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Liopterus haemorrhoidalis (Fab.)
found in a heathland pool in Dorset, England
by Peter Sutton.

ADDRESSES The addresses of authors of articles and reviewed works are mainly given at the end of this issue of ***Latissimus***. The address for other correspondence is: Professor G N Foster, 3 Eglinton Terrace, Ayr KA7 1JJ, Scotland, UK – latissimus@btinternet.com

TOWARDS A PHOTOGUIDE FOR THE LARGER BRITISH WATER BEETLES

Peter Sutton

For some time now, I have been working on a sequel to *The Larger Water Beetles of the British Isles* (Sutton 2008) in a bid to photograph all of the large and spectacular aquatic Coleoptera of Britain. The trials and tribulations of the search for these fascinating insects are described in a recent article in *British Wildlife* (Sutton 2017). This article also reveals that some of the medium-sized species of interest, such as those of the genus *Rhantus* have been included, as have species from other groups, including the raft spider, *Dolomedes plantarius* (Clerck) and a rare wasp, *Chalcis sispes* (L.), parasitic on soldierflies (Stratiomyidae), which collectively highlight the conservation importance of some of the very special habitats in which they may be found.

Figure 1 *Rhantus frontalis* (Marsham), brackish pool, Canvey Island, South Essex

The prospective book, therefore, covers a good number of medium-sized water beetles (7-13 mm), from the Piles Beetle *Liopterus haemorrhoidalis* (Fab.) (6.3-7.9 mm) to the comparatively large *Ilybius ater* (12.5 -14.5 mm), known by some in Britain as the Mud Dweller.

Figure 2 *Liopterus haemorrhoidalis*, found in a heathland pool in Dorset which was teeming with adults of two of our largest predatory diving beetles, the Great Diving Beetle *Dytiscus marginalis* L. and Black-bellied Diving Beetle *Dytiscus semisulcatus* Müller

Figure 3 *Ilybius ater* (De Geer) found among submerged grasses at the edge of a grazing marsh pool on Canvey Island, South Essex

However, one very conspicuous beetle was missing from this clan of mid-sized water beetles, which puzzled me, because despite searching what I believed to be suitable habitats in several counties including Middlesex, Essex, Sussex, Surrey, Hampshire, and Bedfordshire, I was unable to find it. This beautifully marked beetle was *Platambus maculatus* (L.) the only European representative of this genus, which may be found in permanent rivers and streams with overhanging vegetation, as well as wave-swept lake shores, and has been widely recorded from suitable habitats across England, Wales, and Scotland (Foster *et al.* 2016).

It is interesting to note that, in accordance with the variability of the elytral markings of this species, no two illustrations in the appreciable number of books in which this species is depicted are the same. Also, there appears to be no apparent illustration in any of these ‘popular’ books, of the specimens that are almost devoid of markings, which are known to occur in the New Forest, the Lake District, and parts of Scotland (Foster *et al*. 2016). This latter variety led me to recall specimens of a water beetle that I had found in a small stream running into St Mary’s Loch in the Scottish Borders between Selkirk and Moffat, which at the time, owing to a lack of experience, I could not identify. I now suspected that it might be an unmarked form of *Platambus maculatus*.

At the beginning of August 2018, I looked forward to searching suitable habitat in the Isle of Wight for this species. At this point, competent coleopterists reading this will immediately recognise my schoolboy error of not checking the distribution map for this widespread and (apparently) not uncommon species, which has never been recorded from the island. *P. maculatus* is presumed to be flightless in accordance with its observed

absence from offshore islands, although it has been recorded from a light trap (Stumpf and Stumpf 2012), indicating that functional-winged individuals may occur.

In my ignorance, I optimistically investigated several flowing habitats, including a small stream that disappeared into the sandy beach at Brook on the south-west coast of the island (7 August 2018). This short stretch of water meandered thinly through a steep-sided chine and produced, in addition to two small elvers, *Anguilla anguilla* (L.) and a red and black bug *Corizus hyoscyami* (L.), two small species of water beetle, *Hydroporus tessellatus* (Drapiez) and the finely marked *Stictotarsus duodecimpustulatus* (Fab.).

Figure 4 *Stictotarsus duodecimpustulatus* and *Hydroporus tessellatus* in a chine stream at Brook, Isle of Wight
[a “chine” is a name for the steep clefts cut into soft rocks and clays by streams running onto beaches in this area]

I resumed my search of sites on the River Great Ouse near Bedford on 12 August 2018. Once again, a thorough search, focussing on areas with overhanging vegetation, did not reveal this species, although it did produce other species of interest such as the Nocturnal or Hairy Whirligig *Orectochilus villosus* (Müller) and that secretive and seldom-seen resident of East Anglian rivers, the Spined Loach *Cobitis taenia* L.

Figure 5 The Hairy Whirligig *Orectochilus villosus*, River Great Ouse, Bedfordshire

A morning drive back from Dorset on 19 August 2018 took a detour *via* the River Frome, and another opportunity to search for *P. maculatus*, near the village of Wool. In the shadow of a fine stone bridge that was being renovated, I searched the thickly reeded margins of this fast-flowing river, which, now running clear, had benefited from recent heavy rains. I was surprised to find *Dytiscus semisulcatus* and the water-boatman *Notonecta obliqua* Thunberg, among *Dytiscus marginalis*, *Ilybius fuliginosus* (Fab.) and *Laccophilus hyalinus* (De Geer) although they might reasonably have been using the river as a refuge as their typical heathland habitats dried up before the rains. Also present was the first specimen of the River Saucer Bug *Aphelocheirus aestivalis* (Fab.) that I had encountered, an impressive species that was much larger than I thought it would be. Conversely, after a lifetime of never having seen one, a single specimen of *P. maculatus* was found by foraging deep in the mass of submerged vegetation at the edge of the reedbed, which was somewhat smaller than I had expected. It was dark, shiny, and beautifully painted with thin white streaks across its elytra and was found in the company of *Nebrioporus elegans* (Panzer). Another eye-catching species, the yellow and black striped *Prasocuris phellandri* (L.), which was associated with emergent vegetation, was also present. After much searching, without luck, for another specimen of *P. maculatus*, I decided to drive through the New Forest to investigate its western brooks.

Figure 6 River Frome at Wool, Dorset

Figure 7 *Nebrioporus elegans*

Figure 8 *Aphelocheirus aestivalis*

Figure 9 *Prasocuris phellandrii*

I was particularly interested in the possibility of observing *Agabus brunneus* (Fab.) a rare water beetle known to occur in the New Forest. Upon arrival at what looked like a suitable stretch, I waded in, and slowly and carefully began to look under the submerged stones on the bed of the brook. There was no obvious plant life in the brook, other than the decomposing leaves that gathered among the stones and gravel away from its swift central current. Immediately, I disturbed what appeared to be a small eel, which could also reasonably have been a Brook Lamprey *Lampetra planeri* (Bloch) closely followed by the observation of a number of beetles. I could find no sign of *A. brunneus*, but equally, there was no sign of any species other than *P. maculatus*, which appeared in good numbers, apparently to the exclusion of all other water beetles.

Some of the specimens appeared to be noticeably lighter than the River Frome example, being an almost orange-brown in colouration, although whether this was genuine, or because some specimens may have been teneral, remains unclear. There was no evidence of any unmarked specimens among the many that were encountered.

The following year, my strong desire to observe an unmarked specimen took me back to St Mary's Loch in Scotland, on a day (22 August 2019) when glistening sheets of fine rain were carried through the valley on a stiff cool breeze. I did not need to find the elevated stream that had previously led me to observe what I believed to be the unmarked beetle, since a short survey of its classic habitat, the wave-swept shore of the loch, produced several specimens from the stones and submerged grasses within a few minutes, albeit

with a generous soaking from the incessant rain. They were indeed the unmarked variety (with some specimens showing evidence of two small elytral spots), described by Foster and Friday (2011) as being: “probably referable to var. *inornatus* Schilsky…. confined to base-poor waters in rivers and lochs in northern England and Scotland, but also in the New Forest.”

Figure 10 River Frome specimen of *Platambus maculatus*

Figure 11 New Forest (Linford Brook) specimens of *Platambus maculatus* appeared to be noticeably lighter than the Dorset river specimen

Figure 12 The Linford Brook


Figures 13 and 14 Scottish specimens of *Platambus maculatus* lacking the ornate markings of the typical form of this species

Foster *et al*. (2016) raise an interesting point regarding the potential genetic diversity of this species: "Genetic analysis of *Platambus maculatus* may establish that this is a complex of species and races in Eurasia (Ignacio Ribera, pers. comm.) The extent to which specimens lack the pale pattern, or have microreticulation so dense that they are matt, cuts across the classification likely to be revealed by this analysis." Further discussion in the book reveals, interestingly, that in analyses already performed, almost all unmarked specimens from the New Forest and the Lake District are genetically indistinguishable from typically marked specimens, and yet specimens from certain Scottish Lochs, along with specimens from Sweden, are genetically distinct (but unlikely to be a separate species), indicating two independent colonisation events. This could also be the case for the St Mary's Loch specimens.

If further analyses are attempted, it will be interesting to see how any significant genetic differences observed relate to the regionality, colour variety and elytral microstructure of specimens, particularly since, in accordance with separate colonisation events (García-Vasquez *et al.* 2017), similarly unmarked specimens from the Lake District and certain Scottish Lochs will be genetically distinct.

References

FOSTER G N, BILTON D T & NELSON B H 2016. *Atlas of the predaceous water beetles (Hydradephaga) of Britain and Ireland.* Wallingford: Biological Records Centre.

FOSTER, G.N. & FRIDAY L E 2011. *Keys to the adults of the water beetles of Britain and Ireland (Part 1).* Handbooks for the Identification of British Insects **4** (5). London: Royal Entomological Society.

GARCÍA-VASQUEZ D, BILTON D T, FOSTER G N & RIBERA I 2017. Pleistocene range shifts, refugia and the origin of widespread species in Western Palaearctic water beetles. *Molecular Phylogenetics and Evolution* **114** 122-136.

STUMPF W. & STUMPF Y 2012. Nachweise von Käfern im Gebiet Großliebringen, Gemeinde Ilmtal, Ilm-Kreis, Thüringen (Insecta: Coleoptera), *Mitteilungen des Thüringer Entomologenverbandes e. V.* **19** 69-82.

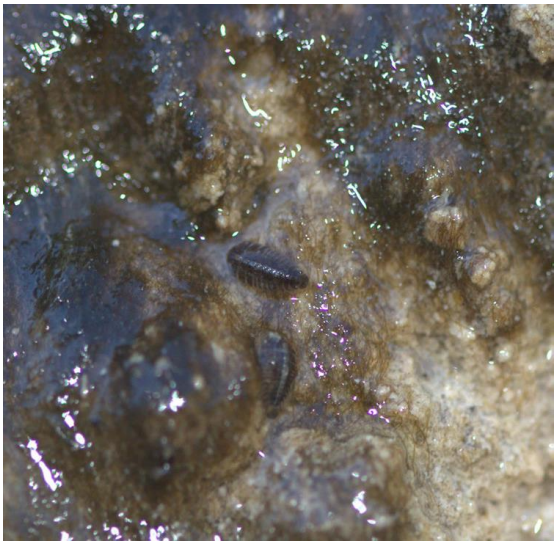
SUTTON P 2008. *The larger water beetles of the British Isles*. Orpington: Amateur Entomologists' Society.

SUTTON P 2017. In search of the larger water beetles of Britain and Ireland. *British Wildlife* **29** 106-112.

Received December 2019

LOMBARDY CATALOGUE

This catalogue covers not only Brescia but also those portions of the Valle Camonica and Val di Sualve in the adjacent provinces of Bergamo and Sondrio. This northern Italian fauna is quite special, with some common European species absent and some of the species present of considerable interest. For example *Brychius glabratus* (Villa & Villa) is known but not *B. elevatus* (Panzer). Only seventeen species of *Hydroporus* are known but these include *H. foveolatus* Heer, *H. sabaudus* Fauvel, *H. springeri* Müller, and *H. nigellus* Mannerheim. The only *Boreonectes* known is *B. alpestris* (Dutton & Angus). The hydraenid fauna is also quite small but includes *Hydraena andreinii* d'Orchymont, *H. dentipes* Germar, *H. heterogyna* Bedel, *H. lapidicola* Kiesenwetter, *H. larissae* Jäch & Díaz, *Ochthebius halbherri* Reitter, *O. lividipennis* (Peyron), *O. sidanus* d'Orchymont and *O. vedovai* Ferro. Tantalisingly we also have yet-to-be-named *Elmis*, *Limnius* and *Esolus*. The account is accompanied by many evocative colour photographs showing the wide diversity of habitats, including larvae of *Eubria palustris* Germar just below the water's surface in seepage in a stream in Val Bertone (illustrations here courtesy of Mario Toledo). Also included are 192 distribution maps and habitus photographs for *Riolus cupreus* (Müller), *Anacaena lohsei* van Berge Henegouwen & Hebauer and *Elmis latreillei* (Bedel).



TOLEDO M & GROTTOLO M 2019. Contributo all conoscenza dei coleotteri acquatici nei bacini idrografici della provincia di Brescia (Lombardy) (Coleoptera: Gyrinidae, Haliplidae, Noteridae, Dytiscidae, Helophoridae, Hydrochidae, Hydrophilidae, Psephenidae, Heteroceridae, Dryopidae, Elmidae). *Memorie della Società entomologia Italiana* **96** 3-289.

ADEPHAGA EVOLUTION – ARE WE THERE YET?

There have been many papers on the evolution of the Adephaga, so one can be forgiven for wondering when – or if - we will ever reach the final conclusion. This paper must take us near, with a comprehensive analysis of adult and larval morphology yielding results "nearly identical" to the molecular phylogeny. The highly specialised Gyrinidae are placed as sister to the rest with two large, monophyletic units – the Haliplidae + Dytiscoidea and the terrestrial Trachypachidae + Carabidae. But the ancestral habitat remains uncertain, either aquatic or terrestrial. A terrestrial origin would only work with two or three independent invasions of the water to explain the very different adaptations of the larvae.

BEUTEL R G, RIBERA I, FIKAČEK M, VASILIKOPOULOS A, MISOF B & BALKE M. 2019. The morphological evolution of the Adephaga (Coleoptera). *Sytematic Entomology* doi:10.1111/syen.12403

ADEPHAGA EVOLUTION (CONTINUED)

"Ultraconserved elements" first reared their heads in ***Latissimus* 40** in a paper by the same group of authors. Here they are again used to investigate evolution of the Hydradephaga. UCEs are identical DNA sequences shared between at least two species, and their origin, their survival unchanged and their function, if they have one, are still mysterious. But they certainly have a use as ancient genetic markers. A new DNA probe (Adephaga 2.9Kv1) recovered nearly three times as many UCEs as the general Coleoptera 1.1Kv1, and this improved the "phylogenomic inference". The Hydradephaga were again seen to be of multiple origin, paraphyletic, with the Gyrinidae sister to all the other adephagans, both aquatic and terrestrial. The latter includes a single origin, monophyletic, Geadephaga having the tiger beetles as a subfamily developing from it early on, and being a sister to the Dytiscoidea the same as Haliplidae. The structure of the Dytiscoidea is the same as in earlier studies (e.g. Vasilikopoulos *et al.* 2019, see ***Latissimus* 43** 3) and the relationship between the Aspidytidae and the Amphizoidea is still unclear. For anyone who likes to keep their collection in the correct order there is trouble within the Dytiscidae, the UCE-informed phylogeny running Hydrodytinae, Hydroporinae, Laccophilinae, Lancetinae, Coptotominae, Copelatinae, Cybristrinae, Dytiscinae, Matinae, Colymbetinae, and Agabinae.

GUSTAFSON G T, BACA S M, ALEXANDER A M & SHORT A E Z 2019. Phylogenomic analysis of the beetle suborder Adephaga with comparison of tailored and generalized ultraconserved element probe performance. *Systematic Entomology* doi: 10.1111/syen.12413

IRANIAN DYTISCIDAE

The following species are identified and illustrated from Shakrekord: *Agabus biguttatus* (Olivier), *A. bipustulatus* (L.), *A. nebulosus* (Forster), *Ilybius fuliginosus* (Fab.), *Colymbetes fuscus* (L.), *Dytiscus persicus* Wehncke, *Laccophilus hyalinus* De Geer, and *Scarodytes halensis* (Fab.). The wheels have come off with some of the references, including one suggesting that the Club was around in 1974, when it was just a twinkling in the eye. Revised citations are

HOSSEINIE S 1992. A report on the aquatic Coleoptera of Bushehr, Iran. *Balfour-Browne Club Newsletter* **50** 10.

HOSSEINIE S 1992. Report on the aquatic Coleoptera of Hormozgān, Iran. ***Latissimus* 1** 22.

HOSSEINIE S 1994. A survey of water beetles of Khuzestan. ***Latissimus* 4** 23.

The 1974 paper intended could be

HOSSEINIE S O 1974. Water beetles found in the vicinity of Shiraz, Iran (Coleoptera: Dytiscidae, Noteridae, Haliplidae, Gyrinidae, and Hydrophilidae). *The Coleopterists Bulletin* **28** (4) 237-243.

The reference to F. Rouhani cannot be found.

DEHKORDI M E & HEYDARNEJAD M S 2019. On the biosystematics of aquatic Coleoptera in central Shahrekord (Chaharmahal-va-bakhtiari province, Iran). *Journal of Entomology and Zoology Studies* **7** 283-288.

POLISH RIVER POLLUTION

The Bolina River is the second most salinised river in the world, with a salinity maximally recorded at 67,470 µS/cm (salinity about 49 PSU about the same as sea water). Twenty-eight taxa of water beetle were recognised from the upper course of the river but only one, *Anacaena lutescens* (Stephens), occurred in the polluted lower stretch.

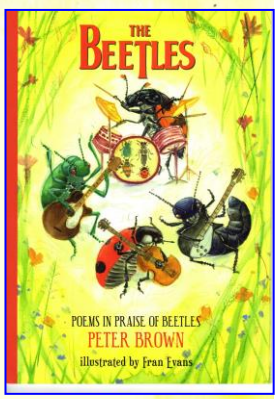
HALABOWSKI D, LEWIN I, BUCZYŃSKI P, KRODKIEWSKA M, PŁASKA W, SOWA A & BUCZYŃSKA E 2019. Impact of the discharge of salinised coal mine waters on the structure of the macroinvertebrate communities in an urban river (Central Europe). *Water Air Soil Pollution* doi.org/10.1007/s11270-019-4373-9 (2020 – 231).

LATISSIMUS IN JAPAN?

Koji Onada (seen here centre, with Valery Vakrushev (Valērijs Vahruševs – photograph Irena Vilcin) left and Mikhail Pupins right) has visited Latgale Zoo, Riga, Latvia in May 2019. There he saw Valery's breeding system for *Dytiscus latissimus* L. and collected living *Cybister lateralimarginalis* (De Geer) for study in Japan. With the help of the Latvian nature protection authority the formalities have also been observed for exporting some *latissimus* for breeding in Japan.

Valery in the zoo with a *latissimus* (photograph Evgeny Ratkov)

THE SATISFIED SYGMOID ASSASSIN



📖 BROWN P 2019. *The Beetles. Poems in praise of beetles*. Signspeed Ltd, Cressely and the Darwin Centre, Haverfordwest. £6.50 including postage, all proceeds to the Wildlife Trust of South and West Wales. Available from Welsh Wildlife Centre, Cligerran, Pembrokeshire SA43 2TB, Wales, UK. wwc@welshwildlife.org

Fourteen well-observed poems about beetles, illustrated by Fran Brown, one about a split-eyed, whirling oarsman and another about a satisfied sygmid assassin. You work it out. Pity about *Gyrinus* "*natator*" but otherwise, buy.

DNA DETECTS SPECIES NEW TO CANADA

These species were originally identified as new for Canada using barcodes. The whirligig *Dineutus emarginatus* (Say) was caught as adults in the Charleston Lake Provincial Lake, Ontario in 2015. *Coelostoma orbiculare* (Fab.) has been found twice in Ontario. *Contacyphon fuscascens* (Klausnitzer) and *C. obscurellus* (Klausnitzer) were originally described from New York State. *C. fuscascens* is now reported from the Yukon, British Columbia and Ontario, and *C. obscurellus* from Ontario, New Brunswick and Newfoundland. More familiar might be *C. kongsbergensis* (Munster), mainly known as a Palaearctic species, reported by Nyholm from Alaska, and now detected from British Columbia, Alberta and Manitoba. Figures of the male genitalia are provided. *Notaris scirpi* is reported from many sites in Quebec.

PENTINSAARI M, ANDERSON R, BOROWIEC L, BOUCHARD P, BRUNK A, DOUGLAS H, SMITH A B T & HEBERT P D N 2019. DNA barcodes reveal 63 overlooked species of Canadian beetles (Insecta, Coleoptera). *ZooKeys* **894** 53-150.

NOVA SCOTIA HYDRADEPHAGA

Heterosternuta allegheniana (Matta & Wolfe), *H. wickhami* (Zaitzev), *Hydroporus appalachius* Sherman, *H. gossei* Larson & Roughley, *H. nigellus* Mannerheim, *H. puberulus* LeConte, *Ilybius picipes* (Kirby) and *I. wasastjernae* (Sahlberg) are newly recorded in Nova Scotia, with 87 species now known from Cape Breton Island. Eighty-two per cent are Nearctic and 18% Holarctic.

ALARIE Y 2019. The Hydradephaga (Coleoptera, Haliplidae, Gyrinidae, and Dytiscidae) fauna of Cape Breton Island, Nova Scotia, Canada: new records, distributions, and faunal composition. *ZooKeys* **897** 49-66.

AMBER LACCOPHILINE

The Saxonian amber came from late Eocene deposits, usually dated around 50 million years ago. *Electruphilus* produces some striking images, and its visible structure indicates the need to recognise a new genus. The description of *Japanolaccophilus beatificus* Hendrich and Balke was reported in ***Latissimus* 43** 8 as the first laccophiline to be found in amber. The opportunity is taken here to update a key to the subfamily.

BALKE M, TOLEDO M, GRÖHN C, RAPPSILBER I & HENDRICH L 2019. *Electruphilus wendeli* gen. n., sp. n. – the first diving beetle recorded from Saxonian (Bitterfeld) amber (Coleoptera: Dytiscidae: Lacophilinae). *Russian Entomological Journal* **28** 350-357.

SUPHISELLUS LARVA

Suphisellus is endemic to America with 56 species at the present count. The elongation of abdominal segment VIII suggests that as in other known noterids in *Noterus* and *Synchortus* respiration is achieved by piercing aerenchymatous tissues. The development of this siphon appears to have resulted in loss of several setae.

URCOLA J I, ALARIE Y, BENETTI C J & MICHAT M C 2019. Larval morphology of *Suphisellus* Crotch, 1873 (Coleoptera: Noteridae): description of first instar of *S. rufipes* (Sharp, 1882) with biological notes and chaetotaxy analysis. *Annales Zoologici (Warszawa)* **69** 817-825.

ILYBIUS WASASTJERNAE IN ITALY

The discovery of this species in Italy is detailed. It was in a small bog in pine-spruce forest at 1400 metres above sea level in north-east Italy in Trento. The same bog produced *Agabus lapponicus* (Thomson), *A. melanarius* Aubé, *Hydroporus memnonius* Nicolai, and *Contacyphon kongsbergensis* (Münster).

TOLEDO M & CARLIN A 2019. Primo ritrovamento in Italia di *Ilybius wasastjernae* (Sahlberg, 1824) (Insecta: Coleoptera: Dytiscidae: Agabinae). *Gredleriana* **19** 201-207.

NEW *GRAPTODYTES*

Graptodytes exsanguis (Bedel) is instated as a species from Corsica, Sardinia, Algeria and Tunisia. It was originally described as a variety of *varius* Aubé, and is similar to *G. fractus* (Sharp). Comparison of the aedeagi of *exsanguis* and *fractus* is best using a ventroapical view, viewing the slightly attenuated tip (more so than in *fractus*) with the structure "upside down" from what would normally be considered the viewing angle. Analysis of the Cytochrome oxidase 1 gene from Corsican and Sardinian specimens indicates its being basal to the development of the *ignotus*/*varius* complex. A phylogenetic tree is provided for *Graptodytes* species. The contact author is Michaël Manuel.

QUENEY P & MANUEL M 2019. *Graptodytes exsanguis* (Bedel, 1925) n. stat., a newly recognised species of diving beetle from North Africa, Corsica and Sardinia, with notes on other taxa of the *varius*/*ignotus* complex (Coleoptera: Dytiscidae). *Annales de la Société entomologique de France* **55** 509-527.

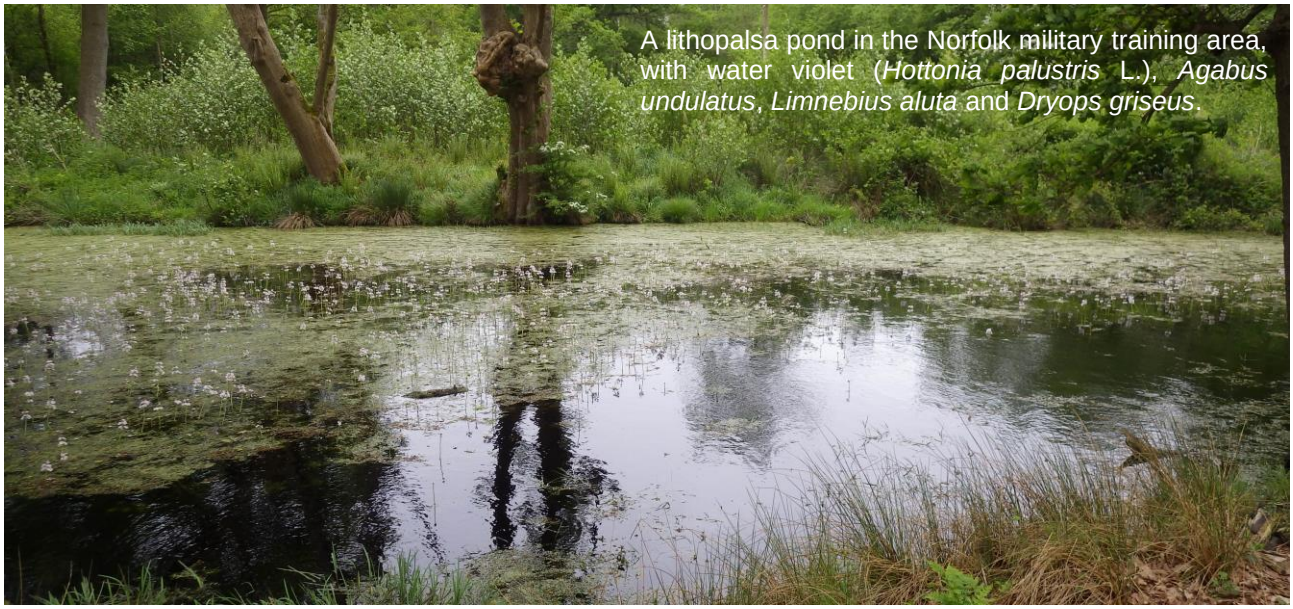
IRANIAN CHECKLIST IMPROVEMENTS

The paper lists new records for 39 species including *Gyrinus dejeani* Brullé and *Haliplus confinis* Stephens new for Iran. The author for correspondence is Hassan Ghahari.

VONDEL B J van, OSOVAN H & GHAHARI H 2017. An annotated checklist of Iranian Myxophaga (Hydroscaphidae, Sphaeriusidae) and Adephaga (Gyrinidae, Haliplidae, Noteridae, Rhysodidae) (Insecta: Coleoptera). *Zootaxa* **4216** 225-246.

HYDROSCAPE IN NORFOLK AND THE LAKE DISTRICT + GHOST PONDS

Records here mainly came about through survey work by Alan Law and colleagues in connection with the Hydroscape Project, plus some other finds in Norfolk mainly by Martin Hammond and GNF. Norfolk is so well recorded that there are no species added to its list here, perhaps the most interesting records being from a part of the STANTA military training area not surveyed before, with *Agabus labiatus* (Brahm), *A. undulatus* (Schrank), *Hydrochus brevis* (Herbst), *Hydrophilus piceus* (L.), *Hydraena palustris* Erichson, *Dryops auriculatus* (Fourcroy), and *D. griseus* (Erichson). Lake District records include *Hydroglyphus geminus* (Fab.), *H. rufifrons* (Müller), *Rhantus frontalis* (Marsham), *Donacia cinerea* Herbst and *D. thalassina* Germar in Westmorland, and *Contacyphon kongsbergensis* (Münster), a second record for Cumberland.



A lithopalsa pond in the Norfolk military training area, with water violet (*Hottonia palustris* L.), *Agabus undulatus*, *Limnebius aluta* and *Dryops griseus*.

Ghost Ponds - a recantation. The reviewer must admit to a misrepresentation in the Norfolk paper. Carl Sayer did not intend that the deeply shaded surviving farmland ponds should be known as “Ghost ponds” – rather, he was concerned with resurrecting down to their original organic deposit ponds that had been infilled. This process is detailed in the article by Alderton *et al*. An article, not a paper, as it is not published in the usual sense. It is bioRχiv, a sort of holding system for papers that have yet to be finalised. Thirty-seven species are reported by Geoff Nobes, including *Haliplus obliquus* (Fab.), *Hygrotus confluens* (Fab.), *Berosus affinis* Brullé, *Laccobius sinuatus* Motschulsky and *L. striatulus* (Fab.). The correspondent is Carl Sayer.

ALDERTON E, SAYER C D, AXMACHER J C, PATMORE I R, BURNINGHAM H, BROWN P L & NOBES G 2019. “Ghost ponds” – how to resurrect in-filled farmland ponds to assist aquatic biodiversity conservation in agricultural landscapes. *bioRXiv* doi.org/10.1101/831859 14 pp.

FOSTER G N, BLAIKIE J & LAW A 2019. Some aquatic Coleoptera in the Lake District, as recorded in the Hydroscape project. *The Coleopterist* **28** (3) 108-110.

FOSTER G N, HAMMOND M R & LAW A 2019. Recent Norfolk water beetle records. *The Coleopterist* **28** (4) 178-182.

ECUADOR ELMIDS

Ictelmis mariae is a newly described species in a new genus, the 48th of the Neotropics. DNA analysis established the link with *Onychelmis* and *Notelmis*.

ČIAMPOR F, LINSKÝ M & ČIAMPOROVÁ-ZAŤOVIČOVÁ Z 2019. *Ictelmis*, a new riffle genus from Ecuador (Coleoptera: Elmidae). *Zootaxa* **4695** 483-491.

GRAPHODERUS BILINEATUS AND REEDBEDS

Reedbed management is found to be important in conservation of water beetles along the south-eastern side of Lake Neuchâtel, well known for its population of *Graphoderus bilineatus* (De Geer) since first worked on by the late Michel Brancucci in the 1970s. “Reed bed soil stripping” as in the title of the first paper can result in removal of the top 30 cm of the organic layer (according to the second paper) and cannot be equated to reedbed mowing as in England and/or reed cutting, e.g. in the Camargue – Schmidt *et al*. 2004, where the practice presumably came about as a commercial operation to produce roofing material, bedding for animals, etc. The reedbeds of the Grande Cariçaie Nature Reserves arose when water level of the lake was lowered by 3 metres and thereafter regulated, with stripping of these beds as a restoration measure. The present study shows that older beds stripped in 2008/9 were the only ones supporting *Dytiscus dimidiatus* Bergsträsser, *Hydroporus angustatus* Sturm and *Clemnius decoratus* (Gyllenhal), with another ten found only in sites more recently stripped, either in 2015 or 2017 – *Haliplus heydeni* Wehncke, *H. lineatocollis* (Marsham), *H. ruficollis* (De Geer), *Peltodytes rotundatus* (Aubé), *Dytiscus marginalis* L., *Rhantus exsoletus* (Forster), *R. latitans* Sharp, *Hydroporus palustris* (L.), *Hydrovatus cuspidatus* (Kunze), and *Hygrotus impressopunctatus* (Schaller). The remaining 28 species were associated with sites of intermediate age, stripped in 2013/14.

The second paper concerns the *Graphoderus* species of Grande Cariçaie. *G. zonatus* was represented by only four specimens but *G*. *bilineatus* and *G. cinereus* (L.) coexisted in many sites, though *bilineatus* was only found on the Motte reserve towards the north end of the lake. Stripping might favour *G*. *bilineatus* there but that could be in conflict with the need to reduce the impact of invasive *Pelophylax* frogs that predate on the green tree frog *Hyla arborea* L. But, judging from earlier experiences with *Graphoderus* species this will be nothing combined to the arrival of Louisiana crayfish *Procambarus clarkii* (Girard) or to the introduction of fish!

KNOBLAUCH A & GANDER A 2019. Reed bed soil stripping as wetland management method: implications for water beetles. *Wetland Ecology Management* doi.org/10.1007/s11273-019-09702-2 .

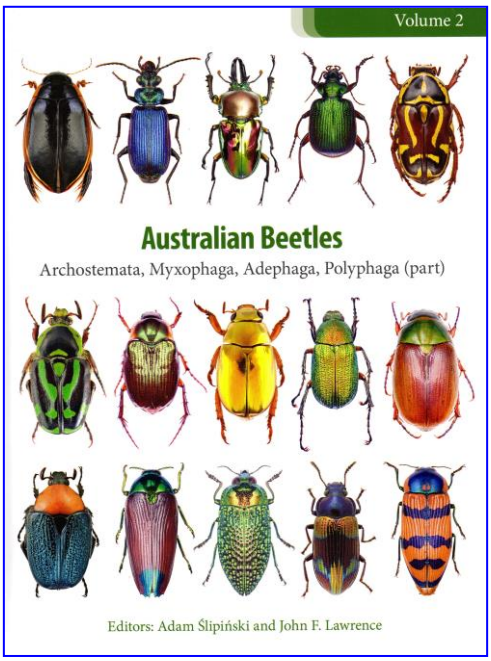
KNOBLAUCH A & GANDER A 2019. Distribution of a residual population of the dytiscid *Graphoderus bilineatus* (de Geer) 1774) in the Grande Cariçaie nature reserves, Switzerland. *Alpine Entomology* **3** 83-91.

SCHMIDT M, LEFEBVRE G, POULIN B & TSCHARNTKE T 2004. Reed cutting affects arthropod communities, potentially reducing food for passerine birds. *Biological Conservation,* **121**, 157-166.

ENDEMIC MOUNTAIN SURVIVAL

If you are adapted to mountain life in Central Spain what are your chances if the mountain warms up? Two taxa were chosen for study from the Sierra Nevada, *Agabus nevadensis* Håkan Lindberg and *Hydroporus sabaudus sierranevadensis* Shaverdo. DNA-wise *A. nevadensis* is deeply nested within *A. bipustulatus* (L.) but with allozymes indicating reproductive isolation. The *Hydroporus* is a subspecies of *H. sabaudus* Fauvel in the *nigrita*-group living in the high lakes of the Sierra Nevada along with *A. nevadensis*. Upper lethal temperature and heat coma temperatures were measured in beetles acclimated to either 10 or 20 °C for a week. Some species had heat tolerance “in reserve”, i.e. beyond the temperature regimes to which the species are currently subjected. However, there was no evidence of acclimation ability.

PALLARÉS S, MILLÁN A, MIRÓN J M, VELASCO J, SÁNCHEZ-FERNÁNDEZ D, BOTELLA-CRUZ M & ABELLÁN P 2019. Assessing the capacity of endemic alpine water beetles to face climate change. *Insect Conservation and Diversity* doi:10.111/icad.12394



AUSTRALIAN BEETLES

📖 ŚLIPIŃSKI A & LAWRENCE J F 2019. *Australian Beetles. Volume* **2**. *Archostemata, Myxophaga, Adephaga. Polyphaga (part)*. Clayton South: CSIRO Publishing. Recently on offer at £158 inc. p&p in Britain.

Weighing in at nearly 3 kilos, and with a colourful cover, there is risk of thinking of this serious book as a coffee table decoration. There are 36 chapters of which 16 are mainly concerned with water beetles, covered by eight authors – Martin Fikàček, Eugene Hall, Lars Hendrich, John Lawrence, Cate Lemann, Chris Watts, Tom Weir, and Peter Zwick. Most chapters follow the same basic structure – an introduction, notes on biology and characteristics of adults, larvae and pupae, then a key down to genera, and the same treatment pattern for each genus. The Hydrophilidae and Scirtidae are taken a stage further in that keys to genera are provided for the last instar larvae. Two keys are given for Dytiscidae, seven genera with terrestrial or subterranean representatives being treated separately. Colour is confined to pages 663-765, with Plates 15 to 17 covering Dytiscidae and, further on, Plates 102 and 103. The authors had supplied the latter images in time but these somehow got forgotten and had to be put in at the end. The life studies in Plates 1-13 also include a few water beetles.

HALIPLIDAE REVISION BASED ON AIR-STORAGE

Eight types can be recognised of air storage, based on the extent to which the air space has been developed by the depression being developed in the ventrites underlying the coxal plates, the extent to which the plates extends over the abdomen, and the extent to which the plates meet in the midline. The depression in the ventrites may have a boundary ridge completely or partly developed, and the plates may be fused in the midline. This study is associated with a new classification involving some changes – the Australian *Phalilus* Guignot, based on *oberthuri* Guignot, is raised to generic rank. *Algophilus* Zimmermann and *Apteraliplus* Chandler are reduced to subgenera; *Haliaplus* Adám is resurrected as a subgenus of *Haliplus* with the type species *laminatus* Schaller; the new subgenera are created, *Australiplus* (type *Haliplus sindus* Watts), *Borealiplus* (type species *Haliplus borealis* LeConte), *Nipponiplus* (type species *Haliplus japonicus* Sharp).

VONDEL B van 2019. Features of the metacoxal air-storage space as additional characters for reconstructing the phylogeny of Haliplidae (Coleoptera). *Tijdschrift voor Entomologie* **162** 13-32.

SIBERIAN PERMAFROST

The Gydan Peninsula lies between the rivers Ob and Yenisey on the Kara Sea 69 degrees north. Twenty-one sites were surveyed in 2015. Twenty beetle species were found, including *Hydroporus punctipennis* Sahlberg, *H. sibiricus* Sahlberg, *Agabus elongatus* (Gyllenhal), *A. serricornis* (Paykull), *A. zetterstedti* Thomson. *Ilybius angustior* (Gyllenhal) and *Helophorus niger* Sahlberg, the latter on the western edge of its distribution.

PROKIN A A, STOLBOV V A, PETROV P N & FILIMONOVA M O 2019. Beetles (Coleoptera) in stagnant water bodies of the middle part of the Gydan Peninsula. *Entomological Review* **99** 836-843.

JOHN ARTHUR PARRY 1929 - 2019

John died after a short illness on 9 December 2019, aged 90. He had a short but highly effective period recording water beetles, during which he brought forward *Haliplus varius* Nicolai (the “new broom” paper below) and *Oulimnius major* (Rey) as new for Britain, and confirmed the British status of *Cercyon granarius* Erichson. There are 246 of his records on file. The demands of a busy pharmacy at Tenterden put paid to more beetling activity on such a scale. As ever, there is no claim that this list of publications is exhaustive.

1979. *Helophorus tuberculatus* Gyll. (Col.: Hydrophilidae) near Bristol. *Entomologist's Record & Journal of Variation* **91** 22-23.

1979. *Cercyon granarius* Erichson. *Balfour-Browne Club Newsletter* **14** 5-6.

1980. *Cercyon granarius* Erichson (Col., Hydrophilidae) confirmed as British. *Entomologist's Record & Journal of Variation* **92** 211-215.

1980. *Oulimnius major* (Rey) (= *O. falcifer* Berthélemy) (Col.: Elmidae) new to Britain. *Entomologist's Record & Journal of Variation* **92** 248.

Sussex in September 1982. Left to right – GNF, David Porter, Peter Hodge, John Parry and Eric Phillips

1980. *Bledius annae* Sharp (Col., Staphylinidae) in Kent. *Entomologist's Monthly Magazine* **116** 197.

1980. A major new find. *Balfour-Browne Club Newsletter* **18** 1-2.

1981. *Cercyon granarius* Er. in Somerset. *Entomologist's Monthly Magazine* **117** 128.

1982. The new broom. *Balfour-Browne Club Newsletter* **23** 1-2.

Condolences to his wife Valerie, and to his children Graham, Stephen and Joanna, and grandchildren Rosie, Charlie and Summer. Thanks also to Joanna Boult for the photograph of his ascent above Grasmere.

JORDANIAN DYTISCIDS

A diversity of habitat is illustrated, reflected in the range of species found. Twenty-five species are recorded:- *Agabus biguttatus* (Olivier), *A. conspersus* (Marsham), *A. nebulosus* (Forster), *Rhantus includens* (Walker), *R. suturalis* (Macleay), *Cybister lateralimarginalis* (De Geer), *Eretes griseus* (Fab.), *E. sticticus* (L.), *Hydaticus leander* (Rossi), *Bidessus calabricus* Guignot, *H. geminus* (Fab.) (misidentified as *Bidessus anatolicus* Wewalka in an earlier work), *H. signatellus* (Klug), *Hydroporus multiguttatus* Régimbart, *H. pubescens* (Gyllenhal), *H. teres* Sharp, *H. tessellatus* (Drapiez), *Hydrovatus cuspidatus* Motschulsky, *Hygrotus confluens* (Fab.), *H. musicus* (Klug), *Hyphydrus pictus* Klug, *H. sanctus* Sharp, *Methles spinosus* Sharp, *Nebrioporus lanceolatus* (Walker) (originally reported as *N. stearinus* (Kolenati)), *Laccophilus hyalinus* (De Geer), and *L. minutus* (L.).

HÁJEK J, REITER A & WEWALKA G 2019. Predaceous diving beetles (Coleoptera: Dytiscidae) of Jordan. *Aquatic Insects* doi.org/10.1080/01650424.2019.1591458

PLATAMBUS IN CHINA

Five species are illustrated, including the newly described *Platambus binliui*. The bridge in Xiaozhaizi (photograph: O. Konvička) where it was found is straight out of Indiana Jones! *P. regulae* Brancucci is new for China.

HÁJEK J & ZHANG T 2019. A new *Platambus* from Sichuan, with new records of species of the *P. sawadai* group from China (Coleoptera: Dytiscidae: Agabinae). *Zootaxa* **4612** 533-543.

LACCOPHILUS AS A MOSQUITO PREDATOR

Experiments are described in which adult and larval *Laccophilus fasciatus rufus* Melsheimer were offered early and later instar larvae of *Culex quinquefasciatus* Say. In one experiment adult beetles ate more late instar mosquito larvae than did their larvae. In another experiment both adult and larval beetles ate a similar but lower number of younger larvae. In the third experiment adult beetles preferred microwaved larvae to living ones. The lengthy discussion covers a large number of similar beetle-mosquito challenges. Donald Yee is the contact person.

BOFILL C E & YEE D A 2019. An army of one: predaceous diving beetle life history stages affect interactions with shared mosquito prey. *Hydrobiologia* **827** 201-209.

PCWDEs WERE THE BREAKTHROUGH

In a letter to J.D. Hooker, dated 23 September 1878, Charles Darwin famously wrote “the rapid development of all the higher plants within recent geological times is an abominable mystery”, by which he meant the angiosperms. In turn, the rise of the Coleoptera in association with angiosperms is also a source of controversy. This huge genetic study establishes how the relationship with angiosperms developed. Firstly came an association with symbiont bacteria and fungi that could digest lignocellulose – as detected in 154 genomes. Then came horizontal transfer of genes into the beetle genomes. The most important enzymes were PCWDEs – plant cell wall-degrading enzymes - and invertases that release glucose and fructose from sucrose. The beetle PCWDEs are mainly carbohydrate esterases, polysaccharide lyases and glycoside hydrolases. The origin of Coleoptera is put at 327 million years ago (mya) in the Carboniferous with diversification of the Polyphaga in about 304.7 mya in the late Carboniferous, followed by thirteen post-Permian increases in diversification rate. However, Permian fossil records of beetles as insects and of galleries in wood could be more beetle-like than beetle. One wonders whether Roy Crowson’s suggestion still holds sway that the complete enclosure of ovules in carpels in Angiosperms provided the crucial escape from beetle larvae destruction of Gymnosperm seeds. Evidence of pollination-adapted beetles 99 mya has come only recently with a mordellid in Burmese amber (Bao *et al*. 2019).

BAO T, WANG B, LI J & DILCHER D 2019. Pollination of Cretaceous flowers. *PNAS* doi.org/10.1073/pnas.1916186116

CROWSON R A 1981. *The biology of Coleoptera*. New York: Academic Press; Harcourt Brace Jovanovich Publishers.

McKENNA D D, SHIN S, AHRENS D……..& BEUTEL R G 2019. The evolution and genomic basis of beetle diversity. *PNAS* 10.1073/pnas.1909655116

NOTES ON PALAEARCTIC *HYDROPHILUS* **Robert Angus**

In the course of my recent trip to China (***Latissimus* 44** 1 – 7) I took two *Hydrophilus* species, both of which posed problems. The first of these, a female *H. acuminatus* Motschulsky, closely resembled *H. piceus* (L.), but the locality (near Harbin) would have been a striking extension to the known range of that species. Sasha Shatrovskiy (1989), in his keys to species of the Soviet Far East (Primorye), described and figured differences in the shape of the apical antennal segment of these species, and these figures appeared to show that my female was indeed *H*. *piceus*. However, examination of material in the Natural History Museum in London showed that Sasha had transposed his figures and my female was *H. acuminatus*. The second species, *H. dauricus* Mannerheim, was represented in London by only four specimens, all collected by me in the course of my Russian trips in 1969 – 1970 and 1982, and one of these was found to be misidentified! These notes are intended to help recognition of the six species known in the Palaearctic.

1. *H. bilineatus caschmirensis* Kollar & L. Redtenbacher. This species differs from all the others in its longer metasternal spine, which leaves only the apical 2 of the fixed abdominal segments entirely uncovered (Fig. 1). The apical segment of the male fore tarsi is scarcely modified (Fig. 2). This species is widely distributed over much of China, and occurs in Japan. I do not know the differences between *H. b. caschmirensis* and *H. b. bilineatus* W.S. Macleay, which occurs in India and Australia.

2. *H. piceus* (L.) and 3. *H. acuminatus* Motschulsky. These species are very similar in general appearance, with keeled abdomens (Fig. 1) and small apical spines at the end of the elytral sutures (Fig. 3). The apical segment of the antennal club in *H*. *piceus* is less elongate and more rounded (Fig. 3, a specimen from Wicken Fen, Cambridge) than in *H. acuminatus* (Fig. 3, my female from Harbin). The expansion of the apical segment of the male fore tarsi is much smaller in *H. acuminatus* than in *H*. *piceus*, and *H. acuminatus* also has a somewhat smaller aedeagus (Fig. 2).

4. *H. pistaceus* Laporte. This species closely resembles *H. piceus* and *H*. *acuminatus* in its keeled abdomen, but lacks any spine at the apex of the elytral suture (Fig. 1). The expansion of the apical segment of the male fore tarsi is very large and the aedeagus is large with apically truncate and slightly out-turned parameres (Fig. 2).

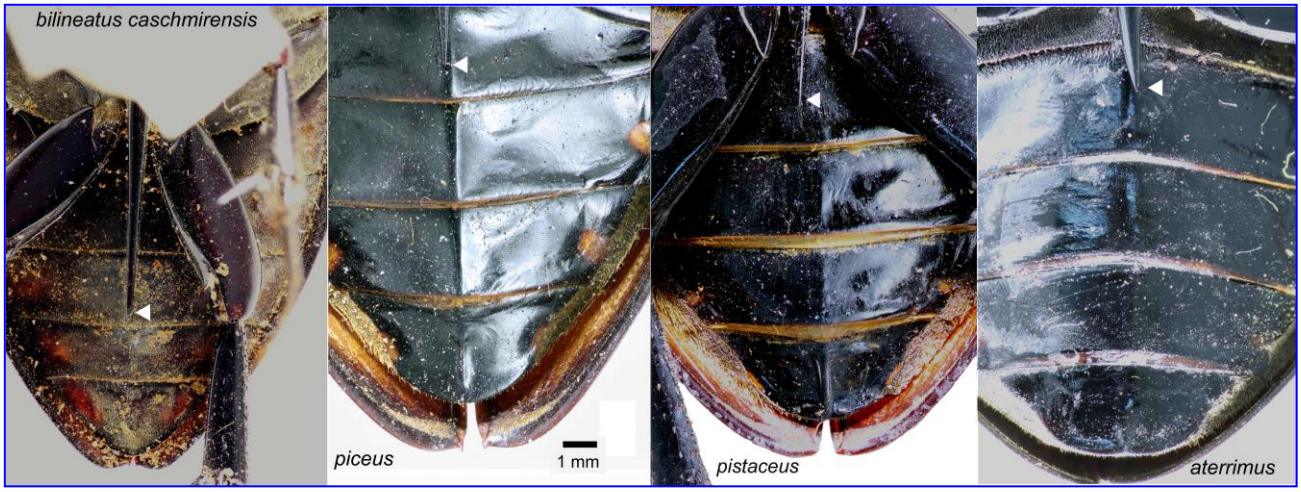


Figure 1 Undersides. Apex of metasternal spine indicated by a white triangle

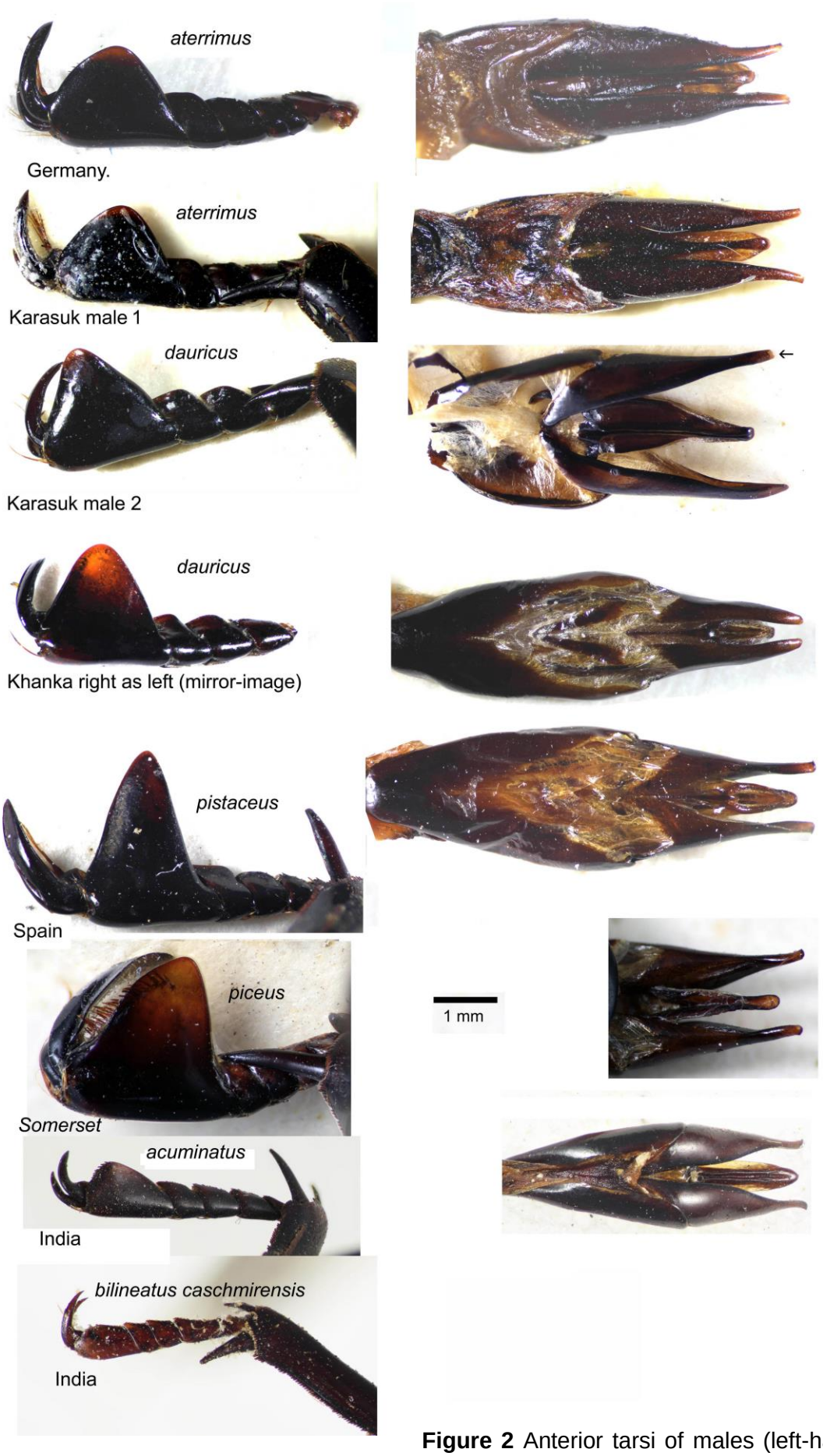


Figure 2 Anterior tarsi of males (left-hand column) and their aedeagi (right-hand column).
The damaged paramere-apex of the Karasuk *H. dauricus* is indicated by an arrow

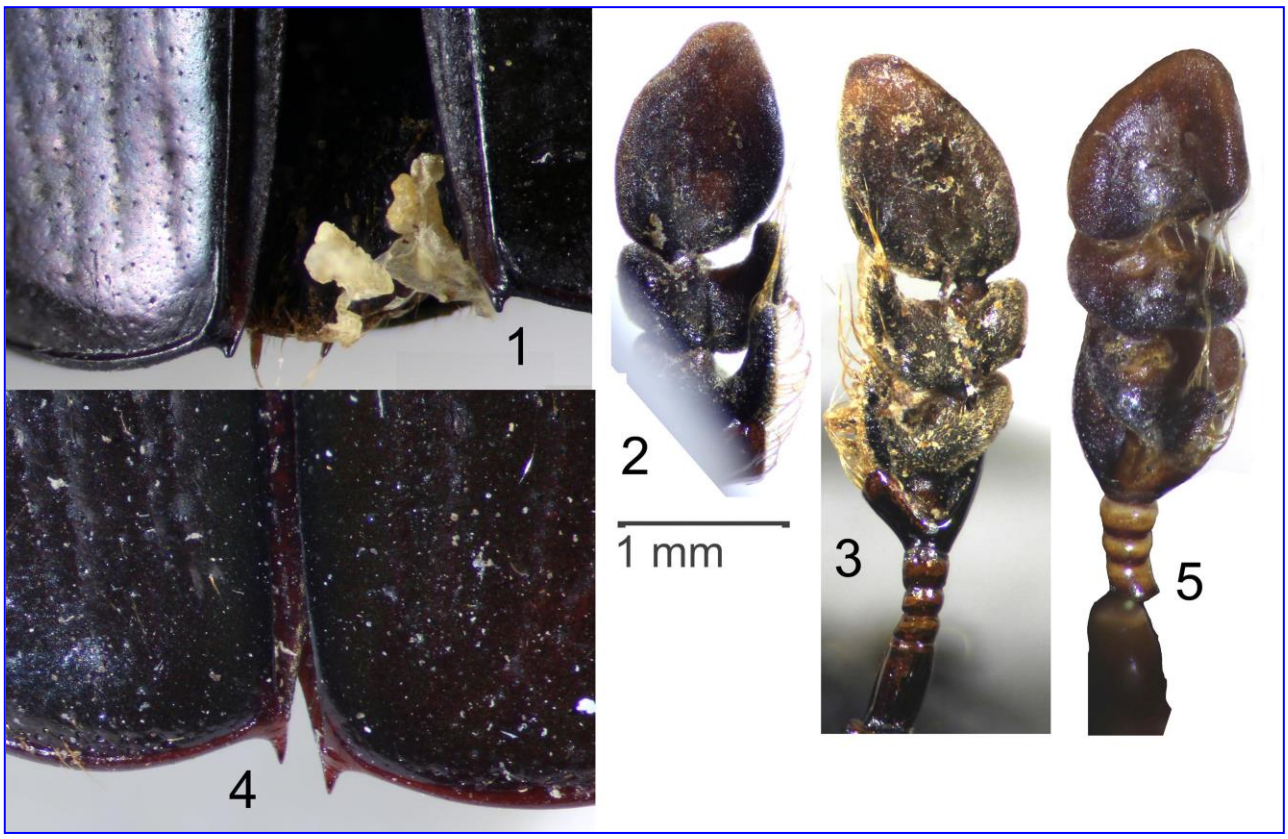


Figure 3 elytral apices of: 1 *H. acuminatus* ♀ from Harbin district, leg. R. B. Angus, and 4. *H. piceus*, Wicken Fen, Cambridgeshire (BMNH). Antennae of: *H. acuminatus* ♀ from Harbin, 2 left antenna, 3 right antenna, and 5 *H. piceus*, Wicken Fen

5. *H. aterrimus* Eschscholtz and 6. *H. dauricus* Mannerheim. These two species are very similar, with no sutural spines on the elytra and abdomens which are arched medially, and never keeled. The last fixed abdominal sternite has a ridge running about to the middle. Males are easily separated by the form or by the aedeagus, *aterrimus* with the parameres longer and turned outwards apically, the actual apex somewhat truncate and *dauricus* with the parameres turned inwards apically and the apices rounded (Fig. 2). There is also a difference in the expansion of the apical segment of the male fore tarsi – larger in *dauricus* than *aterrimus* Fig. 2) And this is where we run into difficulties! On current knowledge the distributions of these species do not overlap, with *H. aterrimus* ranging from central Europe east to West Siberia and Kazakhstan, and *H. dauricus* from Mongolia to East Siberia, eastern China and Japan. When I initially identified my West Siberian material, taken at Karasuk in 1982, I thought the male fore tarsal expansion was rather large and, without checking further, placed them as *H. dauricus*. Then, on looking at the Palaearctic Catalogue (Przewoźny, 2019), I realised they should be *H. aterrimus*. The aedeagus of Karasuk male 1 confirms this (Fig. 2) but the male 2 aedeagus had the median lobe sticking up so that it and the parameres formed a tripod, so its shape was not obvious. Not only this, but Fenglong Jia, to whom I had sent photographs, said he thought the male tarsal expansion of male 2 was distinctly larger than in male 1. At this stage I cleared the aedeagus with NaOH and mounted the parameres flat on the card with the median lobe between them (Fig. 2). And then there is no doubt – this specimen is *H. dauricus*! So now separation of the females becomes important. Both species have the median ridge of the last fixed abdominal sternite extending from the apex to more or less the middle of the

segment. The exact length of the ridge varies, but on the whole it is longer in *H. dauricus*. Fig. 4 shows this using a row of pictures of the median area of the sternite. The top row shows them as they are, while in the middle row each sternite is overlaid by a transparent paler rectangle whose size corresponds with that of the Doué *aterrimus*, and in the bottom row the paler rectangle corresponds with the Harbin 1 (H1) *dauricus*. This seems to show the distinction fairly well, and in particular places the Karasuk (KS) female clearly as *aterrimus*.

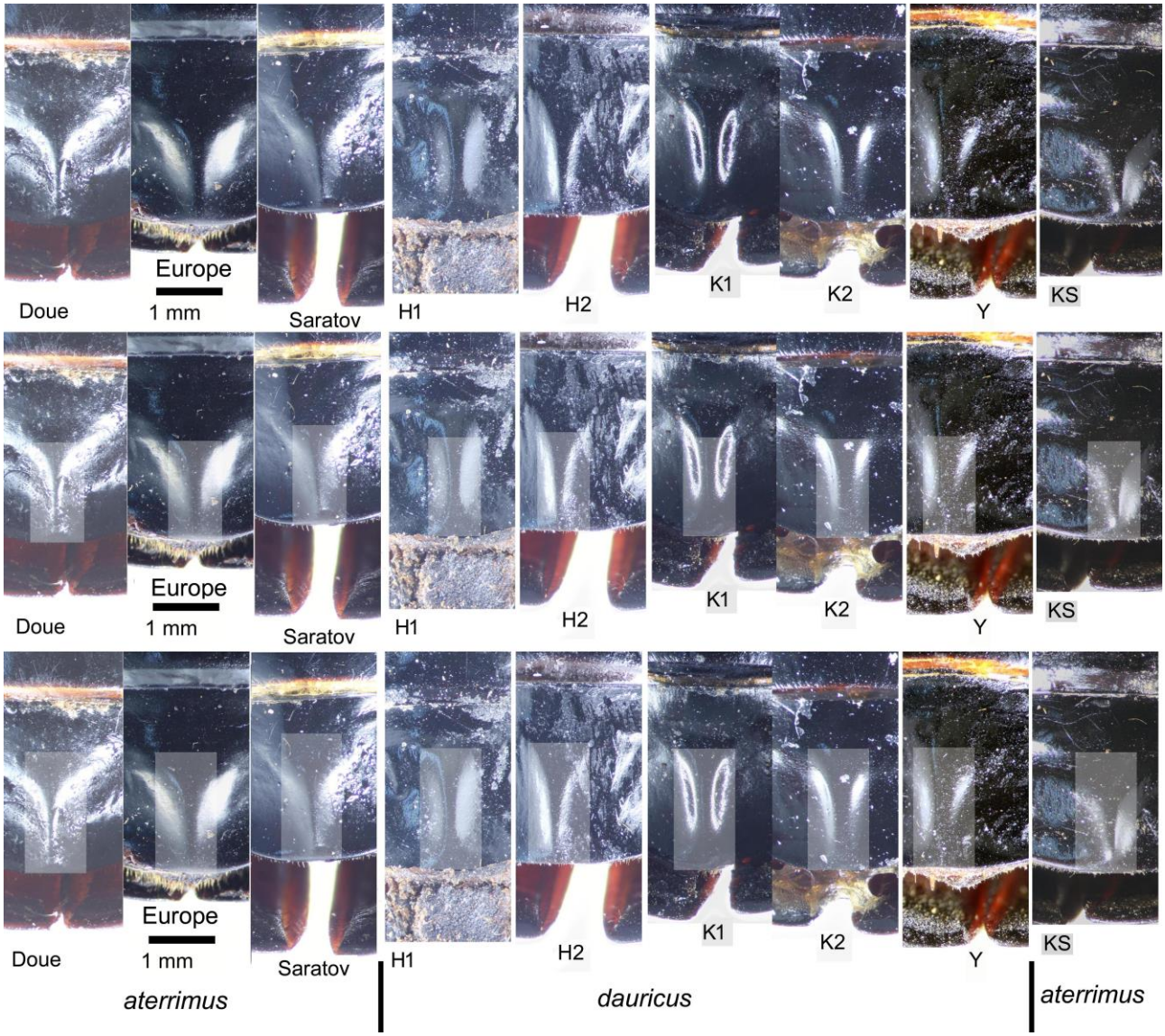


Figure 4 Median part of apical abdominal segments of *H. aterrimus* and *H. dauricus*. Localities: Doué France; "Europe", a specimen dating from 1855, without further data; Saratov, Russia; H1, H 2, Harbin, China; K 1, K 2, Lake Khanka, China, Y, Yakutsk, E. Siberia; KS, Karasuk, W. Siberia

PRZEWOŹNY M 2019. *Catalogue of Palaearctic Hydrophiloidea (Coleoptera).* Internet version, 2019-01-01. http://www.waterbeetles.eu

SHATROVSKIY A G 1989. Family Hydrophilidae. pp 264 – 293 in: P. A. Ler (ed.) *Keys to the Insects of the far east of the USSR* **3** (1), Leningrad: Nauka (In Russian).

Received February 2020

OMANI *YOLA*

Yola unguicularis is described from a spring-fed wadi in Oman. Its name is for the bifid inner fore claw of the male, something not seen in other Arabian *Yola*. *Y. porcata* (Klug) is newly recorded from Oman in this camel-frequented pool at Ain Ghubrat.

HÁJEK J & REITER A 2019. Diving beetles of the genus *Yola* Gozis, 1886 from Oman, with description of a new species (Coleoptera: Dytiscidae). *Zoology in the Middle East* doi.org/10.1080/093797140.2019.1663870

HYDRODYTES IN GUADELOUPE

Hydrodytes opalinus (Zimmermann) is reported from Basse Terre island in Guadeloupe, constituting the first record of Hydrodytina in the Caribbean Basin north of Trinidad. It was found with *Copelatus caelatipennis* Sharp, *Derovatellus lentus* (Wehncke), *Laccomimus bordoni* Toledo & Michat and other dytiscids. All nine specimens were female, pointing to the possibility of parthenogenesis. The potential for Neotropical dytiscids to reach the Nearctic is discussed, some species island-hopping through the Caribbean and others coming though mainland mountain chains.

SCHEERS K & MANUAL M 2019. Bridging the gap: the first record of the diving beetle subfamily Hydrodytinae Miller, 2001 in Guadeloupe (Coleoptera, Dytiscidae). *Spixiana* **42** 15-18.

MISSISSIPPI ROADSIDE DYTISCIDAE

Sixty-three sites - retention ponds, ditches and tyre tracks by Interstate Highway 59 and US Highways 49 and 98 - yielded 861 adult and 545 larval dytiscids. *Laccophilus fasciatus rufus* Melsheimer and *L. proximus* Say dominated with another sixteen species recorded. Of the sixteen genera identified to species as adult only half could be detected as larvae.

PITCHER K A & YEE D A 2018. The predaceous diving beetle fauna (Coleoptera: Dytiscidae) in highway-associated aquatic habitats in Southern Mississippi, USA. *The Coleopterists Bulletin* **72** 525-530.

ICELANDIC BEETLES

This two-week survey in 2018 yielded 1,089 specimens, but only the six species already known from Iceland could be found – *Haliplus fulvus* (Fab.), *Agabus bipustulatus* (L.), *Colymbetes dolabratus* (Paykull), *Hydroporus nigrita* (Fab.), *Cercyon littoralis* Gyllenhal and *C. melanocephalus* (L.). Thirty-eight specimens (3.5%) exhibited some form of teratology, an unusually high proportion, some of which are illustrated.

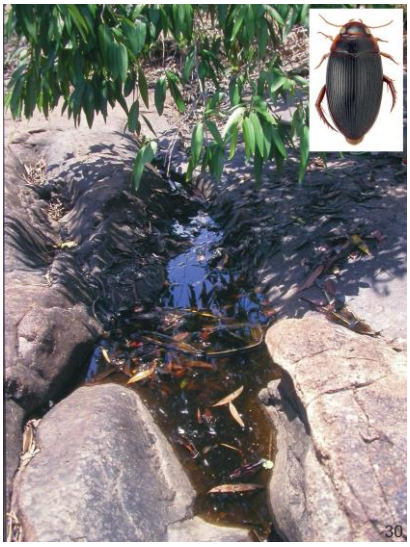
GREŃ C & LUBECKI K 2019. Contribution to knowledge of the water beetles (Coleoptera: Adephaga, Hydrophiloidea) of Iceland, with unexpected observations on teratology. *Annals of the Upper Silesian Museum in Bytom* **28** pp. 36.

POND REVIEW

Nothing about water beetles here, but probably worth citing as an overall view about the role of ponds in biodiversity, and the difference between relictual ponds and artificial ones.

OERTLI B 2018. Editorial: freshwater biodiversity conservation: the role of artificial ponds in the 21st century. *Aquatic Conservation* **28** 264-269.

COPELATUS IN AUSTRALIA



Nine species of *Copelatus* are recognised from Australia, all of them living in stagnant water not more than 250 metres above sea level. Chris Watts originally reported 24 species, but those without longitudinal striae have been transferred to *Exocelina*. Four of the *Copelatus* are endemic to Australia – *bakewelli* Balfour-Browne (illustrated), *daemeli* Sharp, *irregularis* Macleay and *nigrolineatus* Sharp. *C. martinbaehri* is newly described from Papua New Guinea and Queensland, named in honour of Dr Martin Baehy (1943-2019). A revised key is provided.

HENDRICH L, SHAVERDO H, HÁJEK J & BALKE M 2019. Taxonomic revision of Australian *Copelatus* Erichson, 1832 (Coleoptera, Dytiscidae, Copelatinae). *ZooKeys* **889** 81-152.

CROATIAN RIVER SYSTEM BEETLES

The Matica River disharges into the Plitvice Lakes from which runs the River Korana. This survey involved 13,675 beetles with nine species making Elmidae the most diverse family. The upper courses of the river system are occupied by *Elmis bosnica* Zaitzev, which has been confused with *E. rioloides* (Kuwert) in the past. There are other striking differences between the upper reaches and the river as it runs through lakes. *Ochthebius metallescens* Rosenhauer and *Hydraena gracilis* Germar were present only in the lowest site whereas *H. subintegra* Ganglbauer was confined to the upper reaches. The larvae of *Hydrocyphon deflexicollis* (Müller) were abundant in the lower reaches along with three species of *Riolus*, and so on. A great example of site selection by beetles.

STANKOVIĆ V M, JÄCH M A, IVKOVIĆ M, STANKOVIĆ I, KRUŽIĆ P & KUČINIĆ M 2019. Spatio-temporal distribution and species traits of water beetles along an oligotrophic hydrosystem: a case study. *Annales de Limnologie* **55** pp. 16.

HIMALAYAN *LACCOBIUS*

The recognition and description of *Laccobius motuensis* from the eastern Himalayas results in synonymisation of the subgenus *Cyclolaccobius* with *Gryptolaccobius*, diagnosed by the 7-segmented antenna. This change results in redistribution of species formerly treated as *Cyclolaccobius*, the three with 8-segmented antennae – *hingstoni* d'Orchymont, *jumlanus* Gentili and *zugmayeri* Knisch going to the subgenus *Hydroxenus*. Three species are newly reported from China – *L. exilis* Gentili, *L. orientalis* Knisch and *L. sublaevis* Sahlberg. The author for correspondence is Martin Fikácek.

JIA F, CHEN J-H & FIKÁCEK M 2019. A new species of *Laccobius* Erichson, 1837 (Hydrophilidae, Coleoptera) from the Chinese Himalaya, with comments on taxonomic status of subgenera *Gryptolaccobius* Gentili, 1991 and *Cyclolaccobius* Gentili, 1991, and additional faunistic records from China. *ZooKeys* **889** 65-80.

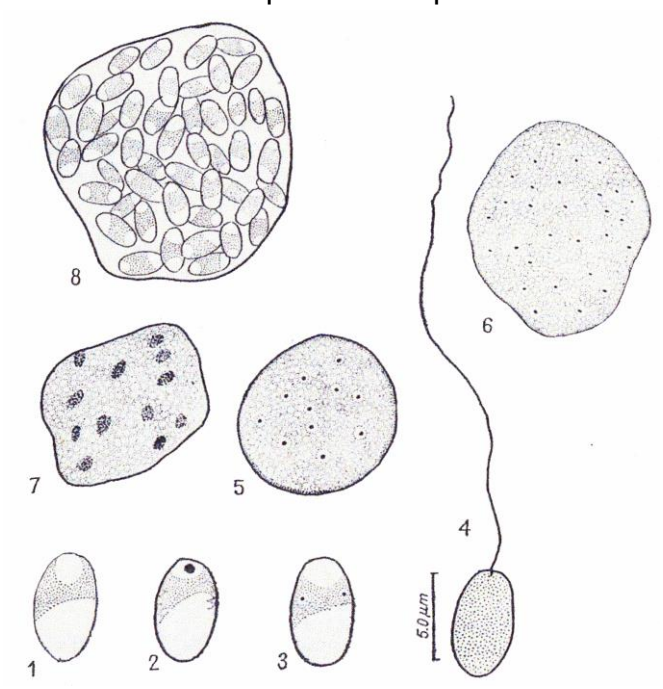
TWO NEW TURKISH *DERONECTES*

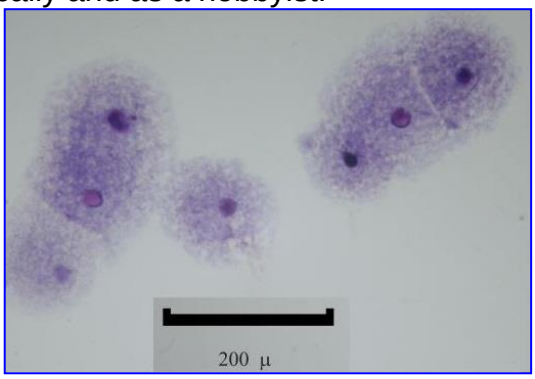
D. kabilcevz belongs to the *D. longipes*-subgroup of the *D. parvicollis*-group. *D. propedoriae* is in the *D. doriae*-group. Both were found in south-eastern Turkey, bringing the known number of Turkish endemic *Deronectes* to 15, with 61 species known overall. Hans Fery is the contact.

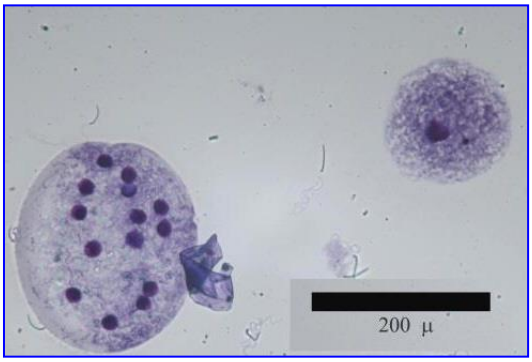
AYKUT M, YILDIRIM H Y, TUSUN S & FERY H 2019. *Deronectes kabilcevz* sp. n. and *D. propedoriae* sp. n. from south-eastern Anatolia (Turkey) (Coleoptera, Dytiscidae, Hydroporinae). *Zootaxa* **4691** 589-600.

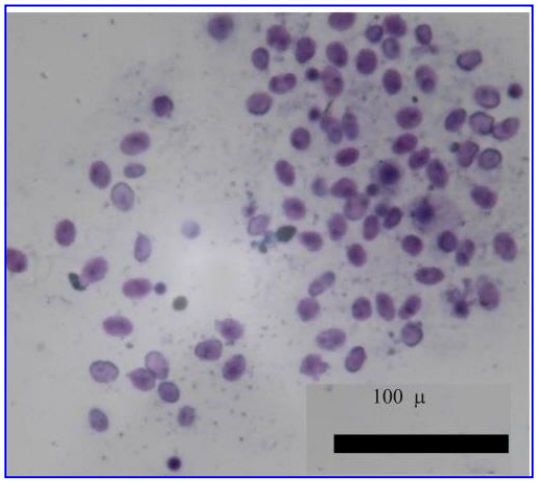
ROBERT'S CILIATED BALLS

Robert Angus produced a note in ***Latissimus* 40** showing strange objects (seen here again, right) in the haemocoel of a Russian *Hydrobius rottenbergii* Gerhardt, also seen in a Chinese *Boreonectes*. He recently received a most interesting email from Koji Onoda, who has studied microsporidia in aquatic insects academically and as a hobbyist.





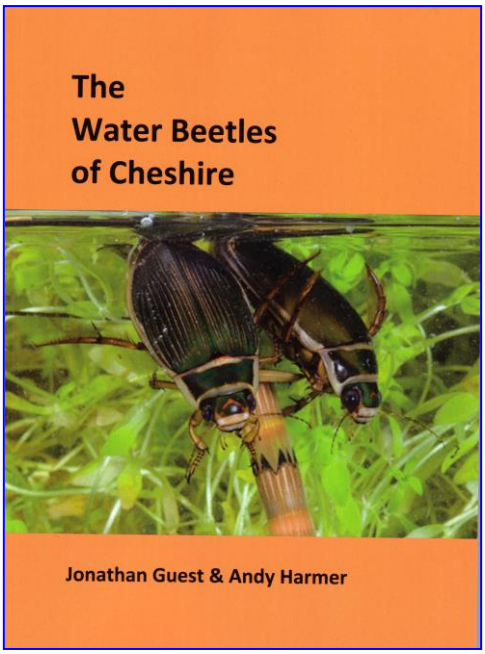




Koji (see also page 10) drew attention to the similarity of Robert's objects to microsporidia, and notes a description of a microsporidian in a dytiscid, *Eretes sticticus*. Microsporidia were called primitive protozoa in the old taxonomy, but more recently have been reclassified as fungi. *Pleistophora* exists in nature as spores, and when ingested into insects, these react with midgut digestive juices, usually alkaline, to develop "polar tubes" (see Figure 4 from the original paper, and amongst the drawings left). These pierce the intestinal cells. During the proliferative phase, called merogony, *Pleistophora* exists as a large single cell, a meront, with 16-32 nuclei. The single cells then divide into smaller cells, each of which matures into a spore. Robert's objects were found in haemocoel whereas known microsporidia are found in epithelium. If nothing else, this note draws attention to an old paper on the occurrence of microsporidia in Dytiscidae. One good check might be to look for mitochondrial DNA as microsporidia cannot have any. They don't have mitochondria!

KALAVATI C & NARASIMHAMURTI C C 1976.A new microsporidian, *Pleistophora eretesi* n.sp. from *Eretes sticticus* (L.) (Dytiscidae, Coleoptera). *Acta Protozoologica* **15** (2)139-142.

CHESHIRE WATER BEETLES



📖 GUEST J & HARMER A 2019. *The water beetles of Cheshire*. Tanyptera North West Invertebrate Publication Series vol. **1**. Liverpool: World Museum. ISBN 0-9845998-2-9 £10 + £3 postage – see www.northwestinvertebrates.org.uk

This is a modern treatment of a modern county. Its position in England should make it a hotspot for beetles, but the Merseyside conurbations have taken their toll with former industrialisation only recently beginning to provide a different kind of beetly landscape. According to the text 175 species have been recorded from 1990 to the present, with 22 species gained over earlier recording and 32 species lost, including *Hydroporus scalesianus* Stephens and *Graptodytes granularis* (L.) solely as subfossil material. Those missing species are still challenging as quite a few survive in the vicinity. The losses in the checklist do not quite add up to what is claimed in the text as there are 26 asterisked species indicating no post-1990 records. These do not include the said subfossils but must accidentally include *Laccobius bipunctatus* (Fab.), an all too frequent and extant species. Don't worry about the arithmetic – long lists of water beetles, as opposed to the feebler representation of other groups, lend themselves to the occasional slip. What we need are new records of *Haliplus heydeni* Wehncke, *Helophorus arvernicus* Mulsant, *Georissus crenulatus* Rossi, *Berosus affinis* Brullé, *Laccobius colon* (Stephens), *Hydraena britteni* Joy, and *Limnebius nitidus* (Marsham). The authors also recognise that there is more potential in the largely unexplored saltmarshes and in the 'wiches", where there are still some saline flashes: the only member of the *Ochthebius viridis* species pair is likely to have been *fallaciosus* Ganglbauer. The main body of the book is taken up with species accounts and maps accompanied by some habitus photographs. The species accounts are prefaced by a history of recording, a review of conservation status, and a review of habitats including many aerial photographs. The conservation review must have been completed before the change in approach to recording National Scarcity and National Rarity in England (see Lane *et al*. 2019) and needs an overhaul. The website suggests that the book was published early in 2020 but it is dated 2019.

LANE S A, DREWITT A L & ALLEN A J 2019. IUCN Threat Status and British rarity status for British Coleoptera: Part 1. *The Coleopterist* **28** 71-100.

FAR EAST *CERCYON*

C. shinanensis Nakane is redescribed from Japan and *C. sundukovi* is newly described for the Kuril Islands in Sakhalin Province. Microhabitats are unknown.

RYNDEVICH S K, HOSHINA H & PROKIN A A 2019. Review of species of the genus *Cercyon* of Russia and adjacent regions. VI. Subgenus *Cercyon*, the *C. shinanensis* group (Coleoptera: Hydrophilidae). *Zoosystematica Rossica* **28** 258-266.

FRENCH CATALOGUE UPDATE

Changes to the 2014 Catalogue of French Coleoptera (see ***Latissimus* 35**) are detailed.

TAMISIER J-P (ed.) 2019. *Catalogue des Coléoptères de France*. Supplément **5**. Perpignan: Association Roussillonnaise d'Entomologie.

A REGISTER OF EXTINCT BEETLES

Our President, Anders Nilsson, has suggested that we should keep a register of water beetles that have become extinct. Most people appreciate that it is easier to prove that a new species exists than that an "existing" species does not! In the same vein it is easier to find out about the first record of a species than about the last one. We might be guided in the first instance by what is currently available on Wikipedia, derived from *The IUCN Red List of Threatened Species*, the species below in RED.

https://en.wikipedia.org/wiki/List_of_recently_extinct_insects?fbclid=IwAR3S0rCG13nPdIGbJyKvalyt9I9VwdzBRol4W_GKYDk3Co9nLnUZTj8SlRg

Consulted in January 2020 there were six dytiscids, five weevils and a ground beetle.

Hygotus artus Fall, 1919 (Mono Lake diving beetle)

This is now reclassified as *Hygrotus* (*Leptolambus*) *artus* (Fall, 1919) by Villastrigo *et al*. (2017), originally having been described as a *Coelambus*. This whole exercise almost came to a halt with this as the first species under consideration because it has been suggested by Dave Larson *et al*. (2000) that this taxon is a synonym of *Hygrotus sharpi* (Van de Branden)! Russell Anderson (1982) dissected the sole specimen, a male (Specimen No 23892 in the Museum of Comparative Zoology, Harvard University, Cambridge, Massachusetts), and illustrated the genitalia, showing the paramere to differ from that of *H. sharpi*.

Megadytes ducalis Sharp, 1882

This the largest known diving beetle was last reviewed in ***Latissimus* 43**, based on Hendrich, Manuel & Balke (2019). They record eleven specimens known overall, mostly found by Pierre-Émile Gounelle at Santo Antônio de Barra, Bahia, Brazil. He collected in Brazil from 1884 to 1914, and his specimens must postdate the one used for the original description by David Sharp (1882).

Carabdytes novaecaledoniae (Balfour-Browne, 1944)

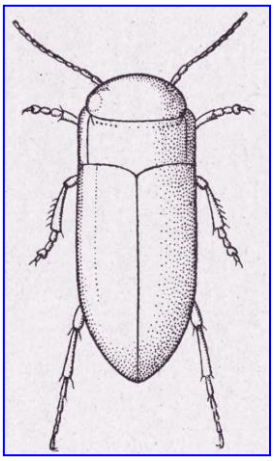
This species was originally described as *Colymbetes marmoratus* by Perroud and Montrousier (1864). Montrousier found the specimen or specimens at Kanala (now Canala), New Caledonia. Jack Balfour-Browne (1944) noted that the name *marmoratus* had already been used for another dytiscid and proposed the name *Rantus novæ-caledoniæ*. Michael Balke (1993) designated a lectotype and noted additional material, the latest being found in 1965. This species has been reclassified into *Carabdytes* by Michael Balke *et al*. (2017). This species is still widespread in New Caledonia (Balke *et al.* 2010), and can easily be removed from the IUCN World List.

Meridiorhantus orbignyi (Balke, 1992)

This was originally described as "Dytique brillant, *Dyticus* [*sic*] *(Meladema) nitidus*" by Brullé (1838) from Montevideo, Uruguay. This taxon was recognised as a synonym of the Fabrician species (Trémouilles, 1984) and Michael Balke (1992) provided a new name. This species was reclassified from *Rhantus* into *Meridiorhantus* by Balke, Hájek & Hendrich (2017). Mariano Michat notes that this species can be collected "in the eastern part of Buenos Aires province, in localities such as Mar del Plata, Magdalena, Punta Indio, even in Buenos Aires city. It is uncommon and according to my experience it appears more frequently in the cold months (June, July, August)." He has provided a list of older records based on material in the Museo Argentino de Ciencias Naturales. Bariel Macchia, a student living in Mar del Plata, has apparently been trying to get this species removed from the IUCN list.

Rhantus papuanus Balfour-Browne, 1939

Michael Balke specified the holotype as a male from Sattelberg on the coast of the Huon Peninsula, Papua New Guinea. This must have been collected before Zimmermann (1919, p. 219) recognised its potential as a new species but did not name it. Jack Balfour-Browne (1939) had noted a paratype from another site but this was later recognised as *Rhantus hiekei* Balke, 1993. Michael (pers. comm. 2020) notes that its status remains unclear.



Siettitia balsetensis Abeille de Perrin, 1904 (Perrin's cave beetle)

This species, as illustrated by Félix Guignot (1931-33), was once found at Beausset on the Var in France, and was probably interstitial and definitely not a troglodyte, so ignore the daft common name.

So, we have "lost" two species because they have survived! Surely we can find other potential **candidates?** Anders has started the list of possibilities with ***Agabus kaszabi* Guéorguiev, 1972**. This is a Mongolian endemic, known only from the holotype, and even that has not been traced recently. Also suggested is ***Capelatus prykei* Bilton *et al*., 2015,** mentioned in ***Latissimus* 44** as a species threatened by the development of shanties in the western Cape of South Africa.

The Forbes Award

If publicising this list brings one species back from the dead, then it will have achieved its main objective. There will be a need for some sort of award, and the President has further suggested that this is named in memory of Stephen Alfred Forbes, 1844-1930, an Illinois entomologist of Scots and Dutch extraction. In 1915 he wrote

"We cannot even protect our very persons from their annoying and pestiferous attacks, and since the world began we have never yet exterminated - we probably never shall exterminate - so much as a single insect species."

The rules should be fairly obvious but could include, for example

(a) someone has to have claimed in print that the species is extinct.

(b) a real beetle needs to have been found, i.e. not a DNA trace.

ANDERSON R D 1982. Revision of the Nearctic species of *Hygrotus* Groups IV, V, and VI (Coleoptera: Dytiscidae). *Annals of the Entomological Society of America* **76** 173-196.

BALFOUR-BROWNE J 1939. On a new species of *Rantus*. *Arbeiten über morphologische und taxonomische Entomologie* **6** 136-139.

BALFOUR-BROWNE J 1944. New names and synonymies in the Dytiscidae (Col.). *Annals and Magazine of Natural History* **11** (11) 345-359.

BALKE M 1992. Taxonomische Untersuchungen an neotropischen Wasserkäfern der Gattung *Rhantus* Dejean (Insecta, Coleoptera: Dytiscidae). *Reichenbachia* **29** 27-39.

BALKE M 1993. Taxonomische Revision der pazifischen, australischen und indonesischen Arten der Gattung *Rhantus* Dejean, 1833 (Coleoptera: Dytiscidae). *Koleopterologische Rundschau* **63** 39-84.

BALKE M, HÁJEK J & HENDRICH L 2017. Generic reclassification of species formerly included in *Rhantus* Dejean (Coleoptera, Dytiscidae, Colymbetinae). *Zootaxa* **4258** 91-100.
BALKE M, WEWALKA G, ALARIE Y & RIBERA I 2010. Dytiscidae: the genus *Rhantus* Dejean. pp. 129-147 in: M.A. Jäch & M. Balke (eds) *Water Beetles of New Caledonia*, pt **1**.
BILTON D T, TOUSSAINT E F A, TURNER C R & BALKE M 2015. *Capelatus prykei* gen. et sp. n. (Coleoptera: Dytiscidae: Copelatinae) – a phylogenetically isolated diving beetle from the Western Cape of South Africa. *Systematic Entomology* doi: 10.1111/syen.12128
BRULLÉ G A 1938. Famille des Dyticiens. pp. 46-51 in: E. Blanchard & G.A. Brullé Insectes de l'Amérique Méridionale par Alcide d'Orbigny 6 (2). P. Bertrand: Paris.
FORBES S A 1915: *The Insect, the Farmer, the Teacher, the Citizen, and the State*. Urbana, Illinois: Illinois State Laboratory of Natural History.
GUIGNOT F 1931-1933. *Les Hydrocanthares de France*. Toulouse: Douladoure.
HENDRICH L, MANUEL M & BALKE M 2019. The return of the Duke – locality data for *Megadytes ducalis* Sharp, 1882, the world's largest diving beetle, with notes on related species (Coleoptera: Dytiscidae). *Zootaxa* **4586** 517-535.
LARSON D J, ALARIE Y & ROUGHLEY R E 2000. *Predaceous diving beetles (Coleoptera: Dytiscidae) of the Nearctic Region, with emphasis on the fauna of Canada and Alaska*. Ottawa: National Research Council of Canada Monograph Publishing Program.
PERROUD B-P & MONTROUSIER R P 1864. Essai sur la faune entomologique de Kanala (Nouvelle-Calédonie) et description de quelques espèces nouvelles ou peu connues. *Annales de la Société Linnéenne de Lyon* **11** 46-257, 1 plate.
TRÉMOUILLES E R 1984. El genera *Rhantus* Dejean en la Argentina (Coleoptera, Dytiscidae). *Physics, Buenos Aires* **42B** (102) 9-24.
VILLASTRIGO A, RIBERA I, MANUEL M, MILLÁN A & FERY H. 2017. A new classification of the tribe Hygrotini Portevin, 1929 (Coleoptera: Dytiscidae: Hydroporinae). *Zootaxa* **4317** (3) 499-529.

MEETINGS

Scotland – the meeting in Forres 22-25 May 2020 is full up in that local accommodation is used up. Late entrants might try Sue.foster/at/icscotland.net. for cancellations, etc.
Italy – the meeting is in Calabria 19-22 June 2020. Vincenzo Volpe is currently booking hotel accommodation, so please do not leave application any later. Contact volpeit/at/gmail.com

Helsinki – a symposium entitled *Monitoring freshwater biodiversity - taxonomy, systematics and biogeography of water beetles* is planned for the International Congress of Entomology 19-24 July 2020 in Helsinki. Go to their website for more information **ice2020helsinki.fi**.

Latissimus is the newsletter of the Balfour~Browne Club.

***Latissimus* 45** was produced as a PDF in February 2020.

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