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LATISSIMUS

NEWSLETTER OF THE BALFOUR-BROWNE CLUB

Number Forty Nine **May 2021**

Front cover: Can you count them? The historical collection of *Dytiscus latissimus* L. from South Bohemia, Czech Republic in the National Museum, Prague. Once among the largest populations of this species, gone extinct in the 1950s owing to intensification of the fishery industry in ponds. Photographs: Jiří Hájek

And could *Dytiscus latissimus* be Anders Nilsson's "The Big D"? See p. 23

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

MEGADYTES MAGNUS WIDESPREAD IN LATIN AMERICA! AND WHAT ABOUT *MEGADYTES DUCALIS*?

Jiří Hájek & Jaroslav Šťastný

A pair of *Megadytes magnus* from Veracruz, Mexico (♂ = 39 mm, ♀ = 40 mm)

Recently, Hendrich *et al*. (2019) published additional findings of the World largest diving beetle – *Megadytes ducalis* Sharp, 1882, together with notes on the related species of the subgenus *Bifurcitus* Brinck, 1945: *M. lherminieri* (Guérin-Méneville, 1829) and *M. magnus* Trémouilles & Bachmann, 1980 (see also ***Latissimus* 43** 31). This work stimulated us to check *Megadytes* specimens also in our collections. Of course, we did not find any "Duke", however, to our surprise, we have found several *M. magnus* from localities completely outside from the known distributional range of this species, namely from Ecuador and Mexico:

1♂, Ecuador, N of Machala, S of Naranjal, 230 m, 6.ii.2011, M. Snížek leg. (coll. J. Šťastný)
1♂, Mexico, <1901 (coll. National Museum, Prague)
1♂ 1♀, Mexico, Veracruz, 7.vii.1982, V. Vyhnálek lgt. (coll. National Museum, Prague)
1♂ 1♀, Mexico, Campeche, 18.vii.1982, V. Vyhnálek lgt. (coll. J. Šťastný)

Megadytes magnus was described from northern half of Argentina, Paraguay and Uruguay (Trémouilles & Bachmann 1980). In addition to the countries mentioned above, the species was subsequently recorded only from São Paulo, south-eastern Brazil (Trémouilles 1989). However, *M. magnus* and the closely related *M. lhermineiri* are not easily recognisable based on external characters; in the limited material available to us, most of the diagnostic characters mentioned by Trémouilles & Bachmann (1980) seem to be variable, and the dissection of male genitalia is necessary for reliable identification. Thus, we expect that a revision of specimens previously identified as *M. lherminieri* may reveal more records of *M. magnus*.

In any case, our records suggest that *M. magnus* is in fact widely distributed in continental Latin America, similarly to *M. lherminieri*. And that is perhaps good news also for the missing *M. ducalis*. With the exception of some island species, large dytiscids are rarely narrow endemics, and therefore, we may hope that the world's largest dytiscid can be found again in further localities in Brazilian cerrado, or anywhere else in the under-explored South America.

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** (3) 517-535.

TRÉMOUILLES E R 1989. Notas sobre Coleoptera acuáticos neotropicales. III. Datos ampliatorios sobre distribucion geografica de especies *Megadytes* Sharp (Coleoptera, Dytiscidae). *Revista de la Sociedad Entomológica Argentina* **45** (1-4) 159-162.

TRÉMOUILLES E R & BACHMANN A O 1980. La tribu Cybisterini en la Argentina (Coleoptera, Dytiscidae). *Revista de la Sociedad Entomológica Argentina* **39** 101-125.

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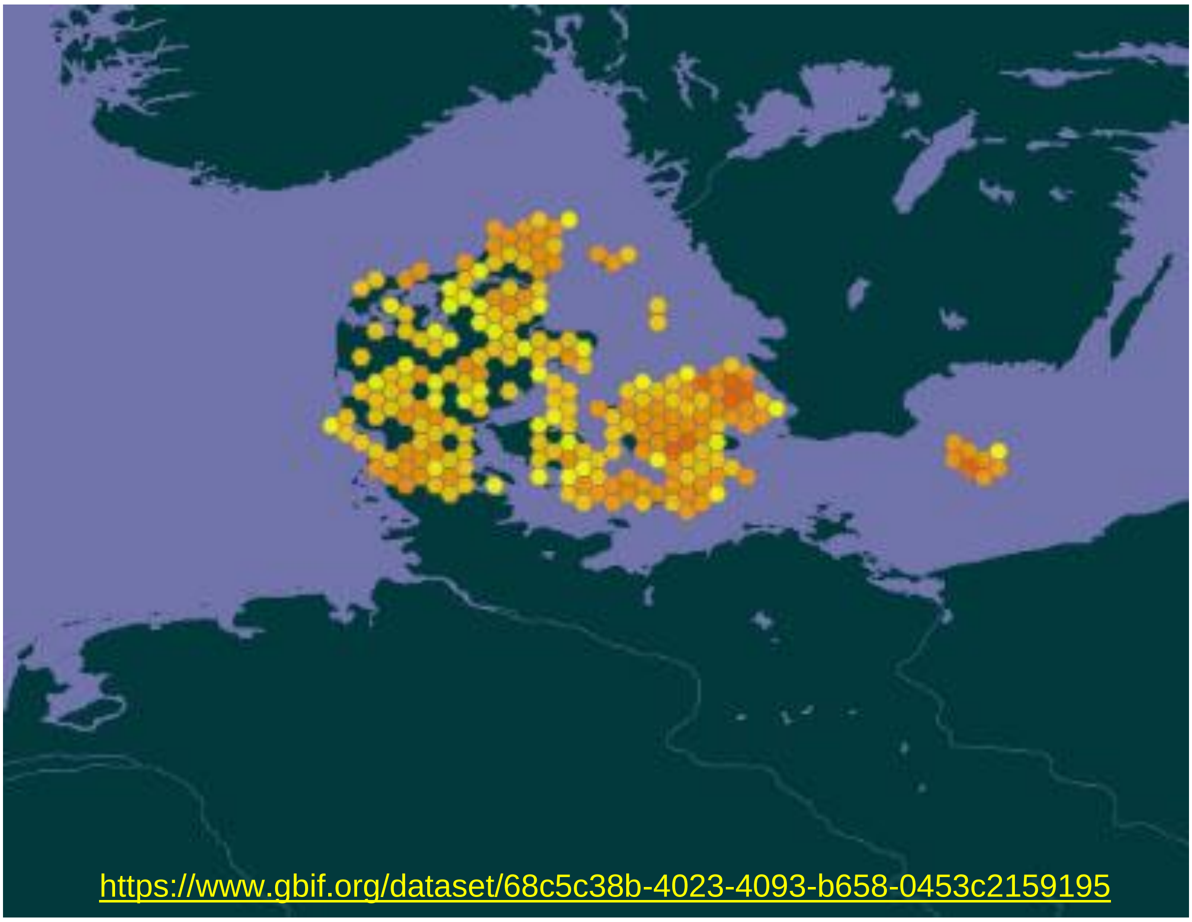
MOGENS HOLMEN SETS AN EXAMPLE

Mogens notes that following on retirement his records can be found at



HELOPHORUS LAPPONICUS REVISITED

Robert Angus

Helophorus lapponicus Thomson, 1854 is my favourite species of the genus. I first took it in Finnish Lapland in 1967 and was struck by its elegance and it also seemed to represent part of the adventurous side of that trip. Then, in 1972 I took it in northern Spain. I had already seen, but not recognised, Spanish material in the Natural History Museum, taken by J. Balfour-Browne near Riaño in 1965. The specimens were standing as "*mulsanti*" (*fulgidicollis* Motschulsky, 1860), but although I realised that was not what they were, I did not recognise them. However, on handling living specimens in the field I knew at once what they were!

At that time I was puzzled by the apparent introgression between *H. lapponicus* and *H. minutus* (Fab., 1775) which I had found at Karasuk in west Siberia, though not in Western Europe. I therefore hybridised Spanish *H. lapponicus* with *H. minutus* from a number of places, but although the hybrids bore a passable resemblance to some of the larger "*minutus*" from Karasuk (Plates 1 and 2), they were infertile, with any offspring dying at a very early stage of development (Angus 1986). At that stage I was not able to make chromosome preparations.

While working in the Hope Department of Entomology in Oxford in 1970–1973 I had become interested in the work by C. G. Oliver (1972 a and b) crossing geographically separated populations of various Lepidoptera, including English and northern French populations of the satyrid *Pararge megera*, which he regarded as having been separated since the opening of the English Channel about 7,000 years ago. After completing my stint in the Hope Department I worked as a postdoc with Russell Coope in the Geology Department of Birmingham University and there became familiar with the faunal oscillations of Coleoptera during the Pleistocene, and wondered whether it would be possible to cross Spanish and Scandinavian *H. lapponicus* which, from the fossil record, had to have been isolated from one another since the end of the Last Glaciation about 10,000 years ago.

With my appointment as a Lecturer at Royal Holloway University of London in 1975 I had the opportunity to do this research. Living Swedish *H. lapponicus* from near Skellefteå in Västerbotten were kindly sent by Dr Lars Huggert, and these were crossed with Spanish material which I had collected near Aguilar de Campoo (A. de C.), 42.7935°N, 4.26209°W and Areños, 42.9925°N, 4.4905°W, the La Costana pool where I had originally found the species having been lost due to road widening. Details are given by Angus (1983), and it was possible to rear material through to F3 hybrids as well as back-crosses to both Swedish and Spanish material. Spanish *H. lapponicus* had a poor survival rate in my experiments, possibly because the environment did not suit them, but the F1 crosses did much better, showing clear heterosis, which, however, was lost in the F2 and F3 generations. These results appeared broadly comparable with Oliver's results from Lepidoptera. The differences in appearance between *H. lapponicus* from the two areas, and the appearance of the various categories of hybrids, are shown in Plates 1 and 2. The wider, paler more granulate pronota of Spanish material compared with Swedish material, and the development of the Spanish pattern in back-crosses to Spain are shown in Plate 1, **h**, **i** and Plate 2 **g**. In my 1983 paper I showed scanning electron micrographs of pronota of modern and fossil *H. lapponicus*. In those days I thought that photographs, like television sets, were either colour or black and white, so I suggested the photographs be printed in black and white – which they were! Words like half-tone and greyscale were unknown to me in those days. I am therefore showing these photos, in greyscale, as Plate 5 **g** – **i.**

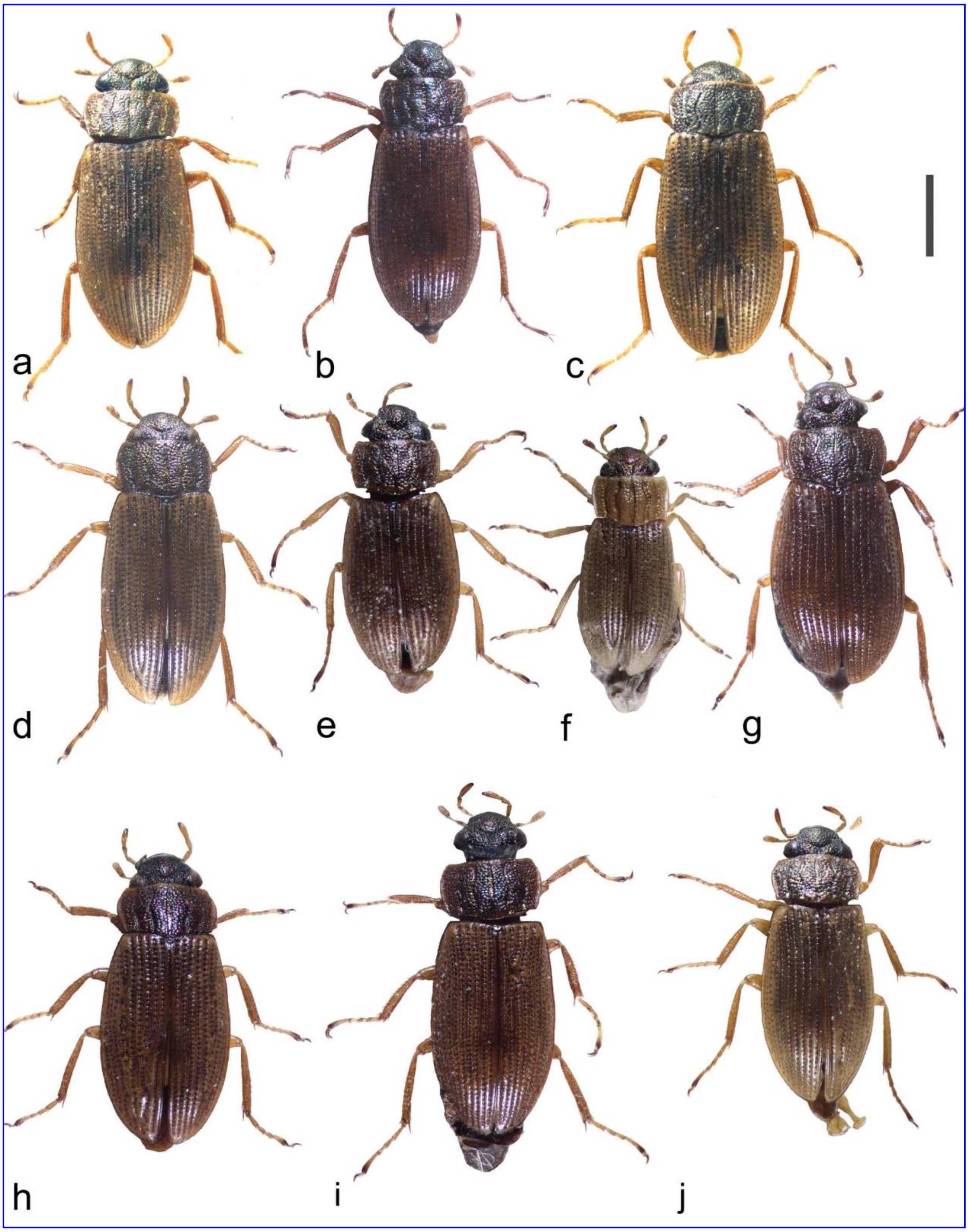


Plate 1 Spanish and Swedish *H. lapponicus* and crosses between them. **a**, Areños; **b**, Skellefteå, Sweden; **c**, Novosibirsk oblast (near Akademgorodok, similar to Karasuk material); **d – f**, crosses, ♀ Spain, Areños × ♂ Sweden, **d** F1, **e**, F2, **f**, F3; **g**, ♀ Aguilar de Campoo (A. de C.) × Sweden back-crossed to Sweden; **h**, **i**, ♀ Areños × Sweden back-crossed to Spain, A. de C.; **j**, Spain, Areños × ♂ Sweden back-crossed to Sweden. Scale = 1 mm.

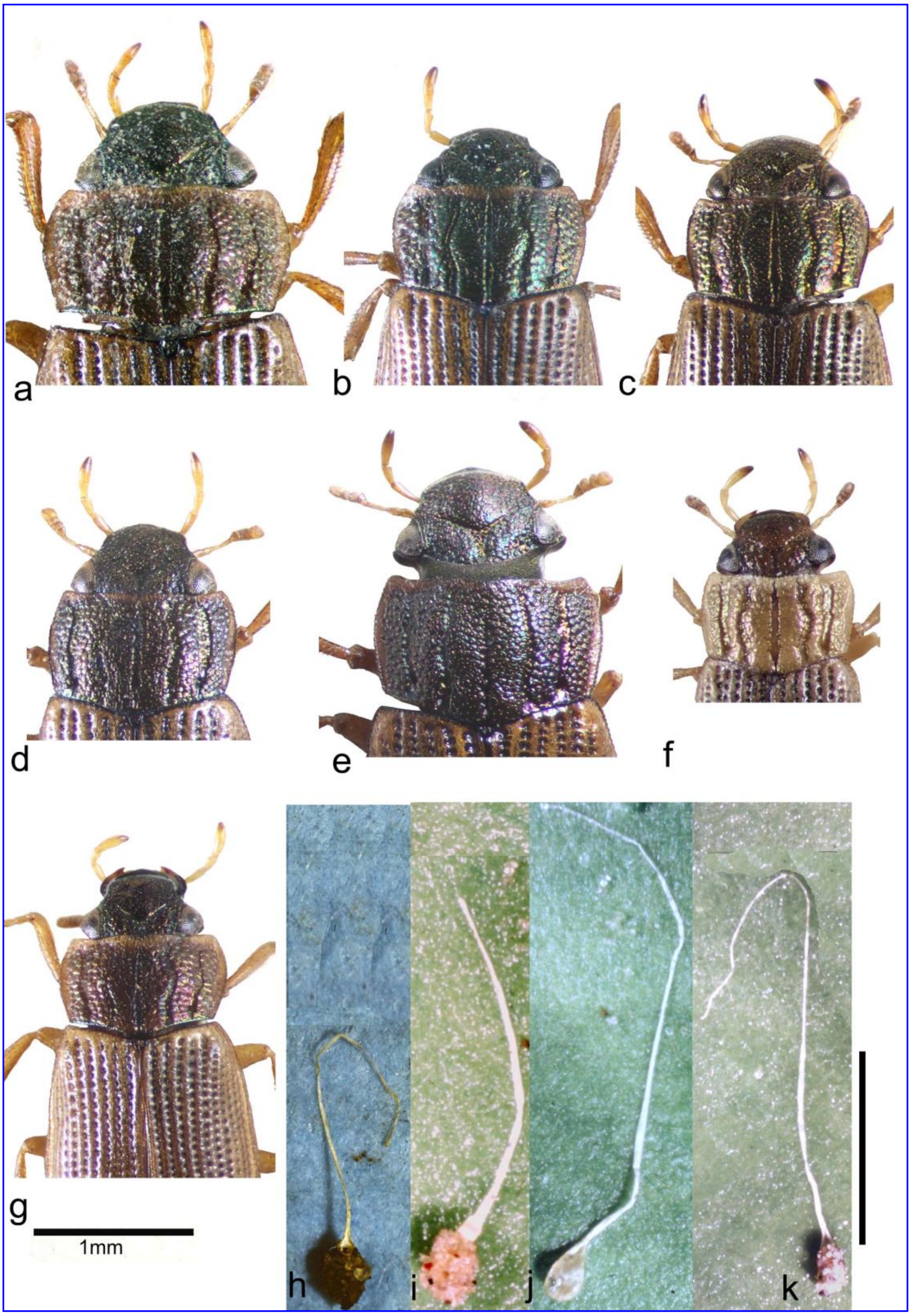


Plate 2 **a** – **g**, heads and pronota of Spanish and Swedish *H. lapponicus* and crosses between them. **a**, Spain, La Costana; **b**, Sweden; **c**, Italy, Monti Sibillini; **d – f**, crosses, ♀ Spain, Areños × ♂ Sweden, **d** F1, **e**, F2, **f**, F3; **g**, Areños × Sweden back-crossed to A. de C. **h** – **k**, egg cocoons, **h**, *H. minutus*, Oxford; **i**, F1 hybrid, *H. lapponicus*, La Costana × *H. minutus*, Runnymede, Surrey; **j**, *H. lapponicus*, Areños; **k**, *H. paraminutus*, Karasuk. Horizontal scale = 1 mm for **a** – **g,** vertical scale is approximately 10 mm for **h** – **k**.

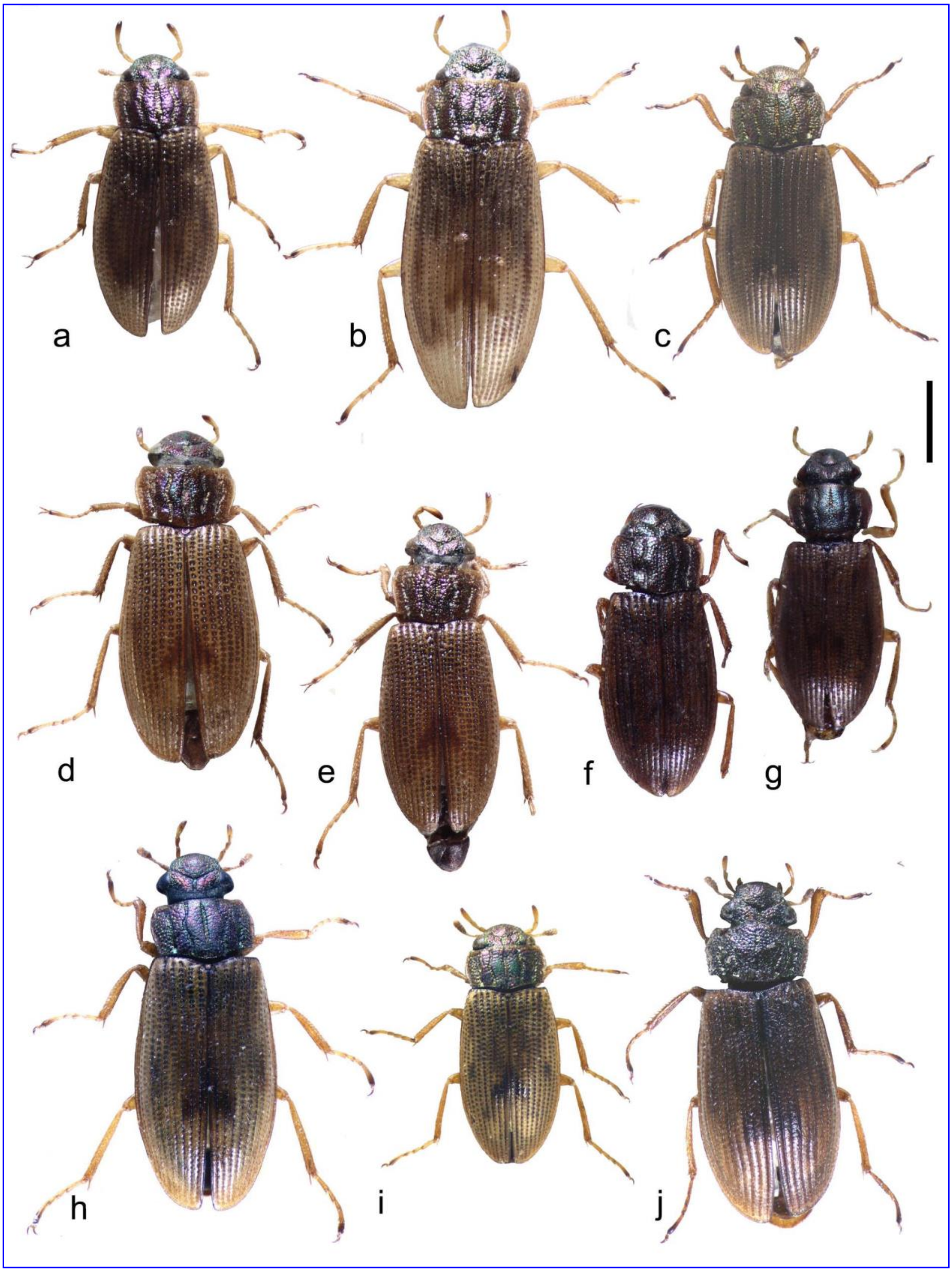


Plate 3 **a** – **j**, whole beetles. **a** – **h**, *H. lapponicus*, **a** ♂, **b** ♀, Israel, Golan Heights, used for chromosome preparation; **c**, Italy, Monte Sibillini; **d**, **e**, Iran, Azerbaijan; **f**, Turkey, Artvin; **g**, ♂, Armenia; **h**, E. Siberia, Irkutsk oblast, Tibelti; **i**, *H. minutus*, England, Surrey; **j**, *H. paraminutus*, Karasuk, lab-reared F1. Scale line = 1mm

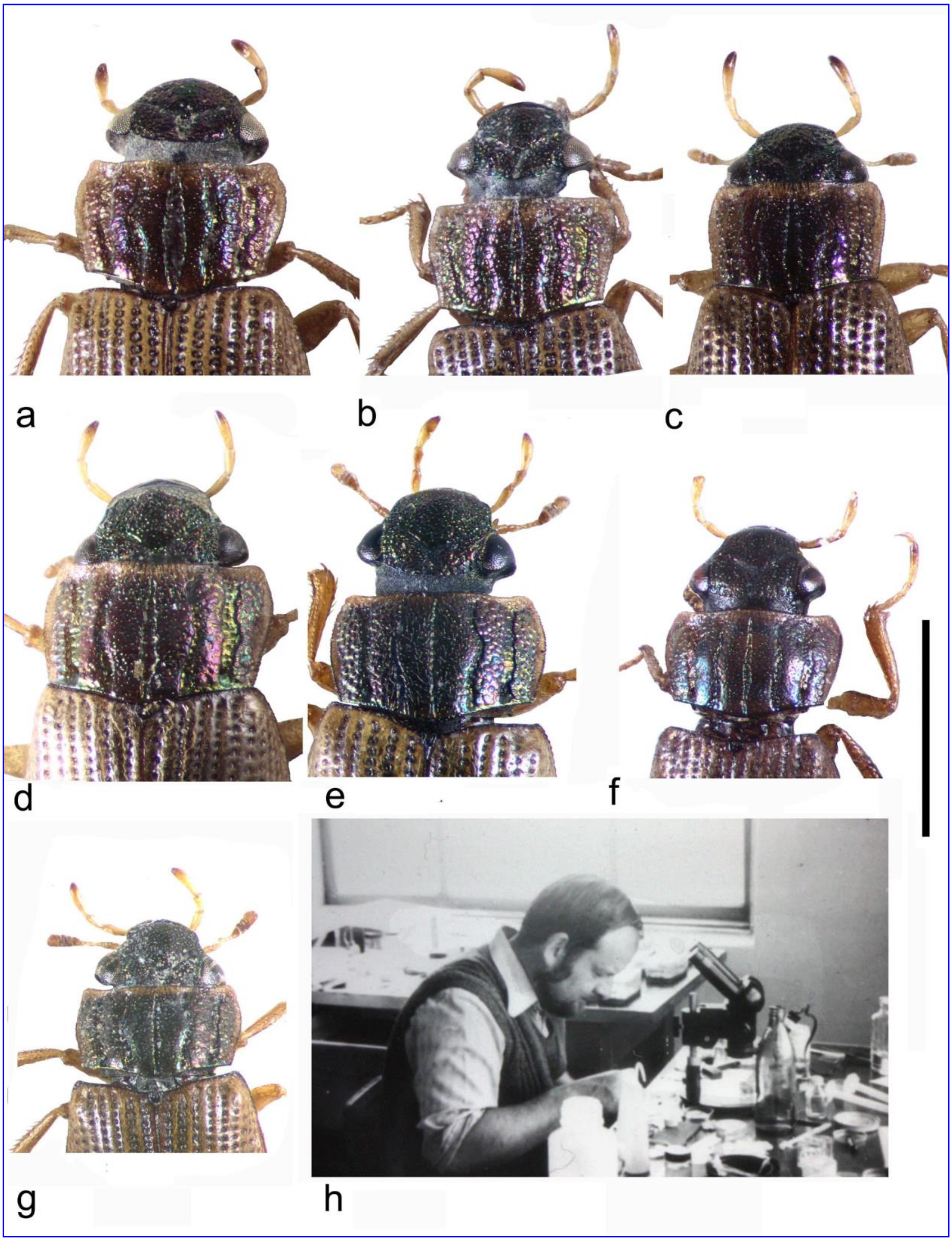


Plate 4 **a** – **g**, heads and pronota. **a** – **f**, *H. lapponicus*, **a**, **b**, Iran, Azerbaijan, **a** ♀, **b** ♂; **c**, **d**, Israel, Golan, **c** ♂, **d** ♀; e, Tibelti; **f**, Armenia; **g**, *H. minutus*, Spain, La Costana. **h**, in the Karasuk field station in 1982, chopping up *Gammarus lacustris* to feed *Helophorus* larvae.

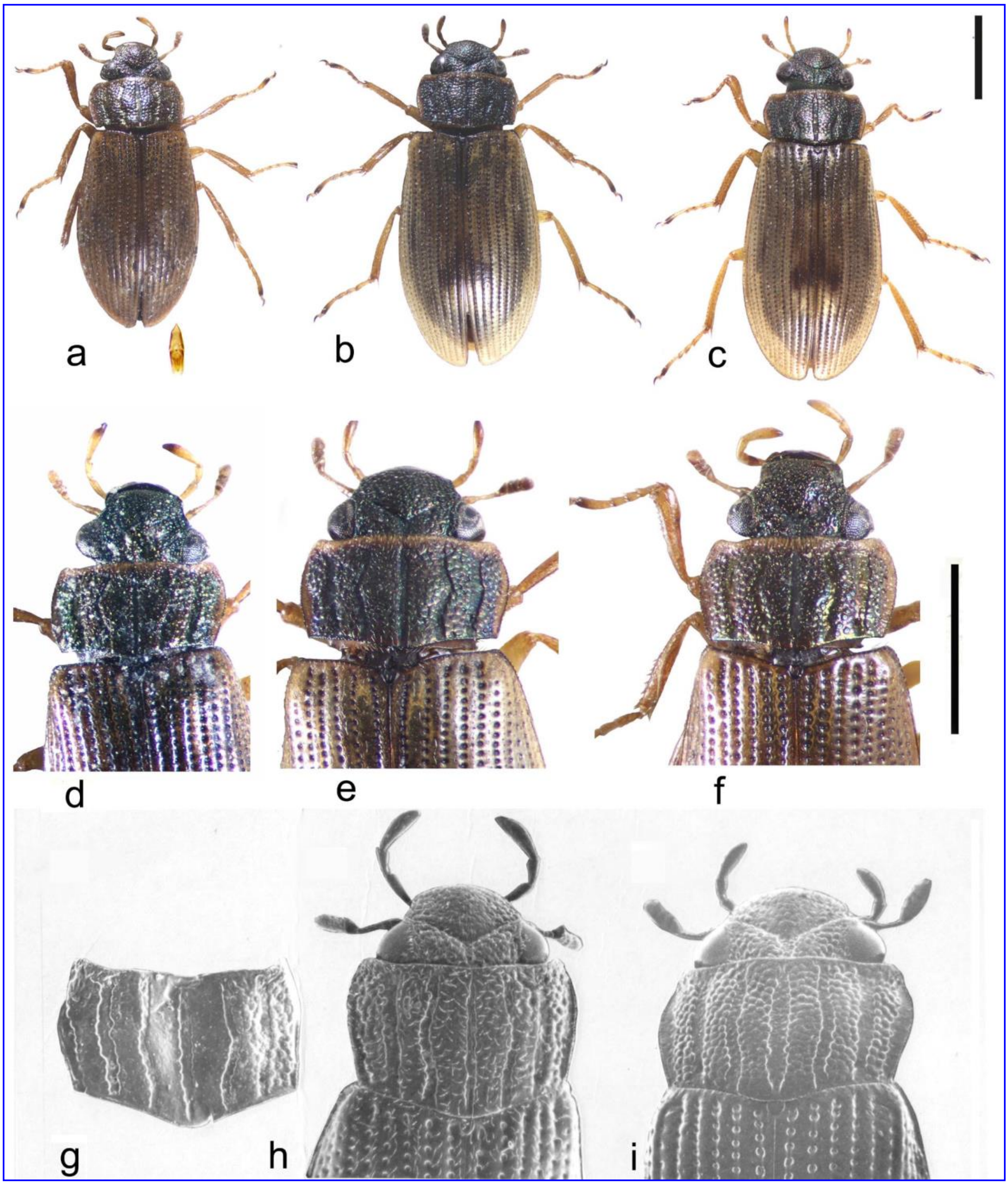


Plate 5 **a** – **c** *H. lapponicus* hybrids, whole beetles. **a**, ♀ *H. lapponicus*, Spain, La Costana × ♂ *H. minutus*, Egham, Surrey; **b**, **c**, ♀ *H. lapponicus* × ♂ *H. paraminutus*, both from Karasuk. **d** – **f**, heads and pronota, **d**, *H. paraminutus*, Karasuk; **e**, ♀ *H. lapponicus* × ♂ *H. paraminutus*, from Karasuk; **f**, ♀ *H. lapponicus*, Spain, La Costana × ♂ *H. minutus*, Egham, Surrey; **g** – **i**. scanning electron micrographs of *H. lapponicus*, originally printed in black and white (Angus 1983), **g**, Pleistocene fossil pronotum from Tattershall, Lincolnshire; **h**, **i**, heads and pronota, **h** from Karasuk, **i** from Areños, Spain. The top scale line = 1 mm for **a** – **c**, the lower scale line = 1 mm for **d** – **f** and approximately 1 mm for **g** – **i**.

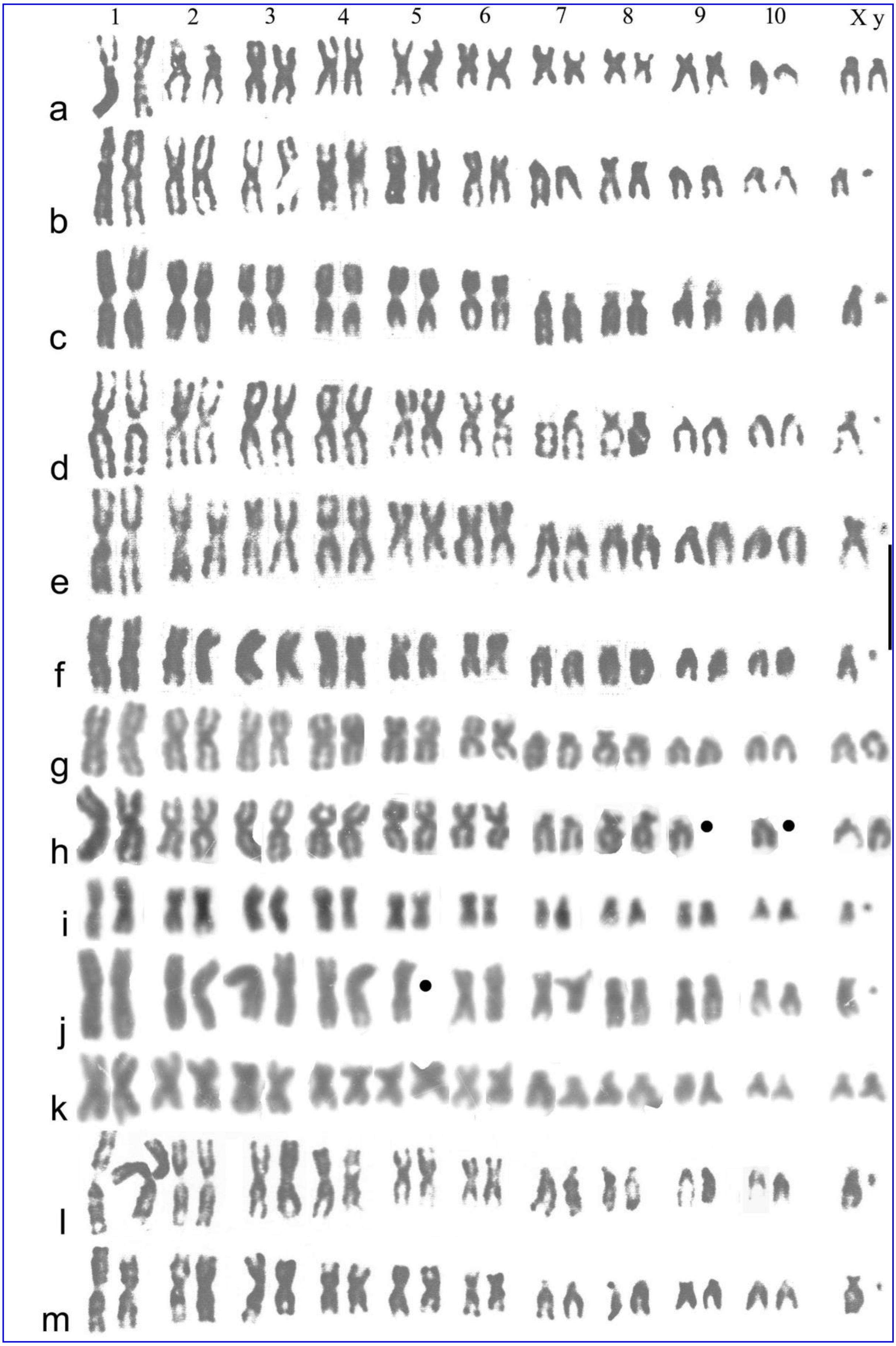

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Plate 6 (on page 9) **a** – **m**, mitotic chromosomes arranged as karyotypes, **a** – **e**, **l**, **m**, from embryos, **f** – **k** from mid gut of adults. **a**, ♀ *H. minutus* from Egham; b, ♂ *H. lapponicus*, Spanish ♀ × Swedish ♂; c, ♂ *H. lapponicus* from Karasuk; **e**, ♂ *H. paraminutus* from Karasuk; f, ♂ *H. paraminutus* from Austria; **g**, **h**, ♀ *H. lapponicus* from the Monti Sibillini, Italy. **j**, **k**, from Israel, Golan, **j** ♂, **k** ♀; **l**, **m**, ♂, laboratory hybrid ♀ *H. lapponicus* × ♂ *H. paraminutus*, both from Karasuk. Missing chromosomes are indicated by solid circles in **h** and **j**, the curved upper arm of one replicate of chromosome 1 in **l** is shown beside the chromosome, in a more nearly straight position. Scale = 5 µm. The chromosomes figured in **a** – **e** and **l**, **m** were originally figured by Angus (1986).

In 1982, in course of sabbatical leave from Royal Holloway, I was able to revisit the Field Station at Karasuk and to work there with the primary objective to investigate the large "*H. minutus*". This led to the discovery of *H. paraminutus* Angus, 1986, with an egg cocoon resembling that of *H. minutus*, distinct from that of *H. lapponicus* (Plate 2, **h** – **k**). *H. paraminutus*, when hybridised with *lapponicus*, produced effectively infertile hybrids, as with *H. lapponicus* × *minutus* (Angus 1986).

By 1982 I was able to make chromosome preparations, initially from embryos, but later also from mid gut and testis of adults. The chromosomes of *H. minutus* and *lapponicus* are clearly different, especially in regard to the metacentric versus acrocentric chromosome pairs 7 and 8 (Plate 6 **a**, **b**), but those of *H. paraminutus* appear virtually indistinguishable from those of *lapponicus*, especially Karasuk material which appears to have the X chromosome slightly larger than that of Spanish material (Plate 6, **d**, **e**, **f**, **b**, **c**). Plate 2 **b** is from an embryo of Spanish ♀ *lapponicus* crossed with a Swedish ♂. One replicate of chromosome 3 has been damaged on the slide, but the chromosomes of the two parents appear to match perfectly. Because of the extreme similarity of the chromosomes of Karasuk *H. lapponicus* and *paraminutus*, I tried to study those of a hybrid embryo, so that all the chromosomes should be in the same stage of condensation in mitotic prophase. The results were totally unexpected – there were distinct mismatches in some of the chromosomes, suggesting that the chromosomes derived from one parent were behaving somewhat differently from those of the other one. I suggested (Angus 1986) that this might be the result of differences in the incorporation of non-histone proteins, derived from the cytoplasm, in the condensing chromosomes.

In the course of the Balfour-Browne Club trip to Sweden in 2011, we collected *Helophorus lapponicus* on the Baltic island of Öland, and Ignacio Ribera used these in his evaluation of the Spanish material. Shortly afterwards he emailed me the astonishing news that the age of the separation of the Spanish and Swedish stocks was approximately ¾ million years, not 10,000! All I could say was that my data stood, however surprising they were now seen to be.

I first became aware of *H. lapponicus* in the Monti Sibillini of the Italian Apennines when identifying material taken by Elio Gentili, and was told that the initial discovery was by Aldo Chiesa. This material (Plate 3 **c**, 1 **b**, 2 **b**, **c**) is much more similar to the Swedish material than is the Spanish, so I thought it would probably have a more recent time of separation from it. I collected living material from the Monti Sibillini in April 2015 and showed that the chromosomes (Plate 6 **g**, **h**) are the same as Spanish and Swedish material. I duly sent material to Ignacio, who in reply sent the cladogram shown in Figure 1, adding "As for *lapponicus*, we got some sequences, although still incomplete. I just did a quick COI tree with what we have (there is a second specimen from León and another one from Sweden, but they are from the same localities and seem to be the same). Differences are shallow, between 1-2% in COI, which can translate to at most 1 MY at the standard rates, likely less. But again the one from León seems to be most similar to the one from Azerbaijan, and the ones from Umbria to the Swedish.... too early to say much, but interesting!"

Plates 3 **d**, **e** and 4 **a**, **b** show *H. lapponicus* collected by R. McCullers in the Iranian province of Azerbaijan. The pronota have a similar reddish colour to those of Spanish material, and are strongly rounded laterally, but are relatively narrower and more contracted basally. The granulation is less pronounced, especially medially. Also shown in Plates 3 **a**, **b**, and 4 **c**, **d** are specimens from the Golan Heights, Israel, collected and sent alive by Dr Reuven Ortal of the Hebrew University of Jerusalem in 1989. The chromosomes of these specimens (Plate 6 **j**, **k**) match those of European material.

The age of separation of the southern "outpost" populations of *H. lapponicus* from the main, now northern, part of its range comes as a surprise. There is a tendency to refer to these populations as glacial relicts, though, as Ignacio pointed out in conversations, this northern area was largely uninhabitable for much of the colder parts of the Pleistocene, so that the southern areas are perhaps the older part of its range. The southern areas are summarised by Angus (1992), and are the mountainous areas of northern and central Spain, the Monti Sibillini in the Italian Apennines, and northern Anatolia (Turkey) and the Transcaucasus, east to Azerbaijan and the Iranian province of Azerbaijan, and extending southwards over Lebanon to the Golan Heights of Israel. This south-eastern area seems to have the most extensive suite of populations, while the Italian populations are the most limited in their range. It is striking that there are no records of *H. lapponicus* from western and central Europe from either the Alps or areas north of them, where the environment might appear suitable – the Massif Central and Jura in France and the Carpathians in central Europe. Perhaps this is associated with the long separation of these southern populations, which nevertheless appear to be genetically compatible with northern material.

Some habitats of the species discussed are shown in Plate 7. All are found in flooded grassy areas (the "vernal swamps" of Frank Balfour-Browne 1958) and field ponds. Many of these more southern areas dry out in Summer. Thus Google Earth shows the pool on the Piano Grande (Monti Sibillini) to be completely dry in late June 2020, though the pool on the nearby Piano Piccolo still had some water in July 2017. Interestingly, when I collected in this pool in April 2015 *H. lapponicus* was less abundant than on the Piano Grande and was accompanied by numerous *H. asperatus* Rey. The Spanish *H. lapponicus* locality east of Villacastin was also completely dry in early June 2020.

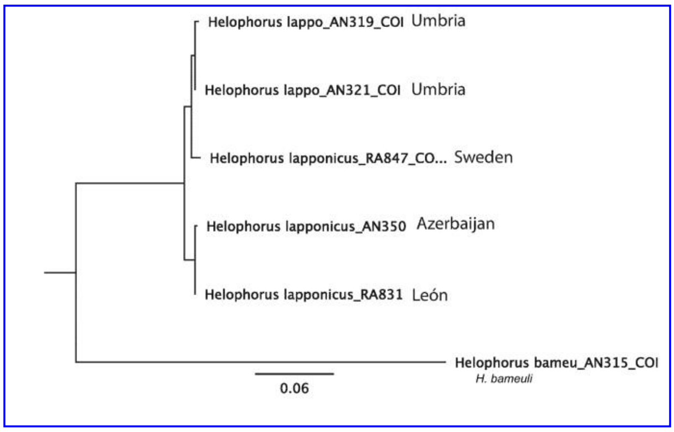

Figure 1
Ignacio Ribera's cladogram of *Helophorus lapponicus*, with *H. bameuli* Angus as an outgroup. Using Öland and Spanish *H. lapponicus* he estimated the age of the separation of these two as about 0.75 million years.

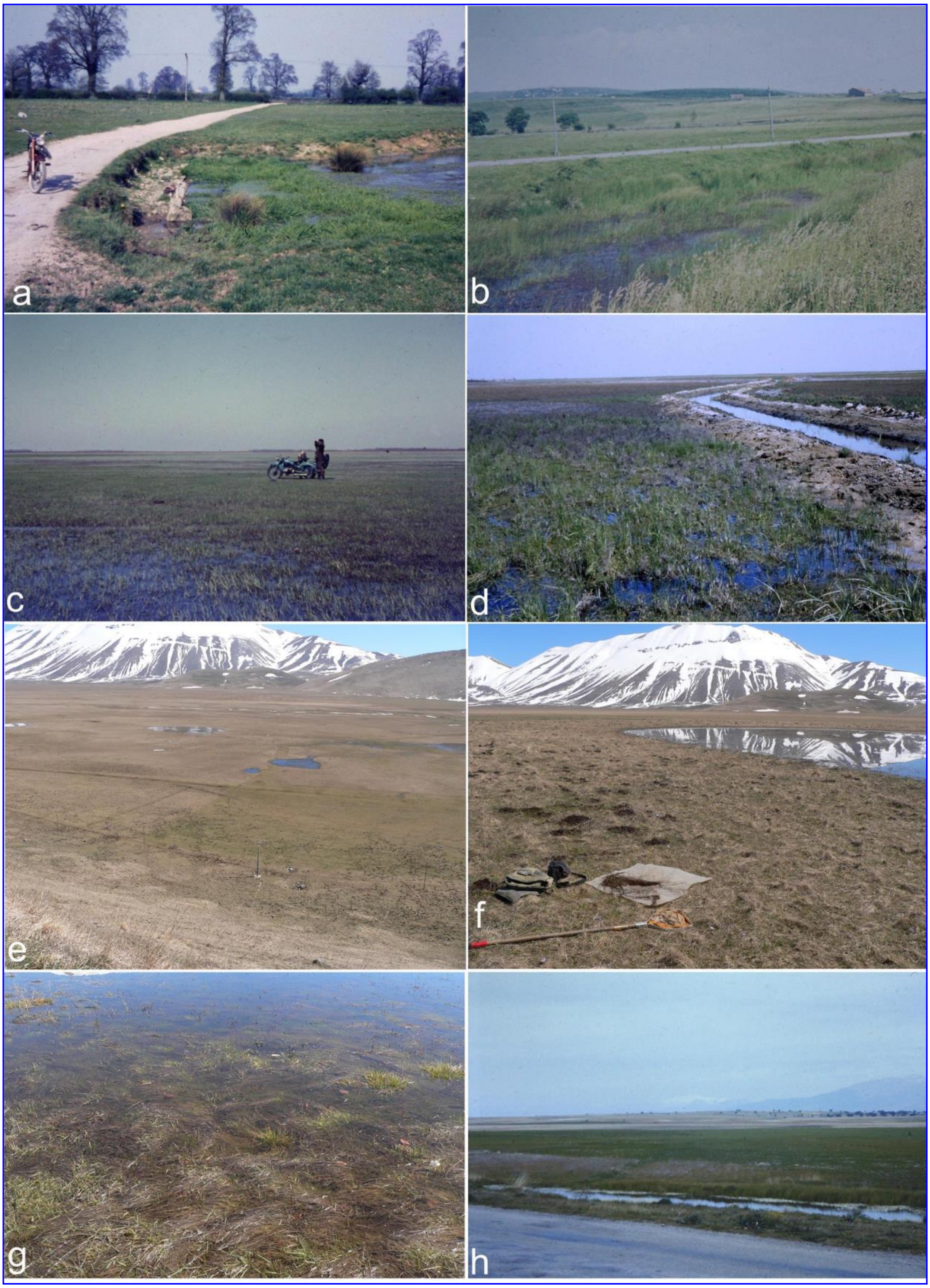
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Plate 7 (on page 12) **a** – **h**. Habitats. **a**) Field pond at Water Eaton, Oxford, mid 1960s, 51.8033°N, 1.2520°W. *Helophorus* included *H. minutus*, *griseus* Herbst, *longitarsis* Wollaston (the only time I have ever taken this species in England, 1 ♀ from which I reared quite a series), as well as *H. obscurus* Mulsant, *aequalis* Thomson and *grandis* Illiger. This whole area is beyond the car park for the Park and Ride, but now appears to be arable fields without any pool; b) Roadside pool at La Costana, Provincia de Cantabria, Spain, 43.0162°N, 4.0019°W, where I first took – and recognised – H*. lapponicus* in Spain. *H. minutus* also occurred there. This pool was later lost to road-widening; **c**) spring flooding on the open steppe at Karasuk (Novosibirsk Oblast), 59.728°N, 77.8625°E. in late May, 1970. *H. paraminutus* was there in swarms; **d**) Karasuk in late May,1982 – water levels much lower than in 1970, but these pools had both *H. lapponicus* and *H*. *paraminutus*; **e** – **g**) Italy, Monti Sibillini, Piano Grande karstic depression and the main *H. lapponicus* pool, 42.7835°N, 13.1869°E, April 2015. Other highlights included smooth female *Dytiscus marginalis* L.; **h**) Spain, Provincia de Segovia, marshy area with pools east of Villacastín, 40.8547°N, 4.248°W, habitat of *H. lapponicus* in Central Spain.

Acknowledgements
I thank Lars Huggert (Umeå) and Reuven Ortal (Jerusalem) for sending the living Swedish and Israeli *H. lapponicus*, and the Royal Society and the Soviet (now Russian) Academy of Sciences, under whose exchange agreement I was able to visit the Karasuk Field Station. I thank the Natural History Museum, London for research facilities, including the use of equipment in the Sackler Bioimaging Laboratory, where the photographs of the beetles were taken.

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AYRSHIRE – MORE NOBEL RECORDS

The Nobel Explosives Plant used to occupy this ”waste and dreary prospect of land” as Ardeer was once described. The entomology was described in another paper (see ***Latissimus* 47** 38) published in 2020 in *British Wildlife* magazine. Wetland beetles mentioned in this more extensive coverage include *Noterus clavicornis* (De Geer), *Nartus grapii* (Gyllenhal), *Enochrus testaceus* (Fab.), *Scirtes hemisphaericus* (L.), *Donacia vulgaris* Zschach, *Limnobaris dolorosa* (Goeze), *Grypus equiseti* (Fab.) and *Notaris bimaculatus* (L.).

PHILP B, HAMLIN I & LAVERY A 2021. Insects and arachnids of Ardeer, North Ayrshire, Scotland. *Glasgow Naturalist* **27** 31-38.

WATER SCAVENGER BEETLES (COLEOPTERA: HYDROPHILIDAE) AS FACULTATIVE NECROPHAGES

Sergey K Ryndevich, Denis S Lundyshev & Alexander Ю Machulski

Unlike obligate necrobiont beetles, Silphidae, Histeridae, etc., water scavenger beetles (Hydrophilidae) are rarely found on the corpses of vertebrates. The literature has a limited number of records - *Hydrochara caraboides* (L.) recorded on dead fish in Belarus (Ryndevich 2004) and *Cercyon lateralis* (Marsham) as necrobiont (Lundyshev 2014). Most of the water scavenger beetle species that have been found on the corpses of vertebrates are terrestrial in the subfamily Sphaeridiinae, *Cercyon nigriceps* (Marsham), *C*. *praetextatus* (Say), *Cryptopleurum subtile* Sharp and *Sphaeridium bipustulatum* Fab. on carrion in Canada and the USA (Smetana 1978, 1988). *Cercyon haemorrhoidalis* (Fab.) was recorded as necrobiontic in Ukraine (Prokopenko 2000). *Cercyon curi* Clarkson *et al*. and *C*. *inquinatus* Wollaston were collected in a pig carcass in a controlled forensic experiment in Brazil (Clarkson *et al*. 2020).

Pushkin (2004) indicates twelve hydrophilid species from the North-West Caucasus (Russia) as necrobionts including Asian species such as *Pachysternum haemorrhoum* Motschulsky, *Cercyon ovillus* Motschulsky, etc. These are most likely misidentified and cannot be considered reliable.

In Belarus, 18 out of 57 species of water scavenger beetles (Ryndevich 2005; Ryndevich *et al*. 2013) have been found on dead vertebrates and are listed below.

Hydrophilinae Latreille

***Hydrochara caraboides* (L.)** - Vitebsk reg., Lepel district, Berezinsky Biosphere Reserve, v. Domzheritsy, pond, in water, on dead Prussian carp (*Carassius gibelio*), 29.V.1996, leg. S.K. Ryndevich, 3 specimens.

Sphaeridiinae Latreille

***Cercyon haemorrhoidalis* (Fab.)** - Brest reg., Ivatsevichi district, near v. Goshchevo, on dead chicken, 28.V.2012, leg. A. Ю. Machulski, 6 specimens.

***Cercyon impressus* (Sturm)** - Brest reg., Ivatsevichi district, near v. Goshchevo, on dead rat (*Rattus norvegicus*), 3.VII.2012, leg. A. Ю. Machulski, 1 specimen.

***Cercyon lateralis* (Marsham)** - Brest reg., Ivatsevichi district, near v. Goshchevo, on dead rat, 3.VII.2012, leg. A. Ю. Machulski, 1 specimen; same data but on dead cat, 1 specimen; same data but on dead rat and cat, 4.VIII.2013, 5 specimens; same data but pasture, dead calf, 29.VI.2013, 1 specimen; Brest reg., near Baranovichi, black alder forest, shore of reclamation channel, on chicken bones, 29.IV.2008, leg. D.S. Lundyshev & Ю.V. Tret'yak; 5 specimens; same data but 4.V.2008, 23 specimens; Brest reg, Lahovichi district, near v. Litva, forest, on chicken bones, 10.V.2008, leg. D.S. Lundyshev & M.A. Lukashenya, 7 specimens. Gomel reg., Zhitkovichi district, near Turov, N52.07532, E027.75236, the shore of Pripyat River, on rotting roach (*Rutilus rutilus*), 23.VIII.2010, leg D.S. Lundyshev, 1 specimen. Minsk reg., Nesvizh district, near Gorodeya, the edge of a pine forest, on a dead blackbird (*Turdus philomelos*), 1.VII.2004, leg. S.K. Ryndevich, 2 specimens.

***Cercyon marinus* Thomson** - Brest reg., Brest district, near v. Tomashevka, pond shore, rotten chicken, 27.VII.2012, leg. Ю.V. Tret'yak; 1 specimen; Baranovichy district, near v. Gintsevichi, shore of Baranovichskoye Reservoir, on dead black-headed gull (*Chroicocephalus ridibundus*), 19.VII.2004, leg D.S. Lundyshev, 1 specimen. Gomel reg., Zhitkovichi district, near Turov, N52.07532, E027.75236, the shore of Pripyat River, on dead white stork (*Ciconia ciconia*), 2.V.2010, leg D.S. Lundyshev, 3 specimens; same data but on rotten fish: Prussian carp, roach and pike (*Esox lucius*), 15.VII.2011, 6 specimens; same data but near Turov, on dead magpie (*Pica pica*), 16.VII.2011, 5 specimens.

***Cercyon tristis* (Illiger)** - Brest reg., Baranovichi district, near v. Malaya Kolpenitsa, floodplain meadow, on dead black-headed gull, 23.Iv.2008, leg D.S. Lundyshev, 1 specimen. Mogilev reg., Bykhov district, near v. Varanino, field, on dead peregrine falcon (*Falco peregrinus*) 24.V.2013, leg. I.A. Bogdanovich, 1 specimen.

***Cercyon unipunctatus* (L.)** - Brest reg., Baranovichi district, near v. Malaya Kolpenitsa, on chicken bones, leg. D.S. Lundyshev & Ю.V. Tret'yak; 1 specimen; Brest district, near v. Tomashevka, pond shore, rotten chicken, 27.VII.2012, leg. Ю.V. Tret'yak; 2 specimen, Baranovichy distr., near v. Malaya Kolpenitsa, shore of reclamation channel, on dead black-headed gull, 25.VI.2004, leg D.S. Lundyshev, 1 specimen. Gomel reg., Zhitkovichi district, near Turov, N52.07532, E027.75236, on dead magpie, 16.VII.2011, leg D.S. Lundyshev, 1 specimen.

***Cercyon ustulatus* (Preyssler)** - Brest reg., Baranovichi, shore of Lake Zhlobinskoe, on dead black-headed gull, 17.VI.2008, leg D.S. Lundyshev, 1 specimen.

***Cercyon analis* (Paykull)** - Brest reg., Lahovichi district, near v. Litva, forest planting along the road, on dead black-headed gull, 10.V.2008, leg D.S. Lundyshev & M.A. Lukashenya, 1 specimen. Gomel reg., Loev district, near v. Abakumy, on dead great cormorant (*Phalacrocorax carbo*), 21.VI.2012, leg. I.A. Bogdanovich, 1 specimen.

***Cercyon laminatus* Sharp** - Brest reg., Brest district, near v. Tomashevka, pond shore, rotten chicken, 26.VII.2012, leg. Ю.V. Tret'yak; 1 specimen. Gomel reg., Zhitkovichi district, near Turov, N52.07528, E027.75232, the sandy shore of Pripyat River, on rotten Prussian carp, 5.VIII.2012, leg D.S. Lundyshev & A.Ю. Machulski, 1 specimen. Mogilev reg., Bykhov district, near v. Varanino, field, on dead peregrine falcon 24.V.2013, leg. I.A. Bogdanovich, 1 specimen.

***Coelostoma orbiculare* (Fab.)** - Brest reg., Brest district, near v. Tomashevka, pond shore, rotten chicken, 25.VII.2012, leg. Ю.V. Tret'yak; 2 specimens; Baranovichy district, near v. Gintsevichi, shore of Baranovichskoye Reservoir, on dead black-headed gull, 19.VII.2004, leg D.S. Lundyshev, 1 specimen; Ivatsevichi district, near v. Goshchevo, pasture, on a dead pig, 18.V.2013, leg. A. Ю. Machulski, 1 specimen.

***Cryptopleurum crenatum* (Kugelann)** - Brest reg., Ivatsevichi district, near v. Goshchevo, on dead rat and cat, 4.VIII.2013, leg. A.Ю. Machulski, 4 specimens.

***Cryptopleurum minutum* (Fab.)** - Brest reg., near Baranovichi, on the skull of a dead beaver (*Castor fiber*), 13.VIII.2013, leg. A.Ю. Machulski, 1 specimen; Brest reg., Ivatsevichi district, near v. Goshchevo, on dead rat, 3.VII.2012, leg. A.Ю. Machulski, 1 specimen; same data but on dead cat, 18.VII.2013, 1 specimen; same data but on dead rat and cat, 4.VIII.2013, 1 specimen; same data but 10.VIII.2013, 1 specimen.

***Cryptopleurum subtile* Sharp** - Brest reg., Ivatsevichi district, near v. Goshchevo, on dead rat and cat, 4.VIII.2013, leg. A.Ю. Machulski, 2 specimens.

***Megasternum concinum* (Marsham)** - Brest reg., Baranovichi district, near v. Malaya Kolpenitsa, shore of reclamation channel, on dead black-headed gull, 25.VI.2004, leg D.S. Lundyshev, 1 specimen; same data but floodplain meadow, on dead black-headed gull, 25.IV.2008, leg Ю.V. Tret'yak, 1 specimen; same data but willow thickets, on chicken bones, 4.V2006, leg. D.S. Lundyshev & Ю.V. Tret'yak; 1

specimen; floodplain meadow, on dead rook (*Corvus frugilegus*), 4.V.2008, leg. Ю.V. Tret'yak; 1 specimen.

***Sphaeridium bipustulatum* Fab.** - Brest reg, Ivatsevichi district, near v. Goshchevo, on dead cat, 12.VII.2013, leg. A.Ю. Machulski, 1 specimen.

***Sphaeridium lunatum* Fab.** - Brest reg, Ivatsevichi district, near v. Goshchevo, on dead cat, 18.VII.2013, leg. A.Ю. Machulski, 1 specimen.

***Sphaeridium scarabaeoides* (L.)** - Brest reg, Ivatsevichi district, near v. Goshchevo, on dead cat, 18.VII.2013, leg. A.Ю. Machulski, 2 specimens. Minsk reg., Nesvizh district, near Gorodeya, on dead dog, 6.VI.2010, leg. S.K. Ryndevich, 1 specimen.

Water scavenger beetles were collected on seventeen species of dead vertebrate (eight birds, six mammals, four fish). The largest number was collected on dead cats and chickens (seven each). black-headed gulls (six) and brown rats (five). From one to three species were observed on other vertebrate species. These beetles are not confined to carrion as food. Their presence on dead animals is optional. Hydrophilids can be seen as facultative necrophages.

Acknowledgements
We are very grateful to Ю.V. Tret'yak (Baranovichi, Belarus) M.A. Lukashenya (Baranovichi State University, Baranovichi, Belarus), I.A. Bogdanovich (State Scientific and Production Association "Scientific and Practical Center of the National Academy of Sciences of Belarus on Bioresources", Minsk, Belarus) for loan material.

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LUNDYSHEV D S 2014. New data on the fauna and ecology of the necrobiont beetles (Coleoptera) of Belarus. in Ecology at the present stage of development of society: Materials of the International scientific-practical Conference, Baranovichi, November 25-26, 2014 Baranovichi: BarSU 137–143. [in Russian].

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PUSHKIN S V 2004. Necrobiont insect communities in mountains in northwest Caucasus. *Euroasian Entomological Journal* **3** (3) 195–202. [in Russian].

RYNDEVICH S K 2004. *Fauna and ecology of water beetles of Belarus*. Monograph in two parts. **I**. Minsk: Technoprint. 272 pp [in Russian].

RYNDEVICH S K 2005. A Checklist of Haliplidae, Noteridae, Dytiscidae, Gyrinidae, Hydraenidae, Helophoridae, Georissidae, Hydrochidae, Spercheidae, Hydrophilidae, Elmidae, Dryopidae & Limnichidae (Coleoptera) of Belarusia fauna. In A Konstantinov, A Tishechkin & L Penev (eds) *Contributions to Systematics and Biology of Beetles. Papers Celebrating the 80th birthday of Igor Konstantinovich Lopatin*: 315–326. Sofia-Moscow: Pensoft Publishers.

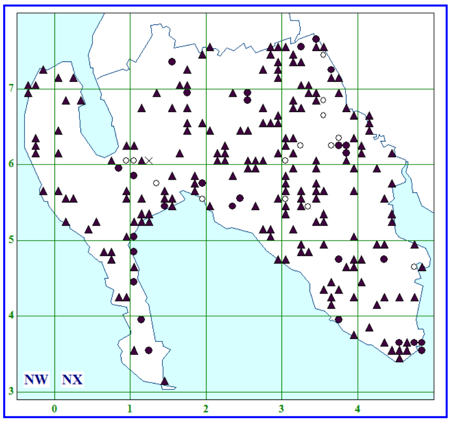
RYNDEVICH S K, FOSTER G N, BILTON D T, AQUILINA R, TURNER C R, SHAVERDO H, PROKIN A A 2014. Additions to Belarusian fauna of water beetles *Latissimus* **33** 32–42.

SMETANA A 1978. Revision of the subfamily Sphaeridiinae of America north of Mexico (Coleoptera: Hydrophilidae). *Memoirs of Entomological Society of Canada* **105** 1–292.

SMETANA A 1988. Review of the family Hydrophilidae of Canada and Alaska (Coleoptera). *Memoirs of the Entomological Society of Canada* **142** 1–316.

Received February 2021

SOUTH-WEST SCOTLAND



With the need for social distancing during the pandemic lockdown the sparsely populated and poorly recorded south-west extremity of Scotland in Wigtownshire beckoned. Around 173 species are noted, with recent survey effort levelling up the vice-county with the neighbouring Kirkcudbrightshire. This is a draft of the map used in the paper showing the recorded 1km squares, ▲ being post-millennial. No truly boreal/montane species are known from the area, the old record for *Hydroporus morio* Dejean being extremely doubtful. At the other extreme *Helochares lividus* (Forster) turned up new for Scotland as a single specimen taken by Robert Merritt on the coast in September 2020. The area must be almost unique in having no 19th Century records, the first being by the local naturalist Jack Gordon (illustrated, from Mearns & Rollie 2016) in 1903.

FOSTER G N & MERRITT R 2021. Water beetles of Wigtownshire, VC 74 – new records and a critical review of earlier ones. *Coleopterist* **30** 29-40.

MEARNS R & ROLLIE C J (eds) 2016. *Jack Gordon's Birds of Wigtownshire 1890-1935*. Wigtown: Picto Publishing.

GRAPHODERUS BILINEATUS STUDY IN HUNGARY

Floodplains of the Danube, Drava and Sava were surveyed for their water beetles. Ninety-eight species were identified from 4,339 specimens. *Graphoderus bilineatus* was found in 14 of the 30 sites in two of the floodplains. The density of riparian vegetation, water duration, shading bank type and plant communities best explained the distribution of water beetle species. Regression analysis showed the importance of human impact and shading on the abundance of the *Graphoderus*. Some interesting interactions, negative and positive, were observed between the *bilineatus* and other beetles. The negative relationships were with *Acilius sulcatus* (L.), *Hydrochara caraboides* (L.), *Haliplus fluviatilis* Aubé, *Cybister lateralimarginalis* (De Geer) and *Laccophilus minutus* (L.). Positive ones were with *Hydroglyphus geminus* (Fab.), *Hydroporus palustris* (L.), *Noterus crassicornis* (Müller), and *Hydaticus transversalis* (Pontoppidan), with an especially strong relationship with *G. cinereus* (L.). This type of analysis is worth repeating elsewhere.

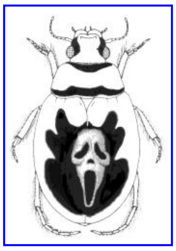
TURIĆ N, TEMUNOVIĆ M, SVIVÁK I, HERCZEG R, VIGNJEVIĆ G & CSABAI Z 2021. Importance of floodplains for water beetle diversity: a crucial habitat for the endangered beetle *Graphoderus bilineatus* in Southeastern Europe. *Biodiversity and Conservation* https://doi.org/10.1007/s10531-021-02168-w

SAVANNAH LINK FOR PAPUA AND AUSTRALIA

The 2.6 mm long dytiscid *Neobidessodes mjobergi* is known in Northern Australia from Kimberley to northern Queensland. It was found in Papua in a savannah area resembling parts of Australia. It seems likely that more such links will be established when this area of Papua is fully surveyed.

SURBAKTI S, BALKE M & HENDRICH L 2021. Discovery of the Australian diving beetle *Neobidessodes mjobergi* (Zimmermann, 1922) in New Guinea (Coleoptera, Dytiscidae, Hydroporinae). *Check List* **17** 633-636.

DYTISCOIDEA PHYLOGENY – SEEKING ENLIGHTENMENT



In ***Latissimus* 47** there was an attempt to summarise the current debate about Chenyang Cai *et al*.'s (2020) reassessment of analyses of data concerning the position of the Hygrobiidae, reminiscent of earlier disputes concerning the very name of the family itself. That review involved the need to consider "ultra-conserved elements" (UCEs – see ***Latissimus* 45** 9). Now we have to try to explain Hennig's *wechselseitige Erhellung* or "reciprocal illumination". In this each opposing hypothesis is evaluated on the extent to which it fits in with the overall, favoured hypothesis using all available sources. Right now, this might be translated as the extent to which an evolutionary sequence based on morphology is explained by DNA sequences or rather, a combination of the two, but with gene structures becoming more available. This paper starts with a useful summary of the 25 analyses of the evolution of the Dytiscoidea done since 1996, with figures showing the three main proposed phylogenetic trees. There is then a review of the prothoracic and pygidial defensive glands, the former being peculiar to the Hygrobiidae and Dytiscidae, but now realised as an example of convergent evolution. The prothoracic glands are differently positioned and structured in the two families, and those of Hygrobiidae do not discharge liquid when molested, squeaking being the preferred warning. This analysis moves on to include Konrad Dettner's work on the synthetic pathways needed to produce the characteristic pygidial secretions, as well as the morphology of the larvae and the female reproductive system, in particular the ovipositor. The overall conclusion is that none of the morphological features used by Cai *et al.* unambiguously supports a sister relationship between the Hygrobiidae and the Dytiscidae. This illumination process has revealed that two of the trees dismissed by Cai *et al*. are supported by the pygidial gland secretions, and the supposed sister relationship is undermined by the separate origins of the prothoracic glands. One can only look forward to the response, in passing handing out a criticism to the editor of *Systematic Entomology* for failing to insist on a more descriptive title in the absence of a set of key words.

CAI C, TIHELKA E, PISANI D & DONOGHUE P C J 2020. Data curation and modeling of compositional heterogeneity in insect phylogenomics: a case study of the phylogeny of Dytiscoidea (Coleoptera: Adephaga). *Molecular Phylogenetics and Evolution* **147** 106782 pp.7.

GUSTAFSON G T, MILLER K B, MICHAT M C, ALARIE Y, BACA S M, BALKE M & SHORT A E Z 2021. The enduring value of reciprocal illumination in the area of insect phylogenomics: a response to Cai *et al*. (2020). *Systematic Entomology* doi 10.1111/syen.12471 14 pp.

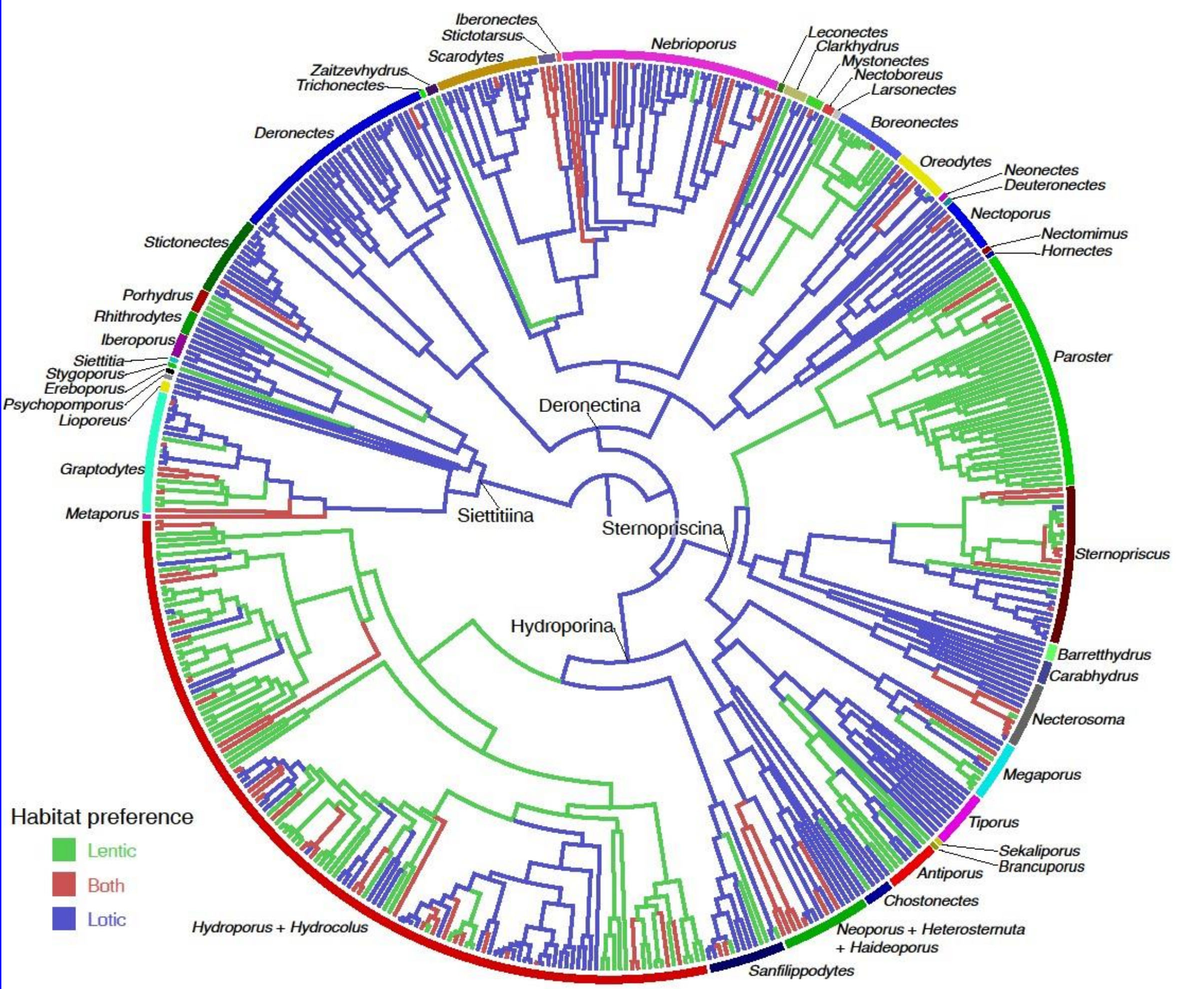
RHANTUS SIMULANS

The status of this endemic of south-western Australia is contrasted with the smaller but altogether more successful "super tramp", *R. suturalis* (Macleay), found in the same area, as well as, of course, over much of the world east to New Zealand and west to Ireland. *R. simulans* is only found abundantly in the presence of swamp forests dominated by the swamp paperback tree, *Metaleuca raphiophylla* Schauer. Other beetles of conservation concern found with it are *Antiporus hollingsworthi* Watts, *A*. *mcreae* Watts & Pinder, *Brancuporus gottwaldi* (Hendrich), *Exocelina atra* (Sharp), *Paroster pallescens* Sharp, *Spencerhydrus pulchellus* Sharp, *Sternopriscus eikei* Hendrich & Watts, *S*. *minimus* Lea, and *S*. *storeyi* Hendrich & Watts.

HENDRICH L & BALKE M 2021. New records of the diving beetle *Rhantus simulans* Régimbart, 1908 in south-western Australian (Coleoptera, Dytiscidae, Colymbetinae). *Check List* **17** 643-648.

HYDROPORINE EVOLUTION

The theory goes that because the stability of the freshwater habitats is all important species living in continuous running water will not need to disperse as much as those in patchily distributed stagnant water sites. That should lead to smaller ranges and diversification in running waters. So one would expect the ancestral hydroporine to live in stagnant water but to produce some running water lineages, almost as culs-de-sac. So, here we have 421 of the 689 known species of Hydroporini lined up with four mitochondrial and two nuclear genes plus other mitochondrial genomic material. And it is back to the drawing board! The reconstruction indicates that the ancestral hydroporine lived in running water with many subsequent shifts to stagnant water. The commonest transition was from running water to species habitually found in both running and stagnant water, and the next commonest was from running water alone to stagnant water alone. Running water environments do not act at evolutionary

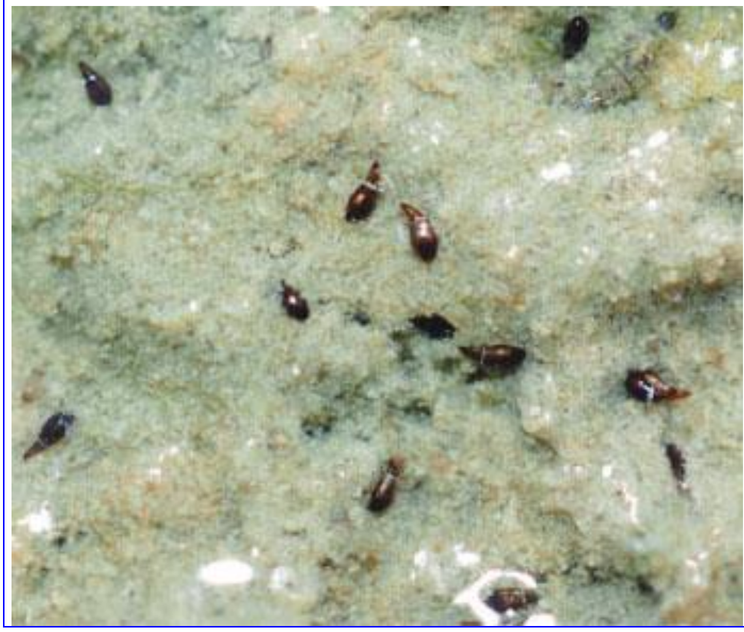


dead-ends in Hydroporini.

In this diagram, kindly supplied by Adrián as one similar to the published version, blue lines track the supposed evolution of running water species, green the stagnant water ones, and red those that do both.

VILLASTRIGO A, ABELLÁN P & RIBERA I 2021. Habitat preference and diversification rates in a speciose lineage of diving beetles. *Molecular Phylogenetics and Evolution* **159** 107087 9 pp.

HYDROSCAPHA LIFE-CYCLE




This survey of Taiwan and Hong Kong species serves as a great vehicle for observations on the life-cycles of these staphylinid-like myxophagan water beetles. Illustrations include the larva and adult of *Hydroscapha takahashii* Miwa, plus the pupa inside the larval exuvium and the pupa on its own and stereoscanned. Four larval instars were identified in this species, the same as in Torridincolidae. Barcoding revealed a new species, *H. shuihau*, from Hong Kong. It is proposed that the minute body size is an adaptation for colonisation of ephemeral habitats. The wet rock habitat is well illustrated, with thanks go to the Raffles Museum for permission to use the photographs.

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 Bulletin of Zoology* **68** 334-349.

MONTENEGRIN *HYDRAENA*

Hydraena dinarica Freitag & de Vries is newly described from the Dinaric Alps. It is similar to species in the *H. saga* complex and genetically closest to *H. alpicola* Pretner, *H. saga* d'Orchymont and to the *H. gracilis* complex. *H. saga* itself occurs 50 km away so the beetles have to be dissected in order to see the aedeagophore, the extension to which is shaped like a tuba. Other species found in this survey of the Tara River area were *H. biltoni* Jäch & Díaz, *H. minutissima* Stephens, *H. morio* Kiesenwetter, *H. nigrita* Germar, and *H. subintegra* Ganglbauer, plus some females that appear to be *H. britteni* Joy though that species has not been recorded from Montenegro.

FREITAG H, de VRIES R, PATERNO M, MAESTRI S, DELLEDONNE M, THOMPSON C G, LAMED H, LAMBERT R, FOX M F, GONZALEZ MC, DELOCADO E D, SABORDO M R, PANGANTIHON C V & NJUNJIĆ I 2021. *Hydraena* (s. str.) *dinarica*, new species (Coleoptera: Hydraenidae) along with further records of *Hydraena* spp. and comments on the DNA barcoding problem with the genus. *Biodiversity Data Journal* **9** e59892

***COPELATUS* BIODIVERSITY CONTINUES**

Jack Balfour-Browne described *Copelatus apicalis* from the Solomon Islands and Papua in 1939. Nine more species have been found based on old material in the Natural History Museum, London, and on recent visits to Guadalcanal and Bougainville. They exemplify the great diversity of the genus, the strangest feature here being the hammer-shaped attachment to the median lobe of *C. portior* Guignot.

HÁJEK J, SHAVERDO H, HENDRICH L & BALKE M 2021. A review of *Copelatus* diving beetles from the Solomon Islands, reporting the discovery of six new species (Coleoptera, Dytiscidae, Copelatinae). *ZooKeys* **1023** 81-118.

NINO SANFILIPPO'S COLLECTION (CONTINUED)

The Dytiscidae were covered in the same journal in 2020 (see ***Latissimus* 46** 3). Here the families listed get the same treatment, with specimens listed for each country in the Palaearctic and each province in Italy. The first records are noted as follows: *Aulonogyrus concinnus* (Klug) in Libya; *Gyrinus caspius* Ménétries in Tunisia; *G. dejeani* Brullé in Albania; *G. paykulli* Ochs in Puglia; *G. substriatus* Stephens in Valle d'Aosta; *Haliplus obliquus* (Fab.) in the Apennines; *Haliplus andalusicus* Wehncke in Libya; *Noterus clavicornis* (De Geer) in Serbia. Let us hope that everyone has been as equally productive during Confinamiento.

ROCCHI S & POGGI R 2021. La collezione Nino Sanfilippo di coleotteri idroadefagi della Regiona Paleartica, conservata nel Museo Civico di Storia Natuale "Giacomo Doria" di Genova. II. Girinidi, Aliplidi, Noteridi, Igrobidi (Coloptera, Gyrinidae, Haliplidae, Noteridae, Hygrobiidae). *Annali del Museo Civico di Storia Naturale "G. Doria"* **113** 401-415.

MOROCCAN HYDROPHILIDAE

This checklist includes 52 species in 14 genera, with *Paracymus relaxus* Rey new for Morocco. Interesting species include *Amphiops senegalensis* (Laporte de Castelnau), which reaches the Rif, *Berosus guilielmi* Knisch and *Laccobius sculptus* d'Orchymont, known from the Anti Atlas, and *Laccobius pommayi* Bedel, known from the Rif. Four species are excluded from the list:- *Berosus luridus* (L.), *Laccobius bipunctatus* (Fab.), *L. obscuratus* Rottenberg and *Limnoxenus niger* (Gmelin). This is mainly because of recognition of the presence of similar species such as *Laccobius fresnedai* Gentili & Fikáček and *Limnoxenus olmoi* Hernando & Fresneda. The correspondent is Nard Bennas.

BENAMAR L, MILLÁN A, SÁINZ-CANTERO C, BELHAJ A & BENNAS N 2021. Annotated checklist of water scavenger beetles (Coleoptera: Polyphaga: Hydrophilidae) of Morocco. *Aquatic Insects* doi.org/10.1080/01650424.1874422 69 pp.

NORTH-WEST ENGLAND RECORDS

Cercyon nigriceps (Marsham), *Cryptopleurum subtile* Sharp, and *Ochthebius auriculatus* Rey are recorded in Cheshire and *Augyles maritimus* (Guérin-Méneville) in South Lancashire.

WASHINGTON C 2021. Recent interesting and notable Coleoptera records from north-west England. *Coleopterist* **30** 56-59.

ACIDOCERINAE STUDIES

The main thing you need to know about the Acidocerinae is that the principal genus *Helochares* has "one compelling putative behavioural synapomorphy: most (and potentially all) members of the *Helochares*–group are known to have the female affix their egg case below their abdomen and carry it with them." So forget DNA and morphology for a moment. No other genus in the Hydrophilidae is known to do this, but the behaviour is known in Spercheidae and Epimetopidae. The understanding of *Helochares* subgenera is described as having been a revolving door for more than a century. The phylogeny established here shows why, neither subgenus of *Helochares* being recognised, and at least six distinct clades being now recognised, mostly being dateable to the mid-Cretaceous or earlier. The tropical African *Batochares* is raised to generic rank as is the Neotropical *Sindolus*. The remainder of *Helochares* is distributed among four clades, A being the largest, itself split into three lineages, A1 in South-east Asia and A2 all the New World species of the subgenus *Hydrobaticus*. A3 is a mixture of Old World *Hydrobaticus* and many Old World species previously in *Helochares* s.s., including the types of *Helochares*, *H. lividus* (Forster) and *Hydrobaticus*, *H. tristis* (MacLeay). *Helochares* clade B contains the largest species (14 mm), the central African *H. ellipticus* d'Orchymont. It is due some separate attention. Clade C comprises Old World species coming near to the African *Peltochares*, which might, with further work, lend its name to the group as a whole. Clade D includes all the current Neotropical members of *Helochares* s. str.

Earlier molecular and larval studies make *Horelophopsis* a lineage of *Agaphydrus. Chasmogenus* is mostly tropical and is easily recognised by the strong sutural striae, shared only with the rare *Primocerus*. Here it is split into the Central and South American *Chasmogenus* and the Old World/southern Palaearctic *Crephelochares*. The second paper described 15 new species of the South American *Tobochares*, with many more to come by the sound of it. Most are small and live on wet rocks and in seepage. The newly described *T. fusus* is the only acidocerine apart from *Quadriops* known to be partly terrestrial. It has been found in seepage but also in the rotting fruits of *Clusia,* well known as a house plant attracting many names, such as Scotch Attorney and Autograph Plant. The genus mainly comprises Amazonian epiphytes. The correspondent is in both cases Andrew Short.

SHORT A E Z, GIRÓN J C & TOUSSAINT E F A 2021. Evolution and biogeography of acidocerine water scavenger beetles (Coleoptera: Hydrophilidae) shaped by Gondwanan vicariance and Cenozoic isolation of South America. *Systematic Entomology* doi 10.1111/syen.12467 16 pp.

GIRÓN J C & SHORT A E Z 2021. Review of the Neotropical water scavenger beetle genus *Tobochares* Short & García, 2007 (Coleoptera, Hydrophilidae, Acidocerinae): new lineages, new species, and new records. *ZooKeys* **1019** 93-140.

DESICCATION RESISTANCE

Differences were found in response to desiccation in *Enochrus jesusarribasi* Arribas & Millán and *Nebrioporus baeticus* (Schaum). Water loss through the cuticle can be reduced by increased production of methyl-branched compounds, longer chain alkanes and branched alkanes. When these beetles were challenged by being desiccated the hydrophilid was able to produce more hydrocarbons than the diving beetle, demonstrating how species vary in their response to drought stress.

BOTELLA-CRUZ M, VELASCO J, MILLÁN A, HETZ S & PALLARÉS S 2021. Cuticle hydrocarbons show plastic variation under desiccation in saline aquatic beetles. *Insects* **2021** 12 285doi.org/10.3390/insects12040285 14 pp.

YOU NAME IT! COMMON NAMES ON WATER BEETLE SPECIES ARE SOON TO EXPLODE

Anders N Nilsson

Out of the shadows

Back then, one of the good things of water beetle collecting was that there were no regulations connected with this activity, at least not in north Sweden. You could just use your net without asking anybody for anything. Compare for example with hunting wildlife and think of all the things you would have to know about what to do and not to do and when, and all the nasty permits you would need. On the other hand nobody cared the least for all these numerous species of small beetles inhabiting the wetlands. All you ever could do when your favourite spot for this pet rare diver of yours was to become exploited was to watch it happen, unless it shared company with some rare orchid or a duck.

Then some time in the 80s the main mission of entomologists started to change from killing all pests to saving the biodiversity of Mother Earth. One tool of the trade was the construction of national Red Lists, substituting the old trade lists of rare species with the conservationists lists of rare species, applying criteria developed for animals such as elephants. Expert committees scored thousands of insect species with respect to their vulnerability and as things went on the tools got more fine-tuned.

Red-listing fitted with recording schemes like the one run by the B~B Club and other similar associations like a hand in glove. Faunistics were reinvented and transformed to its present digital form. To the Red Lists were added national species records registration databases in combination with taxonomic tools regulating the usage of species names. This then soon became integrated into the research field as biodiversity informatics.

Let hundreds of names bloom!

The new situation then is that collecting is regulated down to the core, but on the other hand the presence of rare water beetles does count. A nice hobby has been deeply integrated into nature conservation bureaucracy and science. And one of the new needs is common or trivial species names. Whatever we think about them, in most countries, common names will be constructed *en masse*. Garth (in litt.) in his normal visionary way has identified four steps in our dealing with them: (1) name construction, (2) using them side by side with Latin names, (3) using them instead of Latin names, (4) developing the common name system without reference to the scientific nomenclature. A vision or a nightmare? One could here also think of the visions of molecular taxonomy that waits for a revision of the traditional and cumbersome ICZN system.

As a grumpy old beetle collector, one may think that common species names are absolutely not needed as unique universal and regulated names already exist. Why put an extra burden on your already overloaded memory? The answer is that the devil is already aboard and all you can do is use the oars and tag along.

Graphoderus bilineatus (De Geer) – a well-loved image from Claus Wurst

Do you know the lingos?

The Chequered History Beetle – Isolampisukeltaja – Schmalbindiger Breitflügel-Tauchkäfer – Gestreepte waterroofkever – Graphodère à deux lignes – Bred paljettdykare – Lys skivevandkalv.

Can you compare the meanings?

Latin names as cultural imperialism

I can still remember when I first studied a Japanese book on diving beetles and observed that the picture legends used the Japanese common names instead of the scientific names. I was impressed by the fact that they did have their own names for all species, but also a bit annoyed by the way they did use them as it made reading more difficult for me. I can now understand that using the Latin alphabet for scientific names has created a very unequal situation when dealing with this supposedly universal name system. It is really part of European cultural imperialism. It seems then that the need for common names of species is greater the more a specific language differs from Latin. And especially so, when the system of signs do not use the Latin letters.

Language is a large part of culture and in a club like ours with plenty of nations and languages represented we'd all like to contribute on equal terms. Sticking to Latin names is one way to do it, providing room for common names from all different languages, and not just only English, is another way. Being interested in our different cultures also means being interested in the common names we have to deal with.

A common name register

As the common name coverage increases abruptly in many countries, one can see a need for some kind of register in order to promote understanding. Such names of fresh origin are surely not to be found in the dictionaries. Seeing and understanding the species names used in other languages may provide some inspiration and ease international cooperation.

As a first step in this direction I have now been listing and translating common names from selected countries including Scandinavia, UK and Ireland, Germany, the Netherlands and Hungary. According to my plans the names will be reviewed and compared in an article aiming at ***Latissimus* 50**, starting with the Hydradephaga. What a jubilee!

Several club members are already deeply involved in this work, sharing their mastering of languages and names strange to me. I thank them all! Let me know if you'd like to share my working material, and do not hesitate to send me hints of name sources or bright ideas on how to develop this work further. Geographical expansion of the register will hopefully be an important future issue.

Received May 2021

THURINGIAN RIVER

Amongst a paper about finding a sponge fly new for Thuringia Ronald Bellstedt lists eighteen water beetles also found in the River Weida. These include *Deronectes latus* (Stephens), *Cercyon bifenestratus* Küster, *Hydraena melas* Dalla Torre, *H. minutissima* Stephens, *Elmis maugetii* Latreille, *Dryops similaris* Bollow and *Contacyphon palustris* (Thomson).

BELLSTEDT R 2021. Erstnachweis der Schwimmfliege *Sisyra bureschi* Rausch & Weißmair, 2007 (Insecta: Neuroptera) für Thüringen und Angaben zur Begleitfauna des Flusses Weida. *Thüringer Faunistische Abhandlungen* **25** 161-165.

***ELODES TRICUSPIS* IN NORFOLK**

It appears that this *Elodes* is one of the rarest water beetles in England, and the only one associated with pasture-woodland. The site is Elmham Park in West Norfolk, where it has been found in 2019 and 2020.

COLLIER M J & LANE S A 2021. Recent Norfolk beetle records, including 28 additions to the county list. *Coleopterist* **30** 42-51.

CERCYON ALPINUS IN POLAND

C. alpinus is recorded new for Poland in 2020 from the excrement of a brown bear, *Ursus arctos* L., at 620 m asl in the Bieszczady Mountains.

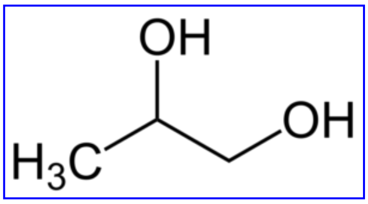
GREŃ C & LUBECKI K 2021. *Cercyon* (*Cercyon*) *alpinus* Vogt, 1968 (Coleoptera: Hydrophilidae, Sphaeridiinae) – nowy dla fauny Polski gatunek chrząszcza. *Acta entomologica silesiana* **29** (7) 1-3.

DACTYLOSTERNUM ABDOMINALE IN POLAND

D. abdominale is recorded as new for Poland in 2018, found in a pile of rotting apples in the Pomeranian Lake District – almost as prosaic as the circumstances of the find of Cercyon *alpinus* above.

GREŃ C & TARNAWSKI D J 2021. Pierwsza wzmianka o występowaniu *Dactylosternum abdominale* (Fabricius, 1792) (Coleoptera: Hydrophilidae, Sphaeridiinae) w Polsce. *Acta entomologica silesiana* **29** (10) 1-2.

PROPYLENE GLYCOL PET- AND DNA-SAFE



In a time of Lockdown when laboratory reagents might be difficult to come by it may be useful to know that propylene glycol (as opposed to ethylene glycol) is safe to use for long term storage and in pitfall trapping. It is probably legal for postage too whereas posting ethanol is often prohibited. This paper reviews its potential for conservation of invertebrate material. Promising results have been obtained in high-throughput sequencing of DNA. It is readily available as antifreeze but read the small print to make sure that what you have is not ethylene glycol.

WEIGAND A M, DESQUIOTZ N, WEIGAND H & SZUCSICH N 2020. Application of propylene glycol in DNA-based studies of invertebrates. *Metabarcoding & Metagenomics* **5** 1-15.

HELOPHORUS PITCHERI

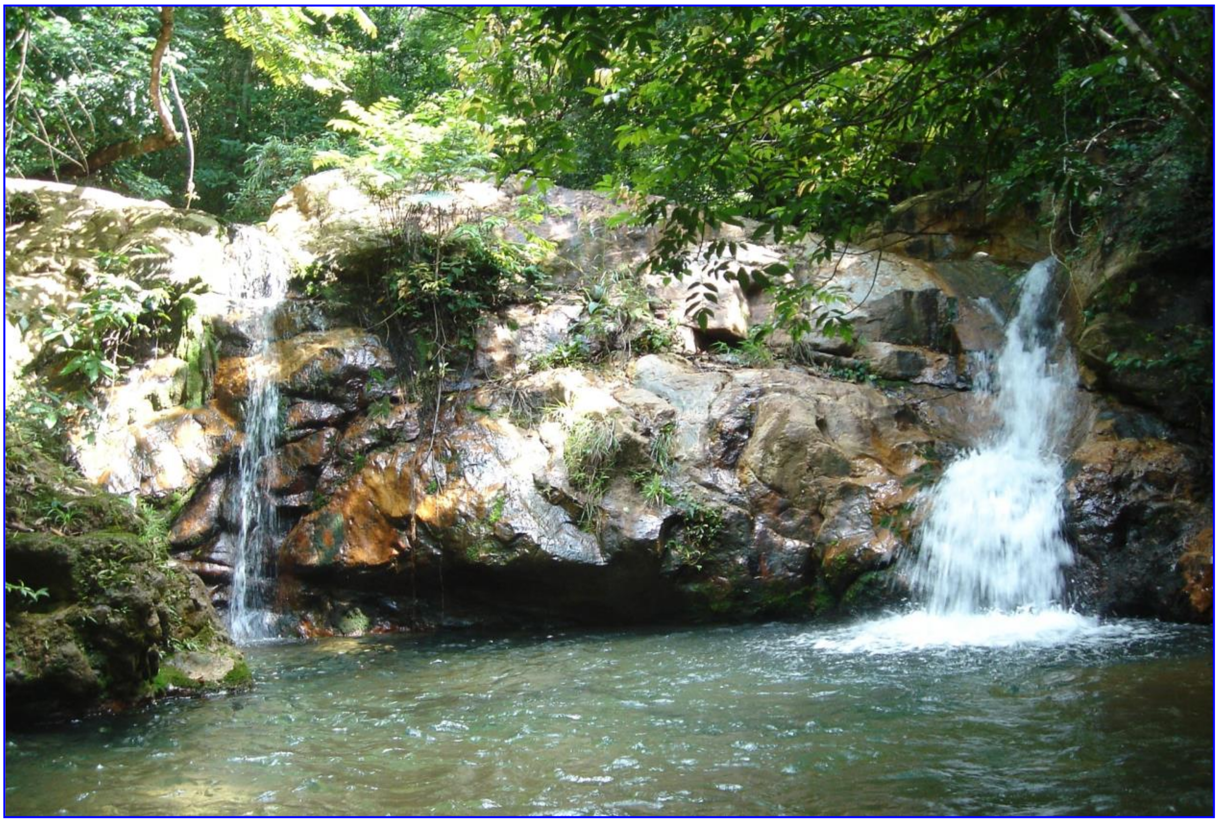
Previously, this species was known only from three specimens, two from southern Siberia and one from China. It is newly recorded from the Russian Far East. Adults were found in June and August. The habitat described as a floodplain swamp and pools in company with *Helophorus nanus* Sturm, *H. orientalis* Motschulsky, *H. poppii* Angus, *H. tuberculatus* Gyllenhal, *Hydrobius fuscipes* (L.), *Crenitis apicalis* (Reitter), *Anacaena lutescens* (Stephens), *Laccobius cinereus* Motschulsky and *Cercyon korbianus* Knisch.

SHATROVSKIY A G 2020. New data on the little-known species of the water scavenger beetle *Helophorus pitcheri* Angus, 1970 (Coleoptera: Hydrophiloidea: Helophoridae). *The Kharkov Entomological Society Gazette* **28** 12-16.

POLISH SCIRTIDAE

This paper contains records of seventeen species of scirtid including *Contacyphon palustris* Thomson, *C. pubescens* (Fab.), *C. punctipennis* Sharp, *C. ruficeps* Tournier, and the much sought after *Elodes tricuspis* (Nyholm), including a photograph of its habitat by the Bartoszycha river.

SZAWARYN K, MARCZAK D, KWIATKOWSKI A, LASOŃ A, BARANOWSKI A & MROCZYŃSKI R 2021. Nowe dane o rozmieszczeniu chrząszczy z nadrodziny Scirtoidea (Coleoptera) w północnej i wschodniej Polsce [New distribution data of beetles from the superfamily Scirtoidea (Coleoptera) from Northern and Eastern Poland] *Wiadmosci Entomologiczne* **40** (1) online 1A 1–7 doi: 10.5281/ zenodo.4467464



PANAMANIAN *NEOCLYPEODYTES*

Two new species are added to the 27 described previously. Most are found in the west of North America, with one species reaching Guatemala and another on Jamaica and Cuba. *N. curtulus* (Sharp) was known from Panama and has been found again in company with one of the new species, *N. balkei*, around the cascade at Campana in company with *N. curtulus*. The photograph was taken by Michael Balke and is © Magnolia Press. The other new species is *N. fortunensis*, found in pools in a forest stream and among gravel in a neighbouring river.

SCHEERS K & HÁJEK J 2020. *Neoclypeodytes* Young from Panama, with description of two new species (Coleoptera: Dytiscidae: Hydroporinae: Bidessini). *Zootaxa* **4890** (2) 245-256.

***BOREONECTES* REVISITED**

The level of difference between the chromosomes of ten *Boreonectes* species is in striking contrast to their very slight variations in DNA. This suggests that chromosome differentiation may have initiated speciation. Two species, *B. griseostriatus* (De Geer) and *B. multilineatus* (Falkenström), get well into Arctic Scandinavia, an area uninhabitable during the Last Glaciation. and this suggests that these species are of recent origin. It is established, mainly by the fieldwork of Franck Bameul, that the only Pyrenean species is *multilineatus*. The discussion section contains the interesting story about *griseostriatus* being found in the famous site for the Woolly Rhinoceros in western Ukraine. The paper is dedicated to Ignacio Ribera.

ANGUS R B 2021. A re-examination of the West European species of *Boreonectes* Angus, 2010, with particular reference to *B. multilineatus* (Falkenström, 1922) (Coleoptera, Dytiscidae). *Comparative Cytogenetics* **15** 23-39.

LAOTIAN CAVE BEETLE

Laodytes lapiei is described as a new genus and species from a cave in Vientiane province. Eleven specimens were found in two parts of the Tham Pha cave system. It was difficult to place the beetle. The closest would appear to be the Thai *Siamoporus* Spangler. *Sinodytes* Spangler is also a possibility but that was based on a single female, possibly now lost, and provisionally assigned to the Bidessini. The photograph of the cave was taken by François Lallier, and thanks for using it go to Antoine Mantilleri on behalf of the Société entomologique de France.

QUENEY P, LEMAIRE J-M & FERRAND M 2020. A new genus and species of subterranean diving beetle from Laos (Coleoptera, Dytiscidae, Hydroporinae, Hydroporini). *Bulletin de la Société entomologique de France* **125** 407-416.

MOROCCAN ENDEMICS UNDER THREAT

The statuses of ninety species of water beetle endemic to Morocco were evaluated. Thirty-six were found to be highly vulnerable, and four – *Graptodytes bremondi* Guignot, *Enochrus blazquezae* Arribas & Millán, *Elmis atlantis* Allaud, and *Esolus bicuspidatus* Allaud – are recommended for inclusion in the IUCN Red List of Endangered species. The habitat that most need conservation for these species are lowland rivers, saline streams, peat bogs, saline wetland known as “Sebkhas”, and marshes. Quite a lot of species were excluded from analysis for want of full data on their distribution and habitat requirements – these are *Hydroporus normandi ifnanensis* Fery, *H. normandi ifnii* Fery, *H. rifensis* Manuel, *Helophorus gratus* Angus, *H. elizabethae* Angus, *Ochthebius figueroi* Garrido-Gonzalez, *O. griotes* Ferro, *O. maroccanus* Jäch, *Dryops peyerimhoffi* Bollow, *Limnius* opacus *jahandiezi* Allaud, and *Stenelmis peyerimhoffi* Bollow. The correspondent is Andrés Millán.

BENAMAR L, BENNAS N, HASSOUN M & MILLÁN A 2021, Threatened endemic water beetles from Morocco. *Journal of Insect Conservation* doi.org/10.1007/s10841-021-00314-x 13 pp.

MORE ON *DYTISCUS LATISSIMUS* DIET

Overlooked when discussing the Japanese work on breeding *latissimus* in ***Latissimus* 48** was this paper, which contrasts the development of larvae of *latissimus* L. and *lapponicus* Gyllenhal. Young larvae of *latissimus* are obligate feeders on limnephilid caddis larvae whereas *lapponicus* larvae will feed on a great variety of prey items, even rejecting caddis. It was also found that *latissimus* I and II larvae developed faster and gained weight quicker than those of *lapponicus*. It is suggested that more leaf litter on shores used by *latissimus* for oviposition could be beneficial. The correspondent is Hein van Kleef.

SCHOLTEN I, VAN KLEEF H H, VAN DIJK G, BROUWER J & VERBERK W C E P 2018. Larval development, metabolism and diet are possible key factors explaining the decline of the threatened *Dytiscus latissimus*. *Insect Conservation and Diversity* 11 565-577.

HYDROPHILID LARVAL EVOLUTION - SUCKING LEADS TO LIFE UNDER WATER

This is a milestone paper, producing a convincing synthesis of ideas. Most hydrophiloid larvae chew to get their food, but have a reduced proventriculus and cannot ingest particles. They are obliged to digest their food externally, lifting their prey out of the water onto the bank, thus being at considerable risk from predation themselves. There are two other ways of feeding. The spercheid larva partially filter-feeds, having a large proventriculus in which to process solid food, and some groups, also characterised by an entirely submerged way of life, have or just the left mandibles modified for sucking as well as piercing and the labium reduced in various ways. Now it seems that those latter groups have evolved this piercing-sucking mechanism at least four times, once in the Epimetopidae and three times in the Hydrophilidae (Berosini in *Berosus* + *Hemiosus*, Laccobiini in the *Laccobius* group, Hydrobiusini in *Hybogralius*). The detailed study of larval mouthparts is complemented here by a similar presentation on the tracheal system. The apneustic system is one in which only the spiracles on the 8th abdominal segment are functional, allowing the larva to hide most of its body under the water when visiting the surface to renew the air supply. Again, this apneustic system has been achieved in four different ways. The ancestral reconstruction shows that the chewing system is the most primitive with the filter-feeding Spercheidae an early offshoot, and the four groups with the piercing-chewing mechanism widely separated in the radiation. The corresponding author is Miguel Archangelsky.

RODRIGUEZ G, FIKÁČEK M, MINOSHIMA Y N, ARCHANGELSKY M & TORRES P L M 2020. Going underwater: multiple origins and functional morphology of piercing-sucking feeding and tracheal system adaptations in water scavenger beetle larva (Coleoptera: Hydrophiloidea). *Zoological Journal of the Linnean Society* doi/10.1093/zoolinnean/zlaa132/6007424

***EXOCELINA* – AND STILL THEY COME**

E. brazza and *E. amabilis* are described from the *E. ekari* group, and a new lineage is suggested for the new *E. mimika* along with *E. skalei* Shaverdo & Balke in the *E. skalei* group. With these three species there are now 145 known from New Guinea and 202 worldwide.

SHAVERDO H, SURBAKTI S, SUMOKED B & BALKE M 2020. Three new species of *Exocelina* Broun, 1886 from the southern slopes of the New Guinea central range, with introduction of the *Exocelina skalei* group (Coleoptera, Dytiscidae, Copelatinae). *ZooKeys* **1007** 129-143.

EPIMETOPIDAE REVIEW

The Epimetopidae (Hydrophiloidea) have 72 species in three genera: *Epimetopus* Lacordaire in America, *Eumetopus* Jack Balfour-Browne in Asia and *Eupotemus* Ji & Jäch in Africa. These strange-looking animals share a trait with *Spercheus* and *Helochares*, their egg cases being carried by the females. *Eumetopus* is also special in having a sperm pump, unique among the Hydrophiloidea. DNA analysis is in conflict with morphological analysis in explanation of their phylogeny. The “pronotal hood” is the most obvious feature making them look like Georissidae, with whom they also share a love of exposed sediments. The larvae of *Epimetopus* are known – they have piercing and sucking mouthparts, a closed tracheal system and abdominal gills. Six new species of *Eupotemus* are described, it seems with all seven authors as the authorities.

FIKÁČEK M, MATSUMOTO K, PERKINS P, PROKIN A, SAZHNEV A, LITOVKIN S & JÄCH M A 2021. The family Epimetopidae (Coleoptera: Hydrophiloidea): review of current knowledge, genus-level phylogeny, and taxonomic revision of *Eupotemus*. *Acta Entomologica* **61**1-34.

GYRINID NAME CHANGES

The thorny problem of what *Gyrinus bicolor* might have been is discussed. Fabricius described *bicolor* in 1787 from material collected by Professor Leske in Sweden. Fabricius described it as the same size as *natator* L. but with the underside “ferrugineus”. The Swedish species with a paler underside is *minutus*, which he described five years later, and which is, of course, much smaller than *natator*. So, although the obvious choice must be what we know as *urinator* Illiger the trouble is that it doesn’t occur in Sweden! One way out might be to note that Leske also worked on Italian beetles and might have got some muddled up. We will never know so the best option, cutting a long story short, is to select a lectotype for *G. paykulli* Ochs from Ochs’s collection, and this is done. Other gyrinid taxonomy issues addressed include some new names. *Aulonogyrus charlesaubei* is the new name proposed for *A. marginatus* (Aubé), a South African species described by Aubé “Il se trouve au cap de Bonne-Espérance”, the North American *Gyrinus dubius* Wallis is renamed *G. suspectus*, and the taxon *Macrogyrus* (*Andogyrus*) *colombicus brincki* replaces *M.* (*A.*) *colombicus australis* (Brinck) from South America. Amongst the rest is the intriguing solution to a problem, selecting one specimen to be the lectotype for two names, *Gyrinus striatus* Olivier, 1792 and *Gyrinus striatus* Olivier, 1795.

FERY H & FIKÁČEK M 2021. Nomenclatural and taxonomic notes on some species of Gyrinidae (Coleoptera). *Acta Entomologica Musei Nationalis Pragae* **61** 55-71. doi.org/10.1051/limn/2020030

MALTESE HYDRADEPHAGA

The following are reported from Malta:- *Gyrinus urinator* Illiger, *Agabus bipustulatus* (L.), *Colymbetes* fuscus (L.), *Cybister tripunctatus africanus* d’Orchymont, *Dytiscus circumflexus* Fab., *Eretes griseus* (Fab.), and *Hydaticus leander* (Rossi). A table is provided of occurrences on Gozo, Comino and the main island of Malta. Old records of Dytiscidae are discussed, and there is a bleak forecast for aquatic habitats in Malta.

MIFSUD D & NARDI G 2020. New records of adephagous water beetles (Coleoptera: Gyrinidae, Haliplidae, Dytiscidae) from the Maltese Islands. *Bulletin of the Entomological Society of Malta* **11** 119-126.

PALAEARCTIC DYTISCIDAE CATALOGUE UPDATES

This brings forwards records for forty dytiscid species, mainly from the Balkans, the Caucasus and the Himalayas. It would, of course, be quite wrong to single out records of western species – so let's do it! *Agabus congener* (Thunberg), *Ilybius quadriguttatus* (Lacordaire), *Graphoderus cinereus* (L.) and *Hydrovatus cuspidatus* (Kunze) new for Montenegro; *A. didymus* (Olivier) new for Norway; *A. labiatus* (Brahm) and *Hydroporus kraatzii* Schaum new for Romania; *Graphoderus austriacus* (Sturm) new for Uzbekistan; *Dytiscus circumcinctus* Ahrens new for Bosnia & Herzegovina; *Yola bicarinata* (Latreille) new for Croatia; *Hydroporus angustatus* Sturm new for Greece and Uzbekistan. Records of *Oreodytes septentrionalis* (Gyllenhal) from Greece and *Hydroporus scalesianus* Stephens from Turkey are withdrawn. An interesting possibility is that Wollaston's *Hydroglyphus geminus* (Fab.) from Fuerteventura in the Canaries was *H. angularis* (Klug) as found there by M. Mantič in 2018 and identified by Jaroslav Šťastný. Seven species recorded from "Thrumshingla", the Phrumsengla National Park, Bhutan bring into question the activities of the Laotian insect dealer Jingke Li. Manfred Jäch expects there to be a publication dealing with these finds. Draw your own conclusions.

SHAVERDO H, WEWALKA G, ŠŤASTNÝ J, HENDRICH L, FERY H & HÁJEK J 2021. New records of diving beetles and corrections updating the catalogue of Palearctic Dytiscidae (Coleoptera). *Aquatic Insects* doi.org/10.1080/01650424.2021 pp. 18.

ROY CROWSON

The first article retraces the life of Roy Crowson (1914-1999), and is mainly concerned with the disposition of his collections which, like the man himself, was complicated. The second paper portrays this well in that it covers both adults and larvae, with some insight into his methods. Although not much to do with water beetles it seems important to improve on the image of Roy with his famous axe tucked under his arm. Here it is more visible, being waved by Geoff Hancock. And, given that the first paper relates Roy's first job as curator of Tunbridge Wells Museum, there is an excuse to say again that the editor's first experience of a beetle collection was in that museum in the 1950s. Roy's glazed box of beetles had been propped vertically and comprised nothing more than the occasional leg and a pile of frass. One could guess the identity of the large beetles by the size of the spaces between the tarsi.

HANCOCK E G & ROBINSON J 2021. Notes on the biography and collections of Roy Albert Crowson (1914-1999). *Coleopterist* **30** 13-20.

HANCOCK E G & ROBINSON J 2021. Records of Scottish *Tetratoma* (Tetratomidae) from specimens in the Hunterian Museum, Glasgow. *Coleopterist* **30** 21-24.

JAPANESE REVIEW

There are currently 358 species of water beetle in Japan, with 156 of them endemic. The reasons for the diversity of the Japanese insect fauna are discussed. The total number of Red List aquatic beetle taxa rose from 41 in 2007 to 109 in 2019. *Hydaticus satoi* Wewalka (as illustrated here) is reckoned to be extinct, and *Orectochilus teranishi* Kamiya has not been found since it was first described in 1933. *Hydaticus thermonectoides* Sharp has not been recorded recently. Quaternary fossil species include *Ilybius apicalis* Sharp and *I. nakanei* Nilsson, possibly becoming extinct on Honshu during the warm period immediate after the last glaciation.

HAYASHI M, NAKAJIMA J, ISHIDA K, KITANO T & YOSHITOMI H 2020. Species diversity of aquatic Hemiptera and Coleoptera in Japan. *Japanese Journal of Systematic Entomology* **26** 191-200.

JAPANESE LACCOPHILINE STUDIES

Details are given of developmental times for *L. vagelineatus* and the new species *L. hebusuensis*. The immature stages of these and *J. niponensis* are illustrated.

WATANABE K & KAMITE Y 2020. First records of *Japanolaccophilus niponensis* (Kamiya, 1939) (Coleoptera, Dytiscidae) larvae with ecological notes. *Elytra, Tokyo* **10** 357-358.

WATANABE K 2020. Biological notes on immature stages of *Laccophilus vagelineatus* Zimmermann, 1922 (Coleoptera, Dytiscidae). *Elytra, Tokyo* **10** 359-363.

WATANABE K & KAMITE Y 2020. A new species of the genus *Laccophilus* (Coleoptera, Dytiscidae) from Eastern Honshu, Japan, with biological notes. *Japanese Journal of Systematic Entomology* **26** 294-300.

FLIGHT DURATION MEASUREMENT

Here is something worth replicating. A flight mill was used that to show that the mean flight distances flown by *Hydaticus bowringii* Clark, *H. grammicus* (Germar) and *Rhantus suturalis* (Macleay) were 5.16, 1.97 and 0.58 km respectively. Some individuals flew a lot further, e.g. *H. bowringii* 20 km. The point is made that the *Rhantus* lives in water throughout the year whereas *Hydaticus* overwinter well out of the water, and this may be reflected in flight capacities. The correspondent is Tomoyuki Yokoi.

MATSUSHIMA R & YOKOI T 2020. Flight capacities of three species of diving beetles (Coleoptera: Dytiscidae) estimated in a flight mill. *Aquatic Insects* doi.org/10.1080/01650424.2020.1804065

ECUADORIAN ELMID

This large elmid, up to 11 mm, is differentiated by its long antennae and asymmetrical aedeagus. Sharp described the genus in 1882 but the earliest known species, *D. cacicus*, was described by Coquerel in 1851. Ten species are known today. This species was taken at light beside the Toachi River.

ČIAMPOR F, KODADA J, BOZÁNOVÁ J & ČIAMPOROVÁ-ZAŤOVIČOVÁ Z 2021. *Disersus otongachi* a new species of Larainae riffle beetles from Ecuador (Coleoptera: Elmidae). *Zootaxa* **4963** 193-199.

NEW WORLD NOTERIDAE

New World *Notomicrus* are more diverse than their Old World counterparts. The authors refer to this review as a “scaffold” in anticipation of further work. The key is to the *josiahi*, *meizon*, *nanulus*, *tenellus* and *traili* groups plus the *incertae sedis* species *N*. *brevicornis* Sharp (the type species) and *N. teramnus* Guimaráes & Ferreira-Jr.

BACA S M & SHORT AEZ 2021. Review of the New World *Notomicrus* Sharp (Coleoptera, Noteridae) I: Circumscription of species groups and review of the *josiahi* group with description of a new species from Brazil. *ZooKeys* **1025** 177-201.

***SPHAERIDIUM* IN JAPAN**

Four species of *Sphaeridium* are now known from Japan. *S. discolor* d’Orchymont and *S. quinquemaculatum* Fab. are endemic to the Ryukyu archipelago and *S. scarabaeoides* L. is more widely distributed. The author must be congratulated on finding specimens of *S. lunatum* Fab. in the collection of Hokkaido University and then going out and finding more specimens in cow pats around Ebetsu. How often does that happen? So now *lunatum* has acquired a new common name, Kita-emma-hababiro-gamushi. There is no comment on whether it might have been introduced to Japan but the mapped distribution includes its introduction into Canada and the USA.

SUZUMURA A L 2020. New record of *Sphaeridium lunatum* (Coleoptera, Hydrophilidae) from Hokkaido, North Japan. *Elytra, Tokyo* **10** 343-347.

EAST MEETS WEST IN AMBER - PALAEARCTIC *COPTOTOMUS*

Coptotomus balticus is described from Baltic amber over 40 million years old, found in a mine near Kaliningrad. This is the first Palearctic example of this previously Nearctic subfamily of diving beetles. Among distinguishing features are the distinctly bifid maxillary and labial palps, as seen here (➡), courtesy of the authors. The holotype male is in Munich and there is a paratype female in Hamburg. At 5.9 mm this is the smallest coptotomine known.

HENDRICH L & BALKE M 2020. A Baltic amber species of the diving beetle genus *Coptotomus* Say, 1810 (Coleoptera: Dytiscidae: Coptotominae). *Zootaxa* **4895** 285-290.

MORE ON SPIDER ELMIDS, *ANCYRONYX*

Ancyronyx lianlabangorum is newly described from the Kelabit Highlands of Sarawak in North Borneo, with illustrations intended to distinguish it from *A. pulcherrimus* Kodada *et al*., backed up by DNA analysis. Similarly, *A. berghaueri* and *A. negrosensis* are described from the Visayan island of Negros. Fantastic insects.

KODADA J, JÄCH M A, FREITAG H, ČIAMPOROVÁ-ZAŤOVIČOVÁ Z, GOFFOVÁ K, SELNEKOVIČ & ČIAMPOR F 2020. *Ancyronyx lianabangorum* sp. nov., a new spider riffle beetle from Sarawak, and new distribution records for *A. pulcherrima* Kodada, Jäch & Čiampor based on DNA barcodes (Coleoptera, Elmidae). *ZooKeys* **1003** 31-55.

SABORDO M R, DELOCADO E & FREITAG H 2020. Two new species of the genus *Ancyronyx* Erichson, 1847 from the island of Negros, Philippines (Insecta, Coleoptera, Elmidae). *Tijdschrift voor Entomologie* doi 10.1163/2219434-20192087

CUMBRIAN NATURE RESERVE – NEW RECORDS

Walney is the largest of a group of islands in the extreme south-west of the vice-county of Westmorland. Robert Angus (1964, 1965) first explored the area for water beetles and recorded several species then at the northern edge of their range. All those species were still present in 2019, plus several others that did not appear to have been there in the 1960s. Forty-one water species are recorded. These include *Rhantus frontalis* (Marsham), a species that has recently been found elsewhere in Westmorland by Robert Merritt (2017).

ANGUS R B 1964. Some Coleoptera from Cumberland, Westmorland and the northern part of Lancashire. *Entomologist's Monthly Magazine* **100** 61-69.

ANGUS R B 1965. Further Coleoptera from Cumberland, Westmorland and the northern part of Lancashire. *Entomologist's Monthly Magazine* **101** 4-8.

BILTON D T, ROUTLEDGE S D & LIDDLE D S 2020. Water and carrion beetles from South Walney Reserve, Cumbria (VC 69). *The Coleopterist* **29** 164-167.

MERRITT R 2017. Four invertebrate species new to Cumbria from Sandscale Haws NNR. *Lakeland Naturalist* **5** (1) 13.

IVORY COAST LIMNICHID

Byrrhinus confoveorum is described from Mount Nimba. The specimen was caught at light in lowland forest.

MATSUMOTO K 2021. A new species of *Byrrhinus* Motschulsky (Coleoptera: Limnichidae) from Côte d'Ivoire. *The Coleopterists Bulletin* **75** 56-58.

MICHAEL J TAYLOR 1938-2020

Born in Cheshire on 4 December 1938 Mike became strongly associated with Liverpool (now World) Museum after a career in British Aerospace. He was president of the Manchester Entomological Society at the age of only 24, having become interested in entomology after developing skills in birdwatching and photography. The association with water beetles came about through his organising a survey by Garth Foster on Chios in 2004. This was part of his campaign to encourage eco-tourism in this island, on which he did much to further the studies of other insects and spiders, also orchids. Mike shared his late time between the Greek islands and the Isle of Man, where he died on 5 December 2020.

Commiserations go to his wife Tina Agopian-Taylor, his son Rick and to the rest of the family. There is still much of his insect material from the Greek islands in the World Museum, some of it waiting to be identified. Steve Judd has produced an extensive obituary for the *British Journal of Entomology and Natural History*, volume **33**. Thanks to Tina for the photo.

FOSTER G N & TAYLOR M J 2006. The Hydradephaga of Chios, Greece (Coleoptera Gyrinidae, Haliplidae, Noteridae, Dytiscidae). *Memorie della Società Entomologica Italiana* **85** 75-84

TAYLOR M J 2003. *The naturalist on Chios*. Prefecture of Chios, Pelineo Editions.

LIFE CYCLE OF *LEPTELMIS*

This is an all-embracing study of the life-cycle of an elmid. Mature eggs are found in females from April to June and from August to September. It would therefore seem that overwintered adults mainly lay eggs in spring and early summer whereas new adults lay eggs from late summer to early autumn. Five instars are identified mainly on the width of the prothorax. This is the species reported to have swimming larvae (see ***Latissimus* 43** 10). The image comes from a previously unreported paper (Hayashi & Yoshitomi 2014) showing that *L. parallela* Nemoura is the winged form of this species.

HAYASHI M & SOTA T 2019. Discovery of swimming larvae in Elmidae (Coleoptera: Byrrhoidea). *Entomological Science*, **22**, 3-5.

HAYASHI M & YOSHITOMI H 2014. Taxonomic treatments of two Japanese elmid beetles, *Stenelmis vulgaris* Nemoura and *Leptelmis gracilis* Sharp (Coleoptera: Elmidae), with descriptions of their larvae. *Japanese Journal of Systematic Entomology* **20** 235-244.

MORIMOTO R & HAYASHI M 2020. Life cycle of an endangered riffle beetle, *Leptelmis gracilis* Sharp (Coleoptera: Elmidae), in the Hiikawa River system, Shimane prefecture, Japan. *Entomological Science* **23** 445-452.

SWIMMING PERFORMANCE LINKED TO ASSEMBLAGE TYPE IN INDIA

Multivariate analysis of 132 samples of swimming beetles (1 Haliplidae; 2 Noteridae; 16 Dytiscidae; 3 Hydrophilidae) in the Western Ghats identified assemblages that could be explained in terms of swimming ability, body size, prey preference, and predator avoidance. Four groups could be separated based on speed and manoeuvrability:- 1. fast swimmers with a flat, narrow body in Laccophilinae and Dytiscinae; 2. globular manoueverers in *Hyphydrus* and *Hygrotus*; 3. poor swimmers with a discontinuous outline in the Dytiscidae and Hydrophilidae; 4. convex manoeuverers in *Canthydrus*; plus two more, not well defined - 5. beetles not having any extreme characters – *Hydroglyphus inconstans* (Régimbart), *H. flammulatus* (Sharp) and *Haliplus arrowi* Guignot; 6. a miscellany of species that did not fit the other groups – *Rhantus taprobanicus* Sharp, *Yola indica* Biström and *Sternolophus rufipes* (Fab.). The first multivariate axis linked chironomid larvae with swimming group 5 in the absence of odonate nymphs and submerged vegetation. as the strongest relationship. Other linkages could be seen based on pairs of species, little and large, etc. The importance of man-made ponds as refuges for species is demonstrated.

SHETH S D, PADHYE A D & GHATE H V 2021. Effect of environment on functional traits of co-occurring water beetles. *Annales de Limnologie* doi.org/10.1051/limn/2020030

BRAZILIAN ELMID

Cylloepus dimorphus is described, with the last visible ventrite differing between the sexes, i.e. the dimorphism referred to here is between the sexes, not between two forms of female as is often the case in Dytiscidae.

SHEPARD W D, SITES R W & RODRIGUES H D D 2021. A new, sexually dimorphic species of *Cylloepus* Erichson from Brazil (Coleoptera: Elmidae). *The Coleopterists Bulletin* **75** 270-274.

DONACIINE FOOD PLANT PREFERENCES LINKED TO SYMBIONTS

DNA analysis is used to reconstruct the changes in food plant preference of 26 species of reed beetle in relation to their symbiotic bacteria. In the sap-feeding larvae the symbionts are thought to synthesise essential amino acids and the B vitamin riboflavin. However, assimilating leaf tissue by adults is done by their own cellulase enzymes in tandem with pectinases produced by the bacteria. The phylogenetic analysis shows that some species lineages lost their pectinase genes and were obliged to go back to the ancestral choice of grasses, reeds and sedges (Poales) rather than to water plantains (Alismatales) and water lilies Nymphaeales). The primary cell walls of Poales have only small amounts of pectin (1.3-5.7%) whereas other angiosperms have 20-35%. Ancillary to this it can be seen why donaciines treated with antibiotics cannot produce pupal cocoons – they cannot make the necessary proteins without a supply of amino acids. Fluorescence studies reveal the symbiotic bacteria filling Malpighian tubules in several species but also demonstrate their absence from the males of species that feed on Poales. A remarkable study ahead of the time of many of us. The correspondent is Martin Kaltenpoth.

REIS F, KIRSCH R, PAUCHET Y, BAUER E, BILZ L C, FUKUMORI K, FUKATSU T, KÖLSCH G & KALTENPOTH M 2020. Bacterial symbionts support larval sap feeding and adult folivory in (semi-)aquatic reed beetles. *Nature Communications* doi.org/10.1038/s41467-020-16687-7. pp. 15.

RONALD M DOBSON 1929-2019

Ron Dobson is mainly known as a lecturer in the University of Glasgow. His studies in economic entomology included beetle pests and he took a more general interest in them, in particular surveying the beetle fauna of the island of Muck and overhauling the collections in the Hunterian Museum in Glasgow. This belated note follows on a comprehensive obituary and bibliography published in the *Glasgow Naturalist*.

HANCOCK E G, DOWNIE J R & HIGGINS S 2021. Obituary – Ronald Matthew Dobson (8th December – 21st November 2019). *Glasgow Naturalist* 27 92-95.

NACHO – RERE ELS PASSOS DE DARWIN

This appreciation has an extensive set of references but does not attempt the bibliographies of other obituaries. Not aquatic but still of interest was his participation in work tracing the origin of beetles in Pyrenean caves back into the Late Miocene (see Rizzo *et al*. 2013). Because of this he appeared in a programme on *Quèquicom* to discuss evolution in Darwin's footsteps (evolució, rere els passos de Darwin). The correspondent appears to be Hendrik Freitag.

DELOCADO E D, BALKE M & FREITAG H 2020. In memoriam: Ignacio Ribera (1963-2020). *Tijdschrift voor Entomologie* doi 10.1163/22119434-20192085

GREENLAND WATER BEETLES

Twelve ponds and lakes were trapped for water beetles on Disko Island. Five hundred and twenty-nine beetles were caught, 434 of these being larvae of *Colymbetes dolabratus* (Paykull), 28 adult *dolabratus* and 67 adult *Hydroporus morio* Aubé. *Gyrinus opacus* Sahlberg was not seen at the sampling sites on Disko but it was observed at Ilulissat in July 2020.

ANDERSEN K G & SERRANO M C 2020. *Water beetle biology, diversity and distribution around Arctic Station (Qeqertarsuaq) at Disko Island (West Greenland*). Københavns Universitet/Copenhagen University.

BENTHIC SCORE

Papers on macroinvertebrates that promote some sort of score rarely get a mention here because they don't usually involve beetles. This one is concerned with scoring brown water lakes in Latvia. The score proposed is based on macroinvertebrate abundance, numbers of beetle species and the old Biological Monitoring Working Party score, plus "littoral and profundal preferences". No beetle gets named and the counts here are desperately low, 1 to 5 species in natural lakes and 0 to 3 in modified ones. But one must take comfort where one can.

OZOLIŅŠ D, SKUJA A, JĒKABSONE J, KOKORITE I, AVOTINS A, &POIKANE S 2021. How to assess the ecological status of highly humic lakes? Development of a new method based on benthic invertebrates. *Water* **2021** 13 223 pp. 19.

POLISH LAKE BEETLE SUCCESSION STUDY

The beetles of 40 lakes were studied. One hundred and twenty four species were identified, based on 10,139 individuals. The less fussy (OK, eurytopic) species dominated, with 6,135 individuals in 66 species, followed by species confined to peat (2,975 in 38 species), lake and river species (712 in 11), and the sand-loving species (315 in 9). Distinct changes were observed in the beetle assemblage composition in relation to succession. The fauna was dictated more by substratum, macrophyte structure and *Sphagnum* cover than by pH or conductivity. Rare and endangered species occurred in all stages of succession, emphasising the role of these lakes as refuges. The work is accompanied by a compendium of all the beetles found, which is fine except for retention of that old problem of "*Hydroporus melanocephalus* (Marsh.)" in the same list as *Hydroporus pubescens* (Gyllenhal). Thomas Marsham (1802) recorded that *melanocephalus* as "Captus in horto D. Goodenough, Ealing" and, whatever it was he got in a garden on the edge of London, it certainly wasn't *morio* Aubé, which is presumably the species intended. There is also some confusion over use of the name *Helochares griseus* on p 198, possibly used instead of *obscurus* (Müller).

MARSHAM T 1802. *Entomologia Britannica, sistens Insecta Britanniæ indigena, secundum methodum Linnæanam disposita*. London: Wilks & Taylor.

PAKULNICKA J & ZAWAL A 2018. Model of disharmonic succession of dystrophic lakes based on aquatic beetle fauna (Coleoptera). *Marine and Freshwater Research* **70** 195-211.

PLATYNECTES

The recent phylogenetic analysis (Toussaint *et al*. 2017, noted as the online version in 2016 in ***Latissimus* 38** 12) reduced the genus *Agametrus* Sharp to a subgenus of *Platynectes*, currently recognised as having three other subgenera. *Platynectes* Régimbart ranges over the Australian, Neotropical, Oriental and Palearctic Regions. Twelve *Agametrus* species are known in mountains from Costa Rica to Chile. The new species *zoque* extends the known distribution 1,300 km north-west into Mexico. The 2020 paper lists all *Agametrus* species and introduces ten new combinations. The author for correspondence is Jiří Hájek.

ŠŤASTNÝ J, VONDRÁČEK D, ARRIAGA-VARELA E & HÁJEK J 2020. The genus *Platynectes* (Coleoptera: Dytiscidae: Agabinae) in Central America, with the discovery of the northernmost Neotropical species in Oaxaca, Mexico, and nomenclatural notes on the subgenus *Agametrus*. *Revista Mexicana de Biodiversidad* **91** e9133944 pp. 8.

TOUSSAINT E F A, HENDRICH L, HÁJEK J, MICHAT M C, PANJAITAN R, SHORT A E Z & BALKE M 2017. Evolution of Pacific Rim diving beetles sheds light on Amphi-Pacific biogeography. *Ecography* **40** 500-510.

MEGASTERNINI SPLIT

Genetic analysis of the Megasternini, the largest group of terrestrial members of the Hydrophilidae, reveals two main lineages in the Megasternini which can be characterised by the male genitalia and surrounding plates, admirably demonstrated in this reproduction of part of Figure 2. F and L are the 9th male ventrites of *Agna capillata* Horn and *Cycreon floricola* Arriaga-Varela *et al*. respectively, G and M being the 8th ventrites of an Australian *Merosoma* and *Cercyon haemorrhoidalis* (Fab.). This necessitates a new subtribe Oosternina Arriaga-Varela & Fikáček and a new definition for Megasternina Mulsant. Twelve principal clades are recognised mainly on their distributions. The most diverse genus *Cercyon* was spread about all clades pointing to the need for a re-evaluation. The analysis further reveals at least five dispersals between Asia and America 63-55 million years ago via the Beringian land bridge, this period corresponding to the hot climate of the Late Palaeocene and Early Eocene. The correspondent is Martin Fikáček.

ARRIAGA-VARELA E, SÝKORA V & FIKÁČEK M 2021. Molecular phylogeny of Megasternini terrestrial water scavenger beetles (Hydrophilidae) reveals repeated continental interchange during Paleocene-Eocene thermal maximum. *Systematic Entomology* doi: 10.1111/syen.12476

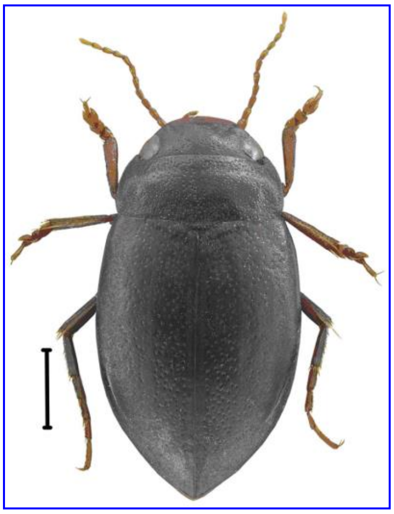
BRAZILIAN HYDRAENIDAE

Adelphydraena Perkins is sister to *Hydraena* Kugelann. Following revision (Perkins & Ribera 2020) it is known to comprise five species, of which three were originally known only as females. Benetti *et al.* (2021) describe male and female genital structures of *A. amazonica* based on new material.

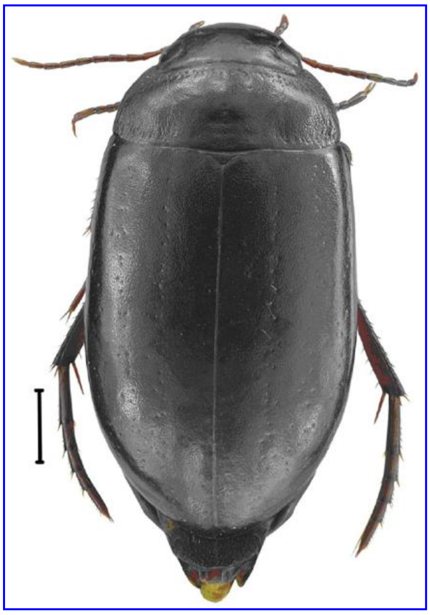
BENETTI C J, VALLADARES L F, DELGADO J A & HAMADA N 2021. Morphological remarks on *Adelphydraena amazonica* Perkins & Ribera, 2020 and new records of two other Hydraenidae from Brazil (Coleoptera). *Zootaxa* **4966** 61-68.

PERKINS P D & RIBERA I 2020. Three new species and DNA sequence data of the rare South American water beetle genus *Adelphydraena* Perkins, 1989 (Coleoptera, Hydraenidae). *Zootaxa* **4858** 35-52.

BELORUSSIAN INDICATOR SPECIES



The hydro-landscape and hydrobiological criteria of intact natural water bodies (springs, streams, rivers, old river-beds, lakes, bogs) were evaluated. Fourteen species-indicators of intact natural watercourses are the mayfly *Siphlonurus lacustris* (Eaton), the dragonflies *Cordulegaster boltonii* (Donovan) and *Ophiogomphus cecilia*, the stoneflies *Leuctra digitata* (Kempny), *Nemoura cambrica* (Stephens) and *Taeniopteryx nebulosa* (L.), the bug *Velia saulii* Tamanini and the beetles *Deronectes latus* (Stephens) [left], *Hydraena gracilis* Germar, *Nebrioporus assimilis* (Paykull) and *Nectoporus sanmarkii* (Sahlberg), the alderfly *Sialis nigripes* Pictet, and the caddisflies *Chaetopteryx villosa* (Fab.) and *Odontocerum albicorne* (Scopoli). An indicator of intact rivers, old river-beds, lakes and bogs is the dragonfly *Brachytron pratense* (Müller). The caddisfly *Agrypnia obsolete* Hagen is an indicator of intact dystrophic lakes and there are three indicators of intact upland and transitional bogs - *Ilybius wasastjernae* (Sahlberg) [right], and the dragonflies *Aeshna subarctica* Walker and *Somatochlora arctica* (Zetterstedt). Thanks to our Polish correspondent for help with this one.



RYNDEVICH S K, LUKASHUK A O, ZEMOGLYADCHUK A V, TOKARCHUK O V & BAITCHOROV V M 2020. Insects-bio-indicators (Insecta: Ephemeroptera, Odonata, Plecoptera, Hemiptera, Coleoptera, Megaloptera, Trichoptera) and criteria for intact of water ecosystems of Belarus. (in Byelorussian and Russian) *Journal of the Baranovichi State University, General Biology Issue* **8** 99-119.

WHAT THE KEEL IS FOR IN *HYDROPHILUS*

Removal of the keel of *Hydrophilus acuminatus* Motschulsky reduced swimming speed by 12.5%. The amount of oscillation was related to body size rather than to the presence of a keel. Surely there is also the idea that the large hydrophilids have a spiny keel as a defence against predation? Perhaps we have a case of exaptation (Gould & Vrba 1982) whereby a structure developed for one function turns out to be useful for another, the usual example cited being feathers evolved to keep a dinosaur warm turning out to be useful in flight. This work also showed that submergence time was affected by body mass, larger individuals replacing their gas gills more frequently.

GOULD S J & VRBA E S 1982. Exaptation – a missing term in the science of form. *Paleobiology* **81** 4-15.

MATSUSHIMA R 2021. Evidence of morphological adaptation to life underwater: sternal keel affects swimming speed in giant water scavenger beetles (Coleoptera: Hydrophilidae: Hydrophilini). *Canadian Journal of Zoology* https://doi.org/10.1139/cjz-2020-024711

TUSCAN LIST

One hundred and twenty species of water beetles in 14 families are recorded from the Cecina river system in Tuscany. Interesting species include *Meladema* coriacea Laporte, *Graptodytes veterator veterator* (Zimmermann), *Georissus costatus* Laporte, *Hydrochus flavipennis* Küster, *Hydraena andreinii* d'Orchymont, *H. devillei* Ganglbauer, *H. heterogyna* Bedel d'Orchymont, *H. solarii* Pretner, *H. spinipes* Baudi di Selve, *Limnebius myrmidon* Rey *Ochthebius gagliardii* d'Orchymont, *O. sidanus* d'Orchymont, *O. vergula* Ferro, *Augyles flavidus* (Rossi), and *Heterocerus holosericeus* Rosenhauer.

ROCCHI S, TERZANI F & MASCAGNI A 2021. Coleotterofauna acquatica e semiacquatica del bacino idrografico del fiume Cecina (Toscana). *Bollettino dell Societá entomologica italiana* **153** 3-22.

NAMING NAMES (CORRECTLY)

This paper begins with the often-quoted feedback "We advise the authors to find a native English speaker to proofread the manuscript". The authors then note that journal editors do not exhibit the same rigour in getting the specimens under study named correctly – they found that only 6% of 100 journals explicitly requested citation of the literature used in identification. And 62.5% of studies on community ecology neither had a taxonomist amongst the authors nor cited appropriate literature. The authors note that the normal expectation is for nucleotide sequences to be deposited in any genetic study so they propose depositing voucher photographs at the same time. Anyone who has tried to help in identifying material sent to online recording systems will know the frustration of the wrong type of photograph being sent in no matter how often guidance has been given. And you can't dissect a photograph. Voucher specimens are still required, and, even then, the name you give is still just a working hypothesis.

BIANCHI F M & GONÇALVES L T 2021. Getting science priorities straight: how to increase the reliability of specimen identification? *Biology Letters* 17 20200874 pp. 4.

NAKAJIMA J, HAYASHI M, ISHIDA K, KITANO T & YOSHITOMI H 2020. Aquatic Coleoptera and Hemiptera of Japan. Tokyo: Bun-ichi Sogo Shuppan. ISBN 978-4-8299-8411-6. about ¥5,500, £40, $US52, €44.

This was reviewed in ***Latissimus* 48** by proxy, based on Manfred Jäch's comments in *Koleopterologische Rundschau* **90**, but then the actual book arrived the day after **48** was completed. There is a mass of imagery and information crammed onto every page, with Latin your only guide if you do not understand Japanese. The book is fascinating in two contrasting ways – firstly you can see the Rules of Substitution at work when you spot the Japanese equivalent of the western Palaearctic species, but secondly, you get a shock when you find the animals that are missing from the west, like the brightly marked elmids in *Optioservus*, the ptilodactylid larva and adult, and the glow-worms. And then, of course, there is the occasional friend – *Paracymus aeneus* (Germar), *Plateumaris sericea* (L.), *Macroplea mutica* (Fab.), and the ever-present Supertramp *Rhantus suturalis* (Macleay). Dryops nitidulus (Heer) is another western species that may have been introduced to Japan recently. Oh, and by the way, a quarter of the book is devoted to the water bugs right down to Ochteridae, Gelastocoridae, Hebridae and Saldidae. The weirdest bug is the ocean-going *Hermatobates shuhi* Polhemus & Polhemus (a "coral-treader"), which can be coupled with the less adventurous rockpool *Ochthebius granulosus* (Satô), as Manfred pointed out, "auf einem Riff gedrängt in eine kleine Gesteinsspalte zwängen, offent?...
sichtlich in Erwartung der nächsten Flut".

WEBINARS
23 FEBRUARY and 27 APRIL 2021

Alan Law is the Club's Luminary, in charge of webinars using Microsoft Teams in the University of Stirling. We held two webinars, attended by about 40 people.
On 23 February -
David Bilton – Diversity and endemism of water beetles in southern Africa.
Wenfei Liao – Where to find dytiscids in an urban pond (about Dytiscidae in Helsinki).
Garth Foster – David Sharp's *Magnus Opus* – the back story.
Helena Shaverdo (with Michael Balke, Lars Hendrich and Jiří Hájek) – Update on the study of Copelatinae in Australasia.
And on 27 April -
Johannes Bergsten – Madagascar under the surface.
Jack McLachlan – Dorothy Jackson 1892-1973.
Adrián Villastrigo then raised the prospect of a special issue of *Boletin de la Asociación española de Entomología* commemorating Ignacio Ribera. Possible articles can be discussed with Luis Felipe Valladares.
Arno van Berge Henegouwen gave an account of *The watter scriever*, a poem by Guido Gezelle about *Gyrinus natans*. Arno's presentation demonstrated the meter of the poem very well whereas an early English translation clearly failed to do the same. The latter was in strong contrast to a translation into Glaswegian by Edwin Morgan, which positively gyrated when Jack McLachlan read it out.

The second webinar closed with GNF's running through the meetings of the Balfour-Browne Club since the 1980s, culminating in 2019 with a prophecy that meetings discussed in advance often do not happen, this being proved for the two proposed in 2020. Some participants may find re-enactment of death of the boar in Belarus more memorable.

Most of these talks will find their way onto YouTube. For example, try this for part of the second webinar https://www.youtube.com/watch?v=EE2AggMf4RY

We are open to offers for more talks, perhaps in the autumn of 2021. As for meetings additional to those on this map – who knows?

***Latissimus* 48 correction** p 12
The citation for this (**190** 1-40) should have been https://doi.org/10/1093/zoolinnean/zlaa105
ANGUS R B, SADÍLEK D, SHAARAWI F, DOLLIMORE H, LIU H-C, SEIDEL M, SÝKORA V & FIKÁČEK M 2020. Karyotypes of water scavenger beetles (Coleoptera: Hydrophilidae): new data and review of published records. *Zoological Journal of the Linnean Society*

Latissimus is the newsletter of the Balfour~Browne Club.

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