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The name for the Malagasy striped whirligig *Heterogyrus milloti* Legros is given as **fandiorano fahagola** in Malagasy in the paper by Grey Gustafson *et al.* (see page 2)

STRANGE PROTOZOA IN WATER BEETLE HAEMOCOELS

Robert Angus

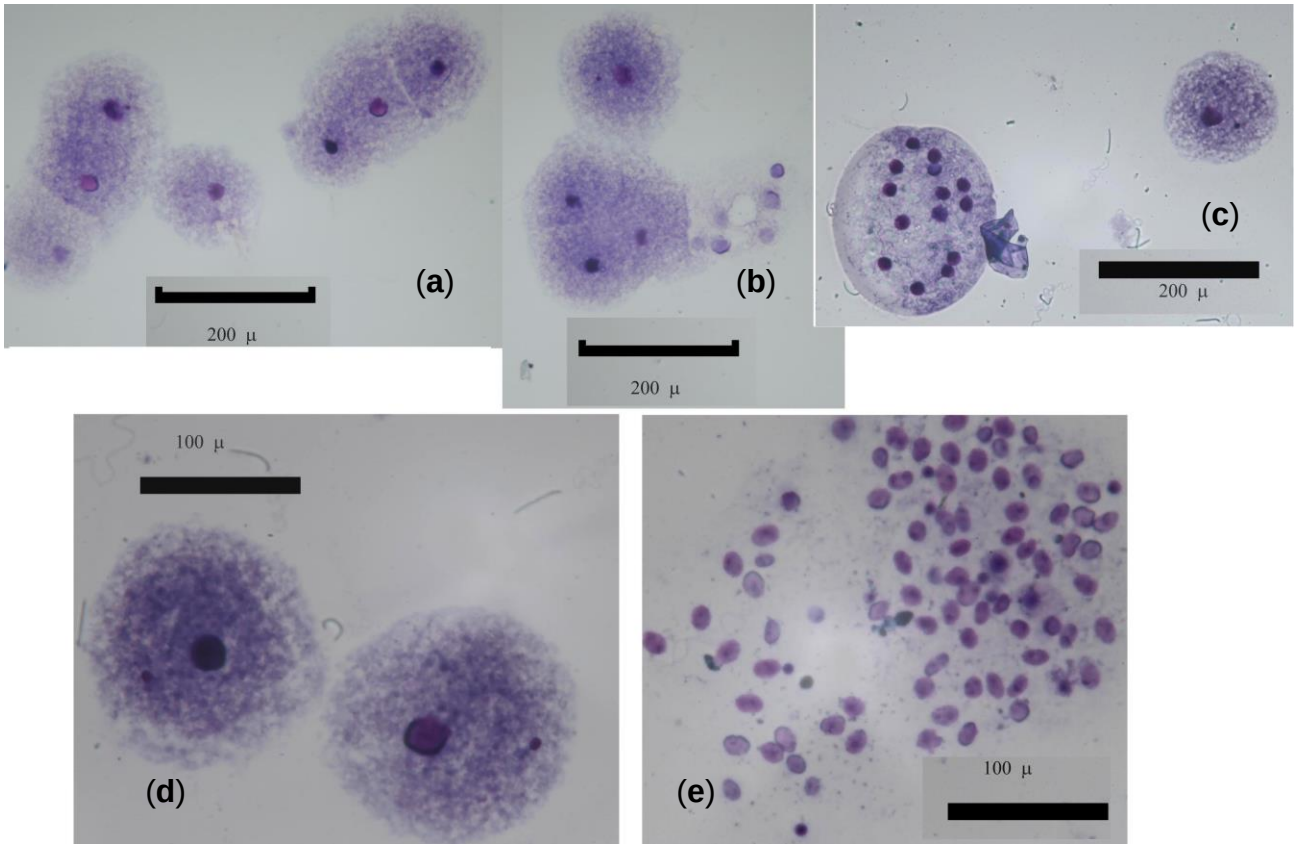

Figure Parasites in the haemocoel of *Hydrobius rottenbergii* Gerhardt

One of the stranger findings from my second Chinese trip (see "On and Off the Plateau", ***Latissimus* 29** 23 – 28) was an infestation of small ciliated balls in the haemocoel of a *Boreonectes emmerichi* Falkenström taken is a somewhat muddy pool near Xinduqao in Sichuan. This pool is shown in Fig 4 on p 25 of ***Latissimus* 29**. When I removed the abdomen, in colchicine solution in insect saline (for chromosome preparation) what appeared to a mass of tiny bubbles appeared. My first thought was that I had foolishly opened the beetle in alcoholic fixative, but this was disproved when the "bubbles" began swimming around in a manner characteristic of ciliary locomotion. At the time I was not able to do anything with them, but it was something the like of which I had never seen before.

Then, as luck would have it, on Tuesday Max Barclay brought back from the Moscow region of Russia a single living male *Hydrobius rottenbergii* Gerhardt. This time I injected the beetle with colchicine solution and did not open it up (remove the abdomen) till I had transferred it to ½-isotonic potassium chloride. And at this stage again I was confronted with a mass of the same self-propelled "bubbles". After I had dissected out the gut and testes (for chromosomes) I turned my attention to the "bubbles". Many had become immobile, probably as a result of the osmotic shock from the potassium chloride solution, but I pipetted a small quantity on to a microscope slide and dropped alcohol/acetic acid (3:1) fixative on them and allowed the slide to dry before staining the result with dilute Giemsa stain. The result is shown in the accompanying photograph, a montage of photographs taken under X 20 (**a** – **c**) and X 40 (**d**, **e**) objectives. **a** & **b** show the spheres,

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

some stuck together and some single, while **c** shows another sphere (top right) as well as a somewhat larger object full of what look like the larger nuclei in the spheres. **d** shows 2 of the spheres at higher magnification and each apparently has 2 nuclei, on larger than the other. This suggests the macro- and micronuclei of Ciliata. However the items with multiple large nuclei (left-hand object in **c** and, at higher magnification, the broken (ruptured) object in **e**) strike me as more like Sporozoa. I could not see any ciliated covering round the spherical objects, even under oil immersion (not available on the microscope used for the photographs), but the way these objects moved in water means they must have a ciliated covering – possibly lost as a result of my rather brutal treatment! Anyway, does anyone have any idea what these beasts may be?

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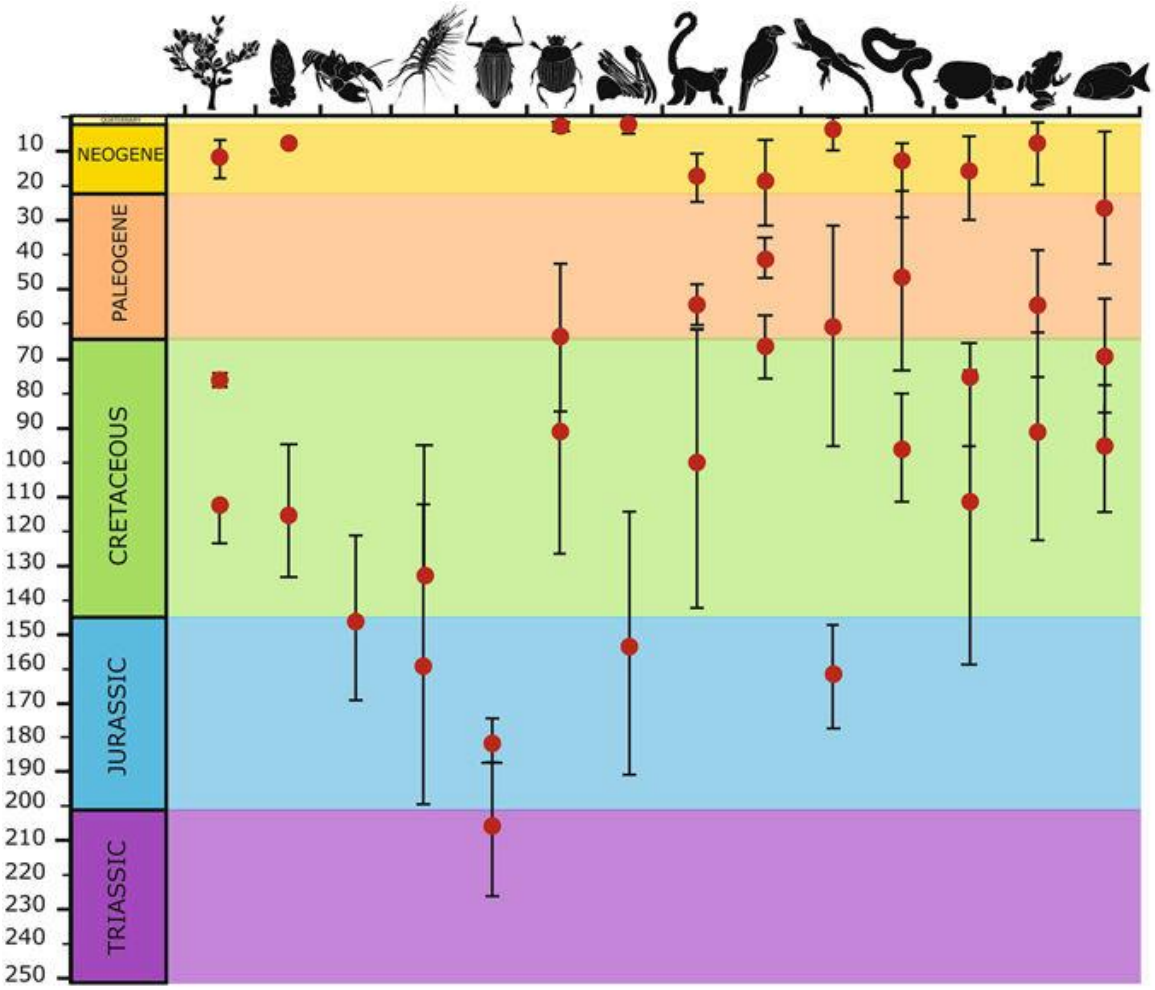
THE MOST ANCIENT MALAGASY SPECIES IS A BEETLE

FANDIORANO FAHAGOLA



Madagascar is famous for its endemic plants and animals. This study shows that none of the others can compete with the whirligig *Heterogyrus milloti* Legros, which lives in forest streams in the south-east of the island. It now belongs to the Heterogyrinae along the fossil *Cretotortor zherichini* Ponomarenko, *Baissogyrus savilovi* Ponomarenko and *Mesogyrus antiquus* Ponomarenko. “Living fossil” is not mentioned in the text – perhaps this expression has been overdone in the past, but this is what it is to the extent that its group came of age in the Triassic on Madagascar long before any other plant and animals assessed so far. This study also draws attention to some remarkable similarities between *Spanglerogyrus albiventris* Folkerts, a species of streams in Alabama with *Angarogyrus*

mongolicus Ponomarenko, from the Lower Cretaceous. A common argument against relying on fossils in analysis alongside extant species is that there will be too many missing values. This is certainly not the case here. And those famous lemurs were latecomers and incomers to Madagascar, rafted in during the Cretaceous, whereas whirligigs had already been there for at least 65 million years.

The second paper takes the study of the *Heterogyrus* further, in particular demonstrating that its jumping action is targeted to make it go downstream. Presumably this can also be demonstrated for more accessible whirligigs? The transition in characters to *Spanglerogyrus* is demonstrated, as is the potential of this species to act as a flagship for Malagasy conservation. Its survival in one national park must have been aided by the discovery of the golden bamboo lemur (*Hapalemur aureus* Meier *et al*.) there but possibly endangered elsewhere by the need to prevent rustling of the zebu cattle by hiding them in the forest, resulting in increased disturbance. At least this use of forest patches guarantees some survival of natural habitat. The Malagasy striped whirligig is named **fandiorano** (= whirligig in Malagasy) **fahagola** (= old), also *Le gyrin malgache bariolé* in French, and, just for good measure, *Randig urvirvelbagge* in Swedish.

GUSTAFSON G T, PROKIN A A, BUKONTAITE R, BERGSTEN J & MILLER K B 2017. Tip-dated phylogeny of whirligig beetles reveals ancient lineage surviving on Madagascar. *Scientific Reports* **7**: 8619 doi.10.1038/s41598-017-08403-1 pp. 9.

GUSTAFSON G T, BERGSTEN J, RANARILALATIANA T, RANDRIAMBIHAJA J H & MILLER K B 2017. The morphology and behaviour of the endemic Malagasy whirligig beetle *Heterogyrus milloti* Legros, 1953 (Coleoptera: Gyrinidae: Heterogyrinae). *The Coleopterists Bulletin* **71** 315-328.

RUSSIAN MIRE BEETLES

The Vologda Oblast is in north-west Russia. Eighteen species are recorded from mires classified into three types, oligotrophic, mesotrophic and eutrophic. Eleven of the species are recorded from Vologda for the first time, including *Agabus clypealis* (Thomson), *Colymbetes paykulli* Erichson, *Contacyphon kongsbergensis* (Munster), *C. punctipennis* Sharp and *Donacia dentata* Hoppe.

SAZHNEV A S & PHILIPPOV D A 2017. On aquatic and amphibiotic beetles (Insecta: Coleoptera) of mire water bodies of Vologda region, Russia. *Transactions of IBIW RAS* **79** 194-199. [in Russian with abstract in English]

WRAPPING UP FOR THE WINTER?

Will Watson encountered this male *Hydrophilus piceus* (L.) on the Magor Marsh, Monmouthshire at the end of September. The ciliates are perfectly spaced out.

FLEMISH BELGIUM 8-12 June 2017

It is not widely known that the Balfour~Browne Club is a subsidiary of TripAdvisor®. Disappointingly no-one has yet tried to buy us out for billions of bits, but you can be sure that all members will receive an equal pay-out of the proceeds from such a transaction. One does not get the best of impressions when arriving at Charleroi Airport. Feeble signage suggested that cars existed but the extensive concrete offered nothing other than a trek to a railway station. It then occurred to us that the airport might operate on two levels and so we found a lift. Sue and I met up with Gary McKay, an Australian living in Scotland. I reassured him that there was no such thing as a bad meal in Belgium, but this was before we felt obliged to eat something at a deserted restaurant overarching the main road on the way to Sint-Niklaas (S-N).

Enough of food for the present. Members accumulated at the Serwir Hotel over Thursday and Friday, the car park providing an ideal place for the traditional Milling About Ceremony (MAC) on Saturday morning. The group ran to twelve countries:- Australia, Austria, Belgium, Cuba, England, Germany, Luxembourg, the Netherlands, Poland, Scotland, Spain, and Sweden. We missed out on two late cancellations from France and sadly Brian Nelson could not come from Ireland because of a family tragedy. Cuba was new – Yoandri Megna - and we met with several Belgian entomologists apart from Kevin. It was good to see the Poles, Marek Przewoźny and Krzysztof Lubecki, wonderfully intense in the field and amongst the first to deliver their records – though one must also mention Manfred Jäch's impact on Helena Shaverdo's samplings.

Kevin Scheers had got us a wide geographic range of sites to survey but unfortunately those near to S-N in the west proved inaccessible because of their proprietors' concerns about us disturbing breeding birds. As if thirty water beetlers might do such a thing! Kevin's notes were exemplary, and, exceptionally for a Club meeting, we mostly adhered to his instructions. Those available on the Friday set off for a nature reserve near Kasterlee known as Tikkebroeken. This provided the first opportunity to familiarise ourselves with the Antwerp bypass and a genuinely impressive road resurfacing operation. It was also the first time for our passengers, Robert Aquilina and Will Watson, to adjust to coming last as well as to the novelty of a gearbox on the wrong side of the vehicle handled by an expert. After examining Kasterlee in detail we found a roadside nature reserve sign and thought we were the first there. Ripping trousers getting through a fence seemed a small price to pay – but it was then that we saw that everyone else had parked at the car park 50 metres away beside a barn equipped with a happy barman, producing Gageleer, a beer based on bog myrtle (*Myrica gale* L.) and some welcome lunch. Most of the beetles had already been taken, in an acidic pond with a nicely vegetated margin of Marsh St John's Wort (*Hypericum elodes* L.) and a frog chorus. It remains to be seen what the final list might be, but one of the commonest species was *Hydrochus crenatus* (Fab.) rather like in the English Brecks. In the afternoon we arrived just in time at some more acid ponds and marshes, just in time because much of the area was drying out fast. A shallow bed of bur-reeds produced the usual range of *Donacia* and some different species, such as *Hydroporus dorsalis* (Fab.).

We went Italian (Pizzeria Maritimo in S-N) on this first full night and later discovered the full impact of the exchange rate on the price of beer in a posh hotel. The Swedes (Anders Nilsson and Joja Geiger) found our concern unusual as for them this was a cheap night out, even without the famous local pear schnapps they had been promised. The Saturday dawned hot and off we went, via Antwerp, to Het Ven, a small reserve surrounded by houses and with only a small number of drains and open water. A small list was acquired, and it is hoped that this will be of use for comparison when the reserve is dug out. The possibility of a change to the reserve was greeted with horror by a resident of Waterleliestraat who thought we meant that it was to be filled in when presumably the intention is to bring back the water lilies. This lady had a bee hotel and other insect-favouring facilities in her garden. We provided her with expert guidance from our Hymenoptera admirer, Matt Smith. Always good to have a positive meeting with a landowner!

Robert Aquilina training younger members of the Club

The main business of the Saturday was at Landschap de Liereman near to Oud-Turnhout, an extensive area of marshland and pools. Although our party managed to arrive on time the slightest of delays resulted in us never seeing the main group until much later in the day. Robert Aquilina engaged with local children, a pond net always providing something to talk about. We struggled to understand the area using Google Earth until it was realised that the reserve leaflet might have something useful to say. It didn't really as the pond we had been working was cunningly hidden under the sign for a "speelbos".

Landschap - full but spaced out [photograph: Will Watson]

Landschap - when the last group arrived

We eventually started walking in the right direction and found the main site empty and with a few beetles the others had missed in the extensive sward of the *Hypericum*, and then trudged back to the car park noting in passing that everyone else was in a bar drinking beer……again. Reassembling later in the town square members dined at the Taverne Kopenhagen. Formalities were limited to the well-deserved award of the Ierse Kevers trophy to Kevin, his reciprocating with beer glasses labelled with the meeting logo (celebrating the recent discovery of *Yola bicarinata* (Latreille) in Belgium – Scheers

(2014)), and some hints about the following year's meeting or meetings. Ignacio had an app on his phone that measured noise (why?) and he established that we exceeded European Union safety limits at 98.7 decibels. More astounding was the news that we may expect substantial changes in the names of some dytiscid genera around *Hygrotus*: and strange news about a beetle person incarcerated in Cáceres that day.

Sunday's MAC at Serwir provided an opportunity to say goodbye to some who had to leave early, and to compare registration marks properly. The day was marked by visits to two nature reserves based on rich fen, Het Goor Asbroek and De Langdonken. The first was as small as the latter was large, but it had plenty of interest, with narrow paths between reed-lined pools, and *Graphoderus cinereus* L. being just about the commonest species. Raoul Gerend later found a *G. austriacus* hidden amongst his specimens and others had *G. zonatus* (Hoppe) during the meeting, but sadly no *G. bilineatus* (De Geer), last seen in Belgium in 1948 (Scheers 2015).

Unfortunately the visit to De Langdonken was a little shorter than had been hoped because of the time it took to get served at the lunchtime restaurant, 't Loze Vissertje, presumably now with suitable remarks in TripAdvisor®. To be fair most customers were looking for a relaxed Sunday afternoon unsuited for our purpose: we may need to bring in a rule banning lunch altogether! The restaurant had its own "put-and-take" fishing lake, which I don't think anyone sampled: it was, however, of interest for the way in which Flemish anglers trawl with a float-attached line. De Langdonken is known to have 61 species of water beetle (Thys 2014) and it will be quite a challenge to add to that list. Nobby Thys (2017) had reported as No. 62 Kevin's find of one *Haliplus fulvicollis* Erichson in De Langdonken in 2006. Did anyone find any more? It was also a pleasure to meet Nobby and some other enthusiasts on site. De Langdonken had wisely been placed last on the list for the main part of the meeting as it is suffering from New Zealand Pigmyweed/Australian Swamp Stonecrop - *Crassula helmsii* (Kirk).

The price of beer at the Serwir had not gone unnoticed and the looming price of the dinner planned there that evening caused a rethink, resulting in a terrific venue in the Kavala, a Greek restaurant well worth the extra walk into town and restoring our faith in Belgian service. Monday may well have been the best day of the meeting but we were not there to judge. *Dytiscus latissimus* L. was last found in Belgium in 1921 at one of the sites proposed for a visit. Surely we would have heard by now…….

SCHEERS K 2014. First confirmed population of *Yola bicarinata* (Latreille, 1804) (Coleoptera: Dytiscidae) from Belgium and new records from the Netherlands with notes on its ecology, distribution and phenology. *Bulletin de la Société royale belge d'Entomologie* **150** 227-231.

SCHEERS K 2015. *Dytiscus latissimus* Linnaeus, 1758 and *Graphoderus bilineatus* (Degeer, 1774) in Belgium: a detailed account of the known records (Coleoptera: Dytiscidae). *Bulletin de la Société royale belge d'Entomologie* **151** 34-39.

THYS N 2014. Waterkevers in Noord-Hageland en omgeving. *Brakona jaarboek 2013-2014* 40-64.

THYS N 2017. *Dryops griseus* (Erichson, 1847) second record for Belgium and first record of *Augyles hispidulus* Kiesenwetter, 1843 and *Haliplus fulvicollis* Erichson, 1837 after 1949 (Coleoptera: Dryopidae, Heteroceridae, Haliplidae). *Bulletin de la Société royale belge d'Entomologie* **153** 27-31.

WATER BEETLE FLESH TASTES LIKE CRAB

Every so often the idea of eating water beetles surfaces as an idea suitable for ridicule by the press and others, rather like that hackneyed old comparison of what we do with something associated with the Beatles. I checked with Wisrutta Atthakor, the expert on Thai Dytiscidae, as to whether this item from the *Guardian* of 23 September 2017 was worth further publicity. She confessed that she had never gone beyond trying grasshoppers. If one Googles Thai Dytiscidae there is no shortage of advertisements for tins of water beetles, and some of us may ["may", as it occurred after pre-prandial refreshments] remember them being on offer at a Verrall Supper. Manfred Jäch (2003. Fried water beetles Cantonese style. *American Entomologist* **49** (1) 34-37) and others have referred to these Far East delicacies before. The *Guardian* reader who alerted us to this prefers to remain anonymous.

"The foodie traveller

Were it not for the cocoa-dusted silkworms garnishing the dish, an unknowing diner might never realise there was anything out of the ordinary about this tiramisu. There may be only three dainty insects visible but 30% of the luscious mascarpone cream in the confection is powdered pupae, which add a barely detectable bitterness that harmonises with the espresso-saturated sponge fingers. The same goes for the innocuous-looking ravioli stuffed with mascarpone, Provençal herbs and water beetle flesh, which tastes like crab.

"Water beetles are big – if you saw one you probably wouldn't want to eat it," says Bangkok chef Thitiwat "Mai" Tantragarn, a veteran of local fine-dining restaurants such as D'Sens and Medici. In Thailand's north-eastern Isan region, water beetles are fried and salted, then scoffed like six-legged popcorn. Yet the only time you're likely to see them in Bangkok is on touristy Khao San Road. The team at Insects in the Backyard, which recently opened in the city's new ChangChui creative complex, hopes to rid these arthropods of their stigma. "I want this to be accessible," says Mai. "I'm not trying to make scary food."

He insists this isn't a gimmick, but an earnest attempt to find value in something many here look down on. After all, some of the world's top chefs have championed similar concepts, including René Redzepi at Noma in Copenahagen and Alex Atala at São Paulo's DOM, who have both has used ants to spice up a dish."

BRAZILIAN *DESMOPACHRIA*

Belatedly noted, this review includes descriptions of eight new species, resulting in 58 species being known from Brazil.

BRAGA R B, FERREIRA-Jr N 2014. Carnivorous diving beetles of the genus *Desmopachria* (Coleoptera: Dytiscidae) from Brazil: new species, new records, and a checklist. *Journal of Insect Science* **14** 1-26.

POLISH *HELOPHORUS*

The checklist lists 28 species of *Helophorus* in Poland, with a further three species considered doubtful, *H. micans* Faldermann being based on a misidentification, and *H. fulgidicollis* Motschulsky and *H. lapponicus* Thomson requiring confirmation. No species are newly recorded from Poland but there are new regional records for most.

GREŃ C 2017. Nowe stanowiska przedstawicieli rodziny Helophoridae (Coleoptera) w Polsce wraz z krytyczną listą krajowych gatunków. *Rocznik Muzeum Górnośląskiego w Bytomiu Przyroda* **23** (online 002) 1-20.

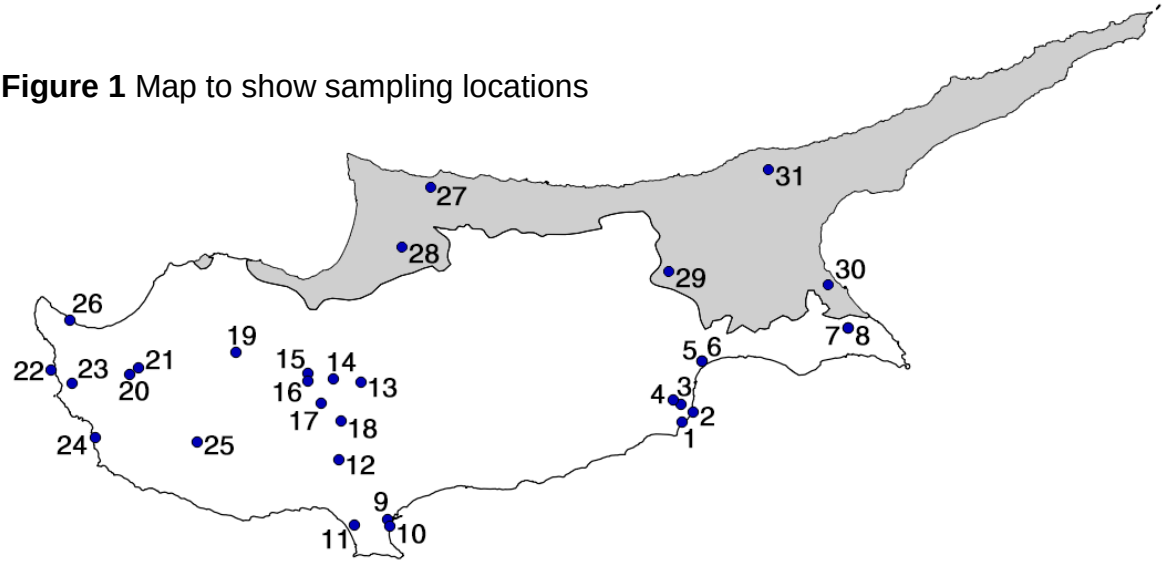
AN UPDATED CHECKLIST OF THE WATER BEETLES AND BUGS OF CYPRUS

Adrián Villastrigo, Ignacio Ribera, David T Bilton, Josefa Velasco & Andrés Millán

Twenty years ago, Keith Miller, David Bilton and Hans Fery (1997) published a checklist of Hydradephaga from Cyprus. There have been no updates since then, and there are also no recent checklists of other families of water beetles from the island. In April 2016 AV, IR, JV & AM conducted a six-day collecting trip to Greek Cyprus, focussing on saline or hypersaline water bodies, although other freshwater habitats were also sampled. We collected water beetles (excluding aquatic Curculionidae and Chrysomelidae) and water bugs (Gerromorpha and Nepomorpha) from 26 representative inland aquatic ecosystems between sea level and 1,669 metres altitude, especially on the south and west coasts, but also in the Troodos Mountains and Paphos forest (localities 1 to 26 in Figure 1 – numbers refer to Table 1).

The complete checklist presented below has been compiled from Miller *et al*. (1997), d'Orchymont (1940, 1946) and the most recent Palaearctic catalogues for beetles (Lóbl & Smetana 2003; Löbl & Löbl 2015, 2016; Nilsson & Hájek 2017; Przewoźny 2017) and bugs (Aukema & Rieger 1995; Aukema *et al*. 2013), together with records from 2016 and data from DTB's brief trip to Turkish Cyprus in April 1994 (localities 27 to 31 in Figure 1 and Table 1). We also incorporate records from an unpublished manuscript on Hydrophiloidea by Keith Miller, sent to DTB in 1997. There were 101 species of water beetles (two of them doubtful, and one with two subspecies) and 14 species of water bugs so far recorded from the island, to which we add 10 new records for water beetles and 2 for water bugs (Tables 1 and 2). Some are new genera for the island: *Dryops* (unfortunately a single female), *Hydaticus* and *Chaetarthria* (again a single female), Keith Miller's records of *Helochares* and *Sternolophus* (see below); and one water bug, *Hebrus*. In total, during the 2016 excursion, 43 species of water beetles and 11 water bugs were found.

Figure 1 Map to show sampling locations



Remarks

As is typical of an island fauna, Cyprus has some obvious absences and imbalances, at least from what is known so far. There are no species of Elmidae recorded, despite the presence of apparently suitable habitats. Other families are also apparently absent (e.g. Paelobiidae, Georissidae, Spercheidae and all Myxophaga), but these are less diverse and also not recorded from large areas in mainland Europe. Other striking features are the presence of a single species of *Hydraena*, recorded from virtually all types of running waters in the island, from lowland muddy ditches to clean, fast mountain streams. This is

similar to what happens in Crete, on which only *H. subinura* d'Orchymont has been recorded from all types of running waters. Both islands are mountainous, with ample opportunities for isolation and diversification, and mountain streams seem to be abundant and at least relatively well preserved. Both these *Hydraena* may be examples of "island release", in which an island species becomes eurytopic and occupies a much broader habitat range than similar species on the mainland. Quite why this has not involved adaptive radiation and speciation (e.g. Yoder *et al*. 2010) is unclear, however, and there is still hope that more thorough searches may find additional rare species, particularly in specialised habitats.

The checklist we provide here is provisional, not only because additional searches will undoubtedly result in other species, but also because the taxonomy of some groups is somewhat uncertain. This is particularly the case for *Enochrus*: of the previously recorded species (*E. ater*, *E. bicolor*, *E. halophilus*, *E. politus* and *E. segmentinotatus*) we could only confirm unambiguously (i.e. through DNA sequencing) *E. ater*. Other specimens for which we obtained molecular data appear to be either *E. turanicus*, *E. hamifer*, or a species close to these. The presence of the true *E. bicolor* and *E. halophilus* in Cyprus appears very doubtful, although the occurrence of *E. segmentinotatus* and *E. politus* is more likely. There is also some uncertainty regarding the identity of some species of *Ochthebius*, which are currently under study. Keith Miller produced the only records of two species: *Helochares pallens* in the Lithrodonda reservoir (13.ii.1996), and *Sternolophus solieri* from Bishop's Pool, Akrotiri (ix.1996). We have not seen specimens of these two species, so the records should be considered provisional but highly likely.

We found eleven species of aquatic Hemiptera in 2016: 9 of the 14 previously recorded plus *Hebrus montanus* and *Microvelia buenoi*. The identity of specimens identified as *Velia affinis affinis* needs more detailed study for confirmation.

A most despairing observation was on the state of degradation of some of the environments, mostly freshwater habitats at low or medium altitudes. One of the most emblematic sites in Cyprus, the Fassouri reedbeds, seems to be under heavy exploitation through drainage and burning of the reed to extend the area used for pastures (Figure 2). Saline coastal ponds (including rockpools, Figures 3-5) and most mountain streams (Figure 6) were, on the contrary, at least apparently close to a pristine condition.

Table 1 Sampled localities

No	Location	Northings	Eastings	Salinity g/l
1	Larnaka: saline coastal pond, muddy shore	34º50'40.7"	33º36'53.6"	>70
2	Larnaka: saline coastal pond, muddy	34º51'59.0"	33º38'12.9"	> 70
3	Larnaka: saline ditch next to pond	34º52'54.5"	33º36'49.3"	> 70
4	Larnaka: flooded saline wetland	34º53'29.0"	33º35'46.2"	8.9
5	Oroklini: saline wetland with *Salicornia*	34º58'15.9"	33º39'22.0"	17
6	Oroklini: saline wetland with reed	34º58'15.9"	33º39'22.0"	9.4
7	Paralimni: saline muddy pond	35º02'22.7"	33º57'38.6"	20
8	Paralimni: ditch with reed	35º02'22.7"	33º57'38.6"	8
9	Tserkezoi: wetland in Akrotiri peninsula	34º38'33.3"	33º00'14.6"	16
10	Akrotiri: saline coastal wetland	34º37'42.7"	33º00'23.7"	>42
11	Akrotiri: Fassouri reedbeds	34º37'57.2"	32º56'01.5"	2.9
12	Alassa: river Kryos above Kouris reservoir	34º46'00.0"	32º54'07.8"	0.1
13	Troodos mountains: stream in Kato Amiantos	34º55'40.0"	32º56'50.6"	0
14	Troodos mountains: fountain & overflow in Troodos	34º56'02.0"	32º53'21.6"	0.1
15	Troodos mountains: stream in Prodromos	34º56'43.4"	32º50'15.2"	0
16	Troodos mountains: stream 2 Km S Prodromos	34º55'53.2"	32º50'19.4"	0
17	Troodos mountains: Pano Platres, Milomeris waterfall	34º53'01.0"	32º51'57.7"	0

No	Location	Northings	Eastings	Salinity g/l
18	Troodos mountains: river Loumata in Trimiklini	34º50'50.2"	32º54'22.6"	0.4
19	Paphos forest: spring in Cedar Valley	34º59'28.0"	32º41'18.5"	0
20	Loukrounou: river Kaboura ca 1 Km S	34º56'40.6"	32º28'06.1"	0.5
21	Loukrounou: river upstream of Evretou reservoir	34º57'28.3"	32º29'11.9"	0.4
22	Akamas peninsula: Lara beach, rockpools on limestone	34º57'09.8"	32º18'11.2"	>70
23	Akamas peninsula: Avakas gorge	34º55'30.2"	32º20'50.1"	0.2
24	Kissonerga: stream in cultivated area	34º48'46.3"	32º23'49.3"	0.8
25	Agia Marina: river Xeros Potamos	34º48'10.5"	32º36'30.9"	0.1
26	Akamas peninsula: Aphrodite's bath, spring and stream	35º03'22.9"	32º20'38.5"	0
27	SE of Geçitköy: *Scirpus* beds in reservoir margins	35º19'27.7"	33º04'19.3"	-
28	Güzelyurt: Serrákis River, stony stream	35º12'13.4"	32º59'49.2"	-
29	Ercan Airfield: pools in drying river bed	35º09'23.5"	33º30'35.8"	-
30	Glapsides: saline coastal pond	35º09'31.1"	33º54'10.9"	-
31	Ağillar: limestone spring-stream	35º21'37.3"	33º48'11.7"	-

Table 2 Checklist of aquatic Coleoptera from Cyprus. Locality numbers refer to Table 1. *New records for the island. Doubtful records in square brackets.

Species	Previously recorded	Locality number
ADEPHAGA		
Dytiscidae - Agabinae		
Agabus biguttatus (Olivier, 1795)	x	12, 13, 14, 15, 16, 17, 19, 20, 21, 25, 28, 31
Agabus bipustulatus (L., 1767)	x	
Agabus conspersus (Marsham, 1802)	x	6, 8, 13, 14, 15, 21
Agabus dilatatus (Brullé, 1832)	x	12, 13, 14, 15, 19
Agabus nebulosus (Forster, 1771)	x	8, 15, 28, 29
Dytiscidae - Colymbetinae		
Colymbetes fuscus (L., 1758)	x	8
Rhantus suturalis (MacLeay, 1825)	x	11
Dytiscidae - Cybistrinae		
Cybister lateralimarginalis lateralimarginalis (De Geer, 1774)	x	
Cybister tripunctatus lateralis (Fab., 1798)	x	27, 29
Dytiscidae - Dytiscinae		
Dytiscus circumflexus Fab., 1801	x	
Dytiscus marginalis L., 1758	x	
Eretes sticticus (L., 1767)	x	
Hydaticus leander (Rossi, 1790)*		11
Dytiscidae - Hydroporinae		
Bidessus calabricus Guignot, 1957	x	
Hydroglyphus geminus (Fab., 1792)	x	28, 29
Hydroglyphus signatellus (Klug, 1834)	x	6, 9, 29
Nebrioporus laeviventris (Reiche & Saulcy, 1855)	x	
Nebrioporus ceresyi (Aubé, 1838)	x	1, 2, 3, 9, 10, 30
Hydroporus brucki Wehncke, 1875	x	
Hydroporus cuprescens Miller & Fery, 1995	x	

Hydroporus discretus Fairmaire & Brisout de Barneville, 1859	x	16, 19
Hydroporus dobrogeanus Ieniştea, 1962	x	14, 15, 16, 17, 19
Hydroporus kasyi Wewalka, 1984	x	11
Hydroporus pubescens (Gyllenhal, 1808)	x	
Hydroporus tessellatus (Drapiez, 1819)	x	12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 25, 28, 29
Graptodytes sedilloti sedilloti (Régimbart, 1878)	x	
Hydrovatus cuspidatus (Kunze, 1818)	x	5, 6, 9, 11
Herophydrus musicus (Klug, 1834)	x	8, 27, 29
Hygrotus confluens (Fab., 1787)	x	
Hygrotus saginatus (Schaum, 1857)	x	8
Methles spinosus Sharp, 1882	x	11
Dytiscidae - Laccophilinae		
Laccophilus hyalinus (De Geer, 1774)	x	
Laccophilus minutus (L., 1758)	x(1)	8, 9
Laccophilus poecilus Klug, 1834	x(1)	11, 25
Gyrinidae		
Aulonogyrus concinnus (Klug, 1834)	x	
Aulonogyrus striatus (Fab., 1792)	x	
Gyrinus caspius Ménétries, 1832	x	
Gyrinus colymbus Erichson, 1837	x	
Gyrinus dejeani Brullé, 1832	x	12, 21, 25
Gyrinus distinctus Aubé, 1836	x	27
Gyrinus libanus Aubé, 1838	x(1)	
Orectochilus villosus reitterii (Seidlitz, 1887)	x	
Orectochilus villosus villosus (Müller, 1776)	x	
Haliplidae		
Haliplus gafnyi van Vondel, 1991	x	
Haliplus kulleri van Vondel, 1988	x	29
Noteridae		
Canthydrus diophthalmus (Reiche & Saulcy, 1855)	x	
Noterus crassicornis (Muller, 1776)	x	
POLYPHAGA		
Dryopidae		
Dryops sp.*		20(2)
Helophoridae		
Helophorus brevipalpis brevipalpis Bedel, 1881	x	4, 12, 13, 14, 15, 16, 20, 21, 25, 28
Helophorus flavipes Fab., 1792	x(4)	
Helophorus micans Faldermann, 1835	x	29
Helophorus pallidipennis Mulsant & Wachanru, 1852	x	
Helophorus syriacus Kuwert, 1885	x(3)	
Heteroceridae		
Heterocerus fenestratus (Thunberg, 1784)	x	
Heterocerus flexuosus Stephens, 1828	x	4, 9, 21

Hydraenidae		
Hydraena balli d'Orchymont, 1840	x	12, 13, 14, 16, 17, 18, 19, 20, 25
Limnebius mundus Baudi di Selve, 1864	x	
Limnebius simulans d'Orchymont, 1840	x	
Ochthebius abeillei Guillebeau, 1896	x	
Ochthebius cyprensis Kuwert, 1890	x	
Ochthebius dilatatus Stephens, 1829	x	
Ochthebius striatus (Laporte, 1840)	x	
Ochthebius brevicollis Baudi di Selve, 1864	x	22
Ochthebius celatus Jäch, 1989	x	22
Ochthebius difficilis Mulsant, 1844	x	
Ochthebius faustinus d'Orchymont, 1940	x	
Ochthebius foveolatus Germar, 1824	x	
Ochthebius hellenicus (Ieniştea, 1988)	x[(5)]	
Ochthebius lanuginosus Reiche & Saulcy, 1856	x	
Ochthebius lividipennis Peyron, 1858	x	
Ochthebius preissi Jäch, 2001	x[(6)]	20
Ochthebius ragusae Kuwert, 1887	x	
Ochthebius subinteger Mulsant & Rey, 1861	x	
Ochthebius subpictus Wollaston, 1857	x[(7)]	
Ochthebius thermalis Janssens, 1965*		1, 2, 3, 7
Ochthebius viridis complex	x[(8)]	4, 7, 21
Ochthebius meridionalis Rey, 1885	x[(9)]	5, 7
Hydrochidae		
Hydrochus nitidicollis Mulsant, 1844	x[(10)]	
Hydrophilidae		
Anacaena rufipes (Guillebeau, 1896)	x[(11)]	12, 14
Berosus affinis Brullé, 1835	x	
Berosus bispina Reiche & Saulcy, 1856*		30[(12)]
Berosus spinosus (Steven, 1808)*		5, 7, 8
Cercyon quisqulius (L., 1761)	x	
Chaetarthria sp*		18[(2)]
Coelostoma hispanicum (Küster, 1848)	x[(4)]	
Crenitis punctatostriata (Letzner, 1840)	x	
Dactylosternum abdominale (Fab., 1792)	x	
Enochrus ater (Kuwert, 1888)	x	5, 6, 11, 27, 29
[*Enochrus bicolor* (Fab., 1792)]	x	
[*Enochrus halophilus* (Bedel, 1879)]	x	
Enochrus politus (Küster, 1849)	x	
Enochrus cf *segmentinotatus* (Kuwert, 1888)	x	9
Enochrus cf *hamifer* (Ganglbauer, 1901)*		4, 6, 8, 9, 11, 21
Enochrus turanicus Schödl, 1988*		1, 4, 5, 6, 7, 9, 10
Helochares pallens (W.S. MacLeay, 1825)*		
Hydrobius fuscipes (L., 1758) sensu lato	x	
Hydrochara dichroma (Fairmaire, 1892)	x	
Laccobius obscuratus Rottenberg, 1874	x	12, 15, 19, 21, 25
Laccobius scutellaris Motschulsky, 1855	x	
Laccobius syriacus Guillebeau, 1896	x	6, 12, 20, 21, 24, 25
Laccobius exilis Gentili, 1974	x	12, 21, 25

Paracymus relaxus Rey, 1884	x	1, 9, 10
Paracymus scutellaris (Rosenhauer, 1856)	x	
Sphaeridium marginatum Fab.	x	
Sternolophus solieri Laporte, 1840*		
Limnichidae		
Limnichus inornatus Weise, 1877	x	
Pelochares murinus (Baudi, 1870)	x	
Pelochares versicolor (Waltl, 1833)	x	
Scirtidae		
Contacyphon lepidulus (Nyholm, 1968)	x	
Contacyphon palustris (Thomson, 1855)	x	
Elodes malickyi Klausnitzer, 1976	x	16, 19[13]
Hydrocyphon oblongulus Nyholm, 1967	x	11[13]

[1] Species recorded in Miller *et al*. (1997) but not included in the Palaearctic catalogues.
[2] Only females found.
[3] D'Orchymont (1940) recorded *H. aquaticus maritimus* Rey, 1885 (currently *H. maritimus*), but listed it as a synonym *H. aquaticus* var. *Milleri* Kuwert, 1886 (currently *H. milleri*). The two species are morphologically indistinguishable (Angus 1992), but also very similar to *H. syriacus*. According to their distribution, the presence in Cyprus of *H. syriacus* (with Haifa as its type locality) is more likely than any of the species of the *H. maritimus* complex, which only reach northern Anatolia (Izmir - Angus 1992).
[4] Recorded in d'Orchymont (1940 or 1946) but not in Przewoźny (2017).
[5] Recorded by d'Orchymont (1946) as *O. pedicularius* Kuwert, 1887 form "D", which according to Jäch (1991: 73) corresponds to *O. hellenicus*.
[6] Recorded by d'Orchymont (1946) as *O. semisericeus sennius* d'Orchymont, 1942.
[7] D'Orchymont (1940) recorded *O. muelleri* Ganglbauer, 1901, which according to Jäch (2015) is a synonym of *O. subpictus delectus* Rey, 1885, but in the same paper only the nominal form is recorded from Cyprus.
[8] Jäch & Delgado (2008) reported some records of the *O. viridis* complex from Cyprus, but their identity remained unclear. We have collected some specimens, which are currently under study.
[9] Recorded by d'Orchymont (1946), but not included in Jäch (2015). Currently under study.
[10] Recorded by d'Orchymont (1946) but not in Przewoźny (2017). This is a western European species, not likely to be found in Cyprus. Although the identity of the recorded species is difficult to establish, there could be no doubt that it belongs to *Hydrochus*.
[11] Recorded by d'Orchymont (1940) as *A. globulus glabricollis* (Schaufuss, 1869), who listed *A. rufipes* (Guillebeau, 1896) as a synonym, explicitly noting that the specimens from Cyprus could not be separated from those of *A. rufipes* from Israel, Lebanon and Egypt. van Berge Henegouwen (1986) gives this record as likely to be *A. rufipes*. We have confirmed that the species is *A. rufipes* according to the descriptions given by van Berge Henegouwen (1986) and Ryndevich (2003). No *Anacaena* were recorded from Cyprus in Przewoźny (2017).
[12] D'Orchymont (1940) recorded *B. guttalis* Rey, 1883 with doubts. This is a western Mediterranean species (Przewoźny 2017), so most likely this record should be referred to either *B. bispina* or *B. spinosus*.
[13] Only larvae found, assumed here to be of the only recorded species of each respective genus, but without any other additional evidence.

Table 3 Checklist of aquatic Hemiptera from Cyprus. Locality numbers refer to Table 1. *New records for the island

Species	Previously recorded	Locality number
GERROMORPHA		
Gerridae		
Aquarius ventralis (Fieber, 1860)	x	
Gerris thoracicus Schummel, 1832	x	21
Hebridae		
Hebrus montanus Kolenati, 1857*		25
Hydrometridae		
Hydrometra stagnorum (L., 1758)	x	23
Veliidae		
Microvelia buenoi Drake, 1920*		20
Microvelia pygmaea (Dufour, 1833)	x	
Rhagovelia nigricans (Burmeister, 1835)	x	
Velia cf *affinis affinis* Tamanini, 1948	x	12, 13, 15, 19, 20, 24, 25, 26
NEPOMORPHA		
Corixidae		
Sigara mayri (Fieber, 1860)	x	5, 6, 7, 9
Sigara nigrolineata (Fieber, 1848)	x	
Sigara lateralis (Leach, 1817)	x	5, 6, 9
Corixa affinis Leach, 1817	x	6
Notonectidae		
Notonecta glauca L., 1758	x	
Notonecta maculata Fab., 1794	x	13, 23, 25
Notonecta viridis Delcourt, 1909	x	6
Anisops sardeus Herrich-Schäffer, 1849	x	6

Figure 2 Locality 11, Fassouri reedbeds with a cow. Note the recently burnt reed in the fore ground

Figure 3 Locality 1, saline coastal pond in Larnaka (with JV and AV)

Figure 4 Locality 3, saline ditch and pond next to Larnaka Salt Lake

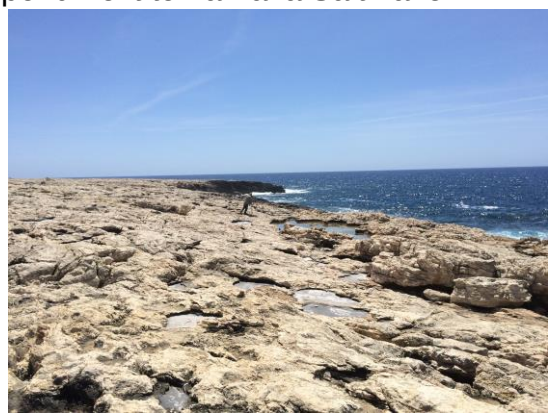


Figure 5 Locality 22, rockpools, most of them already dried out, near Lara beach, Akamas peninsula (with AM)

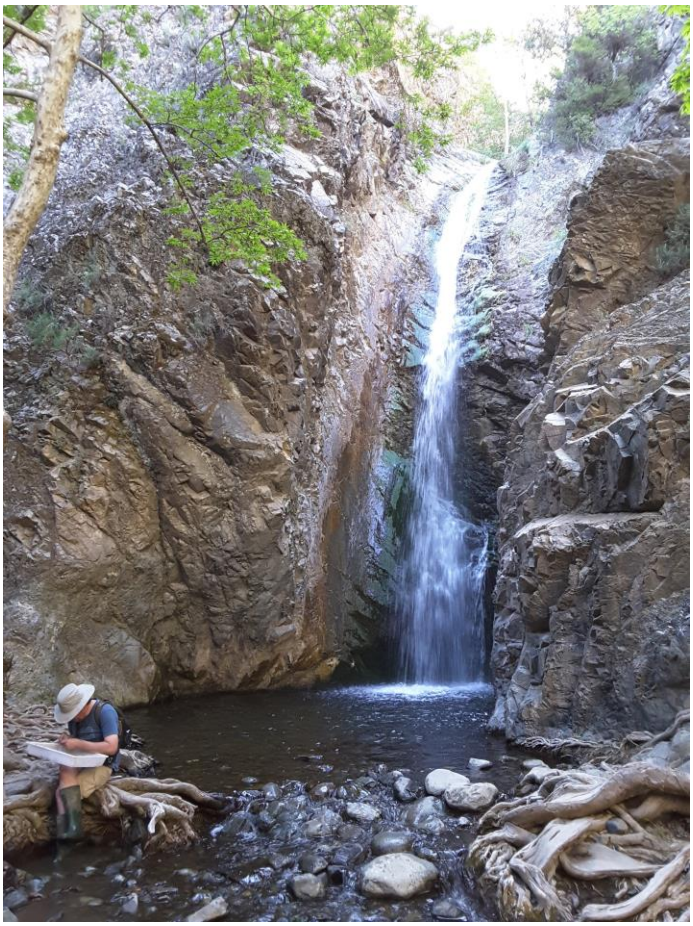


Figure 6 Locality 17, Milomeris waterfall (with IR)

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SEA LEVEL RISE MEASURED BY BEETLES

The subfossil beetle assemblage of Cavallo, a small island to the south of Corsica, contributed to understanding of sea level changes. A major increase in salinity occurred during the past 5,300 years with a peak rate of increase 3,700 years. Beetle assemblages responded rapidly to increasing salinity, culminating in the local extinction of freshwater aquatic beetles and in decline of hygrophilous and riparian groups. Eight assemblages were recognised by cluster analysis. The three-quarters of the water beetle fauna disappearing in the past 7,000 years included *Canthydrus melanophthalmus* (Reiche & Saulcy), a species no longer known in the French fauna. Scarcely a water beetle but the fig bark beetle *Hypoborus ficus* (Erichson) provides strong evidence of the early influence of man in changing the vegetation from about 6,000 years ago.

POHER Y, PONEL P, MÉDAIL F, ANDRIEU-PONEL V & GUITER F 2016. Holocene environmental history of a small Mediterranean island in response to sea-level changes, climate and human impact. *Palaeogeography, Paleoclimatology, Palaeoecology* doi.org/10.1016/j.palaeo.2016.10.037

POHER Y, PONEL P, GUITER F, ANDRIEU-PONEL V & MÉDAIL F 2017. Erosion of insect diversity in response to 7000 years of relative sea-level rise on a small Mediterranean island. *Biodiversity and Conservation* doi 10.1007/s10531-017-1322-z 17 pp.

INDONESIAN LAKES

In this study only one water beetle is identified and this is the third commonest insect found in a managed lake. Unfortunately it is identified as the North American *Desmopachria latissima* (LeConte). What can one say?

FADILAH U, ATMOWIDI T & PRIAWANDIPUTRA W 2017. Comparison of aquatic insect assemblages between managed and unmanaged artificial lakes in Indonesia. *Journal of Entomology and Zoology Studies* ***5*** 496-506.

NATURALISATION OF *CYBISTER LATERALIMARGINALIS* IN THE NORTH OF EUROPEAN RUSSIA CONFIRMED BY THE FINDING OF LARVA

A. Prokin and A. Cherevichko

The most northern record of *Cybister lateralimarginalis* De Geer, 1774 in Russia is from the Leningrad Oblast': 60.792ºN 30.369ºE (Litovkin & Sazhnev 2016). This record, like the previous ones for the north of the European Russia from Tver and Moscow Oblast's, Chuvashia and Tatarstan (Litovkin 2012; Petrov & Fedorova 2013; Petrov *et al*. 2013) is based on finding adults. The old record for the border area with Finland (Hellen 1929) is considered doubtful (Kalniņš 1999).

In Europe, the northern border of the range extends across Denmark, southern Sweden and Latvia (Nilsson & Holmen 1995; Kalniņš 1999). Eastwards in Russia the species is known from the Urals in the Chelyabinsk Oblast' (Litovkin 2012).

The native (primary) range of the species includes Middle and Southern Europe, North Africa, Western and Central Asia, Mongolia, China, Northern India (Ghosh & Nilsson 2012; Nilsson & Hájek 2015).

In 2016, in the Pskov Oblast', K.B. Mikhailova collected a larva, which confirms the naturalisation of the species in the north of the European part of Russia.

Material: 57º16'34N 28º21'19E, Pskov Oblast', Ostrovsky District, Gorokhovoye Lake, 20.VIII. 2016, in macrophytes near shore, leg. Mikhailova, 1 larva (Figure. 1).

Figure 1 Larva of *Cybister lateralimarginalis* from the Pskov Oblast'

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LITOVKIN S V & SAZHNEV A S 2016. New data on the distribution and biology of water beetles (Coleoptera: Haliplidae, Dytiscidae, Helophoridae, Georissidae7, Hydrophilidae, Limnichidae, Curculionidae) in Russia. *Euroasian Entomological Journal* **15(1)** 17-24. [In Russian].

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HYPHYDRUS UNRAVELLED

Hyphydrus anatolicus Guignot and *H. sanctus* Sharp are now clearly separated from *H. ovatus* (L.) on the basis of DNA as well as morphology. Morphological differences are principally in the puncturing of the pronotum and elytra and the length and extent of serration of the male metatibial spurs. *H. anatolicus* is known west as far as the west coast of Italy, with new records for Slovakia and Ukraine. *H. sanctus* is known from Israel, Jordan and Syria, with new records from Turkey. The fourth Palaearctic species, *H. aubei* Ganglbauer, is well known and altogether distinct.

BERGSTEN J, WEINGARTNER E & HÁJEK J 2017. Species delimitation of the *Hyphydrus ovatus* complex in western Palaearctic with an update of species distributions (Coleoptera, Dytiscidae). *ZooKeys* **678** 73-96.

OSMOTIC REGULATION AND DESICCATION, CHICKEN AND EGG?

This paper reviews findings in subgenus *Lumetus* in *Enochrus*, the most recent ancestor of which was inferred to have high resistance to desiccation and moderate osmotic regulatory ability. All species with high osmotic regulatory ability were also resistant to desiccation but not *vice versa*. Thus desiccation resistance appears to have evolved first, providing the physiological basis for developing osmotic resistance. Also, these adaptations appear to be a one-way ticket, there being no evidence of return to freshwater.

PALLARÈS S, ARRIBAS P, BILTON D T, MILLÁN A, VELASCO J & RIBERA I 2017. The chicken or the egg? Adaptation to desiccation and salinity tolerance in a lineage of water beetles. *ComEc, 1st International Conference on Community Ecology* doi.10.1111/med.14334

ESOLUS AUTOCAUGHT

A car net or auto-catcher was deployed in a forest in Saxony-Anhalt. About 18% of the huge catch comprised beetles, dipterous flies otherwise predominating. The report concentrates on Red List species so the three species of Hydraenidae go unnamed. One specimen of *Esolus parallelepipedus* (Müller) is the only other water beetle.

JUNG M, APFEL W, BURGARTH K, RÜCKER W H & JENTZSCH M 2017. 4.2.4 Coleoptera (Käfer) pp. 46-51 in: M. Jentzsch, T. Glinka, J. Link & B. Lehmann (eds) Einsatz eines Autokeschers im Ziegelrodaer Forst – Ergebnisse und Bemerkingen zur Methode (Arachnida: Araneae, Pseudoscorpiones; Insecta: Ephemeroptera, Odonata, Hemiptera, Coleoptera, Hymenoptera, Lepidoptera, Mecoptera, Diptera). *Hercynia* **50** 31-93.

AGABUS AND MITES

Over 2,000 dytiscid beetles collected in Turkey were examined for infestation by larvae of the mite *Acherontacarus rutilans* Angelier. These were found to be confined to *Agabus* species:- *A. biguttatus* (Olivier), *A. bipustulatus* (L.), *A. caraboides* Sharp, *A. conspersus* (Marsham), *A. guttatus* (Paykull), *A. nebulosus* (Forster) and *A. sturmii* (Gyllenhal), with the greatest number found on *A. caraboides.*

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.

HYGROTINI CHANGES

A DNA phylogeny of this tribe is used to understand how and when salinity tolerance developed. Five clades are recognised, the one including *Hygrotus decoratus* (Gyllenhal) being such an early split, more than 60 million years ago, that the generic nomenclature of the group is bound to change. Salinity tolerance has obvious evolved several times, the oldest transition being dated to late Eocene-early Oligocene, about 35 million years ago, a time of decreasing temperature and rainfall. Salinity tolerance marches with aridification, as has been demonstrated for other water beetle groups.

This analysis necessitates a lot of nomenclatural changes, hence the second paper, with erection of a new genus, *Clemnius*, for eight species, all other Hygrotini being placed in *Hygrotus* Stephens.

The name *Clemnius* Villastrigo, Ribera, Manuel, Millán & Ribera [VRMM&F] is going to take some space in any checklist from now on. It is based on the Greek for tortoise, Χλεμμύς. This is split into the subgenera *Clemnius* s. str. and *Cyclopius* VRMM&F, based on *acaroides* LeConte, a North American species with a feature unique within the Dytiscidae, a spiny pit on the male's sixth ventrite. *Cyclopius* has two clear groups, suggesting that a case might ultimately be made for the more globular species such as *decoratus* to be placed in *Clemnius* s. str. and the more elongate species to be placed in another subgenus. The term "navicular" is coined for the latter, more boat-like species. A nice turn of phrase!

Hygrotus is split into four subgenera, *Hygrotus*, *Leptolambus* VRMM&F, *Coelambus* Thomson and *Hyphophorus* Sharp, with *Heroceras* Guignot and *Herophydrus* Sharp sunk altogether within *Hygrotus* s. str. The details of all the changes are beyond this newsletter but here, for example, is the new checklist for Europe, following VRMM&F's Table 1.

Clemnius (s. str.) *decoratus* (Gyllenhal)
Hygrotus (*Coelambus*) *caspius* (Wehncke, 1875)
Hygrotus (*Coelambus*) *confluens* (Fab., 1787)
Hygrotus (*Coelambus*) *enneagrammus* (Ahrens, 1833)
Hygrotus (*Coelambus*) *flaviventris* (Motschulsky, 1860)
Hygrotus (*Coelambus*) *nigrolineatus* (Steven, 1808)
Hygrotus (*Coelambus*) *pallidulus* (Aubé, 1850)
Hygrotus (*Hygrotus*) *guineensis* (Aubé, 1838)
Hygrotus (*Hygrotus*) *inaequalis* (Fab., 1777)
Hygrotus (*Hygrotus*) *musicus* (Klug, 1834)
Hygrotus (*Hygrotus*) *quinquelineatus* (Zetterstedt, 1828)
Hygrotus (*Hygrotus*) *versicolor* (Schaller, 1783)
Hygrotus (*Leptolambus*) *armeniacus* (Zaitzev, 1927).
Hygrotus (*Leptolambus*) *fresnedai* (Fery, 1992)
Hygrotus (*Leptolambus*) *impressopunctatus* (Schaller, 1783)
Hygrotus (*Leptolambus*) *lagari* (Fery, 1992)
Hygrotus (*Leptolambus*) *lernaeus* (Schaum, 1857)
Hygrotus (*Leptolambus*) *marklini* (Gyllenhal, 1813l)
Hygrotus (*Leptolambus*) *novemlineatus* (Stephens, 1829)
Hygrotus (*Leptolambus*) *parallellogrammus* (Ahrens, 1812)
Hygrotus (*Leptolambus*) *polonicus* (Aubé, 1842).
Hygrotus (*Leptolambus*) *saginatus* (Schaum, 1857)
Hygrotus (*Leptolambus*) *sanfilippoi* (Fery, 1992).

VILLASTRIGO A, FERY H, MANUEL M, MILLÁN A & RIBERA I. 2017. Evolution of salinity tolerance in the diving beetle tribe Hygrotini (Coleoptera, Dytiscidae). *Zoologica Scripta* 2017;00:1-9. doi.org/10.1111/zsc.12255.

VILLASTRIGO A, RIBERA L, MANUEL M, MILLÁN A & FERY H. 2017. A new classification of the tribe Hygrotini Portevin, 1929 (Coleoptera: Dytiscidae: Hydroporinae). *Zootaxa* **4317** (3) 499-529.

SCARODYTES WITH RIDGES

This new species was found in 2014 at a stream in a site that Google Map will find as "Hazaryah Deresi" in the east of Turkey. The opportunity is taken to discuss the shape of the "mesoventral column", going back to David Sharp's treatment of 1882. The possible function of the ridges is discussed in relation to Bernouilli's principle, which concerns flow rates over surfaces, a great favourite on YouTube. Ridges will reduce flow over the elytra and stop pressure being reduced, so that a beetle trying to keep close the bottom will not develop lift and "take off" into open water. The authors point out that the dytiscid *Typhlodessus monteithi* Bruncucci is also costate but terrestrial – and, of course, other options are available such as striae and hairiness.

AYKUT M & FERY H 2017. *Scarodytes costatus* nov. sp. from the Bingöl Province in Turkey, the first species of the genus with costate elytra (Insecta: Coleoptera: Dytiscidae: Deronectina). *Linzer biologische Beiträge* **49** 395-414.

CAUCASIAN HYDRAENIDS & *DRYOPS*

The following species are recorded based on Maxim Shapovalov in Krasnodarsky Kray and Adygea, and by Sasha Prokin in South Ossetia, Abkhazia and also in Krasnodarsky Kray: *Hydraena anatolica* Janssens*, *H. dentipalpis* Reitter, *H. canakcioglui aydini* Janssens, *Limnebius myrmidon* Rey*, *Ochthebius adventicius* Jäch*, *O. colveranus* (Ferro)*, *O. difficilis* Mulsant*, *Dryops nitidulus* (Heer), *D. rufipes* (Krynicki) and *D. similaris* Bollow. Several of these species are new for Russia(*).

PROKIN A A, SHAPOVALOV M I & JÄCH M A 2017. New records of Hydraenidae and Dryopidae (Coleoptera) from the Caucasus. *Russian Entomological Journal* **26** 239-240.

MOSS INSECTS

This is a useful review of the association of mosses and insects in Britain. Although the importance of mosses in providing water beetle habitats is acknowledged the only beetles listed as feeding on them are thirteen species of pill beetle (Byrrhidae) and *Limnichus pygmaeus* Sturm in the Limnichidae. See also ***Latissimus* 37** 25.

JEFFERSON R G 2017. Insects and bryophytes. *Antenna* **41** (3) 108-119.

FORMER *PTILODACTYLA* IS A CLICK

This Rio de Janeiro beetle is transferred from one superfamily to another.

KUNDRATA R & JÄCH M 2017. *Ptilodacyla crenatostriata* Redtenbacher, 1868 (Coleoptera: Ptilodactylidae) transferred to *Phytocerum* Costa, Vanin, Lawrence & Ide, 2003 (Coleoptera: Cerophytidae). *Zootaxa* **4324** 371-377.

RICHARD MOORE 1950-2016

Richard, though living in Yorkshire, was mostly known for his work on Raasay. This obituary lists the twelve species found after publication of his book about the island in 2012. His carefully documented collection is now in the Hunterian Museum, Glasgow – recently moved into new premises in Kelvin Halls. Jeanne Robinson can supply an electronic update of his book and arrange access to the collection.

ROBINSON J & DENTON M 2017. Richard Moore – 'the Beetle Man of Raasay'. *The Coleopterist* **26** 135-136.

HYDROBIUSINI VIEWED FROM AMERICA

The single origin, monophyly, of the tribe Hydrobiusini is confirmed by a combination of morphological and genetic studies. Forty-seven species are recognised in eight genera spread across the world. The genus *Hydrobius* has to be redefined, re-establishing the genus *Limnohydrobius* Reitter, 1909, with *convexus* Brullé as the type species, known from France, Italy, Iberia, Turkey and Tunisia. *L. convexus* is joined in the genus by two North American species and one from China.

The authors have taken a particular interest in stridulation. Two forms of pars stridens were found on the lateroventrite 3. The genera *Hydramara* Knisch, *Limnocyclus* J. Balfour-Browne and *Limnoxenus* Motschulsky have much of the plate modified into a distinct file structure whereas the rest of the genera have small, hook-shaped microtrichia not organised in any particular way. It seems that *Hydramara* + *Limnocyclus* + *Limnoxenus* can be recovered as a clade within which a complex stridulatory file is an ancestral feature.

In Europe 49 species are recognised, not 47, as Erland Fossen's work found that *H. fuscipes* (L.) could be split into at least three species, *H. fuscipes* sensu stricto, *H. rottenbergii* Gerhardt and *H. subrotundus* Stephens. The present paper (p. 12) notes "Whilst the findings of Fossen *et al*. (2016) are compelling in that there are probably multiple cryptic or incipient lineages that may warrant species status, we do not believe there is yet sufficient data or understanding of the group to translate this knowledge into nomenclatural acts. Rather, we believe that doing as they propose will introduce significant nomenclatural instability. As they focused on a small part of the range of *H. fuscipes* (northern Europe), they do not provide a framework for how the lineages outside northern Europe which have previously been treated as *H. fuscipes* may be delimited or treated. Additionally, they acknowledged that some of the names they reinstated to full species may not be properly applied to the lineages they identified. For these reasons, we do not recognize the elevation of these two names [i.e. *rottenbergii* and *subrotundus*] and move them back to synonymy with *H. fuscipes*." There have been any number of analyses of the Palaearctic fauna that take little account of what goes on in northern Scandinavia, but that does not mean that such analyses have to be dismissed. It is just that Fossen's work arose from establishing the status of what appeared to be a rockpool form, *Hydrobius rottenbergii* Gerhardt in relation to other members of the genus including *H. arcticus* Kuwert. One must ask what is most likely to cause nomenclatural instability. Surely that has got be the lumping of what was once recognised as *Hydrobius picicrus* Thomson under the umbrella of *H. fuscipes* for about seventy years? If we get a few names wrong along the way to elucidating the true biological situation, so what?

SHORT A E Z, COLE J & TOUSSAINT E F A 2017. Phylogeny, classification and evolution of the water scavenger beetle tribe Hydrobiusini inferred from morphology and molecules (Coleoptera: Hydrophilidae: Hydrophilinae). *Systematic Entomology* **47** 677-691.


Hydrobius Rottenbergii n. sp.

Beſchrieben von J. Gerhardt.

Incidentally, whether it is a species or not, it is *rottenbergii*, not *rottenbergi*, a later, unjustified emendation.

GERHARDT J 1872. *Hydrobius Rottenbergii* n. sp. *Zeitschrift für Entomologie, Breslau* **3** 3-7.

BAGOINI ANALYSIS

This paper begins with a summary of the group worth repeating. Less than 1% of the 62,000 known species of weevil are completely aquatic. Most of the aquatic ones are in the Bagoini. Amongst the also-rans the authors refer to the Brachycerinae: Erirhini, relegated as such by R.G. Oberprieler (2014. 3.7.1 Brachycerinae Billberg, 1802. pp. 424-451 *in* R.A.B. Leschen & R.G. Beutel (eds) *Coleoptera, Beetles* **3***.* Berlin: De Gruyter). The Bagoinae occur world-wide except Central and South America and have 350 described species, only 268 are considered to be valid by Roberto Caldara.

The study centres on 119 morphological characters in 87 species of *Bagous*, including *alismatis* (Marsham). All species-groups previously proposed were maintained, but with some new species-groups and some groups being upgraded to genus or subgenus. *Hydronomus* Schoenherr is reinstated as a genus for *alismatis* and for an as-yet-undescribed Chinese species. *Memptorrhynchus* Iablokoff-Khnzorian is resurrected for at least nine mostly Afrotropical species and *Azollaebagous* is newly created for several species associated with water ferns of the family Azollaceae. The rest are in *Bagous* Germar as newly defined, with the subgenera *Bagous*, *Hydronoplus* Fairmaire, the newly created *Hydrillaebagous*, *Parabagous* Schilsky, and *Macropelmus* Dejean. Most European species are in *Macropelmus*, with some in subgenus *Bagous* - *binodulus* (Herbst), *glabrirostris* (Herbst), *lutulentus* (Gyllenhal), *puncticollis* Boheman, *robustus* Brisout de Barneville, and *subcarinatus* Gyllenhal.

Some mitochondrial DNA was also available for analysis from 17 species, and this strongly supports *Macropelmus* as a subgenus and *Bagous* as a subgenus to a lesser extent. Although it is clear that the authors went some way to extending the range of species with data on GenBank® it is disappointing that an all-out call not have been made for some fresh material of *alismatis* to be obtained to validate a major finding of the analysis based on morphology.

CALDARA R, O'BRIEN C W & MEREGALLI M 2017. A phylogenetic analysis of the aquatic weevil tribe Bagoini (Coleoptera: Curculionidae) based on morphological characters of adults. *Zootaxa* **4287** 1-63.

STOCKHOLM – NO DIFFERENCE BETWEEN RICH AND POOR

The biodiversity of aquatic insects was found to be significantly negatively associated with urbanisation in and around Stockholm. The insects surveyed were dragonflies, caddis, bugs and water beetles (up to 15 species in a pond). Urbanisation was measured by features such as the number of people and the amount of built-up area around a site. Unlike studies elsewhere there was no significant relationship with the wealth of those people.

BLICHARSKA M, ANDERSSON J, BERGSTEN J, BJELKE U, HILDING-RYDEVIK T, THOMSSON M, ÖSTH J & JOHANSSON F 2017. Is there a relationship between socio-economic factors and biodiversity in urban ponds? A study in the city of Stockholm. *Urban Ecosyst* doi.10.1007/s11252-017-0673-2 12 pp.

AETHIONECTES

David Sharp (1882) described *Œthionectes* on the basis of two females from Western Tropical Africa. This classical review covers the six known species, *Aethionectes eremita* being newly described from Gabon. The habitus and male genitalia photographs have been set up to facilitate identification from them alone. There are also several alluring photographs of flooded forest habitats.

BILARDO A & ROCCHI S 2017. A taxonomic review of the Afrotropical genus *Aethionectes* Sharp, 1882 (Coleoptera Dytiscidae). *Memorie dell Società Italiana di Scienze Naturali e del Museo Civico di Storia Naturale di Milano* **42** 3-26.

CARIBBEAN, CENTRAL AND SOUTH AMERICAN STUDIES

Derovatellus lentus was previously known from Haiti, the Dominican Republic, Puerto Rico, Dominique and Trinidad. The new record for Guadeloupe is accompanied by photographs of the beetle and its habitat.

MANUEL M 2015. Présence de *Derovatellus lentus* (Wehncke, 1876) en Guadeloupe (Coleoptera, Dytiscidae). *Bulletin de la Société entomologique de France* **120** 449-450.

Another Guadeloupe paper concerns *Notomicrus* Sharp, which are amongst the smallest known diving beetles. Fourteen species are known, of which four are now recorded from Guadeloupe, three of them being newly described. These include a pair of species that can be separated by 3.4% of the mitochondrial cytochrome oxidase sequences. *N. femineus* is named on the basis that it appears to comprise solely females.

MANUEL M 2015. The genus *Notomicrus* in Guadeloupe, with description of three new species (Coleoptera: Noteridae). *Zootaxa* **4018** (4) 506-534.

Parthenogenesis is also known in *Belladessus* Miller and Short, with one species named *femineus* from Surinam and Venezuela, and the other *puella* (Latin for a girl), from Venezuela. Earlier records of potential parthenogenesis are in the genus *Hydrodytes* Miller.

MILLER K B & SHORT A E Z 2015. *Belladessus* Miller and Short (Coleoptera: Dytiscidae: Hydroporinae; Bidessini), new genus for two new species from northern South America: parthenogenetic diving beetles? *The Coleopterists Bulletin* **69** 495-503.

Novadessus viracocha is described from the Peruvian Andes as a new genus and species. It requires modification of the genus key in *Diving Beetles of the World* at couplet 13 on page 222.

MILLER K B 2016. *Novadessus viracocha*, a new genus and species of Bidessini Sharp from Peru (Coleoptera, Adephaga, Dytiscidae, Hydroporinae). *ZooKeys* **623** 125-130.

Five papers by Roberto Blanco Aller concern the Hydradephaga of Costa Rica.

BLANCO ALLER R & RÉGIL J A 2013. Los adéfagos acuáticos (Coleoptera: Dytiscidae, Gyrinidae, Noteridae) de la Reserva Biológica Alberto Manuel Brenes (Alajuela, Costa Rica). *Boletin de la Sociedad Entomológica Aragonesa (S.E.A.)* **53** 293-297.

BLANCO ALLER R 2014. Actualización faunística y corológica de los Girínidos (Coleoptera: Adephaga: Gyrinidae) de Costa Rica (Centroamerica). *Boletin de la Sociedad Entomológica Aragonesa (S.E.A.)* **55** 224-232.

BLANCO ALLER R 2015. Catalogo y actualización corológica de los Notéridos (Coleoptera: Adephaga: Noteridae) de Costa Rica. *Boletin de la Sociedad Entomológica Aragonesa (S.E.A.)* **56** 179-186.

BLANCO ALLER R 2016. Contribución al conocimiento de los genéros *Megadytes* Sharp, 1882, *Thermonectus* Dejean, 1833 e *Hydaticus* Leach, 1817 (Coleoptera: Adephaga: Dytiscidae) en Costa Rica. *Boletin de la Sociedad Entomológica Aragonesa (S.E.A.)* **58** 197-205.

BLANCO ALLER R 2017. Primera cita de género *Celina* Aubé, 1837 (Coleoptera: Dytiscidae: Methlini) para Costa Rica, con la lista de especies y su distribución. *Boletin de la Sociedad Entomológica Aragonesa (S.E.A.)* **60** 317-321.

Lastly, with thanks to Kevin Scheers for the alert about some of the preceding papers, we have a paper on the Noteridae of Belize. Nine species are known, six of them recorded as new: *Hydrocanthus debilis* Sharp, *H. marmoratus* Sharp, *Mesonoterus laevicollis* Sharp,

Suphisellus insularis (Sharp), *S. nigrinus* (Aubé) (the commonest species) and *Notomicrus sharpi* J. Balfour-Browne. The species are thoroughly described and keyed.

SCHEERS K & THOMAES A 2017. A review of the burrowing water beetles of Belize with a key to the species (Coleoptera: Noteridae). *Belgian Journal of Entomology* **51** 1-17.

FISHING HOLES AS A COLLECTING TECHNIQUE?

Sasha Prokin has sent in these photographs of a mass kill of dytiscids resulting from their escaping low oxygen conditions through the holes made to catch the European weatherloach, *Misgurnus fossilis* (Berg).

QUEENSLAND PLAGUE

Not to be outdone by the Russian kill above, here is an outbreak of *Cybister* in Queensland, reported on 14 April 2011, and drawn to attention by Don Stenhouse.

http://noosabiosphere.org.au/_blog/Biosphere_News/post/Beetle_Infestation/

Hundreds of beetles are turning up in swimming pools within the Noosa Biosphere and folks were wondering what is going on. Sunshine Coast swimmers have found hundreds of the creatures in pools, while residents had come across carcasses on footpaths near the Brisbane River and in bayside suburbs like Wynnum. Queensland Museum curator Christine Lambkin said the insects are widespread, but not normally seen in such large numbers. Dr Lambkin said the museum has been fielding hundreds of enquiries over the past two weeks, from the Sunshine Coast, Gold Coast and Brisbane. "This has been massive. I've been here six years, and this is definitely the first time we've had this number of enquiries about this particular type of beetle," she said. "I wouldn't go sticking my finger underneath its mouth parts, because it might bite you, but it's not toxic or anything like that" she said.

D.J. LEEMING 1964 – 2017

Dave died tragically young on 14 May 2017, having been diagnosed with Non-Hodgkin Lymphoma in 2016. He was one of the most prolific and effective professional water beetle recorders, providing the British part of the recording scheme with 8,481 of his own records and with as many again from sources he was able to glean, particularly within the Environment Agency. Thoughts must be with the family for such an early loss, and thanks also go to Judy England for providing information and access to this photograph of Dave with two of his three daughters.

HYDRADEPHAGAN EVOLUTION – THE LATEST

It is no use feigning familiarity with the techniques applied here but it appears that the nuclear DNA material least likely to change, the “ultraconserved elements”, can be fished out of genomes by the use of a DNA bait. On this basis the ancestry of the Hydradephaga has been reinvestigated and found to be paraphyletic. The Gyrinidae are sister to the Geadephaga and all the other adephagans. The Haliplidae are sister to the Dytiscoidea, with the Hygrobiidae and Amphizoidea successive sisters to the Dytiscidae. The Noteridae was found to monophyletic and sister to the Meruidae, as has been found previously. This all underlines aquatic life as ancestral within the suborder Adephaga, possibly even right at its base [see also page 27]. The paraphyletic state of Hydradephaga must be associated with several moves between land and water, familiar to all of us as the differences in swimming behaviour between the groups.

BACA S M, ALEXANDER A, GUSTAFSON G T & SHORT A E Z 2017. Ultraconserved elements show utility in phylogenetic inference of Adephaga (Coleoptera) and suggest paraphyly of ‘Hydradephaga’. *Systematic Entomology* doi:10.1111/syen.12244 10 pp.

ICE AGE RANGE SHIFTS IN EUROPE

The DNA of Palaearctic members of *Platambus*, *Oreodytes* and the “*Haenydra* complex” around *Hydraena gracilis* Germar was investigated to establish origins. Did the species involve “yo-yo” south-north in relation to glacial cycles, or did some species come from further away? It would appear that the two dytiscids originated in Central Asia and the *Hydraena* came from western Anatolia. Ignacio Ribera is the author for correspondence

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

BELGIAN RECORDS

Forty-seven sites with water lilies were checked for *Donacia crassipes*, and it was found in 33 of them. There was no clear preference between the usual two water lily species, but it was not found on the one stand of *Nymphaea candida* (Presl).

The title of the second paper names the species found in the De Westhoek nature reserve (*Dryops griseus*), the Tobruk nature reserve (*Augyles hispidulus*) and Langdonken (*Haliplus fulvicollis*).

SCHEERS K, VERCRUYSSE E, SMEEKENS V & DE SAEGER S 2017. *Donacia crassipes* Fabricius, 1775 a rare or a neglected species in Belgium? (Coleoptera: Chrysomelidae: Donaciinae). *Bulletin de la Société royale belge d'Entomologie* **153** 15-20.

THYS N 2017. *Dryops griseus* (Erichson, 1847) second record for Belgium and first record of *Augyles hispidulus* Kiesenwetter, 1843 and *Haliplus fulvicollis* Erichson, 1837 after 1949 (Coleoptera: Dryopidae, Heteroceridae, Haliplidae). *Bulletin de la Société royale belge d'Entomologie* **153** 27-31.

ITALIAN RECORDS IN *ONYCHIUM*

Records for 41 species are reported in the paper by Mario Toledo and Saverio Rocchi. These include *Hydroscapha granulum* (Motschulsky) in Liguria and Campania, *Agabus lapponicus* (Thomson) in Emilia-Romagna and on Sardinia, *Agabus rufulus* (Fairmaire) in Sicily, *Deronectes angelini* Fery & Brancucci in Abruzzo, *Hydroporus apenninus* Pederzani & Rocchi in Molise, *Anacaena lhosei* in Lombardy, *Pachysternum capense* (Mulsant) in Piedmont, and *Ochthebius peisonis* Ganglbauer in Friuli-Venezia Giulia.

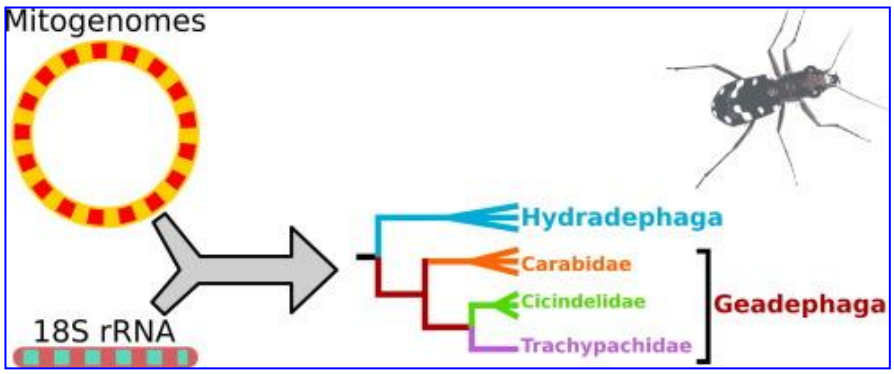
The other two papers are about Tuscany. Interesting records include *Enochrus segmentinotatus* (Kuwert) and *Sphaeridium substriatum* (L.), both new for Elba. Also from Elba is *Hydraena aethaliensis* Breit. The last paper listed 75 species of Hydraenidae classified into fifteen zones of Tuscany.

TOLEDO M & ROCCHI S 2017. Reperti inediti di Coleotteri acquatici in Italia (Coleoptera: Hydroscaphidae, Gyrinidae, Dytiscidae, Helophoridae, Hydrophilidae, Hydaenidae, Limnichidae, Erirhinidae). *Onychium* **13** 63-74.

ROCCHI S, TERZANI F, CIANFERONI F, FORBICIONI L, PAPI R & PIZZOCARO L 2017. Aggiornamenti alla conoscenza della coleotterofauna acquatici dell'Archipelago Toscano (Coleoptera). *Onychium* **13** 75-91.

ROCCHI S & TERZANI F 2017. Contributo alla conoscenza della coleotterofauna acquatici dell'Archipelago Toscano (Coleoptera). *Onychium* **13** 75-91.

ADEPHAGAN EVOLUTION – THE LATEST



These latest DNA results support the basal split of the Hydradephaga from the Geadephaga, and show the tiger beetles in combination with the Trachypachidae as sister to all Geadephaga. Get ready for AliGROOVE, an analysis of similarities in sequence composition that could well be adapted for use as a tartan.

LÓPEZ-LÓPEZ A & VOGLER A P 2017. The mitogenome phylogeny of Adephaga (Coleoptera). *Molecular Phylogenetics and Evolution* **114** 166-174.

BARCODING IN GERMANY

The 3,500 species include the following with a known Cytochrome oxidase sequence of 500 base pairs or more:- Dytiscidae 91 spp. out of 145 spp.; Dryopidae 3/14; Elmidae 21/25; Georissidae 3/3; Gyrinidae 8/11; Haliplidae 17/20; Heteroceridae 10/14; Hydraenidae 32/53; Hydrophilidae 73/122, Hygrobiidae 1/1; Limnichidae 2/3; Noteridae 2/2; Scirtidae 18/24. The analysis revealed several complexes of potentially distinct species, largely offering support to similar analyses elsewhere in Europe. Water beetle complexes include several Haliplidae and the *Hydrobius fuscipes* complex. High intraspecific differences occurred in *Haliplus furcatus* Seidlitz (2.2%), *H. immaculatus* Gerhardt (2.7%), *H. ruficollis* (De Geer) (1.2%), and *H. variegatus* Sturm (1.2%) without any morphological differences being detected. On the other hand, with 6.9% variation in DNA, Bernard van Vondel reckons that it is possible to differentiate three species within what we currently know as *Haliplus lineatocollis* (Marsham) in Europe, two of them in Germany. The massive 11.5% variation in *Hydrobius fuscipes* appears to be associated with four species in Germany, plus another in Greece. Clearer are some sibling species pairs such as *Galerucella aquatica* (Geoffroy in Fourcroy), feeding on docks (Polygonaceae), and *G. nymphaeae* L. feeding on water lilies. The male genitalia differ but there are no characters for the female other than the host plant on which they are found.

HENDRICH L, MORINIÈRE J, HAZPRUNAR G, HEBERT P D N, HAUSMANN A, KÖHLER F & BALKE M 2015. A comprehensive DNA barcode database for Central European beetles with a focus on Germany: adding more than 3500 identified species to BOLD. *Molecular Ecology*, **15**, 795-818.

RESISTING SALT

How do some water beetles survive in extreme saline conditions? The answer may lie in the structure of the cuticle. The cuticles of adults and larvae of *Nebrioporus baeticus* (Schaum) and *Enochrus jesusarribasi* Arribas & Millán had a high abundance of branched alkanes and low unsaturated alkenes, making them more similar to desert Tenebrionidae than to freshwater Dytiscidae. Thus there is a good link between resistance to drying out and to exposure to salt. Larvae, with a more permeable cuticle having more short length hydrocarbons and proportionately more unsaturated bonds, had less resistance to osmotic stress.

BOTELLA-CRUZ M, VILLASTRIGO A, PALLARÉS S, LÓPEZ-GALLEGO E, MILLÁN A & VELASCO J 2017. Cuticle hydrocarbons in saline aquatic beetles. *PeerJ* 5:e3562; DOI 10.7717/peerj.3562 16 pp.

***RHANTUS* CHANGES GLOBALLY – *NARTUS* IS BACK**

Rhantus had 107 species before and now has 90, making it still the most speciose genus of the subfamily Colymbetinae. Some partial genetic analyses had revealed that *Rhantus* was not monophyletic and yet with demotion of the Juan Fernández *Anisomeria* Brinck and the Tristan da Cunha *Senilites* Brinck to members of the *Rhantus signatus* species group. The new classification has eleven genera, two of them being new, *Caperhantus*, accommodating a species from the Southern Cape of Africa, and *Mediorhantus* from some species ranging from Chile to New York City. Zaitzev's *Nartus* is reinstated as a genus of black species, not just for the Palaearctic *N. grapii* (Gyllenhal) but also for the *N. sinuatus* (LeConte) in northern North America. The key reflects the fact that the genera are defined molecularly, some having to be taken out on the basis of their distributions rather than any clear cut morphology.

BALKE M, HÁJEK J & HENDRICH L 2017. Generic reclassification of species formerly included in *Rhantus* Dejean (Coleoptera, Dytiscidae, Colymbetinae). *Zootaxa* **4258** 91-100.

TRAITS IN IBERIAN RIVERS

Elmis is mentioned once in this paper but the approach and some of the outcomes may of some interest, even if the data are mainly from chironomids. One finding was that even those rivers associated with plenty of natural land cover had ecologically significant pesticide levels derived from very small areas of artificial land upstream. Thus, there was no pristine river system in the analysis. The authors themselves identify a potential problem with the main axis of the species traits/environmental variables analysis ("RLQ analysis", which can identify stresses in the system based on linear combinations of traits and environmental variables). Urban-related stressors such as increased run-off and wastewater discharge selected multivoltine taxa feeding on deposits whereas pesticide-impacted sites selected taxa with better egg protection. Urban rivers had the most homogenised fauna. A caveat is that pesticide-impacted sites on the Júcar were at one extreme and urban sites on the Llobregat at the other, these two rivers systems being widely separated with faunas likely to have differed under natural conditions.

KUSMANOVIC M, DOLÉDEC S, CASTRO-CATALA N de, GINEBREDA A, SABATER S, MUNÑOZ I & BERCELO D 2017. Environmental stressors as a driver of the trait composition of benthic macroinvertebrate assemblages in polluted Iberian rivers. *Environmental Research* **156** 485-493.

TURKISH HYDROPHILOIDEA STUDY

Thirty species of Hydrophilidae and Helophoridae are named in this analysis of communities found in the west of Turkey in İzmir, Manisa and Aydyn in relation to physicochemical values. Electrical conductivity, salinity and temperatures were found to be the main parameters associated with water beetle distributions.

AKÜNAL A & ASLAN E G 2017. Ecological investigations on Hydrophilidae and Helophoridae (Coleoptera) specimens gathered from several water bodies of western Turkey. *Knowledge & Management of Aquatic Ecosystems* **418** 43, 6 pp.

CROATIAN *AGABUS*

Agabus didymus occurred in a stream at Dubrovačko-Neretvanska in association with *A. bipustulatus* (L.), *Ilybius fuliginosus* (Fab.), *Hydroporus pubescens* (Gyllenhal), *Graptodytes flavipes* (Olivier), *Scarodytes savinensis* (Zimmermann), and *Laccophilus hyalinus* (De Geer), and *A. dilatatus* Brullé was found in the same area on its own. Maps are provided of the whole distributions of these species.

SCHEERS K & THANT S 2017. *Agabus didymus* (Olivier, 1795) and *A. dilatatus* (Brullé, 1832), two species new to the fauna of Croatia with notes on the ecology and distribution of both species (Coleoptera: Dytiscidae). *Bulletin de la Société royale belge d'Entomologie* **153** 54-58.

***MELADEMA* SPLIT**

This review of *Meladema* reveals a new species, *M. lepidoptera*, resident in Sardinia, Elba, Montecristo, Corsica, and the adjacent parts of mainland Italy from Liguria to Umbria. This has previously masqueraded as *M. coriacea* Laporte, but as the name indicated, has a surface sculpture of crescentic striolae more closely overlapping than in *coriacea* and resembling scales. The genus is subjected to genetic analysis overall validating the specific status of *M. imbricata* (Wollaston) in the western Canary Islands and *M. lanio* (Fab.) in Madeira, but recognising the possibility of hybrids between *coriacea* and *imbricata* on Tenerife.

BILTON D T & RIBERA I 2017. A revision of *Meladema* diving beetles (Coleoptera, Dytiscidae), with the description of a new species from the central Mediterranean based on molecules and morphology. *ZooKeys* **702** 45-112.

PNG *COPELATUS*

A subtle addition to the expected quality of this description of a new species, *Copelatus adelbert* is an anterior-dorsolateral habitus photograph, showing to advantage the colour scheme – yellow head, black pronotum, elytra black with yellow front and rear. The address for correspondence is Michael Balke's.

MEGNA Y S, ATTHAKOR W, MANAONO M, HENDRICH L & BALKE M 2017. A new species of *Copelatus* Erichson, 1832 (Coleoptera: Dytiscidae: Copelatinae) from the Adelbert Range of Papua New Guinea. *Australian Entomologist* **44** 49-55.

MORE ON *BOREONECTES*

Chromosomes are illustrated for *B. emmerichi* (Falkenström) from the type locality on the Tibetan Plateau and for *B. alpestris* (Dutton & Angus) from Switzerland. Robert was struck by the beetles being larger on the St Gotthard pass than on the San Bernandino pass, but the karyotypes were the same.

Robert notes a few corrections:-Table 1 for 101.755 read 9.176; p. 196 for 5.2-5.1 read 4.2-5.1; p. 196, 2 lines from bottom and caption of Figure 4 – should be eastern, not western.

ANGUS R B, RIBERA I & JIA F 2017. Further studies on *Boreonectes* Angus, 2010, with a molecular phylogeny of the Palaearctic species of the genus. *Comparative Cytogenetics* **11** 189-201.

***HYDROPORUS NECOPINATUS* DNA VARIATION**

Mitochondrial DNA sequences were analyses for the forms of *Hydroporus necopinatus* Fery, *H. melanarius* Sturm and *H. hebaueri* Hendrich. *H. necopinatus* is confined to the west of Europe, with three subspecies, *necopinatus* s. str. in Iberia, *robertorum* Fery in the Channel Isles and France, and *roni* Fery, in Dorset, the last an unusual case of an endemic form in Britain. The mismatches between morphology and mitochondrial DNA sequences are complex, indicating a history of introgression, with *robertorum* and *roni* possibly being hybrids between the true *necopinatus* and *melanarius*.

BILTON D T, TURNER L & FOSTER G N 2016. Frequent discordance between morphology and mitochondrial DNA in a species group of European water beetles (Coleoptera: Dytiscidae). *PeerJ* doi 10.7717/peerj.3076

HYDRAENID IN AMBER

Arachaeodraena cretacea is described as a new genus and species from Cretaceous amber found in Myanmar. The beetle generally resembles modern *Hydraena* but differs, so far as can be seen, mostly in several features of the maxillary palps, and in long and thin setae on the metatarsi, possibly swimming hairs and indicating life in water.

YAMAMOTO S, JÄCH M A & TAKAHASHI Y 2017. Discovery of the first hydraenid beetle in amber, with description of a new genus and species. *Cretaceous Research* **78** 27-33.

HAWAIIAN IMMIGRANT

Coelambus nubilus was originally described by LeConte from Wyoming, and is now known [as a *Hygotus* ssp. *Leptolambus* – see p. 20] from Arizona, Colorado, Iowa, Maryland, New York, Oklahoma and Texas, also from Mexico. It has been found in the Mauna Kea Volcano on Hawaii, which it could have reached in several ways, the principal ones being by man (*Homo sapiens* L.), the Pacific golden plover (*Pluvialis fulva* (Gmelin), which flies from Alaska to Hawaii and back, and Taverner's Goose (*Branta hutchinsii taverneri* (Delacour), known from both Kansas, where the beetle occurs, and as vagrant in Hawaii.

FERY H & CHALLET G 2015. *Hygrotus* (*Coelambus*) *nubilus* (LeConte, 1855) on Mauna Kea (Hawaii) – first record of the genus from the Pacific zoogeographical region (Coleoptera: Dytiscidae). *Linzer biologische Beiträge* **47** 1303-1309.

PRELUDE TO GYRINIDAE CATALOGUE

A catalogue is planned to replace one produced for the Palaearctic in 2003. This will list only the available names rather than the entirety of the synonymies, and the opportunity is taken here to simplify the final presentation. Quite a few publication dates have been found to be wrong, in particular Aubé's *Species general* and the third part of his *Iconographie*, both produced in 1838. An interesting development concerns *Macrogyrus oblongus* (Boisduval, 1835). This is an Australian species and the first beetle to have its mitochondrial genome completely sequenced. What has this got to do with the Palaearctic? Well, the first use of the name *Gyrinus oblongus* was by Ludwig Heinrich Freiherrn von Block for a beetle found near Dresden. The authors could trace neither Block's collection nor any use of Block's name: they apply ICZN (1999) Article 23.9.2 to fix the precedence of the younger name for the Australian species over the older name for the European one.

FERY H & HÁJEK J 2016. Nomenclatural notes on some Palaearctic Gyrinidae (Coleoptera). *Acta entomologica Musei Nationalis Pragae* **56** 645-663.

***LIMNEBIUS* EVOLUTION AND RENSCH**

It is fairly easy to work out why females should be larger than males because of them needing more resources to reproduce. But one can also see how males might be the larger sex if prowess in competing with fellow males takes over. Rensch's rule is basically that males can evolve more than females regardless of which is the larger sex. This analysis of the phenomenon of large males in *Limnebius* indicates that the higher evolutionary variation in male body size is the result of freedom from the constraints imposed upon females, and that this process started to act after enlargement of males had simply come about randomly. Heavy males, heavy stuff. Ignacio Ribera is the corresponding author.

RUDOY A & RIBERA I 2017. Evolution of sexual dimorphism and Rensch's rule in the beetle genus *Limnebius* (Hydraenidae): is sexual selection opportunistic? *PeerJ* 5:e3060 doi 10.7717/peerj.3060

POLISH RECORDS

Three peat bogs and eight streams in the Karkonosze National Park on the Czech border were surveyed in 2014 and 2015. Notable species included *Deronectes platynotus* (Germar), *Hydroporus scalesianus* Stephens, *Elmis latreillei* (Bedel) and *Limnius perrisi perrisi* (Dufour). The Bialowieża Forest is probably Poland's most internationally famous conservation site. One hundred and fifty-one species of water beetle are recorded from including 31 new for the region and *Helophorus paraminutus* Angus new for Poland. The additions include *Gyrinus suffriani* Scribe, *Haliplus fulvicollis* Erichson, *Graphoderus zonatus* (Hoppe), *Scarodytes halensis* (De Geer), *Helophorus laticollis* Thomson, *H. tuberculatus* Gyllenhal, *Hydrochus flavipennis* Küster, *Berosus signaticollis* Charpentier, *Spercheus emarginatus* (Schaller), and *Pelochares versicolor* (Waltl). The health resort park had some interesting woodland species but only one water beetle, *Dryops nitidulus* (Heer).

BUCZYŃSKI, KŁONOWSKA-OLEJNIK, ŁABĘDZKI A & MEJECKI J 2017. [Materials to the knowledge of aquatic beetles (Coleoptera) of streams and peat bogs in the Karkonosze National Park. *Przegląd Przyrodniczy* **28** 85-90. [in Polish]

GREŃ C, LUBECKI K & PRZEWOŹNY M 2017. Materials to the knowledge of water beetles (Coleoptera: Adephaga, Hydrophiloidea, Byrrhoidea, Myxophaga) of the Bialowieża Primeval Forest. *Acta entomologica silesiana* **25** 1-13. [in Polish]

MIŁKOWSKI M 2017. [Contribution to the knowledge of beetles (Insecta: Coleoptera) of the Health Resort Park in Nałęczów. *Przegląd Przyrodniczy* **28** 91-100. [in Polish]

SOUTH AFRICAN BEETLES

Leielmis georyssoides (Grouvelle) is shown to be endemic to Table Mountain, South Africa, living in cold mountain streams. Two more species of this dumpy genus are newly described. The Northern Cape has also yielded five new species of Hydraenidae, plus 68 other species including a torridinicolid, four whirligigs, 21 dytiscids, *Spercheus ceresyi* Guérin-Méneville, *Helophorus aethiops* Balfour-Browne, 13 hydrophilids, and 27 other hydraenids.

BILTON D T 2017. A revision of the South African riffle beetle genus *Leielmis* Delève, 1964 (Coleoptera: Elmidae). *Zootaxa* **4254** 255-268.

BILTON D T 2017. Water beetles from the Bokkeveld Plateau: a semi-arid hotspot of freshwater biodiversity in the Northern Cape of South Africa. *Zootaxa* **4268** 191-214.

ETHIOPIAN LAKE DISTURBANCE

Forty-two wetland sites were sampled to the south of Lake Tana. A total of 2,568 macroinvertebrates in 46 families were recorded, the most dominant order being beetles ("a relative abundance of 32%") and Dytiscidae being found in 93% of sites. The data are used to show that human disturbance is associated with reduced diversity though abundance was highest in heavily polluted sites. Grazing and leather tanning are the most significant contributors to pollution. The trouble is that the principal table of data uses "relative abundance" rather than numbers of species or individuals and there is no explanation as to what the figures might mean. Springer's instructions to authors do not include "On no account must any species be mentioned by name" so it is a real pity that the authors could not have tried to name a few species limited to the least polluted sites. The author for correspondence is Seid Tiku Mereta.

GEZIE A, ANTENEH W, DEJEN E & MERETA S T 2017. Effects of human-induced environmental changes on benthic macroinvertebrate assemblages of wetland in Lake Tana watershed, Northwest Ethiopia. *Environmental Monitoring and Assessment* **189**: **152** 14 pp.

SPERMATHECA

The spermatheca is a complex organ in which the female can store and nourish sperm. As with most insects Dytiscidae have only one spermatheca. The review picks up on one publication on Dytiscidae, based on six species in New Zealand (ORDISH R G 1985. A review of spermathecal structure in New Zealand dytiscids. *Proceedings of the Academy of Natural Sciences of Philadelphia* **137** 128-131). The corresponding author is Gustavo Martins.

PASCINI T V & MARTINS G F 2017. The insect spermatheca: an overview. *Zoology* **121** 56-71.

MOROCCAN ADEPHAGA

Forty-five localities were surveyed for Adephagan water beetles between 2011 and 2016. This yielded 55 species, many of them old friends to anyone working in southern Europe, but with some that will be less familiar – *Hydroglyphus major* (Sharp), *Herophydrus* [now *Hygrotus* – see p. 20] *musicus* Klug, *Stictonectes escheri* (Aubé), *Stictotarsus procerus* (Aubé), *Nebrioporus nemethi* Guignot, *Colymbetes schildknechti* Dettner, and *Aulonogyrus striatus* Fab. The distributions of many species are mapped. Many species were found to be new to the Moulouya river basin. The Ibero-Maghrebian endemic species outweighed the strictly Maghrebian ones. The author for correspondence is Andrés Millán.

TAYBI A F, MABROUKI Y, CHAVANON G, BERRAHOU A & MILLÁN A 2017. New data on the distribution of aquatic beetles from Morocco (Coleoptera, Adephaga: Gyrinidae, Haliplidae and Dytiscidae). *Baltic Journal of Coleopterology* **17** 83-105.

RHITHRODYTES 8

A single male from Algeria was discovered in Paris Museum and is described as *Rhithrodytes minimus*. *R. argaensis* Bilton & Fery was originally described as a subspecies of *R. agnus* Foster and is now raised to species status on the basis of the genetic evidence. The opportunity is taken to illustrate all eight species together, i.e. including *R. bimaculatus* (Dufour), *R. crux* (Fab.), *R. dorsoplagiatus* (Fairmaire), *R. numidicus* (Bedel), and *R. sexguttatus* (Aubé).

FERY H 2016. Notes on *Rhithrodytes* Bameul, 1989, with the description of *R. minimus* nov. sp. from Algeria (Coleoptera, Dytiscidae, Hydroporini, Siettitiina). *Linzer biologische Beiträge* **48** 431-450.

BOMB CRATER BIODIVERSITY

There is nothing particularly wrong with this paper apart from its initial premise – that such sites have a negative reputation. Bomb craters have always been of interest for their fauna, in that at least one can accurately date them. Those in question here were formed as a cluster when WWII bombing missed an airfield in Hungary. Water quality was strongly affected by sodium content. Fifty ponds (area 7-113 m²) with a vegetation of common reed, sedges and bulrushes were each sampled for three minutes by sweep netting. As usual there were about as many beetle species (52) as the other macroinvertebrates (and amphibians and reptiles) put together. *Enochrus hamifer* (Ganglbauer) is the only species of significance mentioned in the paper. There were correlations of macroinvertebrate diversity with conductivity, dissolved inorganic nitrogen and water depth.

VAD C F, PÉNTEK A L, COZMA N J, FÖLDI A, TÓTH B, BÖDE N A, MÓRA A, PTACNIK R, ÁCS É, ZSUGA K & HORVÁTH Z 2017. Wartime scars or reservoirs of biodiversity? The value of bomb crater ponds in aquatic conservation. *Biological Conservation*, **209**, 253-262.

COLYMBETINAE DIVERSITY BY LATITUDE

The authors initially cite H.W. Bates's Amazonian experience of species richness being highest near to the Equator. From this have been spawned any numbers of TLAs, three-letter-acronyms, the first being LDG, the latitudinal diversity gradient. But the Colymbetinae are not like that, with diversity greatest in temperate areas in the north and the south. Their origin, 56 million years ago in the late Jurassic at the change from the Palaeocene to the Eocene, was under temperate conditions in the Eastern Palaearctic and Australian regions. Another TLA is PNC, Phylogenetic Niche Conservation, in this case, what evolved in the temperate region is best adapted for long term survival in a temperate region. Under the right conditions this ancestral association could allow colonization of Afrotropical mountains and even transit across Antarctica. The Agabinae appear to have the same iLDG – inverse Latitudinal Diversity Gradient.

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

NEW SICILIAN *LACCOBIUS*

Laccobius siculus is newly described from Messina as a species similar to *L. sculptus* d'Orchymont and *L. chiesai* Gentili. Further records are given for *L. atrocephalus* Reitter and *L. moraguesi* Régimbart, not known elsewhere in Italy.

GENTILI E & ROCCHI S 2017. Osservazioni e studi sul genere *Laccobius* Erichson, 1837 in Sicilia con descrizione di una nuova species (Coleoptera, Hydrophilidae). *Giornale italiano di Entomologia* **14** 697-702.

WATER BEETLE-INSPIRED ROBOT

Water beetles have all sorts of admirers including mechanical engineers. There is no point in pretending that much of this paper is understandable by this reviewer. High-speed cameras were used to study the performance of a robot that uses swimming appendages. The robot was 30 mm long and had a tendency to sink, so it was provided with two styrofoam balls. The author for correspondence is Joonbum Bae.

KWAK B & BAE J 2017. Toward fast and efficient mobility in aquatic environment: a robot with compliant swimming appendages inspired by a water beetle. *Journal of Bionic Engineering* **14** 260-271.

NORTH WALES DUNES *DRYOPS*

Not many places in Britain can claim three species of *Dryops*, let alone three of the more rare species. *D. similaris* Bollow, *D. nitidulus* (Heer) and *D. striatellus* (Fairmaire & Brisout) are recorded from the Morfa Harlech dunes in Meirionydd, the latter two also from Morfa Dyffryn, and all by pitfall trapping.

LOXTON R G 2017. Some annotated beetle records from three sand dune systems in North Wales: Newborough Warren, Morfa Harlech and Morfa Dyffryn. *The Coleopterist* **26** 20-26.

BERLIN RED LIST

This is the third version of this Red List for the City of Berlin. Of 195 species known from the area, 32 are believed to be regionally extinct and 58 are endangered. Most of the extinct species were typical of fenland and peat, and there are proportionately more in the Hydradephaga, Dryopidae and Elmidae than in the Hydrophiloidea and Hydraenidae.

HENDRICH L & MÜLLER R. 2017. Rote Liste und Gesamtartenliste der Wasserkäfer von Berlin (Coleoptera: Hydradephaga, Hydrophiloidea part., Hydraenidae, Elmidae, and Dryopidae). *Rote Listen der gefährdeten Pflanzen und Tiere von Berlin* **38**. doi.: 10.14279-5851.

VERRALL – ONE FOR THE FROGS

This year's Verrall was chaired by Simon Leather in the rather worrying absence of Van (Professor Helmut van Emden). Quite a few changes, possibly for example the first time when jeans seem to outnumber suits, but the Rembrandt has proved a fitting substitute for what went before, though with a threat of a price increase next year. Simon gave a humanist-type grace and delivered the traditional expressions of sorrow for the two members who had passed on. He then asked if there was any one else who had….and there he paused, thinking up another euphemism.

"…..croaked?" suggested our Chairman to a hushed audience.

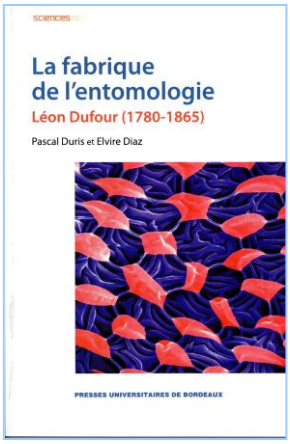
PRISUSKY BEETLES

This reserve lies west of Kazan in the Chuvash Republic. It is a mixture of lowland taiga forest and steppe. These two beetles cover the beetles found in 2014 and 2015. Wetland an related species include *Sphaerius acaroides* Waltl, *Cybister lateralimarginalis* (De Geer), *Dytiscus thianschanicus* (Gschwendtner), *Graphoderus zonatus* (Hoppe), *Berosus frontifoveatus* Kuwert, *Cercyon laminatus* Sharp, *Heterocerus fusculus* Kiesenwetter, and *Bagous argillaceus* Gyllenhal.

EGOROV L V 2016. Some data concerning the coleopterous fauna of the nature reserve "Prisursky". Report 4. Sci*entific Works of the State Nature Reserve "Prisurskiy"* **31** 57-68. [in Russian]

EGOROV L V 2016. Some data concerning the coleopterous fauna of the nature reserve "Prisursky". Report 5. *Scientific Works of the State Nature Reserve "Prisurskiy"* **31** 69-114. [in Russian]

LÉON DUFOUR



📖 DURIS P & DIAZ E 2017. *La fabrique de l'entomologie. Léon Dufour (1780-1865)*. Pessac: Presses Universitaires de Bordeaux. ISBN: 979-1—300-0101-3. €25.

This is the second edition, the first having been published in 1987 under the title *Petite histoire naturelle de la première moitié du XIX^{e} siècle. Léon Dufour (1780-1865).* If one adds that the new edition includes an index of genera and species newly described by Dufour, and prepared by Franck Bameul, then the reason for its presence here becomes clear. Dufour was a polymath in the best tradition of the time, which was strongly marked by the French Revolution and the rise of Napoleon, whom Dufour served as a doctor during the Peninsular Wars. He was greatly interested in internal anatomy, for example recognising Dufour's gland, the organ associated with the sting of Apocrita. Sir Eric Lubbock's, one of Darwin's circle, described Dufour as "the greatest entomological anatomist in the world". His list of new species ranged from a mushroom, lichens, higher plants, gregarine protozoans, nematodes, many arthropods and a salamander. But we must concern ourselves solely with water beetles. Franck has noted the following names created by Dufour – *Hydroporus bimaculatus*, *Stenelmis consobrinus*, *Elophorus inalpinus*, *Hydrobius praecox*, *Heterocerus unicolor*. These correspond to *Rhithrodytes bimaculatus*, *Stenelmis consobrina*, *Helophorus glacialis* Villa & Villa, either *Anacaena limbata* (Fab.) or *lutescens* (Stephens), and *Heterocerus marmota* Kiesenwetter.

BELARUS RIVER FAUNA

The Neman is the third largest river in Belarus. Coleoptera, with 39 species, come second to Trichoptera in the fauna of 178 species, and include *Graptodytes granularis* (L.), *Orectochilus villosus* (Müller), *Enochrus melanocephalus* (Olivier), *Macronychus quadrituberculatus* (Müller), *Elmis maugetii* Latreille, and *Pomatinus substriatus* (Müller).

MOROZ M D & LIPINSKAYA T P 2017. Aquatic insects of the Neman River and its tributaries. *Entomological Review* **97** 30-43.

GRAPHODERUS BILINEATUS IN ITALY

This publication predates the one reviewed in ***Latissimus* 39** page 18. It still has relevance in that it is noted that so many Italian sites have been lost that this species should now be classified using IUCN criteria as **Critically Endangered** rather than **Endangered**.

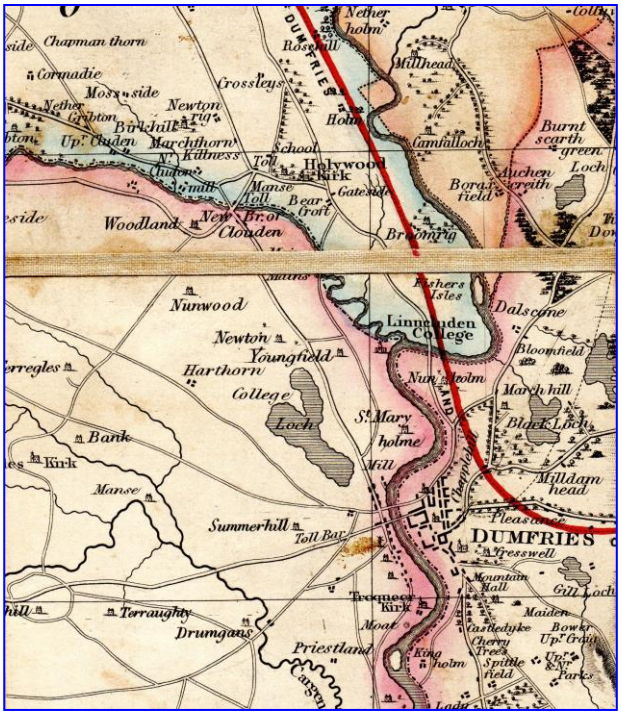
NARDI G, ROCCHI S & STAUBLE A 20156. Stato di conservazione di *Graphoderus bilineatus* (De Geer, 1774) in Italia (Coleoptera, Dytiscidae). *Bollettino dell'Associazione Romana di Entomologia* **70** 1-8.

NEW RUSSIAN *CERCYON*

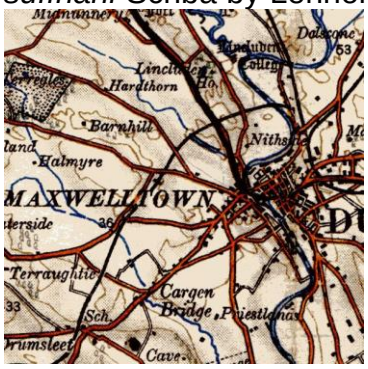
Hardly aquatic but someone has got to love them. The two new species belong to the subgenus *Clinocercyon* d'Orchymont, *C. retius* known from badger excrement, and *C. primoricus*, found in rotting material and on mushrooms. Both are reported from several places in the Russian Far East. The four other *Clinocercyon* are from Japan and China. The paper is notable for the beautiful drawings of the aedeagophores.

RYNDEVICH S Y & PROKIN A A 2017. Two new species of *Cercyon* (*Clinocercyon*) from Russian Far East (Coleoptera: Hydrophilidae). *Zootaxa* **4300** 125-134.

MAXWELLTOWN LOCH GNF



A friend's giving me a copy of an undated map entitled *Southern Part of Dumfriesshire surveyed by Crawford & Son, for the Atlas of Scotland*, reminded me of one of the mistakes in the British & Irish Atlas 1. Maxwelltown Loch was there (page 40), assigned to Dumfriesshire. It lay to the west of the River Nith in Kirkcudbrightshire. "Lay", because it was drained, originally known as College or Slateford Loch when full-sized, and as it presumably appears on the map, which must pre-date 1859, when the Castle Douglas and Dumfries Railway opened and actually ran through the loch according to later visits. Parish records indicate that the loch was partially drained initially, with the smaller resulting smaller loch supplying water to an Iron Foundry at Maxwelltown. There are about fifty water beetle records from the Loch. Brian Nelson noted a specimen of *Hydronomus alismatis* (Marsham) in Belfast Museum taken by Professor Frank Balfour-Browne in July 1893. This was considerably before Balfour-Browne's journals, held by the Royal Scottish Museum, began. These have a single Oxfordshire record for 1900 and then intensive recording from 1903 onwards when Balfour-Browne arrived in Norfolk. The earliest records on file are from the 1890s, possibly back to the 1880s, by William Lennon. Balfour-Browne also visited the Loch on 23 June 1906 and 22/23 March 1907. The 1908 Ordnance Survey map shows the loch only to the south-eastern side of the railway. In 1906 Balfour-Browne found the water low with a "muddy bottom thick with weeds – waterlilies &c." The fauna was scarcely that of a quality site, with *Nebrioporus assimilis* (Paykull) and *Graptodytes pictus* (Fab.) as the scarcest species. A "shallow marshy ditch to E. side of second part of Loch – S of Railway" was not much better, though with *Graptodytes granularis* (L.), a species with a strongly restricted distribution in Scotland. He also noted *Prasocuris phellandrii* (L.) and *Nepa cinerea* L. there, excursions into exotica not repeated much in later life. *G. granularis* was also found across the railway on the northern side. The 1907 visit produced similar lists, "Loch No. 2" being noted on 23 March, thus emphasising that drainage of the loch had resulted in it being divided up. This was a time when Balfour-Browne took on a special interest in *Agabus affinis* (Paykull) and *A. unguicularis* (Thomson), noting both species in the "*Granularis*" ditch on the 22nd. The most important records for the Loch were of *Gyrinus suffriani* Scriba by Lennon in 1896 (seen in 1907 by Balfour-Browne in the collection in the RSM), the only known occurrence in Scotland. Lennon also recorded *Hydroporus rufifrons* (Müller), *Hydrochus angustatus* Germar and *H. brevis* (Herbst). M'Gowan also reported *H. rufifrons* some time before 1914, possibly a repeat of Lennon's record. However, Balfour-Browne checked Lennon's material and his card index has *rufifrons* scored through and replaced by *erythrocephalus*. The last records for the site were of *Agabus unguicularis*, *Porhydrus* lineatus (Fab.), *Hydraena riparia* Kugelann and *Ochthebius minimus* (Fab.), on 13 September 1919, by Anderson Fergusson.



April 2017

DEFINITION OF A SUBSPECIES

In notes accompanying this paper on *EurekAlert* Johannes Bergsten related the current definition of a species under the Unified Species Concept (USC) as "separately evolving (meta) population lineages". USC attempts to separate what species ***are*** from the techniques we use to differentiate them. Differentiating subspecies is much tougher, but may be helped by the first and probably only reference to a longhorn beetle in ***Latissimus***. The paper's title clearly explains the gist, the new subspecies living on downy willow rather than aspen (*Populus tremula* L.). There would appear to be strong parallels with what is needed as an approach for some chrysomelid beetles with one wetland host and another more to be found on dry land. Differences between the mitochondrial DNA of the subspecies were relatively low, 0-2.35%, and they did not fall into two distinct groups using the usual marker. Although body length was significantly different there was so much overlap that these taxa could not be distinguished on this factor alone, and many other features were also found wanting. The authors conclude that subspecies are potentially incipient species whose distributions are separate or only border each other and are diagnosable by at least one presumably heritable trait. One good character should do it without the need to invoke some arbitrary system such as the 75% rule, where at least 75% of individuals in subspecies A fall outside the distribution of 99% of subspecies B. The trait could be molecular or morphological, the crucial factor being that it is heritable. For water beetle correspondence the contact would be Johannes Bergsten.

WALLIN H, KVAMME T & BERGSTEN J 2017. To be or not to be a subspecies: description of *Saperda populnea lapponica* ssp. n. (Coleoptera, Cerambycidae) developing in downy willow (*Salix lapponum* L.). *ZooKeys* **691** 103-148.

MAPUTALAND POLYPHAGAN HOTSPOT

The Hydradephaga of this site were described in an earlier paper (see ***Latissimus* 38**). The same treatment, including habitus photographs of the 27 taxa found, is given as for the Hydradephaga. The taxa include several unnamed taxa - three *Hydrochus*, an *Allocotocerus*, an *Enochrus*, two *Helochares*, and three *Coelostoma*, so there is plenty of work to do yet.

BIRD M S, BILTON D T & PERISSINOTTO R 2017. Diversity and distribution of polyphagan water beetle (Coleoptera) in the Lake St Lucia system, South Africa, *ZooKeys* **656** 51-84.

EQUATORIAL *HYDRAENA*

Two new species of *Hydraena* (*Hydraenopsis*) are based on material sifted by Vasily Grebennikov in primary forest litter in an area without freestanding water. The nearest known relative could be an undescribed species found in the same way in Tanzania.

HERNANDO C & RIBERA I 2017. Two new terrestrial species of *Hydraena* from the island of Bioko, Gulf of Guinea (Coleoptera: Hydraenidae). *Zootaxa* **4238** 281-286.

AYRSHIRE STUDY

The Lendalfoot complex of sites is a Special Area of Conservation in Ayrshire, Scotland, in an area dominated by serpentinite and other ultrabasic rocks on an exposure of the Southern Uplands Boundary Fault. The Pinbain Burn runs through these rock exposures and is quite well known amongst water beetlers for *Hydraena* minutissima Stephens, *H. pulchella* Germar and *Ochthebius exsculptus* (Germar). This is a survey of the terrestrial beetles, mainly by pitfall trapping. An important addition to the running water beetle fauna is *Hydrocyphon deflexicollis* (Müller).

PHILP B 2017. The beetles of the Grey Hill/Pinbain Burn SAC near Girvan, South Ayrshire. *Glasgow Naturalist* **26** 55-63.

ITALIAN *HYDRAENA* HABITATS

Six *Hydraena* species were sampled in a Piedmont stream system using a Surber Sampler. The results were analysed using Canonical Correspondence Analysis. *H. andreinii* d'Orchymont had the widest niche, overlapping with all the other species. *H. devillei* Ganglbauer was similar except that it was less common. *H. assimilis* Rey appeared to prefer deep water habitats with boulders whereas *H. subimpressa* Rey preferred shallow places with gravel. *H. heterogyna* Bedel was a specialist species of high flow around boulders and cobbles whereas *H. truncata* Rey, also a specialist, was found in gravel. The correspondent is Stefano Fenoglio.

BO T, PIANO E, DORETTO A, BONA F & FENOGLIO S 2016. Microhabitat preference of sympatric *Hydraena* Kugelann, 1794 species (Coleoptera: Hydraenidae) in a low-order forest stream. *Aquatic Insects* **37** 287-292.

***HYDROVATUS* ADDITIONS**

Hydrovatus is the third most species-rich genus of Dytiscidae, with two more species, *diversipunctatus* and *globosus* described from Thailand. Keys are provided for the Old World species of the *pustulatus* group and Oriental members of the *oblongipennis* group.

BISTRÖM O & BERGSTEN J 2016. Two new species of the megadiverse lentic diving-beetle genus *Hydrovatus* (Coleoptera, Dytiscidae) described from NE Thailand. *ZooKeys* **632** 57-66.

BIDESSINE NEWS

Rompinodessus jenisi is a new species in a new bidessine genus based on a male found near the village of Rompin in Malaysia by Ivo Jeniš in 1993. It is distinctively dark orange with darkly speckled elytra. *Leiodytes kualalipis* Balke, Wang, Bergsten & Hendrich is newly described from Malaysia and Vietnam as the largest (2.7 mm) *Leiodytes* known. The paper concludes with notes about *Limbodessus curviplicatus* (Zimmermann), formerly a *Bidessus*, from Samoa and Fiji.

BALKE M, BERGSTEN J, WANG L-J & HENDRICH L 2017. A new genus and two new species of Southeast Asian Bidessini as well as new synonyms for Oceanian species (Coleoptera, Dytiscidae). *ZooKeys* **647** 137-151.

CACCOTHRYPTUS

The three new species of limnichid are described from India, Myanmar and Thailand. The types are in Vienna Museum.

HERNANDO C & RIBERA I 2017. Three new species of the genus *Caccothryptus* Sharp, 1902 from Asia (Coleoptera: Limnichidae). *Zootaxa* **4243** 366-370.

***STERNOLOPHUS* RESOLVED**

These are large (around 10 mm) beetles, yet have received little attention outside Australia. Seventeen species are recognised, including six species newly described. The two subgenera are not supported. It is noted that *Sternolophus* do not occur on the European continent, except for an old record of *Hydrous graecus* Baudi, a synonym of *S. solieri* Castelnau.

NASSERZADEH H & KOMAREK A 2017. Taxonomic revision of the water scavenger beetle genus *Sternolophus* Solier, 1834 (Coleoptera: Hydrophilidae). *Zootaxa* **4282** 201-254.

www.waterbeetles.eu

Check out this website hosted by Jiří Hájek in Prague. It has any number of useful files including the World Catalogue of Dytiscidae, and both Palaearctic Catalogues of Dytiscidae and Hydrophiloidea.

MEETINGS 2018 Just for once we are suggesting TWO meetings in one year, one rather more adventurous than the other. Check www.latissimus.org in due course.

Morocco, 1st week of April 2018

Through the kindness of Nard Bennas we can offer the possibility of the Balfour-Browne Club in Africa! The current plan is for six days in early April, starting at Tangier Ibn Battuta Airport and travelling in The Rif of North Morocco. One of the options is:

Day 1: Airport Tanger, rent cars and drive to Tanger –Tetouan 60 km - accommodation: Chems Hotel and other possibilities

Day 2: Tetouan – Bou Hachem Natural Park - 40 km - overnight Hotel Parador, Chefchaouen or similar. Gala Dinner

Day 3: Rent 4x4 and spend the day in Talassemtane National Park - overnight Chefchaouen again

Day 4: Chefchaouen-Bab Taza, Fifi - Bab Berred- 66 km - overnight Chefchaouen

Day 5: Chefchaouen –Tanger - overnight in Tanger

Day 6: return home.

If you interested in this trip please tell either Nard (nbennas@hotmail.com) or the editor (latissimus@btinternet.com). Those contemplating ferries from Spain rather than flying should contact Andrés Millán (acmillan@um.es) as it may be possible to share transport.

County Kerry, Ireland 8-11 June 2018

Our second meeting will be based in the south-west of Ireland in the town of Killorglin, the home of the Puck Fair, an arcane festival involving a goat suspended in the middle of the town and comely maidens. We will, however, not be there at that time so you will just have to imagine it. The area is varied with diverse range of habitats including many upland and lowland lakes and ponds, rivers and streams, bogs and poor fens and coastal wetlands including dune slacks and saltmarsh. It is within easy reach of Killarney National Park which was very well known to early 20th century entomologists. One area close to Killorglin is Glencar which includes some of the best birch woodlands and river habitat in Ireland. This is where the White Prominent Moth (*Leucodonta bicoloria* (Denis & Schiffermüller)) was rediscovered after more that 70 years without a record, and several of the supposedly extinct species of Irish water beetles disappeared in the area. Also worth a visit are the dunes at Inch and Castlegregory on the Dingle Peninsula and the southern part of the Ring of Kerry (Iveragh) Peninsula. If interested contact brian.nelson@ahg.gov.ie.

Latissimus is the newsletter of the Balfour~Browne Club.

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