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LATISSIMUS

NEWSLETTER OF THE BALFOUR-BROWNE CLUB

Number Fifty Two **June 2022**

Cover photograph*: Stenelmis canaliculata* rediscovered in Lower Saxony – see p. 8 – photograph courtesy of Lars Hendrich

Some may recall this scene from happier days, first used on the cover of *Balfour-Browne Club Newsletter* **44**. It shows Heineken drinking in full swing in the meeting organised by Arno van Berge Henegouwen in the Hague in 1988. The late Mogens Holmen (see p. 5) is in the white teeshirt and appears to be staring out Ron Carr bottom left seated. Robert Angus is looking at a beetle accompanied by the late David Hansen smoking a cigarette, whilst Bernhard van Vondel looks on from above. Others may be able to identify the participants in the backgound, the easiest being Mick Eyre, drinking. Photograph brought back to life by Angus Laing from a slide taken by Garth Foster

ADDRESSES Contacts for articles and reviewed works are 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

A Darnaway *Dytiscus lapponicus* living in Herefordshire. Photograph: © Will Watson

THE FORRES FORAY, MAY 2022

The current meeting arose from a record in 1868 of *Berosus luridus* L. “in the woods of Darnaway” by the Reverend Hislop (1870). The Earl of Moray, John Moray, promptly replied to a query about access saying to come and have a look. The estate was surveyed in September 2018 and May 2019, producing some interesting records, but no *luridus*. Covid Lockdown caused the Club meeting proposed here in 2020 to be postponed. Forty km to the south there was also interest in resurveying the area for *Ilybius wasastjernae* (Sahlberg) following storms Malik and Corrie bringing down many trees in January 2022. Further inducements could be *Ochthebius alpinus* (Ieniştea), found near Carrbridge, and *O. lenensis* Poppius on the saltmarshes north of Forres. A snowy preliminary visit on 1/2 April at least established that *I. wasastjernae* was active in two parts of Abernethy, in contrast to the previous trip in September 2013 when only a single elytron could be found.

And so to the 2022 meeting itself. Covid hesitancy, Long Covid, Covid itself, the rising costs of “Staycation”, fuel poverty, impossibly expensive car hire, train timetable with massive cancellations, and then a European war, not to mention Robert Angus’s knee and Martin Hammond’s ankle, was it really worth trying to hold a meeting that had fizzled out in 2020? Attendance had been expected to be about thirty in 2020 but come 2022 thirteen of us were spread thinly from the Darnaway Estate south to Abernethy Forest in the week starting on Friday 6 May. A complicating factor was the need to minimise disturbance to breeding birds, both estates for example having large sections as Special Protection Areas for capercaillie. Another concern was to avoid large meetings under cover. A decision about whether or not to hold such an initial meeting had to be taken in mid-March when there was a surge in Covid cases in Scotland, albeit of a strain that turned out to be mild. So, the nearest we had to a seated meeting were meals in the evening. Will Watson and Giles King-Salter met up with the Fosters in the Boat Country Inn at

Boat of Garten on the 6th, and then Vanessa and Robert Aquilina, the Fosters, Alan Law, and Kev Rowley met at the splendidly upmarket Knockomie Hotel in Forres on the 7th. Back to the Boat on Monday 8th with Tony Allen, Rachel Mackay-Austin, Ron Carr, Martin Collier, the Fosters and Annie Ross. The Monday meal provided the nearest to a formal meeting at which to declare the recipient of the Ierse Kevers Trophy, which was back from Helsinki, freshly adorned in pandas and Finnish trinkets and where it had been held by Wenfei Liao. This was awarded to Rachel Mackay-Austin for her finding a water beetle new to Scotland with the identification done partly by measuring a caddis larva.

Top left – Darnaway with Sue Foster, Kev Rowley, Will Watson, Will Watson's knapsack and Alan Law
Top right – Rachel Mackay-Austin being presented with the Ierse Kevers Trophy (➜)

Mid left – now you see it - an Abernethy treehole with Alan Law, Giles King-Salter and Robert Aquilina. Photograph: Will Watson
Bottom left – now you don't - an Abernethy non-treehole with Ron Carr and Rachel

Ilybius wasastjernae is generally considered to be associated with the holes created by windthrown trees. But could such events be disastrous for this beetle, which may prefer to live in the cavities formed under the growing tree rather than competing with the abundance of *Agabus bipustulatus* (L.) that invade the newly exposed holes? An extensive platform of interlocking pine tree rootplates was found near to Loch Garten. Adult beetles and a third instar larva were found by working beneath it. Much as Ron Carr's posing might add to the drama of an image of the intact rootplate the upheaval associated with a fallen tree will always be more photogenic (see images on pages 2 and 4).

Dytiscus lapponicus L. has often been found on the heights between Darnaway and Abernethy, but it still seems unusual that it occurs so frequently there in a loch 51 metres above sea level, as was revealed by baited bottle-trapping in 2019. It was common again in 2022, with over forty specimens caught by trapping, all of them male. This overwintered dominance of males is well known (see Balfour-Browne 1950).

Berosus luridus was not rediscovered at Darnaway but it was found again in the famous pool/pools by Loch Vaa, illustrated below. I was trying to persuade participants to look elsewhere but that Vaa site is so beautiful, with its abundance of ***Hydrochus brevis*** and recognition that the ***Ochthebius*** there is ***alpinus***, not ***minimus*** (Foster 2014).

Ochthebius lenensis – The challenge to find this species was blunted early on by the discouraging form supplied by the Forestry and Land Scotland requiring completion to ask for permission to take a vehicle through Culbin Forest. Undaunted, Kev Rowley undertook the long walk to Culbin Sands only to find the saltmarsh areas unproductive apart from a species additional to the area about which he will publish

separately. Binsness, another known *lenensis* spot in the area, characterised by threatening notices, was also dry. On Thursday 12th the remaining participants visited the saltmarshes near Tain, where Professor Balfour-Browne first found *lenensis* in 1939. Someone at the military base commented that whereas one might expect to experience all the seasons of the year in one day in many parts of Scotland here one might experience only winter. This was rather true of this Tuesday, but we managed a good list of species including *lenensis*, the first time it has been reported there since Balfour-Browne's last visit in 1951.

Thanks for facilitating access go to the Earl of Moray for Darnaway and Kay Turner and Ben Clinch at the Moray Estates Development office, to Richard Mason at RSPB Abernethy and to Major (retd) Phil Curtis and staff of the Tain Air Weapons Range.

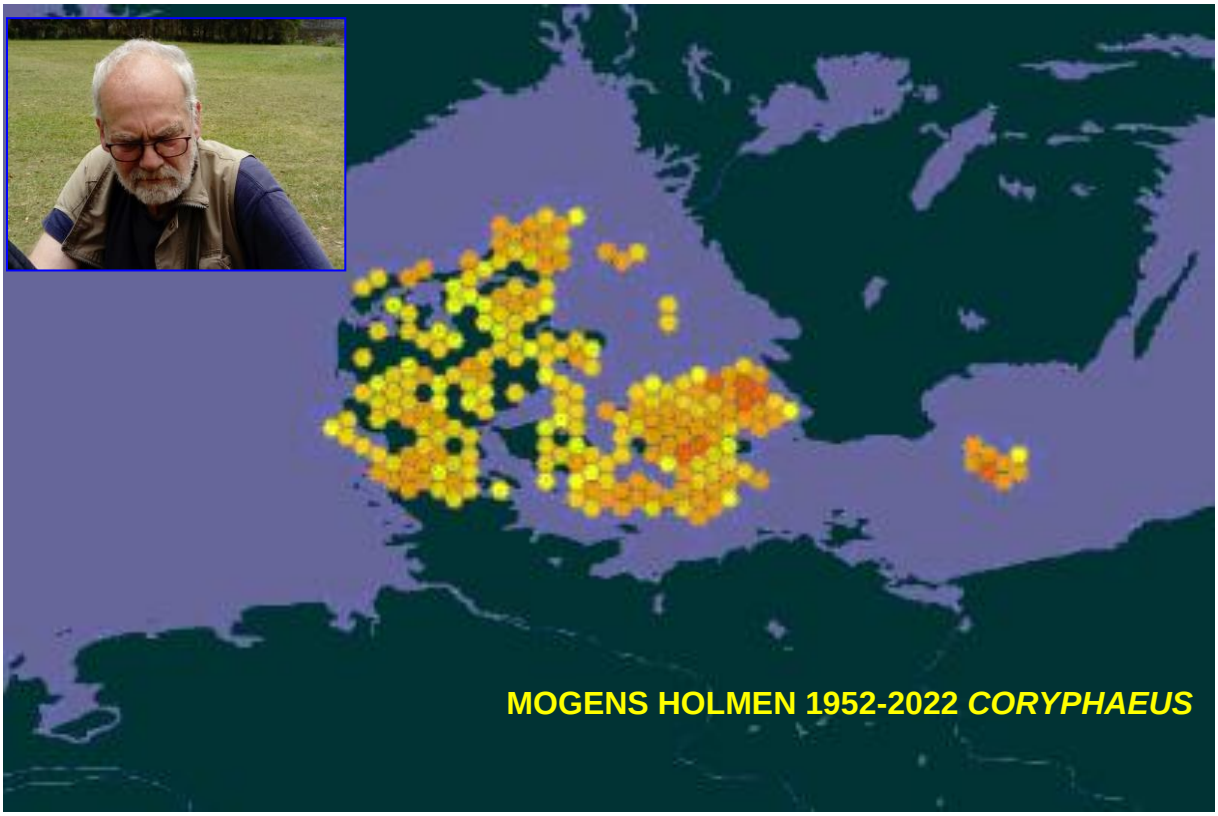
BALFOUR-BROWNE W A F 1950. *British water Beetles*. **2** London: Ray Society.
FOSTER G N 2014. *Ochthebius alpinus* (lenişţea, 1979) in Scotland and new for Britain (Coleoptera, Hydraenidae). *The Coleopterist* **22** 99-101.
HISLOP R 1870. Coleoptera in Morayshire. *Entomologist's Monthly Magazine* **7** 10-12.

ILYBIUS WASASTJERNAE IN POLAND

Four new locations for *wasastjernae* are reported from Poland, and the status of the species is reviewed overall. It was found in the pools resulting from trees being

windthrown. The pool illustrated here is in the Jesionowe Góry nature reserve.

GREŃ C, RUTA R, LUBECKI K, PRZEWOŹNY M & SIENKIEWICZ P 2022. *Ilybius wasastjernae* (Sahlberg, 1824) in Poland – a relict species of Dytiscidae with unique habitat preferences. *Wiadomości Entomologiczne* **41** 32-39.



Following the obituary in the *Hillerødposten*, a koryfæ is *Coryphaeus*, which Google will tell you was a leader of the chorus in Attic drama. Mogens was born on 18 October 1952 at Virum. He trained as a biologist at the University of Copenhagen, going on to work in Frederiksborg County for the Ministry of the Environment and the Danish Nature Agency. His principal publications were two books in the *Entomologica Scandinavica* series covering the Hydradephaga, the second book being jointly authored with Anders Nilsson. Apart from water beetles he developed an interest in heritage railways, his photographs of fauna, flora and railways being used in several books.

GNF remembers him originally for his trip to Scotland in August 1985, when we travelled from the airport through central Scotland, stopping at the Glenbuck Loch, a reservoir straddling the watershed between Lanark and Ayrshire, and a site I had passed many times, ruling it of no interest. He was happy with the six haliplid species there, and I was warned not to overlook such places again.

Images of him are hard to come by, this one, the one on the inner cover taken by GNF at our meeting in The Hague in 1988, appeared on the cover of *Balfour-Browne Club Newsletter* **44**. The image above was provided by the family. Readers might also remember the example he set by providing a catalogue for GBIF in 2021 (see ***Latissimus* 49** 2)

https://www.gbif.org/dataset/68c5c38b-4023-4093-b658-0453c2159195

The funeral was at Nødebo Church, Fredensborg on 16 April 2022 following his death on the 6th. Condolences to his wife Gitte Løwenstein and their daughters Ea and Ida.

BURMEISTER E-G, DETTNER K & HOLMEN M 1987. Die Hydradephaga Sardiniens. *Spixiana* **10** 157-185.

HOLMEN M 1970. *Deronectes canaliculatus* Lac. ny for Danmark. *Flora og Fauna* **76** 19-20.

HOLMEN M 1979. Fire vandkalve nye for Denmark med oplysninger om deres udbredelse og levevis (Coleoptera: Dytiscidae) *Entomologiske Meddelelser* **47** 89-95.
HOLMEN M 1981. Status over Danmarks Haliplidae (Coleoptera) med bemœrkninger om Zoogeografi og autøkologi. *Entomologiske Meddelelser* **49** 1-14.
HOLMEN M 1985. Two new species of *Africophilus* Guignot from Tanzania (Coleoptera: Dytiscidae). *Entomologica Scandinavica* **15** (1984) 473-476.
HOLMEN M 1987. *The aquatic Adephaga (Coleoptera) of Fennoscandia and Denmark*. I. *Gyrinidae, Haliplidae, Hygrobiidae and Noteridae*. Fauna Entomologica Scandinavica **20**. Leiden & Copenhagen: E.J. Brill/Scandinavian Science Press.
HOLMEN M 1987. *Agabus labiatus* flying. *Balfour-Browne Club Newsletter* **41** 12.
HOLMEN M 1993. Fredede insekter i Danmark Del 3: Biller knytter til vand. *Entomologiske Meddelelser* **61** 117-134.
HOLMEN M 1995. On some adephagous water beetles from Latvia (Coleoptera: Gyrinidae, Haliplidae, Noteridae, Dytiscidae). *Latvijas Entomologicijas Arhivs* **2** 7-16.
HOLMEN M 2000. Status for de fredede vandkalve I Danmark. *Bladloppen* **17** 26-33.
HOLMEN M & VAZIRANI T G 1990. Notes on the genera *Neptosternus* Sharp and *Copelatus* Erichson from Sri Lanka and India with the description of new species (Coleoptera: Dytiscidae). *Koleopterologische Rundschau* **60** 19-31.
NILSSON A N & HOLMEN M 1995. *The aquatic Adephaga (Coleoptera) of Fennoscandia and Denmark. II. Dytiscidae.* Fauna Entomologica Scandinavica **32**, Leiden, E.J. Brill.
VONDEL B J van, HOLMEN M & PETROV P N 2006. Review of the Palaearctic and Oriental species of the subgenus *Haliplus* s. str. (Coleoptera: Haliplidae: *Haliplus*) with description of three new species. *Tijdschrift voor Entomologie* **149** 227-273.

Patronyms

Allopachria holmeni Wewalka, 2000
Hyphydrus holmeni Biström, 1983
also - *Haliplus holmeni* van Vondel, 1991, reduced to a synonym of *H. sharpi* Wehncke by van Vondel & Litovkin, 2017.
Laccophilus kempi ssp. *holmeni* Brancucci, 1983.

BISTRÖM O 1983. *Hyphydrus holmeni* n. sp. from Nepal (Coleoptera: Dytiscidae) **14** 107-108.
BRANCUCCI M 1983. Révision des espèces est-paléarctiques, orientales et australiennes du genre *Laccophilus* (Coleoptera, Dytiscidae). *Entomologische Arbeiten au dem Museum G. Frey* **31**/**32** 241-426.
VONDEL B J van 1991. Revision of the Palaearctic species of *Haliplus* subgenus *Liaphlus* Guignot (Coleoptera: Haliplidae). *Tijdschrift voor Entomologie* **134** 75-144.
VONDEL B J van & LITOVKIN S V 2017. Five new synonymies in *Haliplus* subgen. *Liaphlus* Guignot, based on the variability of the left paramere (Coleoptera: Haliplidae). *Koleopterologische Rundschau* **87** 31-35.
WEWALKA, G. 2000. Taxonomic revision of *Allopachria* (Coleoptera: Dytiscidae). *Entomological Problems* **31** (2) 97-128.

INDONESIAN *SPHAERIDIUM*

S. sundense is described from Sumatra, Java and the Lesser Sunda Islands. *S. quinquemaculatum* Fab. is morphologically the closest species.

SUZUMURA A L, VAN BERGE HENEGOUWEN A & BUDI A S 2022. A new species of *Sphaeridium* Fabricius, 1775 (Coleoptera: Hydrophilidae) from Indonesia. *The Coleopterists Bulletin* **76** 85-94.

MOROCCAN UPDATES

Two important papers here, completing the update of Moroccan water beetles, the Hydradephaga having been covered in a paper in 2021 (see ***Latissimus* 50** 39). Field surveys of 391 freshwater localities from 1985 to 2019 were used to assess the Hydraenidae. *Hydraena exarata* Kiesenwetter is reported for the first time in Africa, and *Ochthebius grandipennis* Fairmaire and *O. thermalis* Janssens are newly recorded from Morocco. Seventy-eight species are known from Morocco, *O. semisericeus* Saint-Claire Deville and *O. viridis* Peyron being excluded from the list. There was a moment when this reviewer thought a species must have gone missing, *Limnebius externus* being described by Manfred Jäch in 1993 from Spain and Morocco to replace the name *evanescens* as applied by Armand d'Orchymont in 1938. Jack Balfour-Browne (1979) recognised *evanescens* as a name of a form rather than a species. However, the name *extraneus* was recognised as a species in the latest Palaearctic Catalogue (Jäch 2015). The upshot is that the reviewer's collection is updated and the latest Moroccan record for *L.* (*Bilimneus*) *extraneus* is north of Ichthal on 31 March 2018.

The second paper covers 21 species of Elmidae and nine Dryopidae. The most interesting species must be the endemics – *Elmis atlantis* (Alluaud), *E. bicuspidatus* Alluaud, *E. theryi* Alluaud, *Limnius stygius* Hernando, Aguilera & Ribera, *O. jaechi* Hernando, Ribera & Aguilera, *Stenelmis peyerimhoffi* Bollow (a candidate for the extinction list), and *Dryops mesatlanticus* Peyerimhoff.

BALFOUR-BROWNE J. 1979. Studies on the Hydraenidae (Coleoptera) of the Iberian Peninsula. *Ciência biológica (Portugal)* (1978) **4** 53-107.

BENAMAR L, BENNAS N, HASSOUN M & MILLÁN A 2022. Checklist of Moroccan aquatic beetles (Coleoptera: Hydraenidae Mulsant, 1844). New records and updates. *Zootaxa* **5** 451-504.

BENAMAR L, BENNAS N, HASSOUN M & MILLÁN A 2022. Updating the presence, distribution and chorology of Moroccan Dryopoidea (Coleoptera: Elmidae and Dryopidae). *Aquatic Insects* doi: 10.1080/016504224.2022.2063337 pp. 55.

JÄCH M A 1993. Taxonomic revision of the Palaearctic species of the genus *Limnebius* Leach, 1815. (Coleoptera: Hydraenidae). *Koleopterologische Rundschau* **30** 33-45.

JÄCH M A 2015. Family Hydraenidae Mulsant, 1844. pp. 130-162 in I. Löbl & D. Löbl (eds) 2015. *Catalogue of Palaearctic Coleoptera. Volume* **2/1***. Hydrophiloidea-Staphylinoidea.* Leiden: E.J. Brill.

d'ORCHYMONT A 1938. Notes sur quelques *Limnebius* (Coleoptera Palpicornia). *Bulletin et annals de la Société royale entomologique de Belgique* **78** 275-291.

COELOSTOMA IN CHINA

The paper culminates in a key to the thirty Chinese species currently known, including six newly described species. The range of habitats is discussed. Species of the subgenus *Lachnocoelostoma* mainly live in mountainous areas, with some species endemic to China living on wet stone walls and at the edges of mountain streams, but a few live in ditches in city streets (see ***Latissimus* 50** 10). Some widespread members of the subgenus *Coelostoma* occur in lowland standing waters, and those of the *Holcocoelostoma* can occur in both running and standing water, including brackish habitats. The correspondent is Fenglong Jia.

MAI Z, HU J & JIA F 2022. Additional fauna of *Coelostoma* Brullé, 1835 from China, with re-establishment of *Coelostoma sulcatum* Pu, 1963 as a valid species (Coleoptera, Hydrophilidae, Sphaeridiinae). *ZooKeys* **1091** 15-58.

STENELMIS CANALICULATA IN SAXONY

This species was found in the River Emmer near Emmerthal in Lower Saxony in 2021. It was last recorded in Lower Saxony in 1914. Other elmids found with it were *Elmis maugetii* Latreille, *Esolus parallelepipedus* (Müller), *Limnius volckmari* (Panzer) and *Oulimnius tuberculatus* (Müller). Photograph courtesy of Reinhard Müller, the photograph of the *Stenelmis* on the front cover coming from Lars.

MÜLLER R & HENDRICH L 2022. Wiederfund von *Stenelmis canaliculata* (Gyllenhal, 1808) (Coleoptera: Elmidae) in Niedersachsen nach über 100 Jahren. *Lauterbornia* **88** 75-81.

HYDROBIUSINI LARVAE

This study is based on *Ametor scabrosus* (Horn), *Limnohydrobius melaenus* (Germar) and *Sperchopsis tessellata* (Ziegler) from the USA, *Hybogralius hartmeyeri* (Régimbart) from Australia, *Hydramara argentina* (Knisch) from Argentina, and a Czech *Limnoxenus niger* (Gmelin). The single origin is supported by analyses based on larval chaetotaxy, head capsule features and mouthparts. A key is provided to the known larvae of the tribe.

ARCHANGELSKY M, ROMÁN N F M & FIKÁČEK M 2021. Larval chaetotaxy and morphology are highly homoplastic yet phylogenetically informative in Hydrobiusini water scavenger beetles (Coleoptera: Hydrophilidae). *Zoological Journal of the Linnean Society* **192** 416-452.

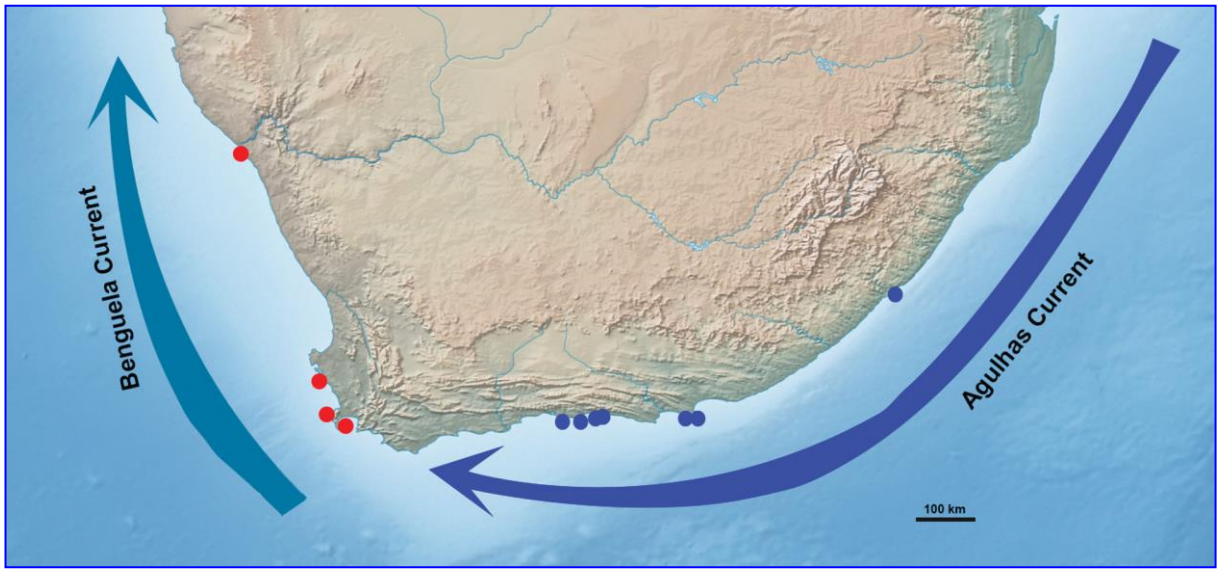
LAKE SVITIAZ, BELARUS

Forty-eight macroinvertebrate species are reported from this lake in the Grodno region in western Belarus, thirteen of them beetles. They include *Noterus crassicornis* (Műller) and three species of *Donacia*. This site should not be confused with the lake of the same name in Ukraine.

MAYSYUK V O & RYNDEVICH S G 2021. Taxonomic composition of aquatic invertebrates (Annelida, Arthropoda, Mollusca) of littoral zone of Lake Svityaz. *Collection of scientific papers. Particularly protected natural territories of Belarus* **16** 105-112. [in Russian with English abstract]

SOUTH AFRICAN ROCKPOOL *OCHTHEBIUS*

Along similar lines to the paper on cryptic lineages in the Mediterranean is this separation of *Ochthebius capicola* (Péringuey) into two taxa, *capicola* s. str. (red blobs on this maps supplied courtesy of David Bilton, being restricted to the Benguela region on the west coast and the newly described *O. mlamboi* (blue blobs) being found in the south and east where influenced by the Agulhas Current.



BILTON D T 2021 Differentiation of South African coastal rockpool *Ochthebius* is associated with major ocean currents (Coleoptera: Hydraenidae). *Acta Entomologica Musei Nationalis Pragae* 61 253-260.

WESTERN POLISH BEETLES

This particular issue of *Wiadomości Entomologiczne* is dedicated to the memory of Andrzej Melke, who died last year, see

https://sparrow.up.poznan.pl/pte/we/2022/Andrzej-Melke-wspomnienie.pdf.

The paper includes data from Andrzej, and is of more than the usual interest because the collectors were mainly terrestrial specialists, working in the “wrong” places with the “wrong” equipment! Among the interesting species are *Agabus striolatus* (Gyllenhal), *Rhantus bistriatus* (Bergsträßer), *R. latitans* Sharp, *Hydaticus aruspex* Clark, *Nebrioporus canaliculatus* (Lacordaire), *Hydrobius rottenbergii* Gerhardt, and *Hydrophilus aterrimus* Eschscholtz.

BUCZYŃSKI P, ŻURAWLEW P, MELKE A, PRZEWOŹNY M LUBECKI K 2022. Stan poznania i nowe dane o wlaściwych chrząszczach wodnych (Coleoptera) powiatu pleszewskiego (Polska Zachodnia). *Wiadomości Entomologiczne* **41** 9-16.

***COPELATUS* LIFE-CYCLE FOR IMPERMANENCE**

The development, egg to adult, of *Copelatus zimmermanni* is 39-61 days. The duration of the larval periods is significantly shorter than in *C. masculinus* Régimbart and *C. parallelus* Zimmerman. It is suggested that this shorter developmental period allows this species to occupy ephemeral habitats.

WATANABE K & OHBA S-y 2022. Life history of *Copelatus zimmermanni* Gschwendtner, 1934 (Coleoptera: Dytiscidae) and the ecological significance of the larval period of three *Copelatus* species. *Entomological Science* **25** doi: 10.1111/ens.12505 pp 6.

BEAVERS AND RUNNING WATER

Beetles are not recognised in the first review but it is not all scrapers, shredders and gatherers as water beetles get a mention in the second. In the latter fifteen studies were found to compare aquatic macroinvertebrate richness between beaver-dammed still water habitats and nearby running water. Eight concluded that the running water sites had the greater richness, whereas two reported greater richness in the beaver pond and one in the dam itself. Four found no difference. Thus the unmodified running water sites tended to have more species than damponds. However, many studies reported additions to the regional fauna as a result of more microhabitats being made available by damming.

GRUDZINSKI B P, FRITZ K, GOLDEN H E, NEWCOMER-JOHNSON T A, RECH J A, LEVY J, FAIN J, McCARTY J L, JOHNSON B, VANG T K & MAURER K 2022. A global review of beaver dam impacts: stream conservation implications across biomes. *Global Ecology & Conservation* **37** e02163.

WASHKO S, WILLBY N & LAW A 2022. How beavers affect riverine aquatic macroinvertebrates: a review. *PeerJ* doi 10.7717/peerj.13180.

BEAVERS ENHANCE HABITATS

Redressing the imbalance even more we next have a beaver study dedicated to water beetles. Twenty ponds were investigated using activity traps in an area occupied by North American Beaver (*Castor canadensis* L.) at Evo, Finland. Beaver wetlands had higher water beetle richness and abundance than non-beaver wetlands probably resulting from more lentic water, shallow shores, aquatic vegetation and low fish abundance. New beaver ponds supported much higher species richness and abundance of water beetles than old or abandoned beaver ponds. The author for correspondence is Wenfei Liao.

NUMMI P, LIAO W, van den SCHOER J & LOEHR J 2021. Beaver creates early successional hotspots for water beetles. *Biodiversity and Conservation* **30** 2655-2670.

SEMISUBTERRANEAN *COPELATUS*

The *Copelatus macellus* group is characterised by having two striae on the disc of each elytron and none to the side. It now comprises five species, this new one, *C. mkambati*, with small eyes indicating a semisubterranean habit, *C. basilewskyi* Bilardo & Pederzani from Angola, the Himalayan *C. filiformis* Sharp, *C. macellus* Guignot from Zaire, and *C. substriatus* Knisch from Peru.

BILTON D T & MLAMBO M C 2022. A new *Copelatus* with small eyes from the Eastern Cape Wild Coast, South Africa (Coleoptera: Dytiscidae). *Acta Entomologica Musei Nationalis Pragae* **62** 15-21.

***GYMNETRON* IMMATURE STAGES**

Gymnetron weevils feed on speedwells, *Veronica* spp., galling the seed capsules and sometimes the stems. Larvae are described of *G. melanarium* (Germar), *G. rotundicolle* Gyllenhal, *G. tibiellum* Desbrochers des Loges, *G. veronicae* (Germar), and *G. villosulum* Gyllenhal, then keyed with the Chinese *G. miyoshii* Miyoshi. Pupae of the five species under study are also described and keyed.

SKUHROVEC J, GOSIK R, CALDARA R, TOŠEVSKI I & BATYRA A 2022. Description of immature stages of *Gymnetron* species (Coleoptera, Curculionidae, Curculioninae), with particular emphasis of the diagnostic morphological characters at the generic and specific levels. *ZooKeys* **1090** 45-84.

SUBTERRANEAN BEETLE FITNESS

Leiodid beetles may not be aquatic but it seems reasonable to assume that what works for them underground should work for subterranean water beetles as well. It was possible to assemble data for sixteen leptodirine species found in French and Spanish cave systems in areas with mean annual temperatures ranging from 7.6 to 15°C. The extent of subterranean specialisation could be scored on the basis of several morphological traits. There was a significant negative relationship between thermal tolerance and these scores, i.e. the more subterranean the beetle the LT_{50}, the median temperature at which half of the exposed individuals died. A word of caution here as the features measured were body size, length of appendages and number of larval instars. Other features could be used for water beetles, in particular eye size, body pigmentation and perhaps the development of trichobothria.

COLADO R, PALLARÉS S, FRESNEDA J, MAMMOLA S, RIZZO V & SÁNCHEZ-FERNÁNDEZ D 2022. Climatic stability, not average habitat temperature, determines thermal tolerance of subterranean beetles. *Ecology* e3629. pp. 11.

LATITUDINAL DIVERSITY GRADIENT – EXCEPTIONS?

The new paper has nothing about water beetles but it has got to be citable as a review of the phenomenon whereby species numbers increase from the poles to the tropics, as first reported by Alexander von Humboldt (1769-1859). The various theories put forward to explain the phenomenon are covered with particular reference to Eric Pianka. As water beetlers should know this type of latitudinal diversity gradient is not the case for the Colymbetinae (Morinière *et al*. 2016 – see ***Latissimus* 40** 33). Surely exceptions are there to prove the rule? So why not cite them and see what they can tell you?

MORINIÈRE J, VAN DAM M H, HAWLITSCHEK O, BERGSTEN J, MICHAT M C, HENDRICH L, RIBERA I, TOUSSAINT F A & BALKE M 2016. Phylogenetic niche conservatism explains an inverse latitudinal diversity gradient in freshwater arthropods. *Scientific Reports*, **6**: 26340 doi:10.1038/srep26340 pp 12.

ZHANG Y, SONG Y-G, ZHANG C-Y, WANG T-R, SU T-H, HUANG P-H, MENG H-H & LI J 2022. Latitudinal diversity gradient in the changing world: retrospectives and perspectives. *Diversity* **14** 334 pp 17.

SARAWAK ELMIDS

Okalia necopinata is described and compared with the only known *Okalia*, *globosa* Kodada & Čiampor from West Malaysia. The name *necopinata* (= unexpected) refers to the habitat, a slow flowing stream. Most *Okalia* appear to lack wings. The preparation technique and drawings demonstrate the extent to which the internal female genitalia can be used to display differences despite limited differences in the gonostyli and coxite.

KODADA J, JÄCH M A, SELNEKOVIČ D & GOFFOVÁ K 2022. *Okalia necopinata* sp. nov. (Insecta, Coleoptera, Elmidae) from Gunung Mulu National Park in Sarawak (Malaysia). *ZooKeys* **1092** 79-82.

***CHAETARTHRIA* LARVAE**

The primary chaetotaxy of the South American *Chaetarthria bruchi* Balfour-Browne is described in detail and compared with what is known of the only other species so far known, the Palaearctic *C. seminulum* (Herbst).

ARCHANGELSKY M 2021. Primary chaetotaxy and morphometry of the head capsule and head appendages of first instar larvae of *Chaetarthria bruchi* (Coleoptera: Hydrophilidae: Chaetarthriinae: Chaetarthriini). *Revista de la Sociedad Entomológica Argentina* **80** 17-22.

MORE LIGHT ON BEETLE EVOLUTION (AND TERMINOLOGY)

Inevitably, these analyses of beetle genetics get bigger as more data are acquired, and, almost as inevitably, they get more difficult to understand. The array of world experts here should be enough to convince one of the value of the findings, occasionally seen as shafts of light. The first thing that an outsider might find confusing is how they integrate fossil data, given that no molecular fossil data exist! All one can say is - have faith and/or the courage to read the paper yourself if what has been said here doesn't seem right. Two molecular clock analyses come up with similar timings for most major events, in particular origin in the late Carboniferous, 322-306 million years ago (mya), with a 55-134 mya gap between the calculated date and the first known fossil in what is termed the 'Hexapod gap', i.e. early Carboniferous strata without insect fossils. The Gyrinidae is still reckoned as the earliest appearing adephagan family in the Permian-Triassic, and after the first recognisable adephagan in the late Permian, 282-257 mya. The suborders Adephaga and Myxophaga split 314-236 mya. The Polyphaga arose 307-286 mya, i.e. between very late Carboniferous and the Early Permian, dates earlier than has previously been estimated. Scirtidae were an early offshoot in the Late Triassic/Late Cretaceous (227-77 mya). The last common ancestor of the Histeroidea + Hydrophiloidea + Staphylinoidea occurred in the Early to Late Triassic (258-238 mya). The recovery of the Gyrinidae and Haliplidae as the earliest diverging families implies that the ancestral beetle may also have been aquatic. This fits with the Permian stem-coleopteran families, the Tshekardocoleidae and Phoroschizidae seeming to be at least partly aquatic, and with the Scirtiformia, with aquatic larvae, being the earliest polyphagans.

Dramatic changes are proposed at the highest levels. The Protocoleoptera, originally a suborder of beetles, is taken out of Coleoptera altogether as a thinned-down group closer to earwigs (Dermaptera) than to beetles, with the earliest real beetles that were in it moved into a new (but extinct!) suborder Alphacoleoptera Engel, Cai & Tibelka (ECT). We also have as new the "Capaxorder" (=grand or capacious order) Zacoleoptera ECT for all other beetles. That has the "Hyporder" Eucoleoptera ECT with the four suborders with which most of us are more familiar.

This publication can be accessed on the web as a 2021-dated "bioRxiv". There must be a rule to be interpreted about the correct data for the new names.

CAI C, TIHELKA E, GIACOMELLI M, LAWRENCE J F, ŚLIPIŃSKI A, KUNDRATA R, YAMAMOTO S, THAYER M K, NEWTON A F, LESCHEN R A B, GIMMEL M L, LÜ L, ENGEL M S, BOUCHARD P, HUANG D, PISANI D & DONOGHUE P C J 2022. Integrative phylogenomics and fossil data illuminate the evolution of beetles. *Royal Society Open Science* **9** 211771.

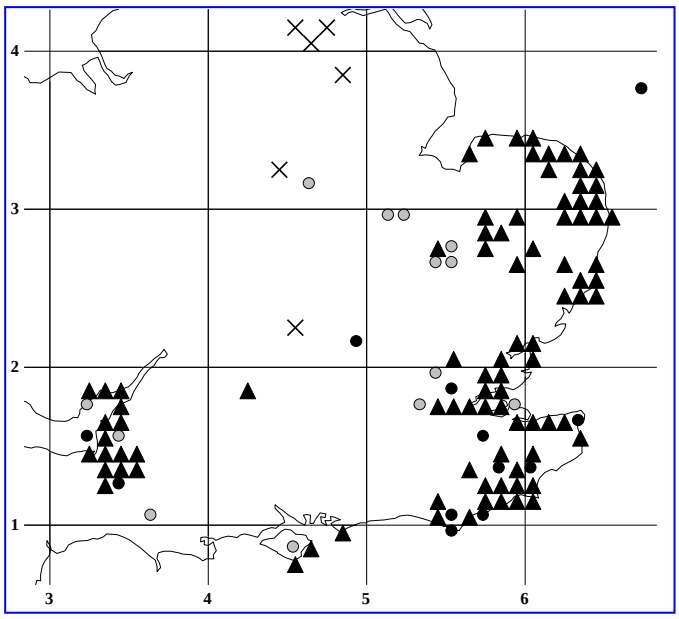
VIRUSES IN WATER BEETLES?

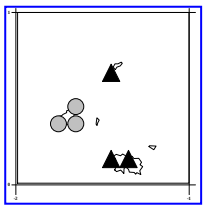
Petersen *et al*. (2022) raised the possibility that water beetles might host nudiviruses and provide the bridge between freshwater and brackish insects and crustaceans – see ***Latissimus* 51** 38. Well, this chapter on insect viruses does not mention any associated with water beetles, and one of the authors, Delphine Panziera, does not know of any either. But the authors do refer to what is known as a very tiny tip of the iceberg.

ROS V I D, PANZIERA D, NALCACIOGLU R, PETERSEN J M, RYABOV E & van OERS M M 2022. Chapter 10. Viral diseases of insects, pp. 249-285 in: A.D. Rowley, C.J. Coates & M.A. Whitten (eds) *Invertebrate Pathology*. Oxford University Press.

HYDROPHILUS PICEUS BACK IN CAMBRIDGESHIRE

According to Stephens (1829) the first records of *Hydrophilus piceus* L. in the Cambridgeshire fens were by the Reverend L. Jenyns near Bottisham and by J.C. Dale at Whittlesea Mere, though the latter would strictly speaking be in the vice-county of Huntingdonshire. The alarming thing is that the last known record until now was at Wicken Fen by Professor Balfour-Browne on 21 August 1938, ominously close to when organochlorine insecticides became available. Rob Partridge took a specimen in the light trap in his garden at Sutton Gault on 7 August 2020. Commendably he released it into a drain on the Ouse Washes reserve nearby. So, why hasn't anyone reported it back at Wicken yet? It has surely got to be there.





The latest map might be compared with that in "Atlas 2". It uses the same symbols and it shows the expansion in known range with a few more additions to those in Rob Partridge's paper. The little map completes the picture of expansion with return to the Channel Isles. Thanks of course to Alan Morton for the Dmap facility and also to innumerable observers.

"Atlas 2" FOSTER G N, BILTON D T, HAMMOND M & NELSON B 2018. *Atlas of the Hydrophiloid Beetles of Britain and Ireland*. Wallingford: Biological Records Centre.

PARTRIDGE R 2021. A record of the Great Silver Water Beetle *Hydrophilus piceus* I VC 29, Old Cambridgeshire. *Bulletin of the Amateur Entomologists' Society* **80** (541) 80-82.

STEPHENS J F 1829. *Illustrations of British Entomology. Mandibulata* **2** 114-200. London: Baldwin & Cradock.

BELOVEZHSKAYA PUSHCHA

Agabus clypealis (Thomson) and *Dytiscus lapponicus* Gyllenhal are among the insects newly recorded from the Belarussian part of what is known in Poland as the Biełowieża Forest.

RYNDEVICH S K, LUKASHUK A O, LUKASHENYA M A, BUBENKO A N & TRUONG X L 2021. New species of insects for the fauna of Belovezhskaya Pushcha (Insecta: Hemiptera, Coleoptera, Megaloptera). *BarSU Herald* **1**-**2** (10) 80-86. [in Russian with English abstract]

BRESTSKY RESERVE, BELARUS

Fifty-four invertebrate species were recorded in the River Mukhavets system, mainly in old riverbeds. They included sixteen species of water beetles such as *Gyrinus natator* (L.) and *Acilius canaliculatus* (Nicolai).

RYNDEVICH S K & ZAMYATIN A S 2020. Taxonomic composition of aquatic invertebrates (Annelida, Arthropoda, Mollusca) of the preserve "Brestsky". *Collection of scientific papers. Particularly protected natural territories of Belarus* **16** 209-219. [in Russian with English abstract]

CITIZEN SCIENCE AND SOCIAL NETWORKING CONTRIBUTES TO THE AQUATIC BEETLE SURVEY IN TAIWAN

Hsing-Che Liu

Since the 2010s, photography technologies have greatly improved and many social networking platforms have appeared, stimulating people to take insect photographs and to share them with the public online. Some people just ask for the name of the insect, but most provide the location and date of their observation, generating the data valuable for entomologists. Sometimes, users even collect the observed insects and send them to entomologists (Figure 1).

Taiwan is a subtropical island in Asia rich in forests and mountains frequently visited by people during weekend and public holidays. Some of them undertake simple trips with family and friends to numerous recreation areas, other are more focused on hiking and nature observation. Nature and insect photography are very popular in Taiwan, resulting in a large number of insect photographers sharing their photographs in online social networks. Among them, the Facebook community is the most prosperous. Nowadays, there are more than 50 Facebook groups focused on insects in Taiwan, with numbers of members ranging from a few hundred to over 70,000 followers (checked on 2 June 2022). One of them is directly dedicated to aquatic insects - the Aquatic Insect Club in Taiwan (臺灣水生昆蟲飼育討論交流會), and photographs and information about aquatic beetles are sometimes shared there as well. Several times, we even used the citizen-science data presented originally in this Facebook group in our research publications. For example, the first record of the Hydroscaphidae from southern Taiwan (Figure 2) was published later by Fikáček *et al*. (2020), or the photographs of *Allodessus megacephalus* (Gschwendtner, 1931) on the type locality in the Orchid Island (Lanyu) (Figure 3). Social networking websites and citizen science are more and more useful, powerfully acquiring occurrence data and biological observations, and they facilitate cooperation between entomologists and the general public.

Figures 1–3 **1** Examples of aquatic beetles provided by group members; **2** Hydroscapha *takahashii* from southern Taiwan, dorsal habitus; **3** The *Allodessus megacephalus* post in Facebook group

Acknowledgements
I thank Mr Kai-Ying Zheng and Mr Chen-Han Ma for providing the photos, and also thank Professor Martin Fikáček for language editing.

Reference

FIKÁČEK M, HU F-S, ASTON P, JIA F-L, LIANG W-R, LIU H-C & MINOSHIMA Y N 2020. Comparative morphology of immature stages and adults of *Hydroscapha* from Taiwan, with description of a new species from Hong-Kong (Coleoptera: Myxophaga: Hydroscaphidae). *Raffles Journal of Zoology* **68** 334-349.

Received June 2022

ALTITUDINAL DISTRIBUTION IN THE ALPS

Four papers' worth of data on the massif de Mercantour published in *Le Coléopteriste* have been expertly brought together to analyse distribution by altitude with fascinating results. Fascinating from a British standpoint because of distributions that are unexpectedly montane. For example, *Agabus bipustulatus* (L.) is found mainly at 1,900 metres above sea level (m asl) if anything higher than *A. lapponicus* (Thomson) (see fig. D.2). *Hydroporus longulus* Mulsant & Rey, *H. memnonius* Nicolai and *H. palustris* (L.) live mainly higher than *H. discretus* Fairmaire (D.4). *Helophorus flavipes* Fab. is about as confined to high ground as *H. glacialis* Villa & Villa (D.6). In keeping with its more northern range *Anacaena lutescens* (Stephens) has an altitudinal range distinct from that of *A. globulus* (Paykull) and *A. limbata* (Fab.) (D.7). *Limnebius truncatellus* (Thunberg) lives much higher up than *L. nitidus* (Marsham) (D.10). The *Dryops* (D.14) are the most remarkable to a northern eye, *D. griseus* (Erichson) living slightly higher than *D. ernesti* des Gozis and much higher than *D. luridus* (Erichson). Apologies for such a Britannocentric view, but it all makes for some interesting comparisons – plus a desire to get back to the Alps.

QUENEY P & PRÉVOST P 2021. Coléoptères aquatiques du massif du Mercantour (Alpes-de-Haute-Provence et Alpes-Maritimes, France) répartition des espèces selon d'altitude (Insecta, Coleoptera). *Le Coléopteriste* **24** 171-189.

A CT-SCANNED LARVA IN AMBER AND AN ELMID LARVAL KEY

Micro-CT scanning was used in addition to the usual structural observations to build up pictures of a larva suspended in Baltic amber about 40 million years old. This was because so much was hidden by other inclusions or "Verlumung" in the amber. The larva is compared to that of *Neolimnius* Hinton as illustrated by Shepard *et al*. (2020). Protrusions at the rear end are likened to gills, indicating that this is an aquatic larva. This paper has attracted a lot of discussion on ResearchGate on the basis that it might not be coleopteran after all.

SHEPARD W D, CLAVIER S & CERDAN A 2020. A generic key to the known larval Elmidae (Insecta: Coleoptera) of French Guiana. Papéis Avulsos de Zoologia (special issue): e202060.

ZIPPEL A, BARANOV V A, HAMMEL J U, HÖRNIG M K, HAUG C & HAUG J T 2022. The first fossil immature of Elmidae: an unusual riffle beetle larva preserved in Baltic amber. *PeerJ* doi 10.7717/peerj.13025. pp. 17.

NEOTROPICAL *HALIPLUS* LARVAE

The larvae of *Haliplus indistinctus* Zimmermann and *H. subseriatus* Zimmermann are described, with the first treatment of larval primary chaetotaxy in the Haliplidae.

MICHAT M C, ARCHANGELSKY M & ALARIE Y 2020. Morphology and chaetotaxy of Neotropical *Haliplus* larvae (Coleoptera: Haliplidae). *Revista Mexicana de Biodiversidad* **91** e913541 pp. 12.

HIMALCERCYON

Franz Hebauer named *Cercyon mirus* as the type species of the subgenus *Himalcercyon*, which is here raised to generic rank. Its most distinctive features are the ten strong striae on each elytron, the arrowhead-shaped mesoventral process and the inwardly turned tips to the parameres. A new species, *H. franzi*, is also described, and there is a new key to Eastern Palaearctic and Oriental Megasternini.

JIA F, LIANG Z & FIKÁČEK M 2020. A review of *Himalcercyon* stat. nov., with description of a new species from the Chinese Himalaya and an updated key to Asian genera of Megasternini (Coleoptera, Hydrophilidae). *Deutsche Entomologische Zeitschrift* **67** 35-49.

ALIEN SPECIES IN BELARUS

Berosus bispina Reiche & Saulcy, *B. spinosus* (Steven) and *Laccobius gracilis gracilis* Motschulsky have only each been found once in Belarus, the *Berosus* species having been caught in light traps. *Enochrus bicolor* (Fab.) has been reported three times in Belarus followed by the discovery of a stable population on the Pripyat marshes in 2017. All can be regarded as examples of self-dispersal probably associated with climate change. The origin of some terrestrial sphaeridiines may be different. Records are discussed for *Cercyon castaneipennis* Vorst, *C. laminatus* Sharp, *C. nigriceps* (Marsham), and *Cryptopleurum subtile* Sharp.

RYNDEVICH S K 2021. Alien species of Hydrophilidae (Insecta: Coleoptera) in the Belarussian fauna. Alien species of animals, fungi and plants in Belarus and neighboring countries. *1st International Scientific Conference, Minsk, Belarus, Book of Abstracts* 38-39.

KRĄPIEL RIVER CONTINUUM

Over 3,000 beetles caught in this Polish river in 2010 are sorted into five ecological groups: crenophiles, rheophiles, rheobionts, stagnobionts **a** and stagnobionts **b.** Ninety-four species were found in flowing water, and 110 species were found in stagnant parts of the river. Stagnobionts **a**, with 35 species, and stagnobionts **b**, with 79, constituted 82% of the total catch. At the other extreme the only crenophiles were *Agabus biguttatus* (Olivier) and *A. didymus* (Olivier).

PAKULNICKA J, BUCZYŃSKI P, BUCSYŃSKA E, STĘPIEŃ E, SZLAUER-ŁUKASZEWSKA A, STRYJECKI R, BAŃKOWSKA A, PEŠIĆ V, FILIP E & ZAWAL A 2022. Sequentiality of beetle communities in the longitudinal gradient of a lowland river in the context of the river continuum concept. *PeerJ* doi 10.7717/peerj.13232 pp. 32.

***CERCYON CASTANEIPENNIS* IN SURREY, ENGLAND**

Two further records of this species are presented from cow dung on chalk grassland, the first British report being by Ron Carr.

BANTOCK T & ASHBY M 2022. An earlier British record of *Cercyon castaneipennis* Vorst (Hydrophilidae). *Coleopterist* **31** 41.

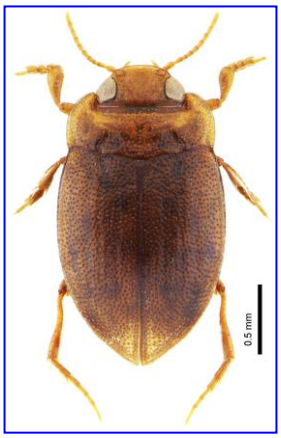
CARR R 2018. *Cercyon castaneipennis* Vorst, 2009 (Hydrophilidae) new to Britain. *Coleopterist* **27** 80-82.

THURINGIAN CHECKLIST

This update on previous lists incorporates new finds for the following: *Haliplus fulvicollis* Erichson, *Hydroglyphus hamulatus* (Gyllenhal), *Dytiscus dimidiatus* Bergsträsser, *Hydrochus megaphallus* van Berge Henegouwen, and *Limnebius atomus* (Duftschmid).

BELLSTEDT R 2021. Checkliste der Wasserkäfer (aquatische Coleoptera) Thüringens. *Check-Listen Thüringer Insekten und Spinnentiere* **29** 27-36.

CHINESE *CLYPEODYTES*



Clypeodytes limpidus Mai, Jang, Hendrich & Jia is described as new from Yunnan, and is in addition to the other Chinese *Clypeodytes*, *bufo* (Sharp), here illustrated, courtesy of Fenglong Jia.

MAI Z, JIANG Z, HU J, HENDRICH L & JIA F 2022. A new species of *Clypeodytes* Régimbart, 1894 from China (Coleoptera, Dytiscidae: Bidessini).*Zootaxa* **5124** 50-60.

ANDEAN DIVING BEETLES

These *Liodessus* are newly described as *meridensis* and *venezuelensis*, and are the first high altitude species known from Venezuela. Sixteen species are now known from the High Andes.

BALKE M, BILTON D T, GARCÍA M, VILORIA Á L, VILLASTRIGO A & HENDRICH L 2022. Two new high Andean species of *Liodessus* diving beetles from Venezuela (Coleoptera, Dytiscidae, Bidessini). *Alpine Entomology* **6** 7-12.

DESICCATION RESISTANCE, AN OLD *ENOCHRUS* TRAIT?

The distributions of eight species of *Enochrus* (*Lumetus*) do not fit with their sensitivity to desiccation. One possibility that the group has an anciently-acquired resistance to desiccation to be found in all species if under stress.

PALLARÉS S, MILLÁN A, LOBO J M, PÉREZ A & SÁNCHEZ-FERNÁNDEZ D 2022. Lack of congruence between fundamental and realised aridity niche in a lineage of water beetles. *Freshwater Biology* doi: 10.1111/fwb.13912 pp. 14.

ANDEAN ELMID GENUS LARVA

The larva of *Stenhelmoides rufulus* (Hinton) is described from a range of localities in Colombia. A review in this paper notes that the larvae of 56% of genera and 8% of Neotropical species have been described.

GONZÁLEZ-CÓRDOBA M, MARTINEZ-ROMÁN N R, del CARMEN ZÚÑIGA M, MANZO V & ARCHANGELSKY M 2020. Description of the putative mature larva of the Neotropical genus *Stenhelmoides* Grouvelle (Coleoptera: Elmidae). *Scientific Reports, Nature* **10** 6191

ROCKPOOL *OCHTHEBIUS* CRYPTIC LINEAGES

Genetic analysis was based on two genes extracted from 160 rockpool *Ochthebius* specimens ranging from Kerry in the north-west, to Morocco in the south, and east to Sicily. This demonstrated a geographical barrier in the region of the Ibiza Channel separating divergent genetic lineages in *O. quadricollis* Mulsant and *O. subinteger* Mulsant & Rey. *O. lejolisii* Mulsant & Rey was detected for the first time in the Mediterranean east to Alicante, so it can no longer be considered an Atlantic endemic. The Ibiza Channel marks where the Northern Current and the Balearic Front meet and dictate the surface-flow characteristics of the Balearic Sea. The ways in which the Ibiza Channel and other oceanographic features appear to dictate *Ochthebius* occurrence are discussed. The divergence of *subinteger* lineages appears to coincide with the Messinian Salinity Crisis about six million years ago when the Western and Central Med almost dried up.

VILLASTRIGO A, BILTON D T, ABELLÁN P, MILLÁN A, RIBERA I & VELASCO J 2022. Cryptic lineages, cryptic barriers: historical seascapes and oceanic fronts drive genetic diversity in supralittoral rockpool beetles (Coleoptera: Hydraenidae). *Zoological Journal of the Linnean Society* doi.org/10.1093/zoolinnean/zlac032.

NEW BELARUSSIAN AND POLISH RECORDS

New records are provided for: *Gyrinus suffriani* Scriba, *Ilybius quadriguttatus* (Lacordaire) and *Cercyon castaneipennis* Vorst in Belarus and Poland; *Agabus affinis* (Paykull), *A. paludosus* (Fab.), *Hydaticus aruspex* Clark, *Hydroporus glabriusculus* Aubé, *Ilybius erichsoni* (Gemminger and von Harold) in Belarus; and *Helophorus arvernicus* Mulsant in Poland.

RYNDEVICH S K & ALEKSANDROWICZ O R 2021. Additional data on rare species of whirligig beetles, predaceous diving beetles, grooved water scavenger beetles and water scavenger beetles (Coleoptera: Gyrinidae, Dytiscidae, Helophoridae, Hydrophilidae) in Belarus and Poland. *Collection of scientific papers. Particularly protected natural territories of Belarus* **16** 192-194. [in Russian with English abstract]

STOUT PHIALS, ARDENT SPIRIT

"The collecting of coleopterous insects is a very simple matter to those who are zealous in the cause. By far the best method is for the collector to provide himself with a few stout phials half filled with whisky, or any other ardent spirit which he may happen to prefer."

James Wilson and James Duncan, 1834. *Entomologia edinensis*.

LIGNITE MINING PONDS

The communities of 24 ponds in the North Bohemian lignite basin were compared, dividing them into seven retention reservoirs, eight "spontaneous" ponds in depressions on non-reclaimed surfaces and nine "semi-spontaneous" ponds formed in subsidence areas of reclaimed land. The ponds are around 20 years old with the average pH about 8 and mean conductivities ranging from 1,297 to 2,323 µS/cm. The threatened species such as *Hydrovatus cuspidatus* (Kunze), *Cybister lateralimarginalis* (De Geer) and *Graptodytes granularis* (L.) mostly preferred shallow, richly vegetated water. *Limnebius nitidus* (Marsham) was unusual among species considered to be under threat in that it was found in a retention reservoir built on part of a spoil heap.

POLÁKOVA M, STRAKA M, POLÁSEK M & NĚMEJCOVÁ D 2022. Unexplored freshwater communities in post-mining ponds: effect of different restoration approaches. *Restoration Ecology* doi:1111/rec.13679. pp. 10.

FINNISH URBAN PONDS

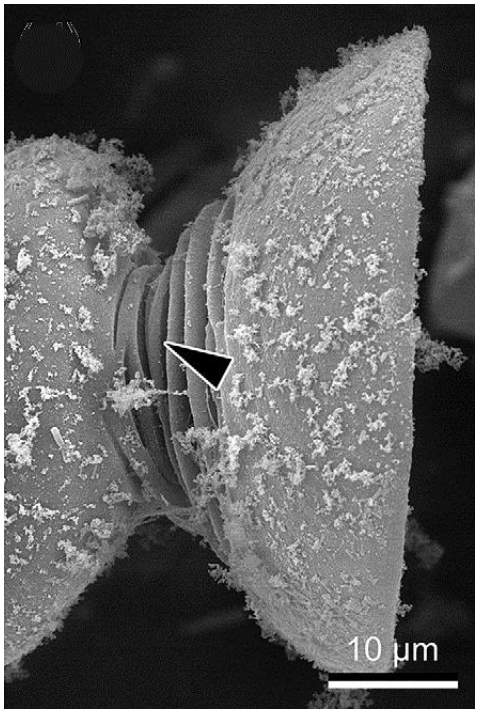
This is one of the chapters in Wenfei Liao's thesis (see ***Latissimus* 51** 23) as a separate scientific paper.

LIAO W, VENN S & NIEMALA J 2022. Diving beetle (Coleoptera: Dytiscidae) community dissimilarity reveals how low landscape connectivity restrict the ecological value of urban ponds. *Landscape Ecology* doi.org/10.1007/s10980-022-01413-z.

SLOVAK *HYDRAENA*

Hydraena schuleri Ganglbauer was rediscovered after 18 years in a small stream in eastern Slovakia, where it was in company with *H. minutissima* Stephens, *H. pulchella* Germar, *H. pygmaea* Waterhouse, *Ochthebius colveranus* Ferro, *O. melanescens* Dalla Torre and *O. metallescens* Rosenhauer. Quite a haul!

KODADA J, JÄCH M A, SELNEKOVIČ D & ONDREJKOVÁ K 2022.New records of *Hydraena schuleri* Ganglbauer, 1901 from Slovakia (Coleoptera, Hydraenidae). *Check List* **18** 571-574.



GRIPPING ROBOTICS

How diving beetles grip their partners is of interest to robot-makers, whose background in physics might give us mere biologists a better overall grasp (no pun intended) of the principles involved. For example, one might summarise interface interaction under several headings: Van-der-Waals forces causing electrostatic interaction between dipoles; also electrostatic interaction of charged surfaces; chemical bonding; Capillary Force; mechanical interlocking, suction forces; magnetic interaction: diffusion. Biological examples of gripping devices include:- hooking grippers; lock-and-key grippers, clamp grippers; sucker grippers, where the dytiscid sucker cups are explained; adhesion grippers, which would include the *Stenus* extensible labium; frictional grippers; spacer grippers, an example of which is the expansion anchor used by *Hydrachna* mites parasitising water beetles and bugs. The same chapter goes on to show how such ideas can be turned into robotic gadgets. The author providing access to this chapter, Stanislav Gorb, drew attention to the 2013 paper, which had been seen belatedly and not therefore reviewed in ***Latissimus***. Its title is such that it needs no review. Yet further contact produced the 2014 paper in which it was found that tilt-tolerance could be improved by having a neck beneath the suction cup as might be seen in the sucker hairs of *Dytiscus marginalis* L., seen here courtesy of Stanislav Gorb.

HEEPE L, CARBONE G, PIERRO E, KOVALEV A E & GORB S N 2014. Adhesion tilt-tolerance in bio-inspired mushroom-shaped adhesive microstructure. *Applied Physics Letters* **104** 011906.

WINAND J, BUSCHER T H & GORB S N 2022. Learning from nature: a review on biological gripping principles and their application to robotics. Chapter 2 pp 21-59 in: G.R. Monkman (ed.) *Soft Robotics*. Singapore: Bentham Science Publishers Plc Ltd.

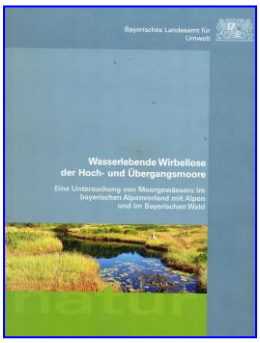
KARLSSON GREEN K, KOVALEV A, SVENSSON E I & GORB S N 2013. Male clasping ability, female polymorphism and sexual conflict: fine-scale elytral morphology as a sexually antagonistic adaption in female diving beetles. *Journal of the Royal Society Interface* 20130409.

***BORNEODESSUS* AGAIN**

This subspecies was originally described from Indonesia in East Kalimantan. The new site is 200 km north in the Sarawak part of Borneo. The habitat was tree rootlets in a small river in degraded primary forest, where it was accompanied by the dytiscids *Neptosternus kodadai* Hendrich & Balke and *N. quadrimaculatus* Hendrich & Balke, and by the dryopid *Stenomystax minutus* and *S. depressus* both Kodada, Jäch & Čiampor, and two species in the elmid genus *Elmomorphus*.

KODADA J, SELNEKOVIČ D, BALKE M & HENDRICH L 2022. *Borneodessus zetteli kalimantanensis* Balke, Hendrich, Mazzoldi & Biström, 2002: first record of a rare and little-known diving beetle from Sarawak (Coleoptera, Dytiscidae) *Check List* **18** 285-288.

BAVARIAN BOGLAND



📖 HESS M & HECKES U 2021. *Wasserlebende Wirbellose der Hoch- und Übergangsmoore - Eine Untersuchung von Moorgewässern im bayerischen Alpenvorland mit Alpen und im Bayerischen Wald* [Aquatic invertebrates of raised and transitional bogs - An investigation of bog waters in the Bavarian foothills of the Alps and in the Bavarian Forest]. Bayerisches Landesamt für Umwelt (LfU) Bürgermeister-Ulrich-Straße 160, 86179 Augsburg, Germany. 216 pp. downloadable from www.lfu.bayern.de

One hundred and fifty-eight sites were intensively sampled. Among the invertebrates singled out for special comment and illustration are *Ilybius crassus* Thomson, *Rhantus suturellus* (Harris), *Graphoderus austriacus* (Hoppe), *G. bilineatus* (De Geer), *Cybister lateralimarginalis* (De Geer), *Hydroporus morio* Aubé, *H. scalesianus* Stephens, *Hydrochus megaphallus* van Berge Henegouwen, and *Contacyphon kongsbergensis* (Munster), with 146 water beetle species recorded overall.

Illustrated here is part of the Schwarze Lacke (Black Lake), a base-poor site notable for the coexistence of *Graphoderus bilineatus*, *G. cinereus* (L.) and *G. zonatus* (Hoppe). This treatment is most citable as a modern example of analysis of open water conditions in bogs, with particular acknowledgement to the import-ance of sampling invertebrates in the spring.

ACILIUS MATING ADAPTATION

This is a new slant on how a female dytiscid might gain benefit from having a more hairy pronotum. In *Acilius japonicus* Brinck all females have the fluted elytra but there is a difference in the hairiness of the pronotum, with more hairs on those from Hokkaido than those of Honshu. This is interpreted as a way for females to prevent prolonged coupling in the warmer waters of Hokkaido where oxygen demand will be higher. DNA analysis shows that we are dealing with just one species that produced the two forms 2.02 million years ago, and *A. kishii* Nakane part of the Honshu clade.

KIYOKAWA R & IKEDA H 2022. Intraspecific evolution of sexually dimorphic characters in a female diving beetle can be promoted by demographic history and temperature. *Evolution* doi:1111/evo.14470 pp. 11.

THURINGIAN RESERVE LISTS

This review of a protected area near Dachwig includes lists of 700 species, with over forty species of water beetle. The authors single out *Dytiscus semisulcatus* Müller, *Hydraena subimpressa* Rey and *Limnebius nitidus* Rey as of special interest.

BELLSTEDT R & SCHUSTER C 2021. Schutzgebiete im Landkreis Gotha. Teil I: Der geschützte Landschaftsbestandteil “Bremstal bei Dachwig” – ein Refugium für Flora und Fauna im Thüringer Becken. *Thüringer Faunistische Abhandlungen* **26** 35-56.

MAZURIAN BEETLES

This Polish survey, done in 2018, mainly concerned terrestrial species. *Gyrinus natator* L. and *Haliplus heydeni* Wehncke were the only whirligig and haliplid species recorded. Twenty-three dytiscids include *Clemnius decoratus* (Gyllenhal), *Hydroporus dorsalis* (Fab.) s. str. and *Nartus grapii* (Gyllenhal), plus several hydrophilids including *Hydrobius subrotundus* Stephens.

KOMOSIŃSKI K, TATUR-DYTKOWSKI J, RUTA R, MIŁKOWSKI M, BUCHHOLZ L, GREŃ C, LUBECKI K & PACUK B 2021. Materiały do znajomości chrząszczy (Insecta: Coleoptera) Rezerwatu “Mazury” w Puszczy Boreckiej). *Przegląd Przyrodniczy* **32** 19-43. [in Polish with English summary]

ITALIAN DYTISCIDAE NOTES

Here there are observations on flights in *Rhantus suturalis* (Macleay) and *Acilius sulcatus* (L.). Also, the name *Deronectes silphoides* (Ponza, 1805) is declared a *nomen dubium* as the type material is lost and it should not be regarded as a synonym of *D. opatrinus* (Germar).

NARDI G 2022. Nomenclatural and faunistic notes on some Italian Dytiscidae (Insecta: Coleoptera). *Integrative Systematics* doi: 10.18476/2022.827907.

SOUTH AFRICAN *PROTOZANTAENA*

P. birdi, named for Matthew Bird, is described and shown to be very close to *P. labrata* Perkins from the Central Namibian Great Escarpment. A striking feature in both species is the very long flagellum of the aedeagus.

BILTON D T 2022. A new species of *Protozantaena* Perkins, 1997 from the Great Escarpment of South Africa (Coleoptera, Hydraenidae). *Zootaxa* **5125** 92-96.

HEREFORDSHIRE MEETING IN 2023

Will Watson has kindly agreed to arrange access for some good sites in Herefordshire Friday 26 May to Monday 29 May 2023. You could let him know if you are interested.

AMBER LIMNICHID

Anomocephalus liuhaoi Li, Jäch & Cai is described from mid-Cretaceous amber mined at Noije Bum, Myanmar. It is tentatively assigned to the Cephalobyrrhinae, which has one extant species known, *Erichia longicornis* Reitter. The status of *E. cretacea* Yu *et al*. (2018) is discussed.

The correspondent is Chen-Yang Cai.

LI Y-D, YU Y-L, JÄCH M A, HUANG D-Y & CAI C-Y 2022. *Anomocephalobus*, a new genus of minute marsh-loving beetles from mid-Cretaceous Burmese amber (Coleoptera: Limnichidae). *Zoologia* 19 doi.org/10.1590/S1984-4689.v39.e21030

CORRECTION TO *LATISSIMUS* 51

FERN WEEVIL IMPLICATED IN IRISH EXTINCTION this had already been reported in ***Latissimus* 46**, the excuse here being that the hard copy of the published article took rather a long time to appear.

Latissimus is the newsletter of the Balfour~Browne Club.

It was produced in June 2022

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