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Front cover: the larva of *Cybister lateralimarginalis* (De Geer)
Photograph Arno van Berge Henegouwen

Will Watson's caddis case incorporating *Haliplus lineatocollis* (Marsham) is here because it is the wrong shape for a front cover!

ADDRESSES The addresses of authors of 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

AGABUS RAFFRAYI GROUP

The *Agabus raffrayi* group is confined to high altitude in eastern Africa and to the temperate parts of South Africa, from the Western Cape Province of which *A. agulhas* Bilton, Englund & Bergsten is described as the southernmost *Agabus* in the world. Other new species are *A. austellus* and *A. riberae* from South Africa, and *A. anguloverpus* from Mount Kenya. The *raffrayi* group was one of four set up by Agabus [sic] Nilsson. A key is provided to males of the group, now revised to include nine species. A great joint effort.

The Tra-Tra river in the Western Cape Province, photographed by Stacey DeAmicis, is one of the sites for *Agabus riberae* Bilton, Englund & Bergsten. The correspondent is Johannes Bergsten.

ENGLUND W E, NJOROGE L, BISTRÖM O, MILLER K B, BILTON D T & BERGSTEN J 2020. Taxonomic revision of the Afrotropical *Agabus raffrayi* species group with the description of four new species (Coleoptera, Dytiscidae). *ZooKeys* **963** 45-79.

ALGERIAN HYDRAENIDAE & ELMIDAE

Twenty-five species were recorded from 25 sites. *Ochthebius bifoveolatus* Waltl was new for Algeria. Other species include *Hydraena audisioi* Jäch, *H. leprieuri* Sainte-Claire Deville, *H. mouzaiensis* Sainte-Claire Deville, *H. numidica* Sainte-Claire Deville, *H. pici* Sainte-Claire Deville, *H. rivularis* Guillebeau, *Elmis maugetii velutina* Reiche, *Esolus filum* (Fairmaire), *Limnius surcoufi* (Pic), *Oulimnius maurus* Berthélemy and *Riolus villosocostatus* (Reiche). The correspondent is Nard Bennas.

LAMINE S, LOUNACI A & BENNAS N 2019. Biodiversity and chorology of aquatic beetles (Coleoptera: Elmidae and Hydraenidae) in Kabylia (central-north Algeria. New records and update. *Zootaxa* **4700** 102-116.

WATER MITES: BEAUTY AND PEST **Wenfei Liao**

When collecting diving beetles from my activity traps, sometimes I couldn't help noticing some tiny, bright-coloured creatures swimming in the traps too. They are water mites (Figure 1) and look cute and harmless. In fact, their larvae can be parasites of many insects, including our beloved water beetles, such as dytiscids (Figure 2).

Figure 1 A water mite. From Wikimedia Commons

Water mites have a complex life cycle. Their adults lay eggs in the water, which hatch to parasitic larvae. The larvae need to go through three developmental forms before they become adults. These are protonymph, deutonymph, and tritonymph. Their protonymphs and tritonymphs are inactive, while their deutonymphs and adults are predaceous (Smith *et al*. 2009). Water mites often rely on aquatic insects that are capable of flight for dispersal (Zawal 2003). The larvae of most water mite species are ectoparasites, living on the outside of their hosts (Aykut & Esen 2017). Water mites parasitic on insects can be classified into three groups: 1. whose adults are permanently connected with water, including aquatic true bugs, such as *Ranatra linearis* (L.); 2. whose adults are periodically out of water, such as diving beetles; 3. whose adults are permanently out of water, such as dragonflies (Böttger 1976; Zawal 2003). Parasitic larvae utilise visual, tactile and chemical cues to seek their hosts (Smith *et al*. 2009).

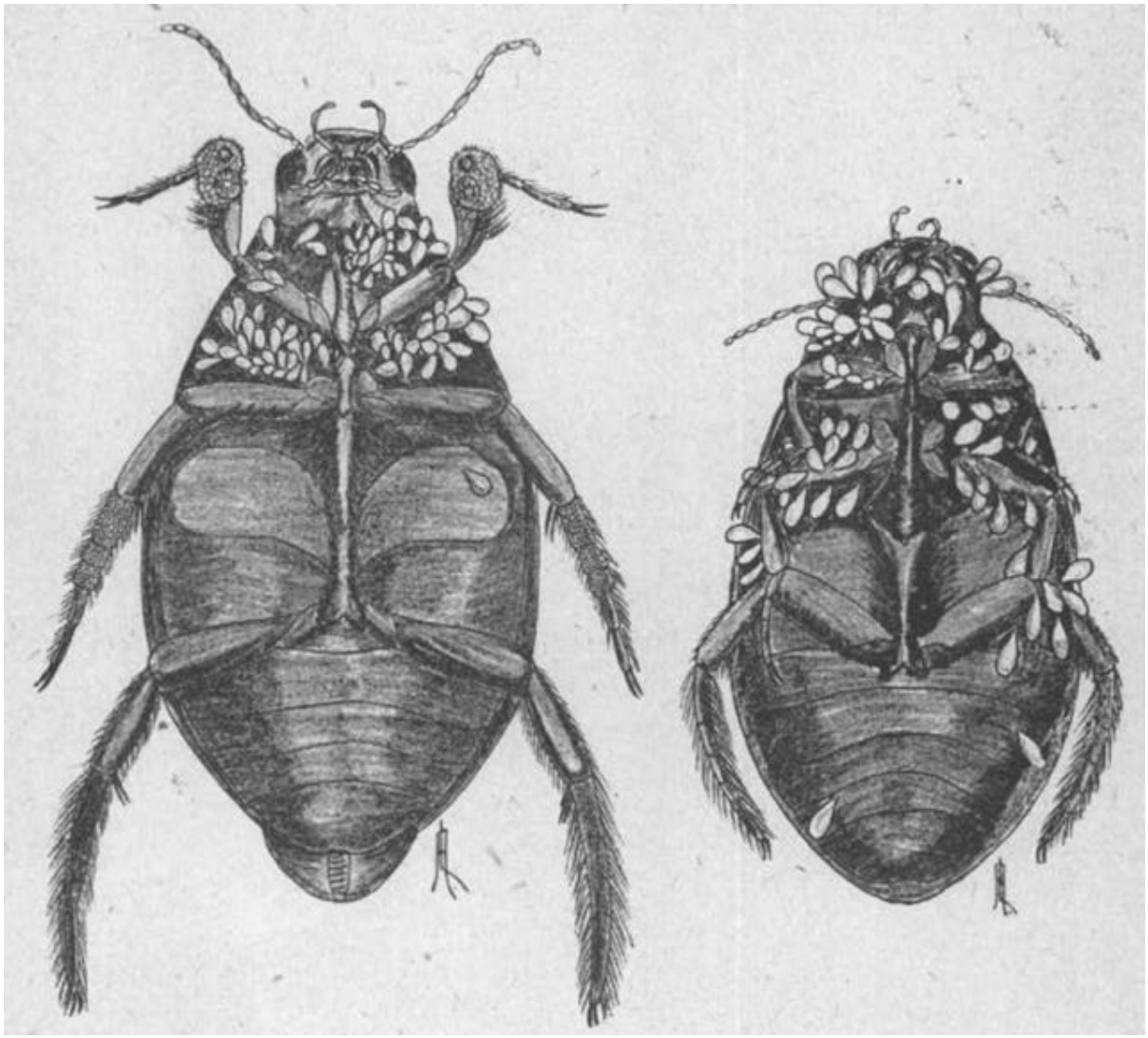

Figure 2 Larvae of water mites are ectoparasites of many insects, including diving beetles. I also found water mite larvae on some specimens of *Dytiscus marginalis*. Picture from Brumpt 1929

The larvae of some water mite species were even first described from water beetles (e.g. Lanciani 1970a; Arjomandi *et al*. 2019). Water mites that parasitise water beetles seem to have adapted their own life cycle to water beetles' life cycle. For example, the larvae of *Eylais* have the highest parasitism rate on *Dytiscus alaskanus* when the beetle has its population peak during early spring (Aiken 1985). Parasitic water mite larvae are thought to take advantage of water beetles' pupation stage, during which they can easily pierce into the relatively soft skin of beetle pupae (Aykut & Esen 2017). This view, however, may not always be true because most dytiscid species pupate out of water, somewhat too distant from water for those mite species whose larvae are aquatic (Mortazavi *et al*. 2018).

Water mites parasitise their hosts for two main reasons: food source and dispersal. Some mite larvae prefer attaching to the costal–subcostal area of membranous wings, because the strong afferent flow of blood going through the area can provide rich food source (Aiken 1985). Parasitising membranous wings can reduce the flight activity of hosts, so these parasites prefer to parasitise water beetle species associated with permanent waters that do not fly very often (Lanciani 1970b). Those water mite species that rely on their hosts for dispersal seem to avoid parasitising

membranous wings. These attach themselves to sites such as the ventrites of a host, and will have less negative effects on the flight activity of their hosts (Lanciani 1970b; Smith & Oliver 1986).

Having parasites, for sure, is very unhealthy to their hosts. Water mite parasitism is known to reduce body condition of their hosts. Fairn *et al*. (2008) found that the lengths of the elytra were negatively correlated with the mite abundance on the hosts. A similar correlation was also found in the wing lengths of other host insects, such as damselflies (Rolff *et al*. 2000). Water mite parasitism can lower egg production of Diptera and Hemiptera (Smith *et al*. 2009), but there seems to be no study on water beetle fertility yet.

Parasitism of water mites on water beetles can be sex-biased, although researchers have recorded contradictory observations regarding this issue. For example, Fairn *et al*. (2008) reported that male Gyrinidae were more exposed to water mite larvae than females, while Aykut and Esen (2017) reported more females were infected than males of diving beetles. There have been various opinions about sex-biased parasitism of water mites, but no clear pattern has yet been found.

AIKEN R B 1985. Attachment sites, phenology, and growth of larvae of *Eylais* sp. (Acari) on *Dytiscus alaskanus* J. Balfour-Browne (Coleoptera: Dytiscidae). *Canadian Journal of Zoology* **63** 267-271.

ARJOMANDI E, ZAWAL A, HAJIQANBAR H, ILIP E & SZENEJKO M 2019. New record of a parasitising species of *Hydrachna* (Acari, Hydrachnidia) on water beetles *Eretes griseus* (Fabricius, 1781) (Coleoptera, Dytiscidae, Dytiscinae, Eretini). *ZooKeys* **865** 31.

AYKUT M & ESEN Y 2017. Parasitism of diving beetles (Coleoptera: Dytiscidae) by larvae of the water mite *Acherontacarus rutilans* (Hydrachnidiae, Acari) in Diyarbakır Province, Turkey. *International Journal of Acarology* **43** 347-350.

BÖTTGER K 1976. Types of parasitism by larvae of water mites (Acari: Hydrachnellae). *Freshwater Biology* **6** 497-500.

BRUMPT E 1929. Fréquence du parasitisme d'*Hydrachna processifera* sur le *Dytiscus marginalis* en Normandie**.** *Annales de Parasitologie* **7** 290-302.

FAIRN E R, SCHULTE-HOSTEDDE A I & ALARIE Y 2008. Water mite parasitism is associated with body condition and sex of the whirligig beetle *Dineutus nigrior* (Coleoptera: Gyrinidae). *Ecoscience* **15** 327-331.

LANCIANI C A 1970a. New species of *Eylais* (Acari: Eylaidae) parasitic on aquatic Coleoptera. *Transactions of the American Microscopical Society* **89** 169-188.

LANCIANI C A 1970b. Resource partitioning in species of the water mite genus *Eylais*. *Ecology* ***51*** 338-342.

MORTAZAVI A, HAJIQANBAR H & LINDQUIST E E 2018. A new family of mites (Acari: Prostigmata: Raphignathina), highly specialized subelytral parasites of dytiscid water beetles (Coleoptera: Dytiscidae: Dytiscinae). *Zoological Journal of the Linnean Society* **184** 695-749.

ROLFF J, ANTVOGEL H & SCHRIMPF I 2000. No correlation between ectoparasitism and male mating success in a damselfly: why parasite behavior matters. *Journal of Insect Behavior* **13** 563-571.

SMITH I M, COOK D R & SMITH B P 2009. Water mites (Hydrachnidiae) and other arachnids. pp. 485-586 in: J.H. Thorp & A.P. Covich (eds) *Ecology and classification of North American freshwater invertebrates*. 3rd edition. Amsterdam: Academic Press.

SMITH I M & OLIVER D R 1986. Review of parasitic associations of larval water mites (Acari: Parasitengona: Hydrachnida) with insect hosts. *The Canadian Entomologist* **118** 407-472.
ZAWAL A 2003. The role of insects in the dispersion of water mites. *Acta Biologica Universitatis Daugavpiliensis* **3** 9-14.
ANATOLY MIKHALTSOV, 29.11.2015. Водяной клещ in Wikimedia Commons. https://commons.wikimedia.org/wiki/File: Водяной клещ.jpg

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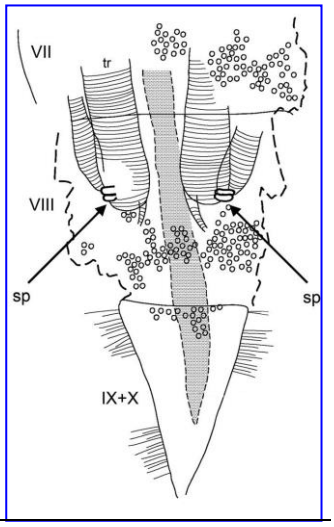
SWIMMING IN CANALS

Laboratory experiments were performed with five species of frog – *Pelophylax nigromaculatus* (Hallowell), *P. porosus* (Cope), *Glandirana rugosa* (Temminck &Schlegel), *Fejervarya kawmurai* Djong *et al*., and *Hyla japonica* Günther, all collected from the Kinki region of Japan. For anyone who doesn't know *Regimbartia attenuata* (Fab.), this hydrophilid is rather like a small *Hydrobius* flattened from side to side and capable of swimming like *Berosus*. *Regimbartia* adults survived passage through all five frog species, coming out head first within 6 hours. It is presumed that they had to stimulate the frogs to open the vent to permit escape. In contrast, when *Regimbartia* had their legs fixed down with wax (beetles with "waxed legs" would be quite different!) and were then fed to frogs they all died and were excreted 38 hours or more later. *Enochrus japonicus* (Sharp), which cannot swim, suffered a similar fate (not the waxing!).

SUGIURA S 2020. Active escape of prey from predator vent via the digestive tract. *Current Biology* **30** R867-R868 plus Supplemental Information.

TRIASSIC LARVA



The first "Sialidae-type" larva was described from the Middle Permian (*Kargalarva permosialis* Prokin *et al*. – see ***Latissimus* 44** 19). This one, from the Upper Triassic, is more clearly interpreted as the aquatic larva of a beetle, with tracheal gills. It has what is probably a character unique to beetles, the "annular-biforous" spiracles (sp on the figure). These are known in some Myxophaga, in Haliplidae and in basal polyphagan families.

PROKIN A A & BASHKUEV A S 2020. *Trialarva coburgensis* gen. et sp. nov., a remarkable fossil holometabolan larva (Insecta: Coleoptera) from the Triassic in Germany. *Paläontologische Zeitschrift* doi.org/10.1007/s12542-020-00527-6 6 pp.

GREENLAND SUBFOSSIL HISTORY

Deposits recently exposed by coastal erosion have revealed relatively little sign of human impact on material from the 14th to 17th Centuries, this perhaps being associated with the Little Ice Age. The water beetle record is clear, Mingook (*Colymbetes dolabratus* (Paykull) and the Children of Mingook (*Hydroporus morio* Aubé) are the only species represented, as in earlier work (e.g. Böcher *et al*. 2012 – see ***Latissimus* 34** 22), and in the present day.

PANAGIOTAKOPULU E, SCHOFIELD J E, VICKERS K, EDWARDS K J & BUCKLAND P C 2020. Thule Inuit environmental impacts on Kangeq, southwest Greenland. *Quaternary International* **549** 176-190.

OBSERVATIONS ON THE RECOLONISATION BY WATER BEETLES OF THREE PREVIOUSLY DESICCATED HABITATS

Peter Sutton

Ephemeral aquatic habitats provide a valuable resource for those species that are able to utilise them during the time that they hold water. However, these seasonal aquatic environments have become increasingly affected by a range of factors that singly, or more commonly, collectively, threaten their ability to host aquatic organisms. Some of these habitats will be lost naturally as a result of ecological succession (this unfortunately includes supposedly protected water bodies, including statutory sites, that have been lost or damaged through managerial neglect), but other threats may come in the form of: invasive plants, animals and diseases; deliberate introduction of fish or waterfowl; pollution with nutrients or chemicals; direct loss through infilling, land drainage, and lowering of the water table through excessive water abstraction; and climate change. This study provides examples of habitats where a number of these factors may be observed and describes some of the species of water beetle that have recolonised these sites after periods of desiccation.

Agabus didymus (Olivier) and *Ilybius fenestratus* (Fab.) at Flitton Moor

Flitton Moor is a 6.9 ha Local Nature Reserve in the Vale of the River Flit, in Bedfordshire, England. It was reclaimed from agriculture during the 1980s, and it includes cattle-grazed wet grassland, two ponds and small areas of woodland. The site was originally open moorland, part of a large mire extending along the Flit Valley from Westoning to Clophill. Fen remnants can still be found at the site and influence its flora and fauna. The two ponds differ in character. The smaller one, a field pond partly surrounded by overhanging trees, is shallow, fish-free and more prone to drying out. It has recently become swamped with the invasive New Zealand Pygmyweed *Crassula helmsii* (Kirk). The larger pond is deeper, with a pond-dipping platform at one edge and until recently its water was turbid with the activity of a large group of Common Carp *Cyprinus carpio* (L.) that had presumably been introduced by anglers. Contrary to Revels, Bellamy and Boon (2020), whose photograph of the pond carries the statement: “New Zealand Pygmyweed was first recorded here in 1997 and it is hoped that it will not become a problem”, the pond edges are now characterised by thick mats of this plant. During the summer of 2019, both ponds dried out, and the carp in the large pond perished, as nearly did some of the cattle, who had to be rescued from its mud as they tried to reach the remaining water.

Figure 1 The small field pond at Flitton Moor, 24 May 2020

Figure 2 The large pond at Flitton Moor, 21 May 2020

In February 2020, the UK was hit by three successive storms and suffered the wettest February on record. Both field ponds refilled and the larger pond was submerged for a time by floodwater from the River Flit and its adjacent streams, introducing fish, the Three-spined Stickleback *Gasterosteus aculeatus* (L.) and the Nine-spined Stickleback *Pungitius pungitius* (L.). These fish were thriving in the pond by late spring, with breeding adults. Both ponds had a significant population of juvenile Smooth Newts *Lissotriton vulgaris* (L.), and tadpoles of both Common Frog *Rana temporaria* (L.) and Common Toad *Bufo bufo* (L.) were present. By late May the larger pond had become a thriving habitat for invertebrates, with many large dragonfly larvae, aquatic beetles and their larvae, and water bugs in evidence, including an impressive Long Water Scorpion *Ranatra linearis* (L.) that was observed deftly catching a specimen of *Berosus signaticollis* (Charpentier).

Figure 3 *Ranatra linearis* with *Berosus signaticollis* prey, larger pond, Flitton Moor 25 May 2020

Of particular interest was the fact that the pond had been well-colonised by *Ilybius fenestratus* (Fab.), and that, having had my sense of smell deleted by the Covid-19 coronavirus, I was no longer able to detect its diagnostically odoriferous secretions. A single specimen of *Agabus didymus* (Olivier), normally a species of running water (Foster *et al*. 2016) was also found, in accordance with Denton's (2007) observation that this species is, "Occasionally found in still water, and may breed in weedy ponds". Other water beetles of interest included: *Hygrobia hermanni* (Fab.), *Agabus sturmii* (Gyllenhal), *Ilybius ater* (De Geer), *Colymbetes fuscus* (L.), *Laccophilus minutus* (L.), *Hyphydrus ovatus* (L.), *Berosus signaticollis* and a *Hydrobius fuscipes* s. lat.

The smaller field pond was predominantly populated by *Agabus nebulosus* (Forster), a species not observed in the larger pond. Also present were *C. fuscus*, *A. bipustulatus* (L.), *B. signaticollis* and the *Hydrobius* again.

Figure 4 *Ilybius fenestratus*, larger pond, Flitton Moor 21 June 2020

Figure 5 *Agabus didymus*, larger pond, Flitton Moor 30 June 2020

Figure 6 *Agabus nebulosus*, smaller pond, Flitton Moor 26 June 2020

Figure 7 The specimens of *Agabus paludosus* were immediately recognised by their 'bright shoulders' 16 July 2020

The smaller pond held a significant population of Emerald Damselfly *Lestes sponsa* (Hansemann) and by the time they had emerged as adults, the pond had been completely covered by New Zealand Pygmyweed, with open channels of water maintained by waterfowl.

***Agabus paludosus* (Fab.) and *Platambus maculatus* (L.) at the River Mimram, Hertfordshire, England**

The River Mimram is a chalk stream that rises from springs in the Chiltern Hills near the Whitwell, Hertfordshire. It forms part of Britain's unique contribution to global ecology, with the vast majority of this precious resource of 200 or so chalk rivers worldwide, being found in England, where they have been described by Charles Rangeley-Wilson as "an English Okovango Delta, an English Great Barrier Reef, an English rainforest" (WWF-UK 2014). Unfortunately, our approach, as custodians of this unique global resource, has been to exploit chalk rivers to the extent that a recent report has stated: "England's chalk streams are in a shocking state of health… more than three-quarters - 77% - are failing to meet the required Good status" (WWF-UK 2014). Excessive water abstraction for human consumption and agriculture is at the heart of the problem for many of England's chalk streams, and the Mimram provides an example of this, with its upper reaches now drying up on a regular basis during the summer. This has had a significant impact on the biodiversity of the river, including the loss of important fish and Water Vole *Arvicola amphibius* (L.) populations.

The Mimram was visited close to its source on 16 July 2020 to see if it had been repopulated by water beetles. Having been denied access to the river as it fed commercial Water-cress *Nasturtium officinale* Aiton beds by a forthright landowner (leaving me with no option but to boycott the fruit and vegetable stand in his courtyard), I investigated the river next to a small bridge as it ran through the heart of the village (TL18402121). Here the river was a few feet across and its shallow waters ran swiftly over the chalky gravel substrate. There was surprisingly little in terms of water beetles, but a large population of *Gammarus pulex* (L.) was associated with organic matter in the stream. Then, under a small protrusion of water-cress next to the bridge, a highly localised group of five *Agabus paludosus* was observed, having been absent from all other areas sampled in the immediate vicinity.

Figure 8 The River Mimram at Whitwell, Hertfordshire 16 July 2020. *Agabus paludosus* was found in the small patch of water-cress in front of the bridge to the right of the picture.

The river passed under the bridge and through a small concrete weir. Each net sample brought nothing in the way of water beetles, but the net heaved with large concentrations of shrimps. In view of the recent history of the river, it was good to see juvenile Bullhead *Cottus perifretum* Freyhof, Kottelat & Nolte and other fish in its upper reaches. Retracing my steps back to the concrete weir, a single specimen of *Platambus maculatus* (L.) was found in the long strands of algae and associated floating plant material that trailed out from the concrete sides of the waterway, together with a specimen of *Agabus sturmii*.

Figure 9 *Platambus maculatus* and *Gammarus pulex*, River Mimram, Hertfordshire 16 July 2020

It is interesting to consider the extent to which *A. paludosus* may have aestivated in the substrate of the riverbed during times of drought. Kehl and Dettner (2007) conclude that flight musculature is usually, but not always, absent in this species, indicating that colonisation by flight is unlikely, but could occur. During the photography of this species, an individual that had climbed out of the water was observed sunning itself on the watercress leaves prior to taking off in strong flight, too quickly, unfortunately, to be photographed. This suggests that recolonisation of the Mimram (which had previously dried up for over two kilometres along its upper reaches) may have occurred by flight. Conversely, Fenoglio *et al*. (2006) found both adult and larval stages of this species at depths of 70–90 cm below the surface, within the interstitial zone of the streambed of the River Po in Italy during droughts, indicating that it may have maintained a presence in the riverbed prior to the refilling of the river. The occurrence of *P. maculatus*, another species that is considered to be generally flightless (Kehl & Dettner 2007), as evidenced by its apparent inability to colonise offshore islands (Foster *et al*. 2016), is also suggestive of an ongoing presence of perhaps both species, in suitable refugia, at times when the surface of the riverbed has dried out.

***Graphoderus cinereus* (L.) at Staines Moor Site of Special Scientific Interest (SSSI), Middlesex, England**

Staines Moor is the largest area of alluvial meadows in Surrey. It includes a pond with two adjacent temporary pools, the Staines Reservoir and King George VI Reservoirs and a section of the River Colne. (It should be noted that, as above, while the borough of Spelthorne, which includes Staines Moor was transferred from Middlesex to Surrey in 1965 but it remains in the Watsonian vice-county of Middlesex - vc21). This site has been designated for the rich diversity of its flora and its ability to

support nationally important populations of wintering wildfowl. The original designation (Natural England 2020), which was last updated in 1975, confirms that the invasive non-native Water Fern *Azolla filiculoides* Lam. was present at the site. This has been associated with fish kills and decreased diversity of invertebrate and submerged plant species (Janes *et al*. 1996). The NE Report also states that "A number of uncommon plants occur in the ponds at this site including one of only three known British localities of the Brown Galingale *Cyperus fuscus*." The citation concludes: "Staines Moor has not been well studied for invertebrates" and this still remains the case today, with little information regarding the invertebrates of Staines Moor SSSI publicly available. An assessment by Terry (2009) considered Butts Pond to be in an "Unfavourable/Improving" condition but does not link this to details of its invertebrate assemblage; the report referred to on-going pond management work to remove and reduce non-native water plants.

Figure 10 Much of the surface of Butts Pond, Staines Moor SSSI, was covered in a layer of Water Fern *Azolla filiculoides* and filamentous algae on 24 July 2020

The pond at Staines Moor was first brought to my attention by Jonty Denton almost ten years ago. He had been lucky enough to find adults and larvae of one of Britain's rarest water beetles, *G. cinereus*, in the Rifle Butts Pond, now known simply as Butts Pond. Almost every year since then, I have searched in vain for this species at this pond and in two adjacent temporary pools, without success. During that time, I have observed the ongoing deterioration of Butts Pond which was gradually drying out through the process of natural succession, and the problems associated with the ever-increasing presence of the Water Fern. This year, I revisited the site on 24 July to find that Butts Pond had been re-excavated, and a thick mat of Water Fern and filamentous algae covered much of its surface. Nevertheless, the pond was teeming

with aquatic organisms, including a single green water frog *Pelophylax* sp. that leapt into the water from its sunbathing position. Hundreds of corixids were observed in the few clear areas of shallow water where the sun could penetrate and both species of water scorpion, *Nepa cinerea* (L.) and *Ranatra linearis* were present, as were the water boatmen, *Notonecta glauca* (L.) and *N. maculata* (Fab.). Water beetles included *Noterus clavicornis* (De Geer), *Hygrobia hermanni* (Fab.), *Agabus bipustulatus*, *A. sturmii*, *Colymbetes fuscus*, *Hygrotus impressopunctatus* (Schaller), *Hygrotus inaequalis* (Fab.) and *Hyphydrus ovatus*. Water was also present in the two shallow grassy pools near Butts Pond. The first, which I had, over the years, referred to as the Supertramp Pool did not disappoint, and *Rhantus suturalis* (MacLeay) was the most commonly observed species, followed by *Agabus nebulosus*, both of which were not found in Butts Pond.

Figure 11
The Supertramp Pool, home to *Rhantus suturalis*, *Agabus nebulosus* and the larvae of *Graphoderus cinereus,* Staines Moor SSSI 24 July 2020

Figure 12 *Rhantus suturalis*, Staines Moor SSSI 24 July 2020

Figure 13 *Graphoderus cinereus* larva, showing the diagnostic single median extension of the labium, Staines Moor SSSI 24 July 2020

As I investigated further, focussing on the shallow grassy margins that had been rutted by cattle hooves, I discovered a diving beetle larva that I immediately assumed was *Acilius sulcatus* (L.), but, in view of past records, hoped would be *G. cinereus*. The key to identifying the larva was to look at the structure of the mouthparts. Specifically, as explained by Balfour-Browne (1950), “The larvae of this genus [*Acilius*] are somewhat like those of *Graphoderus*, from which they can always be distinguished by the bilobed extension of the labium, the labium of *Graphoderus*

larvae having a single median extension". The larva was thus identified as that of *G. cinereus*.

Figure 14 *Graphoderus cinereus* larva, Staines Moor SSSI 24 July 2020

Several *Graphoderus* larvae were found, possibly indicating a continuity of this rare species at the site since its last discovery. Other water beetles in the pool included *N. clavicornis*, *C. fuscus*, *H. impressopunctatus*, *B. signaticollis* and *Laccobius bipunctatus* (Fab.).

The future

For millennia in southern England, water beetles and other organisms have exploited the opportunities provided by ephemeral aquatic habitats. What we are now observing is an increasing tendency for those habitats to dry out prematurely, and completely, to an extent where they may no longer be able to support viable populations of aquatic species. All three sites described are under threat for a variety of reasons including the incrementally increasing impacts of climate change. At Flitton Moor, the pygmyweed now grows to the exclusion of other species of flora and fauna and is in need of management. In addition, water abstraction for agriculture and human consumption, now exacerbated by the construction of hundreds of new homes in this area, has led to a continued lowering of the water table and the gradual drying out of the Flit Valley mire complex, of which Flitton Moor is a part. The long-term problems facing this unique valley and its habitats are unlikely to be reversed in the absence of a management plan that includes a major hydrological re-evaluation for this region. The problems facing the Mimram are encapsulated by the unwillingness of some water companies to support the recommendations of the Water Framework Directive (EU 2000), whilst actively ignoring advice from the Environment Agency to reduce levels of water abstraction. This is exemplified by Thames Water's refusal to address excessive water abstraction (from the River Cray) in its business plan because it was not considered "cost beneficial" (WWF-UK 2014). Thankfully, steps have been taken to address this matter in accordance with new

Government legislation (Water Act 2014), and Affinity Water's impressive pledge in their 2015-2020 business plan to reduce water abstraction by 42 million litres per day, will alleviate some of the problems faced by the chalk streams, including the Mimram, from which water is abstracted (River Lea Catchment Partnership 2014). This, together with the activities of the county Wildlife Trust, the Environment Agency and local conservation groups to restore the river have resulted in positive gains.

Butts Pond at Staines Moor SSSI, despite the efforts of conservation workers who have re-established its aquatic credentials, is still affected by invasive non-native species but continues, with adjacent temporary pools, to support an important assemblage of aquatic invertebrates. It should also be noted that while Staines Moor is designated as an SSSI, its 289 acres remain under constant threat from development (Colne Valley Regional Park 2020).

With our obligate demand for water resources and economic considerations routinely continuing to over-ride environmental concerns, there is an increasing likelihood that the habitats described will become less able to support viable populations of aquatic organisms as time progresses. However, for those who refuse to accept such scenarios and who are determined to have a collaborative and innovative approach to resolve environmental problems, it is possible to both conserve and enhance our remaining and extraordinary natural heritage.

BALFOUR-BROWNE W A F 1950. *British Water Beetles*. **2**, Ray Society: London.

COLNE VALLEY REGIONAL PARK 2020. Colne Valley Regional Park https://www.colnevalleypark.org.uk/wp-content/uploads/2020/03/Staines-Moor-Walk.pdf

DENTON J 2007 *Water bugs and water beetles of Surrey.* Surrey Wildlife Trust: Pirbright, Surrey.

EU 2000. *Water Framework Directive* (WFD) 2000/60/EC: Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy.

FENOGLIO S, BO T & BOSI G 2006. Deep interstitial habitat as a refuge for *Agabus paludosus* (Fabricius) (Coleoptera: Dytiscidae) during summer droughts, *The Coleopterists Bulletin* **60** 37-41.

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

JANES R A, EATON J W & HARDWICK K 1996. The effects of floating mats of *Azolla filiculoides* Lam. and *Lemna minuta* Kunth on the growth of submerged macrophytes. *Hydrobiologia* **340** 23-26.

KEHL S & DETTNER K 2007. Flugfähigkeit der in Deutschland vorkommenden adephagen Wasserkäfer (Coleoptera. Hydradephaga). *Entomologie Heute* **19** 141–161.

NATURAL ENGLAND 2020. Designation for Staines Moor SSSI https://designatedsites.naturalengland.org.uk/SiteDetail.aspx?SiteCode=S1001792&SiteName=&countyCode=41&responsiblePerson=&SeaArea=&IFCAArea=

REVELS R, BELLAMY G & BOON C 2020. *Bedfordshire – our changing habitats and wildlife. A photographic record.* Bedfordshire Natural History Society.

RIVER LEA CATCHMENT PARTNERSHIP 2014. Affinity Water granted 'enhanced' status for plans to reduce river abstraction: http://riverleacatchment.org.uk/index.php/river-mimram-news-and-events/river-mimram-news/681-affinity-water-granted-enhanced-status-for-plans-to-reduce-river-abstraction

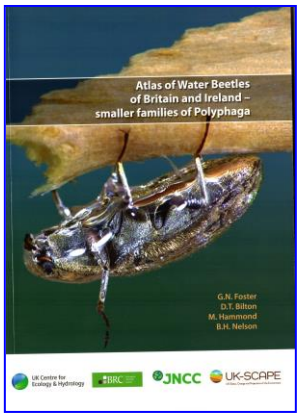
TERRY G 2009. https://designatedsites.naturalengland.org.uk/ReportUnitCondition.aspx?SiteCode=S1001792&ReportTitle=Staines%20Moor%20SSSI

WATER ACT 2014. https://www.legislation.gov.uk/ukpga/2014/21/contents/enacted

WWF-UK 2014. *The state of England's chalk streams*. Woking: WWF-UK.

Received July 2020

BRITISH AND IRISH ATLAS 3

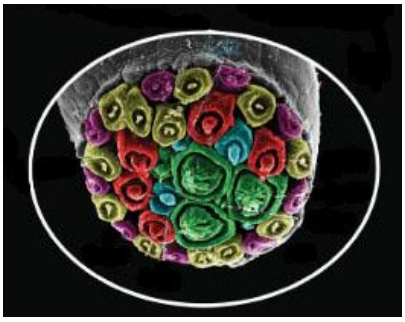


📖 FOSTER G N, BILTON D T, HAMMOND M & NELSON B.H. (eds) 2020. *Atlas of water beetles of Britain and Ireland – smaller families of Polyphaga.* Wallingford: Biological Records Centre, UK Centre for Ecology & Hydrology. £25 plus postage.

It is too late to compete for the prize for a better title than the one on offer. “Atlas 3” will have to do. Eighty-five species are covered in the Hydraenidae, Elmidae, Dryopidae, Limnichidae, Heteroceridae, Psephenidae and Scirtidae. Some of these get more taxonomic treatment than the species in Atlases 1 and 2, mainly to bring them up to the same standard as the rest. There is a huge table on page 6-16 bringing up-to-date the statuses of all British and Irish water beetles. Readers should thus find here more than just a group of maps, even a few jokes if you look hard enough. The maps have benefited from the routine monitoring carried out by the agencies and government departments, and we are particularly grateful to Richard Chadd and others for taking on the chin any doubts about some identifications, and reacting helpfully. The parlous status of many running water hydraenids compares sharply with the continuing abundance of the commoner elmids, and emphasises the need to find out ***why***. There have more positive than negative reactions to the cover, which is intended to continue to emphasise life in the bubble. The *Dryops* species illustrated will remain nameless, given that it was always the intention to have displayed a species found in all part of Britain, Ireland, the Isle of Man and the Channel Isles. This is a freeze from a video provided by Reinhart Weidlich: it shows the air trapped in the hairs covering the underside and the absence of any air from the black tarsi that need all the help they can get to make the insect cling below the surface and not bob up like a cork. It is hoped that readers will get some evocative experience out of looking at some of the photographs when in the depths of winter (or in the continuation of Lockdown): they have rarely been taken by an expert photographer – and it shows. But Rebecca Farley Brown has shuffled them around to make for some interesting contrasts. Just check out page 208 with the flooded ledge on a St Kilda hill supporting *Elodes pseudominutus* Klausnitzer (and it really is …*minutus*, not …*minuta* – read on!) being echoed on page 209 by a base-rich sandstone hill in the Spadeadam Waste with *Hydraena pulchella* Germar. Some photographs are rather poor but, for example, when your wife takes *Hydraena rugosa* Mulsant in Guernsey and you don’t identify it at the time, you can hardly stage a later re-enactment! This book is dedicated to the memory of Ignacio Ribera: as ever, he contributed quite a few records.

This is a good moment to reveal the photograph that got away from Atlas 3, the Infinity Bridge, part of the modelled features of the River Tees. We could not get a photograph at better resolution than this one on the web as the place, Nature’s World in Middlesbrough, is defunct and boarded up. Martin Hammond found *Agabus didymus* (Olivier), *A. paludosus* (Fab.) and *Elmis aenea* (Müller) beside the model.

NOTERID SENSILLA



Seven main types of sensory organs were distinguished on the head appendages of the first instar larvae of *Suphisellus rufipes* (Sharp), *Suphis cimicoides* Aubé, *Hydrocanthus sharpi* Zimmermann and *H. socius* Sahlberg. The tips of the labial palps were found to be the most informative, allowing the possibility of a fingerprint model. Illustrated here is the labial palp of *S. rufipes*, with five types indicated.

URCOLA J I, BENETTI C J, ALARIE Y, RODRIGUEZ G & MICHAT M C. 2020. Characterization and mapping of sensilla on the head appendages of noterid larvae (Coleoptera: Noteridae), and development of a preliminary biometric method for taxa delimitation. *Journal of Morphology* doi.org/10.1002/jmor.21241

AUSTRALIAN SCIRTID BIODIVERSITY

The problem of the polyphyletic Australian genus *Pseudomicrocara* has been addressed, resulting in the recognition of 16 new genera, bringing the total to 23 genera in the *Pseudomicrocara* group. They are typical of Australian sclerophyll forest, with hard-leaved trees. Adults are caught mainly at light. Depicted is one of the brightest of the bunch, *Saltuscara aquilonaris* (Watts).

WATTS C H S, BRADFORD T M, COOPER S J B& LIBONATTI M L 2020. New genera, species and combinations in the *Pseudomicrocara* Armstrong group (Coleoptera: Scirtidae) based on morphology supported by mitochondrial and nuclear gene sequence data. *Zootaxa* **4831** 1-66.

CZECH *GRAPHODERUS BILINEATUS*

G. bilineatus (De Geer) all but disappeared from the Czech Republic in the 1950s. A recent survey was based on chicken liver-baited bottle traps in which 74 individuals, predominantly male, were found in 14 localities. Multivariate analysis indicated that this species occurs in deeper water near to a shore dominated by *Glyceria* or *Typha*. It was found in association with other large water beetles, and it is more likely to be found in larger water bodies surrounded by other wetlands than in isolated sites. It is less likely to be found in an agricultural landscape, and is typically absent from intensively managed fishponds.

KOLAR V & BOUKAL D S 2020. Habitat preferences of the endangered diving beetle *Graphoderus bilineatus*: implications for conservation management. *Insect Conservation and Diversity* doi: 10.1111/icad.12433.

CLUBBED *EXOCELINA*

This prolific genus just keeps on giving. There are now 54 species endemic to New Guinea in the *ekari* group, including the newly described *E. athesphatos* and *E. tsinga*, each with the males having clavate antennae. Harald Schillhammer took the habitus photograph of *athesphatos* from which this image has been extracted.

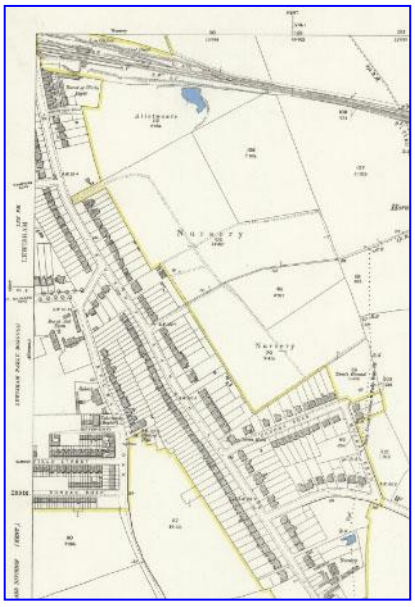
SHAVERDO H, SURBAKTI S, SUMOKED B & BALKE M 2020. Two new species of the *Exocelina ekari* group from New Guinea with strongly modified male antennae (Coleoptera, Dytiscidae, Copelatinae). *ZooKeys* **960** 63-78.

LEE PIT, THE GREATEST KENTISH SITE? **Ron Carr and Garth Foster**

These notes came about following recognition that the Lee Pit or pits might have been wrongly assigned to TQ37. Fortunately, for some sites on old maps, TQ37 might still be acceptable, but it certainly highlighted the value of this old Kentish collecting ground, now very much part of London. The list has been generated mainly from the records of William West (1848-1914) published by Grinling *et al*. (1909), but some records come solely from museum material and earlier reports by Alfred Beaumont, G.C. Champion, J.W. Douglas, W.W. Fowler and J.A. Power. Interest in the site was renewed when finding a 19th Century *Hydaticus transversalis* labelled "Lee Pond, Lewisham" in T.G. Bishop's collection in the Hunterian Museum, Glasgow. How come this never got published? Were they trying to keep where it had been found secret? Or perhaps there is a publication we have overlooked?

There are numerous ponds denoted in the area, which is not surprising as the underlying geology is London Clay. Most of these were probably for agricultural purposes, several being near to farms. However, the name Lee Pit tends to imply a former quarry working.

Coleopterists do not normally walk more than they have to, and one might guess that they arrived via the railway and jumped into the first pond they saw, with or without the owner's permission! The most likely site on this basis is one of the pits north of Burnt Ash Farm, as seen here on the map of 1870. The grid reference is TQ3974. Beetle records are from the 1850s and the 1900s. The occurrence of *Haliplus laminatus*, *Hydroglyphus geminus*, *Hygrotus confluens* and *Helophorus longitarsis* supported the idea that the pit may have been a former brick pit, which subsequently became vegetated. Other pond candidates include the clay pits on the west side of Burnt Ash Hill on the 1870 map above: these had been infilled and subjected to residential development by 1894, thus reducing the chances that these include the "Lee Pit". The 1894 map (right) indicates three ponds on the south side of the railway to the east of Lee station. Two of these are associated with Horn Park so would appear unlikely candidates. A larger pond denoted as a former quarry is also closer to Burnt Ash Hill and had been infilled by 1916 for the formation of allotment gardens. Although not clear on the map the former quarry must have had an access road which could fit the description of the often-used description "Farm Lane". However the aforementioned quarry is not in evidence on the 1870 map (though it could of course have been there). Three other ponds are in evidence to the south of Manor Farm on the 1872 map to the northwest of Lee Station. A large kidney-shaped pond is still present within a private estate. It also appears to be an ornamental pond within Manor House estate on the historic map, the estate now comprising a public park with a duck pond. The two smaller ponds are



likely to be associated with Manor Farm. Another candidate is a small circular pond on the west side of Bromley Road, south of Burnt Ash Farm. This was also on the 1934 map so presumably would have been available for collecting beyond 1909. But it is next to the road so it is not accessed by a "farm lane". By the time of the 1894-96 map the whole of what was Burnt Ash Lane had been developed for housing, with a pond in the extended garden of one of the houses on the east side of the road (south-east corner of the second map). One possibility is of course that coleopterists did not necessarily all visit the same place: it would not be the last time that coleopterists went to the wrong place and yet still found something interesting.

[Note that the maps are best viewed in the PDF or at the Ordnance Survey website]

The List

GYRINIDAE
Gyrinus marinus Gyllenhal
HALIPLIDAE
Haliplus confinis Stephens
Haliplus flavicollis Sturm
Haliplus fulvus (Fab.)
Haliplus laminatus (Schaller)
Haliplus obliquus (Fab.)
Haliplus ruficollis (De Geer)
HYGROBIIDAE
Hygrobia hermanni (Fab.)
DYTISCIDAE
Agabus affinis (Paykull)
Agabus biguttatus (Olivier)
Agabus bipustulatus (L.)
Agabus didymus (Olivier) running streams
Agabus guttatus (Paykull) in the River Quaggy*
Agabus nebulosus (Forster)
Agabus paludosus (Fab.) in the River Quaggy*
Agabus unguicularis (Thomson)
Ilybius ater (De Geer)
Ilybius guttiger (Gyllenhal)
Ilybius quadriguttatus (Lacordaire)
Colymbetes fuscus (L.)
Rhantus exsoletus (Forster)
Rhantus suturalis (Macleay)
Nartus grapii (Gyllenhal)
Liopterus haemorrhoidalis (Fab.)
Dytiscus circumflexus Fab.
Dytiscus marginalis L.
Dytiscus semisulcatus Müller
*Hydaticus seminiger (*De Geer)
Hydaticus transversalis (Pontoppidan)
Hydroglyphus geminus (Fab.)
Graptodytes pictus (Fab.)
Hydroporus angustatus Sturm
Hydroporus dorsalis sensu lato (Fab.)
Hydroporus erythrocephalus (L.)
Hydroporus gyllenhalii Schiødte
Hydroporus obscurus Sturm
Hydroporus palustris (L.)
Hydroporus planus (Fab.)
Hydroporus pubescens (Gyllenhal)
Hydroporus striola (Gyllenhal)
Hydroporus tessellatus (Drapiez)
Nebrioporus elegans (Panzer)
Porhydrus lineatus (Fab.)
Hygrotus confluens (Fab.)
Hygrotus inaequalis (Fab.)
Hygrotus impressopunctatus (Schaller)
Hygrotus parallellogrammus (Ahrens)
Clemnius decoratus (Gyllenhal)
HYDROCHIDAE
Hydrochus brevis (Herbst) [“Lewisham” only]
HELOPHORIDAE
Helophorus longitarsis Wollaston
Helophorus nanus Sturm
HYDROPHILIDAE
Anacaena bipustulata (Marsham)
Anacaena globulus (Paykull)
Berosus luridus (L.)
Chaetarthria seminulum sensu lato (Herbst)
Cymbiodyta marginella (Fab.)
Enochrus bicolor (Fab.)
Enochrus coarctatus (Gredler)
Enochrus melanocephalus (Olivier)
Enochrus ochropterus (Marsham)
Enochrus testaceus (Fab.)
Hydrophilus piceus (L.)
Coelostoma orbiculare (Fab.)
Cercyon convexiusculus Stephens
HYDRAENIDAE
Limnebius aluta Bedel
Limnebius papposus Mulsant
Ochthebius minimus (Fab.)
Ochthebius nanus Stephens
DRYOPIDAE
Dryops luridus (Erichson)
HETEROCERIDAE
Heterocerus fenestratus (Thunberg)
SCIRTIDAE
Contacyphon ochraceus (Stephens)
CHRYSOMELIDAE
Donacia marginata Hoppe
Donacia simplex Fab.
Donacia versicolorea (Brahm)
Donacia vulgaris Zschach
Hydrothassa glabra (Herbst)
Prasocuris phellandrii (L.)
Galerucella nymphaeae (L.)
WEEVILS
Notaris acridula (L.)
Notaris scirpi (Fab.)
Thryogenes schirrosus (Gyllenhal)
Hydronomus alismatis (Marsham)
Bagous glabrirostris (Herbst)
Bagous lutulosus Gyllenhal
Bagous tubulus Caldara & O’Brien
Neophytobius muricatus (Brisout)
Pelenomus quadrituberculatus (Fab.)

The list can be divided into components one of which one might be the uncertainties, inevitable in a set of old records based mainly on secondhand publication. The brackish water species next – *Hygrotus parallellogrammus* and *Enochrus bicolor*? The tidal Thames is 4 km away and the nearest brackish marshes would have been at Erith 9 km away, so neither species is impossible. In contrast, *Agabus affinis* and *Hydroporus obscurus* almost certainly mean *Sphagnum*, and the presumed co-occurrence of *Ilybius guttiger*, the *Liopterus*, what we can now call the *Nartus*, and *Hydaticus seminiger* is reminiscent of the floating *Sphagnum* carpets to be found in the middle of clay ponds in the Weald. These ponds usually have a fair amount of shade, which would explain the presence of what we now call *Clemnius decoratus* and one of the *Hydroporus dorsalis* cryptic species pair. Overall the list is dominated by species of richly vegetated ponds and fens, plus several species most likely to be found on an exposed substratum. Some running water species have crept in, and the River Quaggy* is mentioned for some of them.

*the Quaggy is famous for where, in 2009, Boris Johnson fell in. It is well to the west of any possible Lee Pit site.

Comparison with other sites Eighty-seven species make an impressive list almost anywhere in Britain. If one assumes that some commoner species, such as *Agabus sturmii* (Gyllenhal), *Ilybius fuliginosus* (Fab.) and a few *Helophorus*, were there but not mentioned, then the overall list would have been very near 100 species. Within West Kent the only small area that comes remotely near in terms of species richness is the 1st Tony Allen's collecting ground around his house in Blackheath, with 33 species. A pond in transition to *Sphagnum* lawn at Mowshurst (TQ4547), first visited by GNF in 1967 with the most recent records by Robert Aquilina in 2016, had or has 30 species, with the surrounding floodplain of the Medway. The Ruxley Pit at Sidcup (TQ4769 to 4770), mainly worked by RC, has also yielded 30 species. Extensive sections of the marshes on the Thames Estuary inevitably yield more species. The Crayford Marshes (TQ5276) had 52 species mainly taken by RC in 1986 and Dave Leeming in 1996. The Cliffe Marshes (TQ7578) and the Shorne Marshes (TQ6974), with 61 and 54 species respectively, were mainly worked by Martin Drake in 2008. The Dartford Marshes (TQ5477), with numerous recorders, comes top with 100 species. But the "Lee Pit" wins out as a pond or pond system.

The Local Nature Reserve The "Burnt Ash Pond" is a Local Nature Reserve run by Lewisham Borough Council. WIKIPEDIA has it that this was pond in the garden of a large house in 1908, and was probably a farm pond earlier. The location of the pond corresponds with that of the garden pond to the east of Burnt Ash Lane on the second map. The photograph here, off the Web (and presumably courtesy of the Council) didn't look too promising but it called for a visit.

The dénouement In order to be permitted to enter the nature reserve RC had to file a risk assessment with the local authority. Burnt Ash Pond at TQ406734 was visited on 27 June. Here is the unusual part. In ***Latissimus*** we show photographs of sites supporting water beetles. But we have never before shown a site with none! GNF had suggested to RC that he might at least get an *Agabus bipustulatus* for his trouble. That proved over-optimistic. The pond consisted of *Lemna*-covered sludge without beetles. The surrounding emergent vegetation was swept without result. So, was the "Lee Pit" in TQ37 or was it the remains of the pond illustrated here, in TQ47?

GRINLING C H, INGRAM T A & POLKINGHORNE B C (eds) 1909. *A survey and record of Woolwich and West Kent*. Woolwich: Labour Representation Printing Co. Ltd.

June 2020

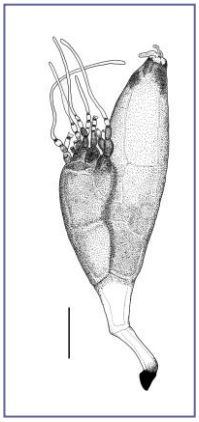
A Sharpian aside Did you know that Thomas G. Bishop made his money by founding the grocery chain Coopers, starting in Glasgow? Apart from being an avid beetle collector he also supported our movement by sending his friend David Sharp delicacies from the store. Because of the Calvinist domination of Scotland in those days Bishop avoided using his own name for his stores, instead honouring a munificent aunt. The chain was taken over by Fine Fare, itself now defunct. Thanks go to Geoff Hancock for drawing attention to this.

NEW JAPANESE ELMID

Podonychus Jäch & Kodada was described from Indonesia in 1997. The Japanese elmid fauna is rather well known so it really was a surprise for a new *Podonychus*, *gyobu*, to be found on Kyushu. The very full description includes a study of the larva. The Japanese name for this beetle is Hyotan-hime-doromushi.

YOSHITOMI H & HAYASHI M 2020. Unexpected discovery of a new *Podonychus* species in Kyushu, Japan (Coleoptera, Elmidae, Elminae, Macronychini). *ZooKeys* **933** 107-123.

BELGIAN LABOULBENIOMYCETES



The Laboulbeniomycetes comprise the Herpomycetales and the Laboulbeniales. The former are confined to cockroaches so we can talk about Laboulbeniales to cover the species that might interest us, with 112 taxa described from 37 genera. Most hosts are beetles, in particular Carabidae and Staphylinidae. This is a really great manual, with instructions on slide preparation, a key and a large glossary. The species listed below are reported from water beetles and their allies. The drawings look as if they will greatly help identification if you cannot manage a bit of Flemish in the key. Here, courtesy of André De Kesel, we have his depiction of *Laboulbenia gyrinicola* found on *Gyrinus marinus*. The scale line is 50µm.

Botryandromyces heteroceri (Thaxter)	*Heterocerus fenestratus* (Thunberg); *H. flexuosus* Stephens; *Augyles hispidulus* (Kiesenwetter)
Cantharomyces denigratus (Thaxter); *C. italicus* Spegazzini	*Dryops luridus* (Erichson)
Chitonomyces aculeifer Spegazzini	*Graptodytes pictus* (Fab.)
C. italicus Spegazzini; *C. melanurus* Peyron	*Laccophilus hyalinus* (De Geer)
Helodiomyces elegans Picard	*Dryops luridus*
Hydraeomyces halipli (Thaxter)	*Haliplus immaculatus* Gerhardt; *H. lineatocollis* (Marsham); *H. lineolatus* Mannerheim; *H. ruficollis* (De Geer)
Hydrophilomyces cf. *gracilis* Majewski; *H.* cf. *hamatus* Majewski	*Cercyon marinus* Thomson
Laboulbenia fennica Huldén	*Gyrinus substriatus* Stephens
L. gyrinicola Spegazzini	*G. marinus* Gyllenhal; *G. natator* L.
Rhyncophoromyces anacaenae Scheloske	*Anacaena lutescens* (Stephens)
Zodiomyces vorticellarius Thaxter	*Helochares* sp.

DE KESEL A, GERSTMANS C & HAELEWATERS D 2020. Catalogue of the Laboulbeniomycetes of Belgium. *Sterbeeckia* **36** 3-143.

MOROCCAN RIVER MULTIVARIATE ANALYSIS

The Melloulou River discharges from the Middle Atlas to the Mediterranean. Analysis of macroinvertebrate data was done in relation to physical parameters. No water beetles feature in the list of invertebrate species rated as indicators. However, the ordination diagram includes *Aulonogyrus striatus* Fab., *Haliplus lineatocollis* (Marsham), *Agabus biguttatus* (Olivier), *A. didymus* (Olivier), *Graptodytes* "*aequalis*", *G. varius* (Aubé), *Nebrioporus clarkii* (Wollaston) *Laccophilus hyalinus testaceus* Aubé, *Ochthebius quadrifoveolatus* Wollaston, *Helophorus flavipes* Fab., *Berosus affinis* Brullé, *Laccobius atratus* Rottenberg, *L. atrocephalus* Reitter, *Coelostoma hispanicum* (Küster), *Elmis maugetii velutina* Reiche, *Dryops gracilis* (Karsch), and *D. sulcipennis* (Costa). The correspondent is Andrés Millán.

TAYBI A F, MABROUKI Y, DAKKI M, BERRAHOU A & MILLÁN A 2020. Longitudinal distribution of macroinvertebrate in a very wet North African Basin: Oued Melloulou (Morocco). *Annales de Limnologie – International Journal of Limnology* **56** 11 pages.

SHATSKY NATIONAL NATURAL PARK, UKRAINE, 23-28 MAY 2019

Will Watson, Alexander Shatrovoskiy and Clive Turner

The Ukraine trip was initiated by Will Watson, who had visited the country three times before but when opportunities to collect beetles had been minimal. He sounded out various Balfour-Browne Club members about an organised trip to Shatsky National Natural Park, in the extreme northwest of the country bordering Belarus and Poland and not far from our club meetings in the Pripyat marshes (Anon. 2013) and Chelm (Anon. 2016). This completed the three nation's coverage of the inland basin created by plate tectonics which resulted in the formation of an exciting area of natural abundance. Will was soon put in touch with club member Dr Alexander Shatrovskiy who knows the area well and was equally keen to attract members to the region. Alexander, who prefers to be known as Sasha, then set about the organisation of the entomological field trip. Shatsky Park contains one of the largest groupings of lakes in Europe; there are around 30 of varying sizes some which are glacial in origin. There is also a vast range of other smaller wetlands including rivers, canals, fens, mires, ditches and ponds amongst a landscape of low intensity agriculture. Most rivers have been flood controlled in some way but some have maintained their natural meandering demeanour.

Alexander Shatrovskiy, Clive Turner, Vasily Kravchenko, Will Watson, Keita Matsumoto, Michael Geiser and Alexander Kravchenko © Yulia

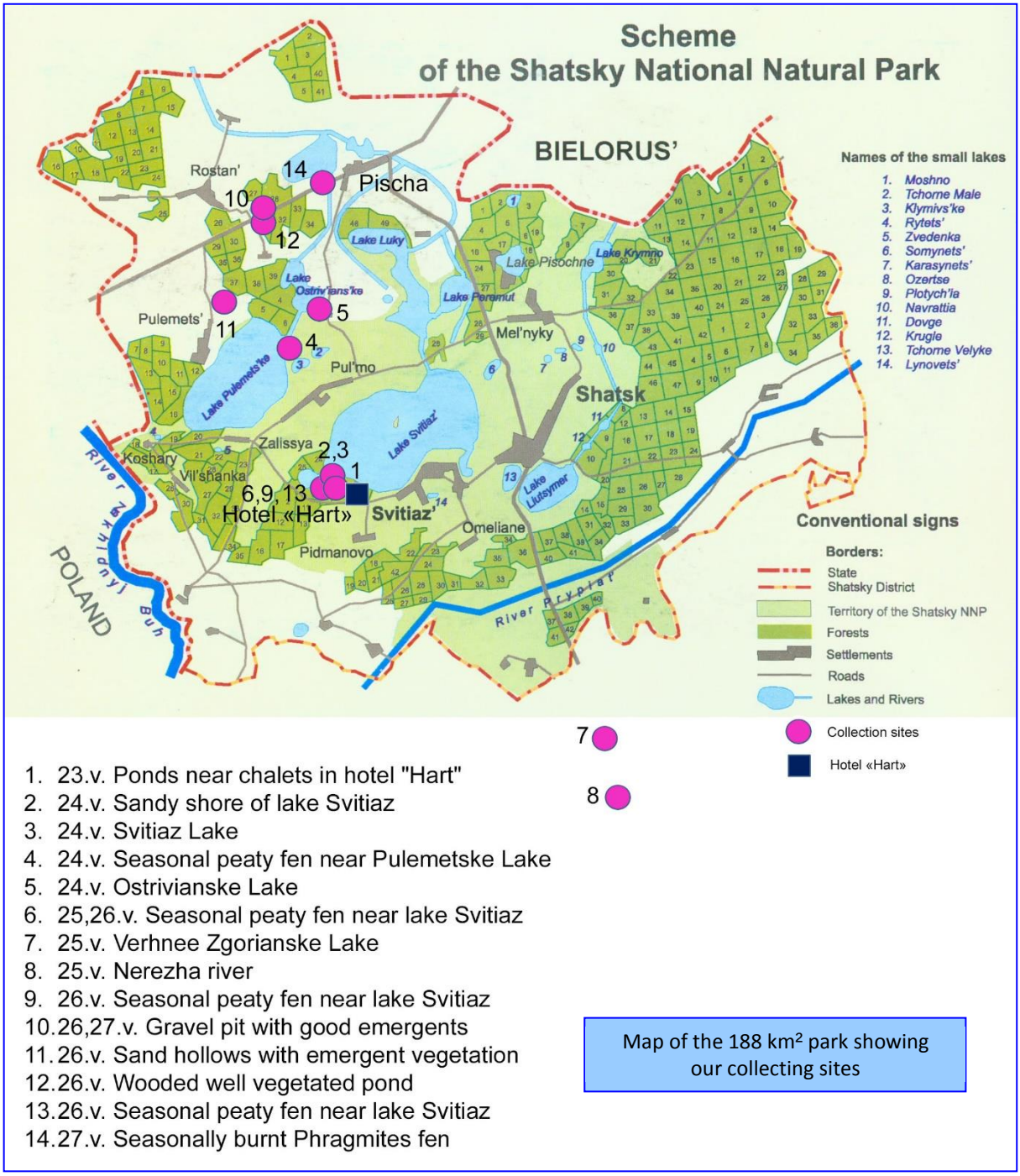
In terms of collecting the area is far from a blank canvas having been the focus of a number of recorders over the years most notably Alexander Kravchenko, teacher from the school in village Pischa, who has an interesting and well presented collection featuring a number of interesting taxa including Cantharidae, Histeridae, Curculionidae, Malachiidae, etc. His last publication (Kravchenko 2018) is devoted to the first record of the genus *Ceraphele*s Mulsant & Rey for Ukraine. However, the limited number of publications on the local fauna and apparent absence of key species indicated there were still gaps in the records which could be filled by a visit of specialists.

Choosing dates when everyone could attend proved problematic there was a lot of initial interest but all have busy schedules and there was also a Polish meeting. In the end we settled for the end of May with just four of us attending from other

countries; Clive Turner and Will Watson were accompanied by Michael Geiser and Keita Matsumoto from the Natural History Museum in London. When we arrived in Lviv we were met by Iryna Konovalova, Junior Researcher of the State Museum of Natural History. She facilitated our travel arrangements and provided useful entomological information about the Shatsky National Natural Park. At the Park we were joined by members of the Ukrainian Entomological Society:- Alexander Shatrovskiy (Coleoptera: Hydrophiloidea), Associate Professor of Vasyl Karazin Kharkiv National University; Alexander Kravchenko (regional entomofauna), researcher of Shatsky National Natural Park; Yulia Guglya (Diptera: Agromyzidae), Senior Researcher of Vasyl Karazin Kharkiv National University; Vasiliy Diadichko (Coleoptera: Hydradephaga), Senior Researcher of Institute of Marine Biology of the NAS of Ukraine in Odessa.

Travelling to this part of Ukraine was made a lot easier by the (then) new regular flight from Luton Airport to Lviv, and then it was an uneventful four hour coach drive to the Park. We paid the local bus company to drive us around to where we wanted to go. An itinerary was worked out in advance which combined Sasha's local knowledge and Clive's searches via Google Maps. It proved a good combination, sampling a cross section of the available habitats. Accommodation was at the "HART", the Recreation Centre of Eastern European National University in Lutsk, an excellent choice for a group visit with a daily accompaniment of traditional food with a hearty breakfast and an evening meal.

Glacial Lake Ostrovanske with a good marginal fringe of vegetation
© Will Watson



1. 23.v. Ponds near chalets in hotel "Hart"
2. 24.v. Sandy shore of lake Svitiaz
3. 24.v. Svitiaz Lake
4. 24.v. Seasonal peaty fen near Pulemetske Lake
5. 24.v. Ostrivianske Lake
6. 25,26.v. Seasonal peaty fen near lake Svitiaz
7. 25.v. Verhnee Zgorianske Lake
8. 25.v. Nerezha river
9. 26.v. Seasonal peaty fen near lake Svitiaz
10. 26,27.v. Gravel pit with good emergents
11. 26.v. Sand hollows with emergent vegetation
12. 26.v. Wooded well vegetated pond
13. 26.v. Seasonal peaty fen near lake Svitiaz
14. 27.v. Seasonally burnt Phragmites fen

Map of the 188 km² park showing our collecting sites

On 24 May we started with a visit to the glacial Lake Ostrivianske then an interesting walk through the pine forests to the marginal fen of its close neighbour Pulemetske Lake revealing another rich environment. We had *Limnebius atomus* (Duftschmid), *Bidessus grossepunctatus* (Vorbringer) and *Graptodytes granularis* (L.) at the first lake followed by *Bidessus unistriatus* (Goeze), *Berosus luridus* (L.) and *Hydrochus crenatus* (Fab.) at Pulemetske Lake, so a pretty good start.

On 25 May we headed to Verhnie Zgoranske Lake, near Zgorany, to the south of the Park. We surveyed the lake close to the town and where the water was less clean than in other localities, but we were still rewarded by finding *Enochrus bicolor* (Fab.), a new record for region of Shatsky Park. Clive and Will also found *Gyrinus paykulli* (Ochs) – always a pleasure to find a beetle that is rare in your own country. We then continued to head south out of the Park to an excellent site beside the

Sasha and Clive examining beetles at the Nevezha River with Clive enjoying his obsession with buckets and *Bagous* © Will Watson

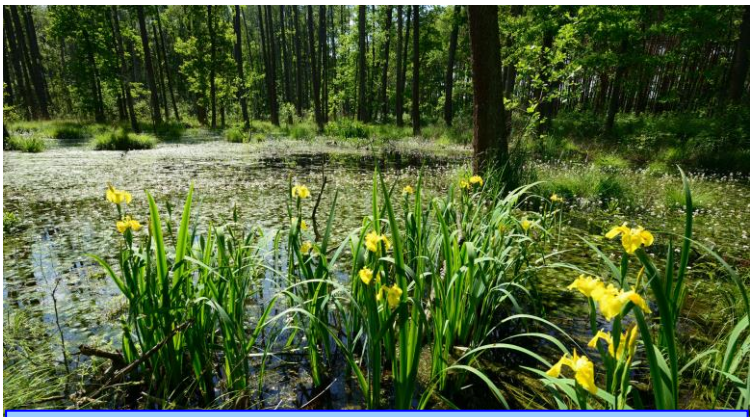
Nerezha River as it meandered down its flood channel. It was a site that Clive had spotted on the journey up as a diverse set of habitats and we were immediately rewarded on arrival by *Donacia aquatica* (L.) followed by a range of interesting species including the only elmids of the trip. In the river Sasha found *Helophorus nubilus* Fab. a species which was new for his collection. The site had a flooded margin with a series of well vegetated wet hollows likely to have been made or at least extended by wild boar. It was in one of these ponds that *Helophorus pumilio* Erichson was netted by Will Watson and subsequently determined by Garth Foster. This proved to be new for Ukraine.

On the Sunday we looked a series of small ponds located in sandy hollows near Pulemets. There was also an old drainage ditch about 1.5 metre across which had an excellent fringe of emergent vegetation and submerged weed. This proved very rich with both *Hydrophilus piceus* (L.) and *H. aterrimus* (Eschscholtz), Sasha

Silver water beetle *Hydrophilus aterrimus* among water violet in the sandy hollows ditch. © Will Watson

demonstrated to WW how to tell them apart by checking the apex of metasternal spine (Angus 2020). In addition we had *Graphoderus cinereus* (L.), *Hydrochara caraboides* (L.), *Agabus undulatus* (Schrank), *Porhydrus lineatus* (Fab.), to name a few.

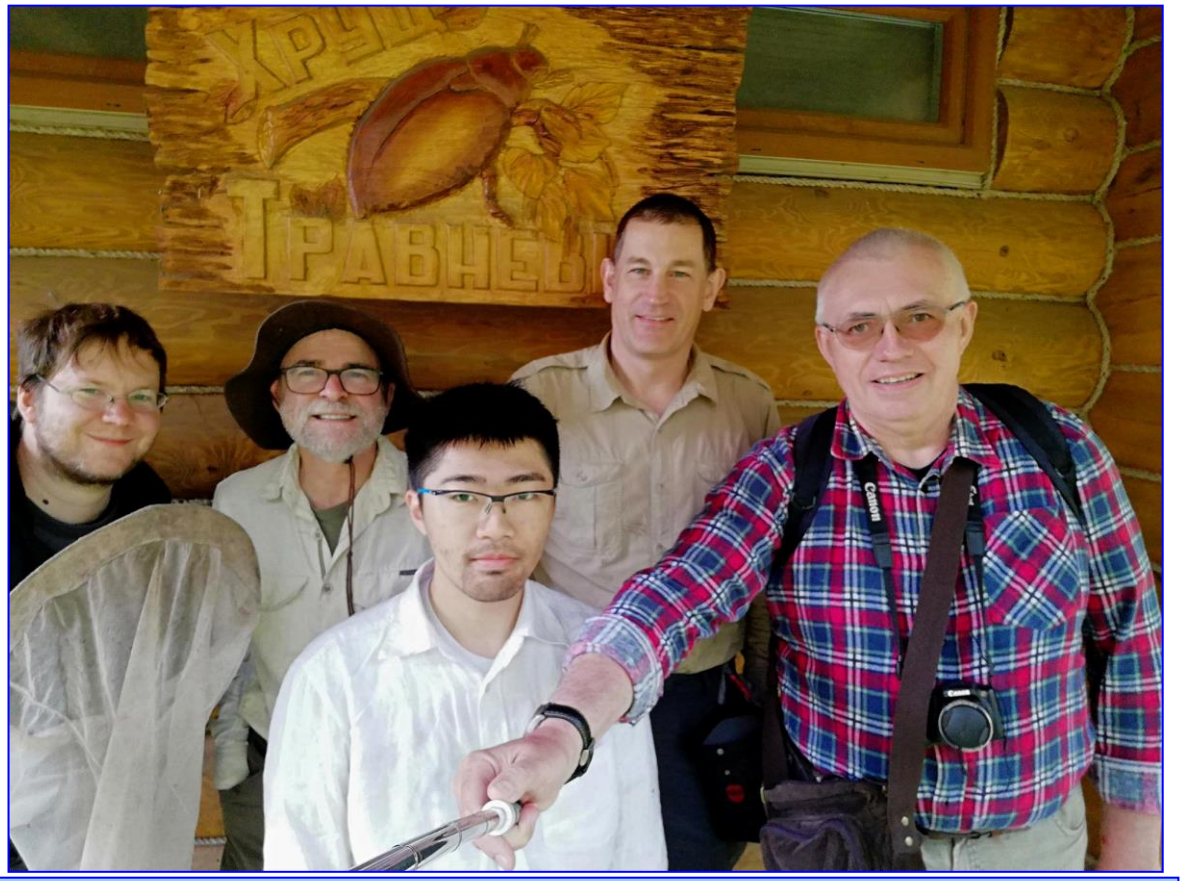
In the afternoon of the 26th we visited a wooded pond also known as Alexander Shatrovskiy's 'Lucky Pond', which was a well vegetated and permanent with abundant water-violet *Hottonia palustris*. The highlight there was discovering *Haliplus furcatus* (Seidlitz); a very rare species in Britain and much restricted elsewhere in Europe. It is chiefly found among vegetation in larger streams and more rarely in base-rich lakes with clear water. Larvae probably feed on filamentous algae (Holmen 1987). It may be associated with steppe-like landscape in which it responds to drying out by burrowing into the mud as was first observed for water beetles by S.I. Medvedev in the south of Ukraine. Its flight capability is unknown (Kehl & Dettner 2007). Later on in the afternoon we were treated generously by Sasha and his wife's hospitality at his family home where we celebrated the field meeting with homemade traditional foods stacked high covering the entire table and topped off with free-flowing home-crafted vodka. We were also privileged to look through his large collection, which is certainly an entomological treasure of the region and full of interesting species.



The 'Lucky Pond" with *Haliplus furcatus*, water violet, yellow iris and tufted loosestrife © Will Watson

On the last day, 27 May, we went to look at old sand and gravel workings which had been converted into fishing lakes. They had areas which had exposed sandy banks where Clive found *Omophron limbatum* (Fab.) and he duly demonstrated how to expose them by shore washing using the sample tray, the proper technique learnt from other Club members many years ago and an example of how important these meeting are to disseminate knowledge. The other highlight of this site was the varied range of Donaciinae. Most of the 14 species, as found by Clive, can be found in Britain and Ireland but they are rare and found in isolated populations, and it would be a mammoth task to see all of them in Britain.

Only a short walk from our accommodation was one of the better ponds we looked at. It was remarkably diverse and obsessed over by Clive who occupied the site with a friendly stork nearly every day at dawn, it was a seasonal pond with fen margins. It revealed good numbers of *Hydrochara caraboides* and *Graphoderus cinereus, Clemnius decoratus* (Gyllenhal), *Agabus* cf*. uliginosus, Hydaticus transversalis* (Pontoppidan), *Dryops auriculatus* (Fourcroy), *Donacia reticulata* Gyllenhal and *Ochthebius hungaricus* Endrödy-Younga, new for Shatsky Park. Clive focused on *Bagous* which were captured in numbers from nearly every location visited where he applied his suitably ridiculed extraction techniques using brightly coloured buckets and potato crisping grids. At this location persistence was vindicated by repeatedly good numbers of *Bagous* spp. with over a hundred found one morning before breakfast.



From left to right: Michael Geiser, Will Watson, Keita Matsumoto, Clive Turner and Alexander Shatrovskiy in the background is a carving of a beetle. The Ukrainian text claims that it is a cockchafer but in fact it looks like an *Agabus*. It is no accident that we stayed in this chalet © Alexander Shatrovskiy in charge of a Selfie Photograph

Despite the meeting being full of interest at every turn it was clear that there was a vast expanse of habitat left to explore. The floodplain fens and oxbows of the River Bug between Poland and Ukraine is a militarised zone in Ukraine and difficult to access. However, this didn't stop a valiant but vain effort of persuasion. Over the course of the four days we had visited eight sites but this represented only about a third of the largest glacial lakes and the fens, marshes, small lakes, rivers, ditches and ponds were seemingly endless. Our meeting revealed that the richness of the area as at least comparable to our visits to Poland and Belarus. Thanks to the generous hospitality of our hosts we were able to be left to explore. It is certainly an exciting and relatively unspoilt region and data are now all the more important given the recent announcement of a proposed international canal project to the north which will certainly impact on ground water, flood plains and seasonal water flows in the River Bug and River Pripyat regions.

ANGUS R B 1992. Insecta: Coleoptera: Hydrophilidae: Helophorinae. *Susswaßerfauna von Mitteleuropa* **20** (10) part 2. Stuttgart: Gustav Fischer Verlag.
ANGUS R B 2020. Notes on Palaearctic *Hydrophilus*. ***Latissimus* 45** 18-21.
ANONYMOUS 2013. Byeloblitz – one of the best Club adventures. ***Latissimus* 34** 1-4.
ANONYMOUS 2016. Back to Poland 26-30 May 2016. ***Latissimus* 38** 2-4.
DYADICHKO V G & KRAVCHENKO A M 2011 Species composition and biotopical distribution of water Adephaga (Coleoptera) of Shatski Lakes and adjacent territories of Volyn Region of Ukraine. *The Kharkov Entomological Society Gazette* **19** (1) 5–10.

HOLMEN M 1987. *The aquatic Adephaga (Coleoptera) of Fennoscandia and Denmark* I. *Gyrinidae, Haliplidae, Hygrobiidae and Noteridae*. Fauna Entomologica. Scandinavica **20**, Leiden: E.J. Brill/Scandinavian Science Press Ltd.
KEHL S & DETTNER K 2007. Flugfähigkeit der in Deutschland vorkommenden adephagen Wasserkäfer (Coleoptera, Hydradephaga). *Entomologie heute* **19** 141-161.
KRAVCHENKO A M 2018. First record of the soft-winged flower beetles genus *Cerapheles* Mulsant et Rey (Coleoptera, Malachiidae) from Ukraine. *The Kharkov Entomological Society Gazette* **26** (2) 8-14.
SHATROVSKIY O G & KRAVCHENKO A M 2016. To the study the beetles of the families Helophoridae, Hydrochidae, Spercheidae, Hydrophilidae, Hydraenidae, Elmidae, Dryopidae and Heteroceridae (Coleoptera) of the Shatsky National Natural Park. *The Kharkov Entomological Society Gazette* **24** (1) 45–61.

Received May 2020

MELANIE SPIRIT 1953-2019

Melanie died on 14 October 2019, but this has only recently become known to some of us. Mel made a significant contribution to our knowledge of the far north, generating 771 records from 1985 to 1996, including the discovery of *Oreodytes alpinus* (Paykull) extant in Britain. Here she is, in 1986, with John Owen, Mark Young, David Bilton and GNF at Loch More, the main site known for it then.

She was born on 29 April 1953 in South Shields and she studied marine biology at Newcastle University. With husband Gus she became a crofter in Ulbster. There she worked for the Caithness Biological Records Centre, concentrating on caddis. The family moved to the west after Melanie trained as a teacher and worked at Mallaig High School. Going back to the Caithness croft she herself planted 3,000 broad-leaved trees. But, from the Club point of view, she will always be remembered as the bobby dazzler at our field excursions, raising the spirits (sorry!) on many a rain-sodden and windswept day.

Condolences go to Gus Spirit, to their children Adrian, Becky and Naomi and their families. Gus also helped with this item as did the obituary prepared by Steve Moran for *The Highland Naturalist*.

FOSTER G N & SPIRIT M 1986. *Oreodytes alpinus* new to Britain. *Balfour-Browne Club Newsletter* **36** 1-2.
FOSTER G N, SPIRIT M G & COUNSELL D 1991. A survey of water beetles in the Western Highlands and on Mull. *Glasgow Naturalist* **22** 21-29.
SPIRIT M G 1986. Biological recording in Caithness. *Balfour-Browne Club Newsletter* **37** 16-17.
SPIRIT M G & RYRIE J L 1991. The freshwater invertebrates of the Dunbeath Estate, Caithness. *Glasgow Naturalist* **22** 47-58.

INDIAN *COELOSTOMA*

Six species of *Coelostoma* s.str. and two of the subgenus *Holocoelostoma* Mouchamps are recognised from the Indian subcontinent. Two are new to science, *C. lyratum* and *C. nostocinum*. The name of the latter, looking at you here, is derived from its being found under balls of *Nostoc* blue-green algae on cliffs on the sea coast. The correspondent is Martin Fikáček.

SHETH S D, GHATE H V & FIKÁČEK M 2020. Review of *Coelostoma* of the Indian subcontinent (Coleoptera: Hydrophilidae) Part 1: *Coelostoma* s. str. and *Holocoelostoma*. *European Journal of Taxonomy* **690** 1-32.

COLOMBIAN ELMIDAE

Twenty-nine elmid genera are reported, based on 22,150 specimens, adults and larvae, taken from 1976 to 2017, in about 420 streams spread over 154 municipalities. Fifty-nine species are named though there are obviously many more to be detected. The review includes habitus photographs of adults and larvae representing each genus, and the genera are mapped. This must form a very solid basis for further work.

GONZÁLEZ-CÓRDOBA M, del CARMEN ZÚÑIGA M & MANZO V 2020. La familia Elmidae (Insecta: Coleoptera: Byrrhoidea) en Colombia: riqueza taxonómica y distribución. [The Elmidae family (Insecta: Coleoptera: Byrrhoidea) in Colombia: taxonomic richness and distribution] *Revista de la Real Ácademia de Ciencias Exactas Fisicas Naturales* **44** 522-553.

IGNACIO RIBERA – THE HUMBLE GENIUS INVICTUS

The well-considered obituaries below go much further than the notice in ***Latissimus* 47** in an appreciation of Ignacio and the thought processes dictating and generating much of his published output. There are further lists of publications in them and another can be had at

https://www.um.es/ecoaqua/component/sppagebuilder/?view=page&id=251.

Invictus comes from William Ernest Henley's famous poem translated into Spanish.

MILLÁN A, ABELLÁN P, ARRIBAS P, PALLARÉS S, VILLASTRIGO A, VELASCO J & SÁNCHEZ-FERNÁNDEZ D 2020. In memoriam: Ignacio Ribera Galán (1963-2020). *Limnetica* **39** i-iv.

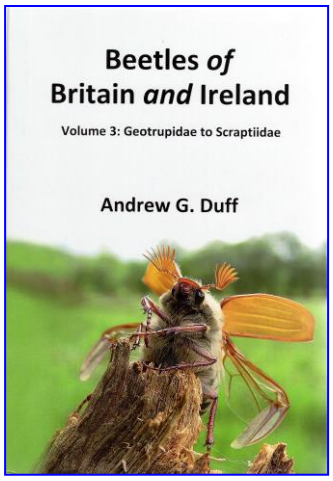
VALLADARES L-F & MILLÁN A 2020. In memoriam. En recuerdo de Ignacio Ribera (1963-2020). *Boletín de la Asociación Española de Entomología* **44** XXIII-XXXIV.

SUBFOSSIL IONA

Swedish readers had better look away as these paper concerns what happens before and when the Vikings arrived on the Scottish island of Iona. Saint Columba set up business there in AD 563, and thereafter two phases of woodland regeneration and agricultural decline indicate that the human population became depleted when the Scandinavian tourists visited. The insect fauna included a fair range of beetles. Eric Phillips recorded eight common species living there in 1992, and this paper adds *Hydroporus incognitus* Sharp amongst a wide range of insect material.

JONES S E, ALLISON E P, CAMPBELL E, EVANS N, MIGHALL T & NOBLE G 2020. Identifying social transformations and crisis during the pre-monastic and post-Viking era on Iona: new insights from a palynological and palaeo-entomological perspective. *Environmental Archaeology* doi.org/10.1080/14614103.2020.17113581

FAREWELL TO JOY



📖 DUFF A G 2020. *Beetles of Britain and Ireland* **3**: *Geotrupidae to Scraptiidae*. West Runton: A.G. Duff (Publishing). ISBN 978-0-9573347-2-4. Currently about £114 including postage from British publication outlets.

The latest work by Andrew Duff must surely release the hold that Joy's 1932 work seems to have on some British coleopterists. This is not a review of the book, simply some observations on 6½ of the 65 families covered. The treatment of Family 26 Scirtidae should bring everyone up to date and may hopefully establish the real relative frequency of *Elodes* species, and perhaps even help detect an additional *Contacyphon*. The illustrations (26.1) of *Elodes* male bits are a bit wobbly but they work. I am uneasy about luring would-be identifiers into examining external characters such as the degree of curviness of the base of the pronotum: they might then think that they do not have to dissect. Oh yes they do! It is great to see Nyholm's 1972 genitalia drawings of *Contacyphon* reproduced: they are truly unbeatable. Family 30 Elmidae is a welcome update to David Holland's 1972 treatment. If anything it is rather over-illustrated with habitus drawings from several sources, plus the photograph that accompanies each genus throughout the work. The aedeagus of *Riolus nitens* (Müller) has lost the tip of the median lobe in my copy, which may confuse those initiating themselves into studying genitalia, but the differences between the parameres of this species and *R. cupreus* (Müller) are clear enough. In 31 Dryopidae the illustrations of genitalia will take British and Irish coleopterists some way forward but the photographs of puncturing do not really work except perhaps for *D. nitidulus* (Heer). What may help anyone embarking on identifying a *Dryops* for the first time (apart from thinking that the ovipositor belongs to a male!) is that two-thirds of British and Irish *Dryops* records are for *D. luridus* (Erichson). The probability of finding a species other than *luridus* at first attempt are low. 33 Heteroceridae continues to draw heavily on Robin Clarke's 1973 Royal Entomological Society key rather than more recent works of Alessandro Mascagni and others. I have to confess that the differences in the mesoventrites of *Heterocerus marginatus* (Fab.) and other *Heterocerus*, as seen in figure 33.2, have passed me by, and I must unglue a few specimens to have a look. And then there are the one species families – 32 Limnichidae, 34 Psephenidae and the "½" 35 Ptilodactylidae, all sufficiently recognised by a single habitus figure so long as we do not get any new ones. *Ptilodactylus exotica* Chapin lives in hothouses rather than like the rest of the family in water, hence the half.

CARPATHIAN SPHAERIDIINES

Seventeen species of Sphaeridiinae were identified from 9,589 beetles caught in dung-baited traps in 49 sampling stations from 263 to 1,957 metres above sea level. *Cercyon tatricus* Endródy-Younga and *Pachysternum capense* (Mulsant) were new to Poland. Six species occupied the whole altitudinal range and another six were found mainly in the lower montane range and below, with *C. tatricus* the only high ground species, found from 1,240 to 1,957 m. *C impressus* (Sturm) was generally dominant.

GREN C & GÓRZ A 2020. Coprophagous hydrophilid beetles (Coleoptera, Hydrophilidae, Sphaeridiinae) distribution in the Polish Carpathians. *Insects* **2020** 11, 355; doi.10.3390/insects11060355 pp. 27.

DNAqua-Net

Presumably the only people who regularly access documents of this kind are interested in funding prospects, in this case for the European Union COST Action. In fact this is rather a good account of the problems associated with setting up a new monitoring system based on DNA rather than sitting at a microscope. The history of aquatic biomonitoring started with marine and lake biological stations proliferating across Western Europe and North America from 1870 to 1930, towards the end of which period the impact of organic pollution on water inland ecosystems began to be appreciated. However the Saprobic System dates back to the mid-19th Century, but it wasn't used in rivers until the early 20th Century. Such systems became increasingly sophisticated but the methods remained country-specific with very little integration on a larger scale. The Clean Water Act, 1972 in the USA is reckoned as a milestone for environmental legislation, a federal law intended to bring all American States into line also being a good starting point for an international effort. The importance of bioindication using specific plants and animals was recognised. The EU Water Framework Directive was the next milestone though its piecemeal implementation is claimed to have resulted in over 300 methods. On that basis the detection of eDNA in water might be seen as the salvation of aquatic biomonitoring. This study recognises the need for skilled taxonomists to fill the gaps identified by the eDNA approach. Taxonomists are also essential because species names and species hypotheses "are often dynamic entities under constant revision and therefore subject to change. Many species are still being lumped, split, synonymised or transferred between high taxonomic levels and many monitoring lists often use outdated taxonomy as they are not updated regularly." The latter criticism was mainly directed at phytoplankton keys used in WFD assessments, but it it good to see this kind of problem being recognised on the same level as the problems associated with pure barcoding. No beetles were directly harmed in this study but coleopterists might continue to find a role, and at least a couple are in the 32-strong author list, with a key paper being by Johannes Bergsten *et al*. (2012) – see ***Latissimus* 32** 13. An exemplary review.

LEESE F *et al*. 2018. Why we need sustainable networks bridging countries, disciplines, cultures and generations for aquatic biomonitoring 2.0: a perspective derived from the DNAqua-Net COST Action. *Advances in Ecological Research* **58** 63-99.

NEW POLISH RECORDS

These records come from a survey of 48 sites in the vicinity of Lublin in the east of Poland in 2015-2019. Notable are *Aulonogyrus concinnus* (Klug), *Ilybius crassus* Thomson, *Rhantus consputus* (Sturm), *R. incognitus* Scholz, *Hydrophilus aterrimus* Eschscholtz, *Potamophilus acuminatus* (Fab.) and *Macroplea appendiculata* (Panzer). The second paper has the only modern Polish record of *Ilybius montanus*

BUCZYŃSKI P & BIELAK-BIELECKI P 2020. Materiały do poznania chrząszczy wodnych (Coleoptera) Polski środkowo-wschodniej [New records of aquatic beetles (Coleoptera) from Central and Eastern Poland]. *Notatki Entomologiczne* **5** 1-17.

BUCZYŃSKI P & ŻURAWLEW P 2020. Interesujące stwierdzenie rzadkiego chrząszcza *Ilybius montanus* Stephens, 1828 (Coleoptera: Dytiscidae) na Nizinie Wielkopolsko-Kujawskie. [An interesting record of a rare beetle *Ilybius montanus* Stephens, 1828 (Coleoptera: Dytiscidae) in the Wielkopolsko-Kujawska Lowland] *Wiadomości Entomologiczne* **39** (3) 3-4.

IRANIAN BEETLES

A recent paper has revealed that quite a few papers about Iran have escaped attention, presented here in reverse order of publication.

Twenty-three species are listed from Iran, 13 *Contacyphon*, 5 *Elodes*, 3 *Hydrocyphon*, *Microcara luteicornis* Reitter and *Scirtes orbicularis* Panzer. The author for correspondence is Hassan Ghahari.

KLAUSNITZER B & GHAHARI H. 2019. An annotated checklist of Scirtoidea (Coleoptera) of Iran. *Redia* **102** 61-67.

Forty-three species and subspecies are catalogued for Iran. *Helophorus nanus* Sturm is reported new from Iran, making up for *H. brevitarsis* Kuwert, which is removed from the list.

DARILMAZ M C, OSTOVAN H, GHAHARI H & ANGUS R B 2018. An annotated checklist of Iranian aquatic Polyphaga: Georissidae, Helophoridae, Hydrochidae, Spercheidae, Curculionidae and Erirhinidae (Insecta: Coleoptera). *Aquatic Insects* doi: 10.1080/01650424.2018.1476721

One hundred and four species in 17 genera are listed for the hydrophiloid fauna of Iran. Four species are recorded for the first time – *Laccobius meridionalis* Gentili, *Cercyon haemorrhoidalis* (Fab.), *C*. *quisquilius* (L.) and *Sphaeridium scarabaeoides* (L.). *Laccobius elmii* Gentili & Sadoghi and *L. laotianus* Gentili are regarded as endemic to Iran. The author for correspondence is Hassan Ghahari.

GENTILI E, OSTOVAN H, GHAHARI H & KOMAREK A 2018. Annotated checklist of Iranian Hydrophilidae (Coleoptera: Polyphaga: Hydrophiloidea). *Aquatic Insects* **39** 55-58.

Sixty-seven species of Hydraenidae are known from Iran, 22 of them presumed to be endemic, 11 *Hydraena* and 11 *Ochthebius*. Two taxa, *Hydraena caucasica* Kuwert and *Ochthebius semisericeus sempronius* d'Orchymont, are not considered to be Iranian.

DARILMAZ M C, OSTOVAN H & GHAHARI H 2017.Annotated checklist of the Hydraenidae (Coleoptera: Staphylinidae) recorded from Iran. *Aquatic Insects* **38** 239-253.

Hydroporus golestanensis is described from a gravelly and clayey mountain stream in broad-leaved woodland. It was accompanied by *Agabus bipustulatus* (L.), *A. glacialis* Hochhuth and *Hydroporus planus* (Fab.). This beetle is a typical member of the *longulus* group, with strongly sinuate postcoxal processes and a median lobe that is weakly asymmetrical.

HÁJEK J 2016. *Hydroporus golestanensis*, a new species of the *H. longulus* group from northern Iran (Coleoptera: Dytiscidae: Hydroporinae). *Zootaxa* **4072** 496-500.

Of the 28 species found in this survey of north-west Iran four species were newly recorded for Iran – *Agabus didymus* (Olivier), *Hydroporus bodemeyeri* Ganglbauer, *Nebrioporus suavis* (Sharp) and *Helophorus griseus* Herbst.

SAMIN N, JĘDRYCZKOWSKI W B & CHELAV H S. 2015. A faunistic study on the Coleoptera (Insecta) from some aquatic and semi-aquatic ecosystems in northwestern Iran. *Far Eastern Entomologist* **302** 18-24.

Despite the multitude of authors the beetles, nicely illustrated, get no further than generic names. The author for correspondence was Professor Vatandoost.

SHAYEGHI M, VATANDOOST H, GOROUHI A, SANEI-DEHKORDI A R, SALIM-ABADI Y, KARAMI M, JALIL-NAVAZ M R, AKHAVAN A A, SHIEKH Z, VATANDOOST S & ARANDIAN M H 2014. Biodiversity of aquatic insects of

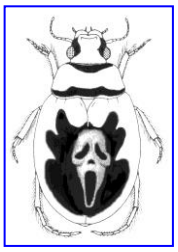
Zayandeh Roud River and its branches, Isfahan Province, Iran. *Journal of Arthropod-Borne Diseases* **8** 197-203.

A draft checklist of Iranian Heteroceridae has also been received The contact is Alexey Sazhnev with this as-yet-unpublished paper.
SASHNEV A 2020. *Checklist of the Heteroceridae (Insecta, Coleoptera) of the World*.

HYDROBIUS PAUPER AND OTHERS

The redescription of the Japanese endemic *Hydrobius pauper* Sharp serves as a great launch platform for the further development of the complex of *Hydrobius* species, starting with a new key. *H. arcticus* Kuwert is set aside from the rest by its small and blunt mesoventral projection. The character of large punctures associated with trichobothria found in or close to the 3rd and 5th striae in the anterior part of the elytra takes out not only *H. rottenbergii* Gerhardt but also *H. pauper* and the Chinese *H. pui* Jia, and these can be further separated by reference to the aedeagi and the extent of pubescence on the metafemora. This then leaves the Chinese *H. punctistriatus* Jia with a small aedeagus on the one hand and *H. subrotundus* Stephens and the true *H. fuscipes* (L.) on the other. So, this paper provides a great leap forward in our understanding of the group but beware! Sergey and Robert say "There are probably many more species of *Hydrobius* in Eurasia…."
RYNDEVICH S K & ANGUS R B 2020. Redescription of *Hydrobius pauper* (Coleoptera: Hydrophilidae), with a key to the Eurasian species of the genus *Hydrobius*. *Zoosystematica Rossica* **29** 77-86.

DYTISCOIDEA PHYLOGENY DISPUTED



Commenting on Beutel *et al*. 2020 in ***Latissimus* 45** 8 the question "Are we there yet?" was posed about the evolution of the Adephaga. The conclusion was that we must be very near, but then comes along a reassessment of the same data that appears to pivot on the position of the Hygrobiidae, reminiscent of previous disputes concerning the very stem name of the family. Chenyang Cai *et al*. re-analysed the phylogenomic data-set for Dytiscoidea and found, consistent with earlier findings, that the Aspidytidae are a sister group of Amphizoidae, and Hygrobiidae are sister to the Dytiscidae. They described the findings of Vasilikopoulus *et al*. (2019) as being in part "inconsistent and equivocal" whereas they claimed "a complex and better-fitting model" yielding "a consistent and fully supported tree of Dytiscoidea." The rejoinder by Vasilikopoulus *et al*. (2020) claims that the position of Hygrobiidae has not been robustly resolved. They invoke "ultra-conserved elements" (UCEs – see for example ***Latissimus* 45** 9) as an independent method of assessment, and that UCE analysis did not support a clade of Hygrobiidae + Dytiscidae. If only a squeak beetle could do more than squeak!
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 7 pp.
VASILIKOPOULOS A, BALKE M, BEUTEL R G, DONATH A, PODSIADLOWSKI L, PFLUG J M, WATERHOUSE R M, MEUSEMANN K, PETERS R S, ESCALONA H E, MAYER C, LIU S, HENDRICH L, ALARIE Y, BILTON D T, JIA F, ZHOU X, MADDISON D R, NIEHUIS O & MISOF B 2019. Phylogenomics of the superfamily Dytiscoidea (Coleoptera: Adephaga) with an evaluation of phylogenetic conflict and systematic error. *Molecular Phylogenetics and Evolution* **135** 270-285.

VASILIKIPOULOS A, GUSTAFSON G T, BALKE M, NICHUIS O, BEUTEL R G & MISOF B 2020. Resolving the phylogenetic position of Hygrobiidae (Coleoptera: Adephaga) requires objective statistical tests and exhaustive phylogenetic methodology: a response to Cai *et al*. (2020). *Molecular Phylogenetics and Evolution* doi.org/10.1016/j.mpev.2020.106923.

BEUTEL R G, RIBERA I, FIKAČEK M, VASILIKOPOULOS A, MISOF B & BALKE M. 2019. The morphological evolution of the Adephaga (Coleoptera). *Systematic Entomology* **45** 378-395.

BOOTH R G 2005. Some comments on the *Hygrobia* problem. ***Latissimus* 19** 18.

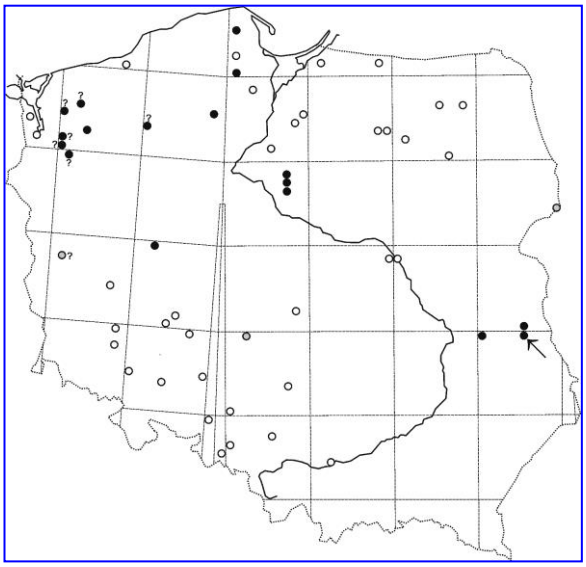
BOUCHARD P, BOUSQUET Y, DAVIES A E, ALONSO-ZARAZAGA M A, LAWRENCE J F, LYAL C H C, NEWTON A F, REID C A M, SCHMITT M, ŚLIPIŃSKI S A & SMITH A B T 2011. Family-group names in Coleoptera (Insecta). *Zookeys* **88** 1–972.

NILSSON A N 2004. The squeak of the squeak beetle – so few names, so many problems. *Latissimus* **18** 2-7.

NILSSON A N 2006. Which name is valid - Hygrobiidae or Paelobiidae? ***Latissimus* 21** 37-39.

ANONYMOUS 2011. New catalogue of family-end names for Coleoptera. ***Latissimus* 30** 9-11

LATISSIMUS IN POLAND



Eleven dead *D. latissimus* were found on the edge of the Bagno Bubnów fen in the Poleski National Park (↖). Some had been found in a net trap used to poach fish. The distribution map here (○ before 1945; ● 1945-1990, ● later records) shows that the beetle was most likely once found continuously from the foothills of the Sudetes to the Baltic coast. Unfortunately there is considerable doubt about some recent records from the north-west. The habitats used by this beetle appear to vary. Originally it would have been found in natural, large shallow lakes, some rivers, such as the Vistula, and oxbow lakes, but it became dependent on man-made habitats, including large ponds. The author for correspondence is Paweł Buczyński.

MARKOWSKI P & BUCZYŃSKI P 2020. Rediscovery of *Dytiscus latissimus* Linnaeus, 1758 (Coleoptera: Dytiscidae) on the southern edge of it distribution area in Central and Eastern Poland. *Polish Journal of Entomology* **89** 81-90.

TUNISIAN MACROINVERTEBRATES AS INDICATORS

The performances of Coleoptera, Heteroptera, Odonata, Trichoptera, Plecoptera, Ephemeroptera, Crustacea and Mollusca were compared as surrogates for the whole macroinvertebrate communities in northern Tunisia. The beetles won, but performance was enhanced by combining them with Ephemeroptera.

SLIMANI N, SÁNCHEZ-FERNÁNDEZ D, GUILBERT E, BOUMAÏZA M, GUARESCHI S & THIOLOUSE J. 2019. Assessing potential surrogates of macroinvertebrate diversity in North-African Mediterranean aquatic ecosystems. *Ecological Indicators* **101** 324-329.

TREVOR JAMES 1948 - 2020

Trevor died on 5 June 2020 after a long battle with illness but during which he produced what for us would be his magnum opus, the *Beetles of Hertfordshire*. (***Latissimi* 42** 21 and **44** 12). He took an interest in all aspects of recording the flora and fauna of Hertfordshire, but with a decided and desirable weakness for beetles. From 1982 to 2018 he himself recorded 116 water beetle species and their allies from the county, 446 records in total plus acquiring many records from others. *Beetles of Hertfordshire* lists 33 of his papers and is the most appropriate vehicle for displaying his major contribution to the county. In that work he stated that his collection would go to Oxford University Museum of Natural History apart from material collected up to July 1990, which is held in the North Hertfordshire Museum Service collection.

NEW SCOTTISH RECORDS

Details are given for new records of *Gyrinus distinctus* Aubé, *Noterus clavicornis* (De Geer), *Nartus grapii* (Gyllenhal), *Hyphydrus ovatus* (L.), *Enochrus testaceus* (Fab.), *Ochthebius marinus* (Paykull), *Scirtes hemisphaericus* (L.) and *Telmatophilus caricis* (Olivier). Some of these are the northernmost records yet. West Perthshire is identified as a key area to get to, perhaps a chiasma, offering easy routes further north for species arriving in Scotland from the east and the west coast routes. OR – this is just one person's annual dabbling!

FOSTER G N 2020. Possible movements of water beetles as indicated by collecting in Scotland, 2013. *The Coleopterist* **29** 59-61.

INDIAN WET CLIFF DYTISCID

Microdytes hygropetricus Sheth & Hájek is described from vertical cliffs in the Western Ghats. The beetle is 1.70-1.85 mm long, almost round and strongly convex, with shortened appendages and swimming hairs reduced if compared to other *Microdytes*. The correspondent is Jiří Hájek.

SHETH S D, GHATE H V, DAHANUKAR N & HÁJEK J 2020. The first hygropetric species of *Microdytes* J. Balfour-Browne, 1946 (Coleoptera: Dytiscidae) from the Western Ghats, India. *Oriental Insects* doi.org/10.1080/00305316.2020.1787903 13 pp.

NEW CANADIAN RECORDS

The following are for New Brunswick: *Haliplus apostolicus* Wallis, *Heterosternuta oppositus* (Say), *Hydroporus morio* Aubé, *Sanfilippodytes planiusculus* (Fall), *Donacia biimpressa* Melsheimer, *D. limonia* Schaeffer. The donaciine *Poecilocera harrisii* (LeConte) is not only new for New Brunswick but also for Canada. *Bagous magister* LeConte is new for Nova Scotia. The correspondent is Jon Sweeney.

WEBSTER R P, de TONNANCOUR P, SWEENEY J D, WEBSTER V L, KOSTANOWICZ C A, HUGHES C, ANDERSON R A, KLYMKO J, CHANTAL C & VIGNEAULT R 2020. New Coleoptera records from eastern Canada, with additions to the fauna of Manitoba, British Columbia, and Yukon Territory. *ZooKeys* **946** 53-112.

PERUVIAN *LIODESSUS*

Fourteen *Liodessus* are now known from the Andes including these newly described *caxamarca* and *altoperuensis* found in puddles around 4,000 metres above sea level.

BALKE M, MEGNA Y S, ZENTENO N, FIGUEROA L & HENDRICH L 2020. Two new species of *Liodessus* Guignot, 1939 diving beetles from Northern Peru (Coleoptera, Dytiscidae, Hydroporinae). *Alpine Entomology* **4** 173-178.

NEW ZEALAND CONSERVATION

The latest listing (Grainger *et al*. 2018) of NZ species under threat had the following water beetles:

Nationally Critical – *Rhantus schauinslandi* Ordish

Nationally Vulnerable – *Orchymontia banksiana* Ordish

Naturally Uncommon – *Podaena aotea* Delgado & Palma, *P. hauturu* Delgado & Palma, *P. kuscheli* Ordish, *P. moanalti* Delgado & Palma, *Rhantus plantaris* Sharp, also a huge number of beetles classified as Data Deficient.

The analysis by Tom Drinan *et al*. (2020) comes to the general conclusion that changes in the listing since the first one in 2002 owe mostly to improved understanding of distributions rather than to changes in population sizes and extent. Six kinds of shortfall in knowledge are identified:-

Darwinian – lack of knowledge about phylogeny;

Linnean – the discrepancy between the numbers of known and unknown species;

Wallacean – lack of geographic information;

Prestonian – lack of knowledge of numbers and how they change in space and time;

Raunkiæran – lack of knowledge of traits and how they change the ecology of the species;

Hutchinsonian – not knowing enough about the ecology of a species so as to understand how it will react to habitat changes.

If one goes back to the paper by Joaquin Hortal *et al*. (2015) then one might add:-

Eltonian – for ignorance of biotic interactions.

Supplementary table S1 for the 2020 paper notes that *Gyrinus convexiusculus* Macleay, *Orchymontia dugdalei* Ordish and *O. laminifera* Ordish were classified as Naturally Uncommon in assessments in 2009/2010, whilst *Horelophorus walkeri* d'Orchymont was rated Nationally Endangered at the same time. No beetles are considered to have gone extinct.

DRINAN T J, GRAINGER N P J, HARDING J S, COLLIER K J, SMITH B J, DEATH R G, MAKAN T & ROLFE J R 2020. Analysis of the conservation status of New Zealand freshwater invertebrates: temporal changes, knowledge gaps, impediments, and management implications. *New Zealand Journal of Zoology* doi.org/10.1080/03014223.2020.1778044

GRAINGER N, HARDING J, DRINAN T, COLLIER K, SMITH B, DEATH R, MAKAN T & ROLFE J 2018. Conservation status of New Zealand freshwater invertebrates, 2018. *New Zealand Threat Classification Series* **28**. Wellington: New Zealand Department of Conservation.

HORTAL J, DE BELLO F, DINIZ-FILHO J A F, LEWINSOHN T M, LOBO J M & LADLE R J 2015. Seven shortfalls that beset large-scale knowledge of biodiversity. *Annual Review of Ecology, Evolution, and Systematics* **46** 523-549.

MINSK RIVER FAUNA

Forty-one invertebrate species were recorded from the Usha River in the region of Minsk. The water beetles were *Gyrinus marinus* Gyllenhal, *G. natator* (L.), *Orectochilus villosus* (Müller), *Noterus crassicornis* (Müller), *Hydroporus palustris* (L.), *Hydroglyphus geminus* (Fab.), *Hydrobius fu*scipes (L.), *Dryops ernesti* (des Gozis) and *Contacyphon padi* (L.). The contact is presumably Sergey Ryndevich.

STRIZHAK K A & RYNDEVICH S K 2019. The taxonomic composition of invertebrates (Annelida, Arthropoda, Mollusca) as indicator of ecological condition of the Usha River (Minsk Region, Belarus). *Наука среди нас* [Science among us] **12** 1-13. [in Russian with English abstract]

SOUTH AMERICAN NOTERIDAE

Suphisellus Crotch, with over 50 species, is the second largest genus of Noteridae, and it ranges from Ontario to Argentina. Its affinities to other genera are subject to differing views, either its being most closely related to *Canthydrus* Sharp or to *Suphis* Aubé and *Canthysellus* Baca & Toledo. The latest species here, *grossoi*, from Paraguay, is in the *grammicus* group, sharing with them an elytral pattern, in this case longitudinal bands. The Mexican *S. epleri* Arce-Pérez & Baca was not assigned to a particular species-group. It has short longitudinal pale marks on dark elytra and is most linked to *S. neglectus* Young. *Llanoterus* García & Camacho is a new genus based on the Venezuelan *Suphisellus shorti* García, Benetti & Camacho. The molecular phylogeny of the Noteridae was reviewed by Baca *et al*. (2017) – see ***Latissimus* 41** 21.

ARCE-PÉREZ R & BACA S M 2017. A new species of *Suphisellus* Crotch from Mexico (Coleoptera: Noteridae). *Zootaxa* **4323** 277-285.

BACA S M, TOUSSAINT E F A, MILLER K B & SHORT A E Z 2017. Molecular phylogeny of the aquatic beetle family Noteridae (Coleoptera: Adephaga) with an emphasis on data partitioning strategies. *Molecular Phylogenetics & Evolution* **107** 282-292.

GARCÍA M & CAMACHO J 2018. Un nuevo género de coleóptero acuático de Venezuela (Hydradephaga: Noteridae). *UNED Research Journal* **10** 184-189.

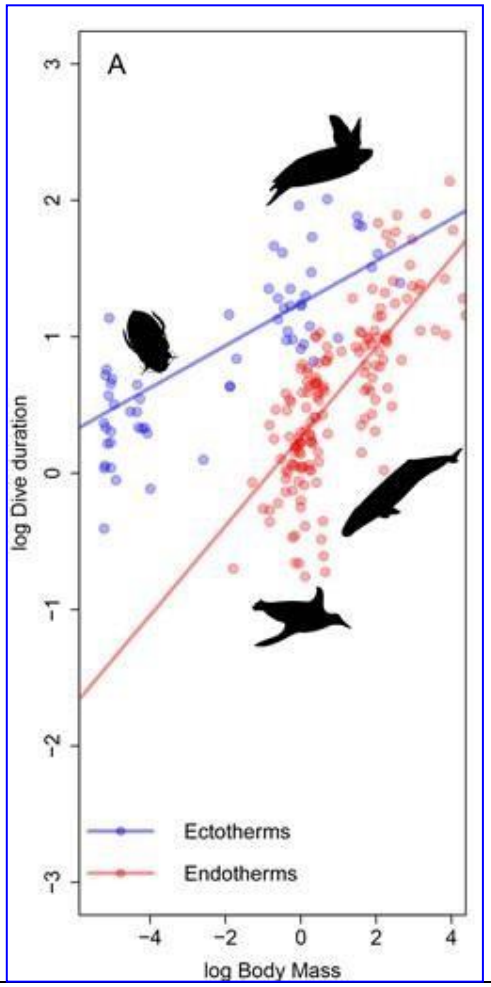
URCOLA J I, BENETTI C J, BACA S M & MICHAT M C 2020. *Suphisellus grossoi* sp. n., a new burrowing beetles from South America, and notes on *S. flavolineatus* (Régimbart, 1889) and *S. grammicus* (Sharp, 1882) (Coleoptera: Noteridae). *Zootaxa* **4786** 123-130.

FROM DIVING BEETLES TO PLESIOSAURS

Diving performance shapes the ecology and behaviour of all air-breathing animals, from beetles to whales, but with a major difference between warm- and cold-blooded groups. The ectotherms (blue symbols and upper line in this plot of log body mass against log dive duration) can remain submerged longer, but the relationship between body size and dive duration is steeper in endotherms (red symbols and lower line). On this basis one might predict that the Loch Ness Monster, if it exists or existed, is or was warm-blooded, and we might put this finding down to what we know about water beetles. Some extra blurb here is more in keeping with the Royal Society….

https://www.plymouth.ac.uk/news/scientists-reveal-new-fundamental-principles-governing-diving-in-animals

VERBERK W C E P, CALOSI P, BRISCOUX F, SPICER J I, GARLAND T & BILTON D T 2020. Universal metabolic constraints shape the evolutionary ecology of diving in animals. *Proceedings of the Royal Society B* **287** 20200488 1-9.



AYRSHIRE PENINSULA THREAT

In 1871 the British Dynamite Company Ltd was set up by Alfred Nobel to develop explosives at Ardeer, a fairly remote site on a sandy peninsula in Ayrshire. Nobel's comment on this part of Ayrshire seems a trifle strong.

"Picture to yourself everlasting bleak sand dunes with no buildings. Only rabbits find a little nourishment here; they eat a substance which quite unjustifiably goes by the name of grass. It is a sand desert where the wind always blows often howls filling the ears with sand. Between us and America, there is nothing but water a sea whose mighty waves are always raging and foaming. Now you will have some idea of the place where I am living. Without work the place would be intolerable"

It is certainly not inhospitable to a range of wildlife, in particular solitary bees and wasps. The article notes the occurrence of *Noterus clavicornis* (De Geer), *Nartus grapii* (Gyllenhal), *Enochrus testaceus* (Fab.), *Scirtes hemisphaericus* (L.) and *Donacia vulgaris* Zschach. The company now owning the site seems to be keen to develop with not too much regard for its wildlife potential, and this is strangely supported by an anachronism, a Special Development Order set up in 1953 when the site was still strategically important as a source of explosives. See also this issue, page 35, for "New Scottish records".

PHILP B 2020. Ardeer – Ayrshire's overlooked gem. *British Wildlife* **31** (5) 332-340.

ECUADOR AND FLORIDA RECORDS

Species newly recorded for Ecuador are *Macrogyrus buqueti* Aubé, *Platynectes muelleri* (Kirsch), *Thermonectus depictus* Sharp, *T. margineguttatus* (Aubé), *Copelatus abonnenci* Guignot, *C. alternatus* Sharp, *C. amazonicus* Régimbart, and *C. concolor* Sharp. *Thermonectus intermedius* Crotch is newly recorded in Florida and Louisiana, and there are USA records of other species.

RYNDEVICH S K 2019. New faunistic records of American whirligig and predaceous diving beetles (Insecta: Coleoptera: Gyrinidae, Dytiscidae). pp. 45-49 in V. Derunkov, A.V. Fist, O.V. Clothespin *et al*. (eds). *Results and prospects of the development of entomology in Eastern Europe: a collection of articles of the III International scientific and practical conference dedicated to the memory of Vadim Anatolievich Tsinkevich (1971 –2018), November 19-21, 2019, Minsk*.

BAMBOO-LIVING SCIRTIDS

Seven *Exochomoscites* species living mainly in treeholes in Malaysia and Thailand were reared from larvae. *E. carinensis* Ruta, *E. chiangmaiensis* Ruta, *E. hajeki* Ruta, *E. hashimi* Klausnitzer (a Malaysian species newly described in this paper) *E. jaechi* Ruta & Yoshitomi, *E*. cf. *luteosuturaloides* Ruta & Yoshitomi lives in water-filled bamboo stems whereas *E*. *meghalayensis* Ruta & Yoshitomi inhabits treeholes and forest rockpools. Adults get into stems via holes sometimes created by woodpeckers and other insects. The larvae live in the water and pupate in chambers just above the water. Total development time for bamboo species was about three months. Predators included chironomid larvae (*Dasyhelea*), mosquito larvae (*Toxorhynchites*), water striders (*Lathriovelia*), rove beetles (*Acylophorus*), jumping spiders (*Paracyrba*), web-building spiders (Theridiidae) and web-building larvae of fungus gnats (*Truplaya*).

KOVAC D & KLAUSNITZER B 2020. A new species of *Exochomoscirtes* Pic, 1916 from Malaysia (Insecta: Coleoptera: Scirtidae) with biological notes on the bamboo-inhabiting members of the genus. *Contributions to Entomology* (*Beiträge zur Entomologie*) **70** 167-180.

CRYING IN THE WILDERNESS?

So what can 23 authors tell us about the conservation of water beetles? You will be surprised. "Insect" appears in the 53 pages of text four times – such as on page 3 "…data on insect diversity should be interpreted with caution, as many experts report strong sampling and study biases….Especially, the Holarctic insect fauna is clearly better studied than that of the Neotropical, Afrotropical, and Oriental regions."

Some of us would beg to differ or put it more bluntly. So, let's try the word "beetle" and yes! There it is, once

.."Springs-dependent species are among recently documented extinctions in the American Southwest (e.g., Stephan's riffle beetle *Heterelmis stephani*…." Despite this documentation no reference is cited for this one but there is a web-based report in 2016. Read on….

CANTONATI M, POIKANE S, PRINGLE C M, STEVENS L E, TURAK E, HEINO J, RICHARDSON J S, BOLPAGNI R, BORRINI A, CID N, ČTVRTLIKOVÁ M, GALASSI D M P, HÁJEK M, HAWES I, LEVKOV Z, NASELLI-FLORES L, SABER A A, DII CICCO M, FIASCA B, HAMILTON P B, KUBEČKA, SEGADELLI S & ZNACHOR P 2020. Characteristics, main impacts, and stewardship of natural and artificial freshwater environments: consequences for biodiversity conservation. *Water* **12, 260** 82 pages.

CANDIDATES FOR EXTINCTION

Remember the proposed Register in ***Latissimus* 45**? So where are those extinct species? Is this extinction business just so much false news? Marco Cantonati *et al*. (2020) referred to the possible extinction of *Heterelmis stephani* Brown. This beetle was described by Harley Brown (1972) from specimens found in Bog Springs, Madera Canyon, Arizona by Karl Stephan in 1970. With hindsight or perhaps with very little sight at all, it is strange that the detailed description does not mention the eyes, which one might expect to be at least reduced. There is a US Fish & Wildlife Service report on the web -

https://www.fws.gov/southwest/es/arizona/Documents/SpeciesDocs/StephanRiffle/Final%20Stephan%27s%20Riffle%20Beetle%20SSA%20Report_20160805.pdf

This site has an image of the beetle, not exactly a stunner and hardly a contender for a flagship species. *H. stephani* has not been found since 1993 despite surveys in 2012, 2015 and 2016. Even if it was found again tomorrow its finder would not qualify for the Forbes Award (see ***Latissimus* 45** 27) as 27 years of absence is not at all unusual for water beetles. However, we can add this to our list of Extinct species on that basis that the habitat is severely restricted, that is has been modified in part, and have been so well worked. So congratulations to those 23 authors. If they had known anything about subterranean water beetles they might have chosen one of the hundred of so dytiscids in the Australian outback as an example.

BROWN H P 1972. Synopsis of the genus *Heterelmis* Sharp in the United States, with description of a new species from Arizona (Coleoptera, Dryopoidea, Elmidae). *Entomological News* **83** 229-238.

SMITH D R, RICHARDSON M, OETKER S, ALLAN N & STANFORD S 2016. *Species status assessment report for Stephan's beetle*. Version 1.0, August 2016. Albuquerque: US Fish and Wildlife Service.

MONO DIVING BEETLE NO LONGER MONO, AND MORE ON *HYGROTUS*

The Mono Lake Diving Beetle *Hygrotus artus* Fall was listed, questionably, as Extinct in the IUCN List (see, for example, ***Latissimus* 45** 26). It is another species that can be taken off the Register of Extinct Species. Far from being confined to the highly alkaline and toxic Mono Lake it appears to be more widespread in the area and probably not found in the lake itself but rather in a warm spring above it. This is a species varying considerably in size, colour, the width of the male protarsi and the shape of female genitalia.

H. (*Leptolambus*) *yellowstone* is newly described as species distinct from *H. artus* and found in the National Park and at Riverton 230 km to the south-east. *H. medialis* (LeConte) is reinstated as a species distinct from *H. lutescens* (LeConte), and *H. infacetus* (Clark) is reinstated as a species distinct from *medialis*. *H. fumatus* (Sharp) is discussed on the basis that Branden's *H. sharpi* should be treated as a synonym of it. More work is needed to establish that *H. canadensis* (Fall) is truly a synonym of *H. marklini* (Gyllenhal). A key is provided the 9 New World *Leptolambus* species. *Hygrotus* is now considered to have 132 species plus 53 species in the subgenus *Leptolambus.*

There is a follow-up comment on these authors' earlier paper on the Hawaiian *H. nubilus* (LeConte) (see ***Latissimus* 37** 24). They had speculated that this species (or its ancestor) could have got to Hawaii in the plumage of migrant birds. They noted that the Pacific Golden Plover, *Pluvialis fulva* (Gmelin) migrates between Hawaii and Alaska. Brooks (1967) reported possible *H. nubilus* including larvae in the gut of a golden plover.

BROOKS W S 1967. Organisms consumed by various migrating shorebirds. *The Auk* **84** 128-130.

CHALLET G & FERY H 2020. Rediscovery of *Hygrotus* (*Leptolambus*) *artus* (Fall, 1919), description of *Hygrotus* (L.) *yellowstone* nov. sp. and notes on other species of the genus (Coleoptera, Dytiscidae, Hydroporinae, Hygrotini). *Linzer biologische Beiträge* **52** 35-79.

BRAZILIAN *HYDRAENOPSIS*

Hydraena josefinae, named after Josefina Garrido, is described from Amapá State and in the *scintillabella* subgroup of the *leechi* group of the subgenus *Hydraenopsis* Janssens. *H. pernambucana*, named after its home state, Pernambuco, is in the *orcula* complex of the *marginicollis* subgroup of the *marginicollis* group.

BENETTI C J, VALLADARES L F, DELGADO J A & HAMADA N 2020. Two new species of *Hydraena* Kugelann, 1794 from Brazil (Coleoptera: Hydraenidae). *Zootaxa* **4750** 391-402.

***GYMNETRON* EVOLUTION**

These little weevils can be found in wetlands, feeding on *Veronica* species in the Scrophulariaceae. The DNA analysis is used to show *Gymnusa* first became switched onto Scrophulariaceae and then moved onto Plantaginaceae, now mainly attacked by the closely related *Rhinusa*. Gall-inducing beetles evolved from non-gallers. This could be caused by resource competition, i.e. allowing several species to exploit the same plant, or galling could be to avoid predators and parasitoids. Once thus fixed to a particular plant's chemistry, ecological niche expansion came about by using the plants in different ways.

HERNÁNDEZ-VERA G, TOŠEVSKI I, CALDARA R & EMERSON B C 2019. Evolution of host plant use and diversification in a species complex of parasitic weevils (Coleoptera: Curculionidae). *PeerJ* doi 10.7717/peerj.6625.

***LATISSIMUS* 46** There were a few small changes to Ignacio Ribera's obituary, plus the addition of six papers to the publications list. If your copy is not marked as version of 29 May on page 39 and you would like the updated version please contact the editor.

p. 4 LABOULBENIALES ON *OCHTHEBIUS* – the final citation is
SANTAMARIA S, CUESTA-SEGURA A D & GUARDIA L 2020. New and remarkable species of Laboulbeniales (Ascomycota) from Spain. *Nova Hedwigia* **110** 347-367.

Latissimus is the newsletter of the Balfour~Browne Club.

***Latissimus* 47** was produced as a PDF in September 2020.

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