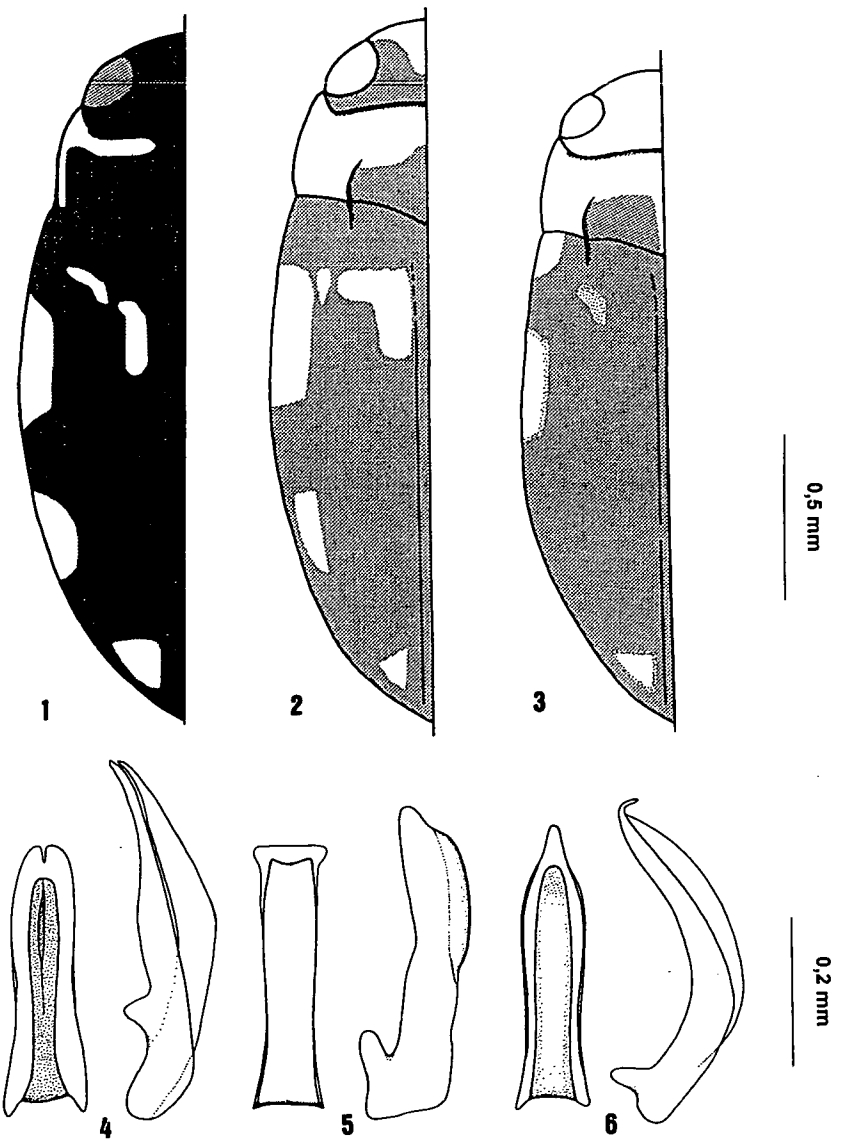

Fig. 1-6: *Hydroglyphus balkei* sp. n.: **1** – paratype (male, 1,6 mm); **2** – *H. trifasciatus* WATTS 1978, Queensland; **3** – *H. godeffroyi* (SHARP 1882), Northern Territories; **4** – penis (dorsal and lateral view) of *H. balkei* sp. n.; **5** – penis (dorsal and lateral view) of *H. trifasciatus*; **6** – penis (dorsal and lateral view) of *H. godeffroyi*.

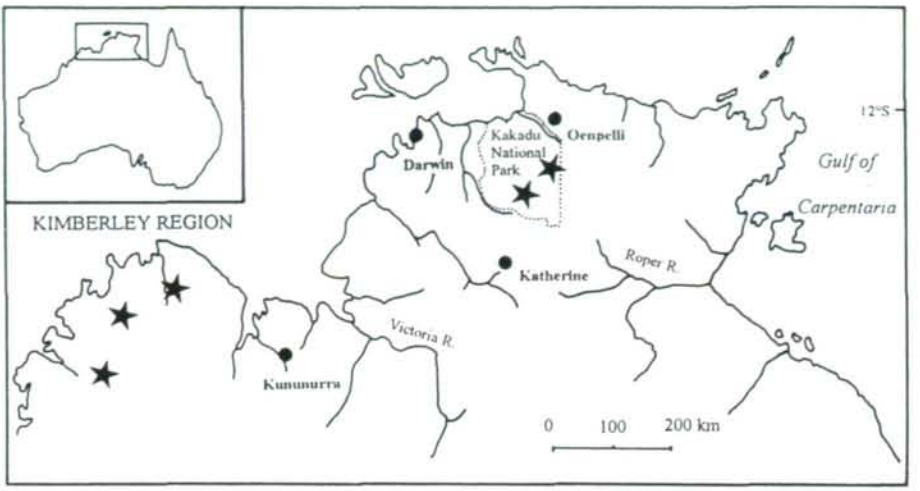

Fig. 7: Distribution of *Hydroglyphus balkei* sp. n. (black stars).

Fig. 8: Habitat of *Hydroglyphus balkei* sp.n., locality 12: Gunlom Waterfall Creek.