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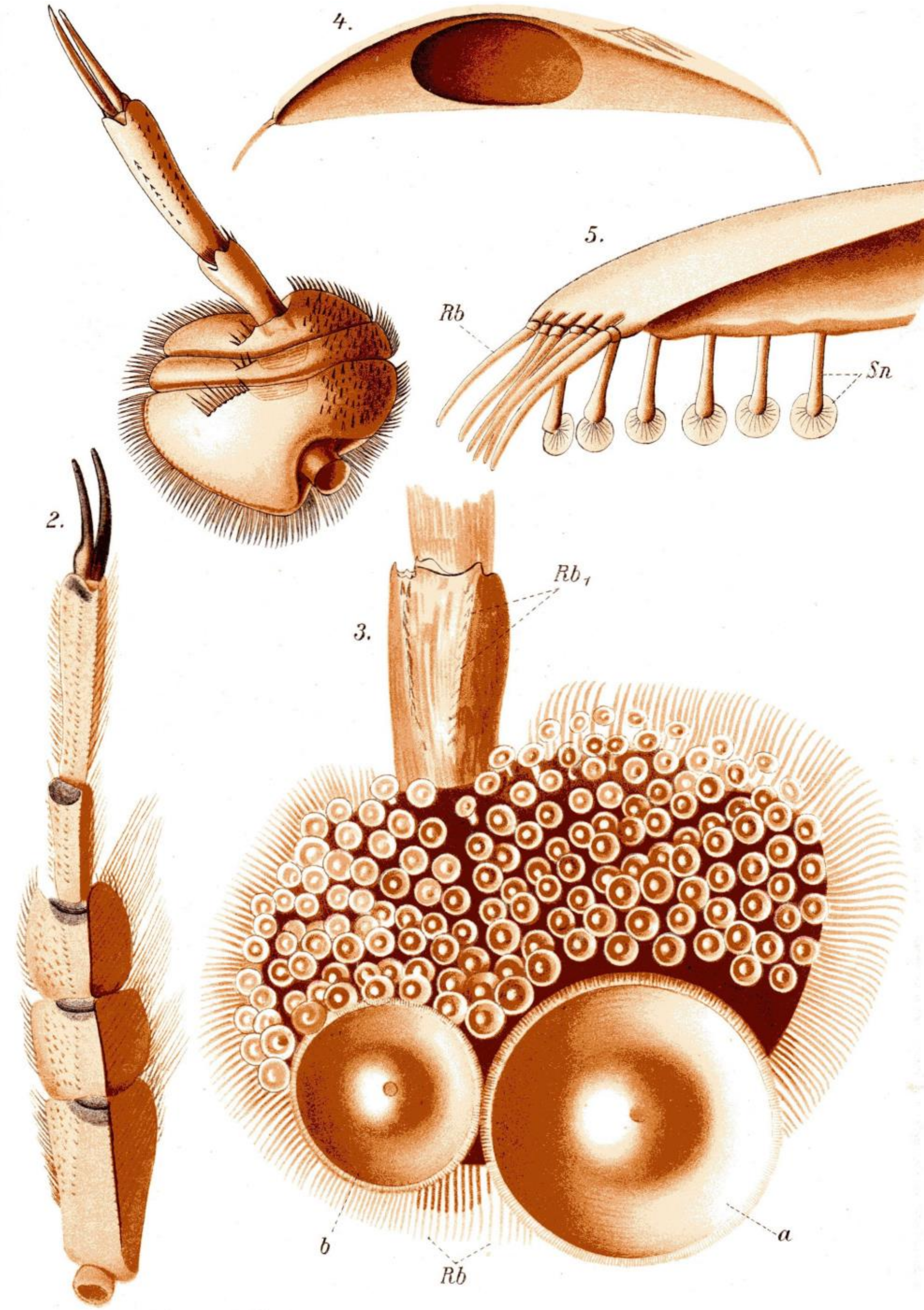
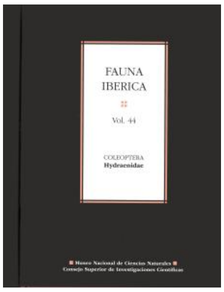
LATISSIMUS

NEWSLETTER OF THE BALFOUR-BROWNE CLUB



Number Forty Three **April 2019**

Oskar Törne (1910. Die Saugnäpfe der männlichen Dytisciden. *Zoologische Jahrbücher, Abteilung für Anatomie und Ontogenie der Tiere* **29** 415-448, 2 pls) produced some magnificent illustrations of the fore tarsus of male *Dytiscus marginalis* L.



FAUNA IBERICA HYDRAENIDAE

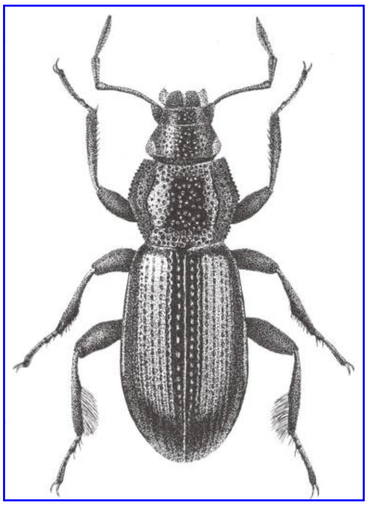
📖 VALLADARES L F, DÍAZ J Á, GARRIDO J, SÁINZ-CANTERO C E & DELGADO J A 2018. Coleoptera Hydraenidae. *Fauna Ibérica* **44**. Madrid: Consejo Superior Nacional de Ciencias Naturales.ISBN 978-84-00-07010-6. £75 at NHBS, €53 at CSIC, etc.

Ochthebius legionensis Hebauer & Valladares Diez, endemic to the Cordillera Cantábrica.

This monograph is a comprehensive review of the family Hydraenidae from the Iberian Peninsula and the Balearics. Hopefully this book will further promote their importance, which owes to their great diversity, a high level of endemicity and a wide range of tolerance. The first section details the phylogeny, classification and geographic distribution, as well as the morphology of adults and immature stages, with a key to larvae by genus. The second section covers almost 160 Ibero-Balearic species, with keys to species, species- groups, subgenera, genera and subfamilies. There are 206 original plates and 35 colour photographs, with a checklist as an appendix.

Limnebius furcatus Baudi

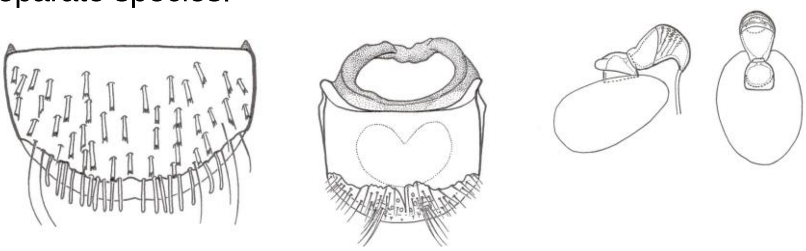
The words above are a précis of the blurb. It is probably a good idea to add that this is a brilliant team effort elegantly supported by Juan Ángel Díaz's drawings of aedeagophores, female gonocoxites and spermathecae. It does not matter if you cannot understand Spanish. If you have a dissected male or a good sighting of the female rear end you can probably get the right name without too much dictionary work in the key.



Hydraena iberica d'Orchymont

Unfortunately the genetic analysis of the Ochthebiini by Adrian Villastrigo *et al*. (2018) (see ***Latissimus* 42** 9) came too late for this book. This would include treatment of *viridis* and *fallaciosus* Ganglbauer as separate species.

Hydraena optica Jäch & Díaz, female ventrite X, gonocoxite and spermatheca



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

CAUCASIAN PEAT BOGS

Konskoe, an in-mire lake at 1,776 m asl, with *Helophorus hilaris* and *Hydraena pontica.*

Montane bogs occur at 600 to 3,400 metre above sea level in the North Caucasus. Twenty-five species of water beetle were recorded in 2018. These include several species common in western Europe, *Agabus congener* (Thunberg), for example, occurring in all eight bogs investigated. Interesting species otherwise are *Hydroporus jacobsoni* Zaitzev, *Helophorus hilaris* Sharp and *Hydraena pontica* Janssens. *Agabus conspersus* (Marsham) was a surprising find at Tarskoe.

PROKIN A A, SAZHNEV A S & PHILIPPOV D A 2019. Water beetles (Insecta: Coleoptera) of some peatlands in the North Caucasus. *Nature Conservation Research* **4** (2) dx.doi.org/10.24189/ncr.2019.016 10 pp.

COLEOPTERA BIODIVERSITY REVIEW

The authors admit that their tally of actual beetles described (386,755) is tricky, let alone estimating the number of species yet to be described. This initial comment suggests that this is going to be overview of Coleoptera of the World, and yet there are signs that the treatment withdraws into the Northern New World and to Canada in particular in just the same way that European global views can sometimes get bogged down in Palaearctic detail. The review of Polyphaga is odd in that the recent phylogenetic study of the Hydrophilidae (Short & Fikáček 2013 - see ***Latissimus* 34** 12) is fully cited in which some *Spercheus*, *Hydrochus*, *Georissus* and *Helophorus* are treated as representative of outgroup families, and yet the old idea of an all-embracing Hydrophilidae is reinstated. It is difficult to believe that six authors would sign up to such an approach, rejecting a recent study's findings without any justification. The genus *Cyphon* (seemingly ignoring the change to *Contacyphon* des Gozis as in Zwick *et al*. 2013 – see ***Latissimus* 35** 13) is singled out for its "poor taxonomy"; as barcoding produced 21 Barcode Index Numbers (BINs) in North America with a distribution not coinciding with the distribution of described species, suggesting that there are many more species to be found in Canada than are currently known. Otherwise water beetles get a non-controversial airing in this wide-ranging review, with great play made of the colonisation of groundwaters and the inevitable tale of what those young girls do in East Africa when they find a whirligig.

BOUCHARD P, SMITH A B T, DOUGLAS H, GIMMEL ML, BRUNKE A J & KANDA K 2017. Chapter 11. Biodiversity of Coleoptera. 417 pp. in: R.G. Foottit & P.H. Adler (eds) *Insect Biodiversity: Science and Society*, 1, 2nd Edition. Hoboken: Wiley-Blackwell.

SHORT A E Z & FIKÁČEK M 2013. Molecular phylogeny, evolution and classification of the Hydrophilidae (Coleoptera). *Systematic Entomology* **38** 723-752.

ZWICK P, KLAUSNITZER B & RUTA R 2013. *Contacyphon* Gozis, 1886 removed from synonymy (Coleoptera: Scirtidae) to accommodate species so far combined with the invalid name *Cyphon* Paykull, 1799. *Entomologische Blätter und Coleoptera* **109** 337-353.

THURINGIAN WEEVILS

The occurrence of 814 species of weevil in Thuringia is summarised, divided into four date classes. Bagoine weevils stand out from the crowd with seven of the eighteen species not known since the 19th Century and only six recorded from 2000 onwards.

APFEL W, KOPETZ A & WEIGEL A 2018. Checkliste der Rüsselkäfer (Coleoptera) Thüringens. *Check-listen Thüringer Insekten* **26** 9-40.

GABON HYDRADEPHAGA

Continuing this great exploration 107 Hydradephaga species have been found in the Park and 109 external to it (Isn’t that always the way?). Seven new species are described and illustrated – *Hydrovatus rigatoi*, *Bidessus mboyei*, *Clypeodytes acutipenis*, *Laccophilus sinuosipenis* (seen here right), *L. cianferonii*, *Copelatus bapounouuensis*, and *C. gigas*. Apart from great photographs of great beetles there are good shots of their habitats.

BILARDO A & ROCCHI S 2019. Haliplidae, Noteridae, Dytiscidae (Coleoptera) du Gabon (12ème partie). Parc National Moukalaba – Doudou (mission 2014) et la zone au nord en dehors du Parc. *Atti della Società italiana di scienze naturali e del Museo civico di storia naturale di Milano* **6** 41-60.

SUBTERRANEAN SKIN RESPIRATION

The biodiversity for water beetles underground is now well known, the question here being how they breathe. These dytiscids lack structures on the cuticle to facilitate breathing without access to the air, unlike say, stream-living *Deronectes* that have setal tracheal gills (see ***Latissimus*** **27** 37 and **35** 18) and can appear to have their cuticle thicker than usual, perhaps to cope with mechanical damage in a turbulent rocky environment. The cuticle was 6.3-8.4 µm thick in the three subterranean beetles, much thinner than in air-breathing dytiscids, e.g. *Rhantus suturalis* (MacLeay) at about 35 µm. Evidence is presented to show that subterranean species rely on cutaneous respiration, i.e. the gas bubble under the elytra is rarely renewed. The authors demonstrate a strong oxygen boundary layer surrounding the beetles with less oxygen nearest to the insects, whereas a beetle relying on renewing its gas bubble would have the same amount of oxygen near the cuticle as in the open water. A mathematical model is also brought to play, the whole demonstrating that these insects have to be very small with a very low metabolic rate. The upper limit in subterranean beetles is 4.8 m long in some *Limbodessus* species. Small size is, of course, desirable in these crevice-living species.

JONES K K, COOPER S J B & SEYMOUR R S 2019. Cutaneous respiration by diving beetles from underground aquifers of Western Australia (Coleoptera: Dytiscidae). *Journal of Experimental Biology* **222** doi:10.1242/jeb.196659 18 pp.

DYTISCOIDEA PHYLOGENOMICS

Phylogenomics is the next step on from basic DNA analysis in that conclusions about evolution are drawn from comparisons of whole or partial genomes rather than a handful of genes. A mixture of new and previously published transcripts are analysed for all families of the Dytiscoidea (except Meruidae), plus Gyrinidae and Haliplidae as outgroups. The main finding is that the two genera of Aspidytidae (cliff water beetles), despite their great molecular differences and disjunct distribution, do belong together in the same family, their closest relatives being the Amphizoidae. Other results were still not unequivocal, despite the large datasets used, but the most likely evolutionary scenario has Hygrobiidae as sister to Amphizoidae + Aspidytidae + Dytiscidae. The paper highlights the importance of carefully examining model violations when analysing genomic datasets. Perhaps advances in understanding will come with the next research route, via comparative analyses of the “position on introns, the evolution of gene families, or the structure of genes”. Or, with a few more authors, we could have a football match!

VASILIKOPOULOS A, BALKE M, BEUTEL R G, DONATH A, PODSIADLOWSKI L, PFLUG J M, WATERHOUSE R M, MEUSEMANN K, PETERS R S, ESCALONA H E, MAYER C, LIU S, HENDRICH L, ALARIE Y, BILTON D T, JIA F, ZHOU X, MADDISON D R, NIEHUIS O & MISOF B 2019. Phylogenomics of the superfamily Dytiscoidea (Coleoptera: Adephaga) with an evaluation of phylogenetic conflict and systematic error. *Molecular Phylogenetics and Evolution* **135** 270-285.

EAST OF ENGLAND COLEOPTERISTS' MEETING

There has been an annual meeting of coleopterists in the north of England, mainly at Manchester but recently at Liverpool, but this is the first meeting in the east since 2007 (see ***Latissimus* 23** 22-23) that I know of. Bill Mansfield initiated it on 17 March 2019 with talks in the morning and the opportunity to collect on Wicken in the afternoon. Talks began with Stuart Warrington outlining the history of the reserve, from 1899 when two acres were purchased by the National Trust for £10 to 1 May 2019, the 120th anniversary with 785 hectares. The other talks were by Dan Asaw, Phoebe Miles, Mark Telfer and Mark Gurney and were terrestrial, unless you count Mark's *Bembidion* (*Bracteon*) *argenteolum* (Ahrens) as a species of quicksand in the Brecks. The afternoon was marked by a range of weather, notably the wind and two hailstorms, enough to make detecting some beetles difficult. In April 2007 rather more water beetlers recorded 86 species. The count in 2019 was rather less than half of that, but with five species not found under warmer conditions later in the spring:- *Haliplus heydeni* Wehncke, *Agabus unguicularis* (Thomson). *Laccophilus hyalinus* (De Geer), *Helophorus strigifrons* Thomson and *Enochrus nigritus* (Sharp). In fact, there were almost as many coleopterists, about 29, but most were terrestrial. As this winter-battered poster says "loved for the biggest skies and the tiniest creatures".

UVARUS SANFILIPPOI

This new species, the 66th in *Uvarus*, surfaces from the Sanfilippo collection in Genoa. It was taken by G. Dellacasa at Keçiborlu in Turkey in 1988. It is nearest to *U. andreinii* (Régimbart), *U. peringueyi* (Régimbart) and *U. occultus* (Sharp).

ROCCHI S & POGGI R 2018. Descrizione di una nuova species paleartica del genere *Uvarus* Guignot, 1939 (Coleoptera, Dytiscidae). *Doriana* **9** 1-6.

pH AND SALINITY PREFERENCES OF INDIAN HYDRADEPHAGA

The preferences of 45 species of Hydradephaga were studied based on collections from 100 water bodies in the Kancheepuram Lake District in north-east India. Some larger Dytiscidae showed preferences for more saline sites, e.g. *Hydaticus fabricii* (MacLeay), Hydrovatus *rufescens* Motschulsky, whereas many small species were found more in sites with lower salinity, e.g. *Laccophilus inefficiens* (Walker). Some larger species, e.g. *Eretes griseus* (Fab.), were found more in acidic ponds whereas most smaller species, e.g. *Copelatus feae* Régimbart, inhabit sites with high pH.

KUMAR G S, KALAIMAGAL P, ISSAQUEMADANI J & SUGUMARAN J 2018. The influence of pH and salinity on the distribution of hydradephagan beetles. *International Journal of Zoology and Applied Biosciences* **3** 9-17.

SEXUAL CONFLICT AS A STABILISER

Anyone who has shown any interest will be familiar with the idea that matt and male-like female diving beetles can form separate populations accompanied by males that have more sucker hairs when with matt females. It is not just microreticulation, of course, it can be fine punctures or, in the example here, *verrucifer* (Sahlberg), the warty form of *Graphoderus zonatus* (Hoppe) – and it can occur in other groups. The "arms race" in which male evolution responds to a fitness test posed by difficulty in gripping females in mating can, perhaps in some circumstances, lead to speciation. Past modelling (Hardling & Bergsten 2006) showed that whilst this was possible, sexual conflict could, in some circumstances lead to the persistence of two forms of male and female, as a stable polymorphism. Bergsten *et al.* (2001) had previously examined male and female variation in *G. zonatus*, and showed that variation in male tarsal sucker morphology was affected by the proportion of granulate females in a population. This study builds on these papers, including a comparison of populations sampled in the 1990s and the 2010s. The comparison shows these polymorphisms can be stable, and analyses indicate the existence of distinct male mating clusters as well as a sorting process based on preferential mating with females of the same kind. With *zonatus* the southern populations are one morph or the other, the smooth and warty females being established in different places, whereas in the north the two forms occur together. Sexual antagonism may depend on climate, perhaps with more intense sexual conflict in cooler conditions.

IVERSEN L L, SVENSSON E I, CHRISTENSEN S T, BERGSTEN J & SAND-JENSEN K 2019. Sexual conflict and intrasexual polymorphism promote assortative mating and halt population differentiation. *Proceedings of the Royal Society B* **286** dx.doi.org/10/10.1098/rspb.2019.0251 pp. 8.

BERGSTEN, J., TÖYRÄ, A. & NILSSON, A.N. 2001. Intraspecific variation and intersexual correlation in secondary sexual characters of three diving beetles (Coleoptera: Dytiscidae). *Biological Journal of the Linnean Society* **73** 221-232.

HÄRDLING R & BERGSTEN J 2006 Nonrandom mating preserves intrasexual polymorphism and stops population differentiation in sexual conflict. *The American Naturalist* **167** 401-409.

POLISH LANDSCAPE PARK

The English translation of the title is *Preliminary list of beetles from Łęg nad Swelinią – nature reserve in the Trójmiiejski Landscape Park*. This lies in northern Poland and the list runs to 185 species. Water beetles are thin on the ground – *Ilybius subaeneus* Erichson, *Hydrobius fuscipes* s. lat., *Phaedon cochleariae* (Fab.), *Plateumaris consimilis* (Schrank), and *Prasocuris junci* (Brahm). Better luck next time.

KONOPKO D 2019. Wstępna lista chrząszczy rezerwatu przyrody "Łęg nad Swelinią" w Trójmiejskim Parku Krajobrazowym. *Notatki Entomologiczne* **41** 9-18.

FLIGHT RECORDS FOR SOME HYDROPHILOIDEA AND HYDRAENIDAE

Martin Hammond

On 26 April 2018, a small sample of Hydrophiloidea and Hydraenidae was collected alive from one of the many palsa-scar ponds on Frost’s Common, West Norfolk, England (National Grid Reference TL947933). The beetles were placed in a tube with damp moss and decanted into a white plastic tray under a bright lamp about 24 hours later to see if they would fly. Individuals which took flight were recaptured and their identification checked under the microscope. Results are in the table.

Species	**number tested**	**number that flew**
Hydrochus crenatus (Fab.)	5	2♂♂ made short flights but did not clear the tray
Hydrobius fuscipes sensu stricto	3	3
Hydrobius subrotundus Stephens	3	3
Anacaena globulus (Paykull)	1	0
Anacaena lutescens (Stephens)	2	2♀♀
*Enochrus coarctatus (*Gredler)	6	3♂♂, 2♀♀
Enochrus nigritus (Sharp)	13	6♂♂, 4♀♀
Cercyon sternalis (Sharp)	2	0
Hydraena riparia Kugelann	1	1♀
Limnebius aluta Bedel	6	2 made brief hopping flights

The results are of some interest because *Enochrus nigritus* is evidently an active flier: some individuals flew almost straight away and most cleared the tray easily. This species has a very restricted distribution in Great Britain (Foster *et al*., 2018); it is likely restricted by ecological requirements or a limited dispersal range rather than any difficulty in flying per se.

Limnebius aluta seems to have a relict or semi-relict distribution in Britain, modern records being confined to areas with fen remnants of natural origin. It can be abundant in the silt and litter at the edges of palsa-scar ponds in Breckland. Of the six individuals tested, four showed no inclination to fly but two made hopping flights of a couple of centimetres with their elytra fully raised and wings unfurled. It would be useful to test a larger sample of this species to determine whether it is ever capable of full flight.

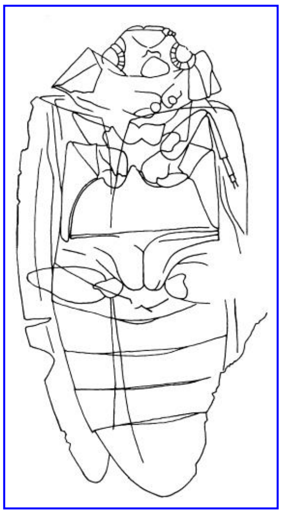
Although confined to a limited area of eastern England, *Hydrochus crenatus* can occur in disturbed habitats and it is likely that it is a fully flying species.

Both typical *Hydrobius fuscipes* and *subrotundus* types with a more humped profile and dark, pitchy-coloured legs flew.

A further small batch of beetles was tested on 16 May 2018. Two out of three *E. nigritus* flew well and the other one attempted to fly. One out of eight *Dryops auriculatus* (Fourcroy) made weak attempts at flight by ‘taxiing’ for short distances and half raising its elytra. Two *Laccornis oblongus* (Stephens) made no attempt.

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

Received December 2018



TUNGUSKAGYRUS NOT A WHIRLIGIG?

Appearances can be deceptive including the front cover of ***Latissimus* 42**. Those smooth, mudpie-like ancient whirligigs did not exist according to this paper. *Tunguskagyrus* is put into the Triaplidae. Re-examination of the holotype shows that the eyes are normal, i.e. not divided into two, the basal antennal segments are not enlarged, the five abdominal ventrites are just "normal", ventrite 5 not being divided, and that there are no gonocoxites. It is just possible with oblique lighting to see that the remains of the legs are not whirligig-like.

KIREJTSHUK A G & PROKIN A A 2018. The position of the Palaeozoic genus *Tunguskagyrus* Yan, Beutel et Lawrence in the family Triaplidae sensu n. (Coleoptera, Archostemata: Schizophoroidea). *Entomological Review* **98** 872-882.

WATER BEETLES - MODELS FOR ECOLOGY & EVOLUTION

This wide-ranging review brings many topics together in common focus – the transitions from dry land to water, from freshwater to salt, from daylight to underground; drivers of range size and the lotic-lentic divide; diversification based on the break-up of Gondwana, of Madagascar from Africa, of the separate colonisations of Andean South America and the eastern Shield, of the radiations of Australia and Oceania, and even of the ways in which the Western Palearctic was colonised after the retreat of the Ice Cap. Sexual selection, conservation and global change also get an airing. Five future issues are proposed:- 1. the fact that Dytiscidae, Hydrophilidae and Hydraenidae will soon be almost completely characterised genetically. 2. genomic studies will demonstrate the basis of morphological and physiological adaptation, e.g. tolerance to extreme salinity or to subterranean life, and thermal physiology in relation to gas exchange. 3. a full view of the relationships between physiology and geographical range size. 4. extension of studies of sexual conflict beyond the Dytiscidae. 5. extending their role as surrogates of aquatic biodiversity beyond Europe.

BILTON D T, RIBERA I & SHORT A E Z 2019. Water beetles as models in ecology and evolution. *Annual Review of Entomology* **64** 359-377.

MERCURY IN DYTISCIDS

Mercury levels were examined in *Dytiscus circumcinctus* Ahrens and *Cybister lateralimarginalis* (De Geer). The meso- and metathoraces have the greatest levels and the elytra and wings the least, the mercury being concentrated in muscle and to a lesser extent in developing eggs. Levels found, up to 0.32 μg/g, might be compared with 1.24-9.94 μg/g in Californian Dytiscidae. The strangest result is that the smooth form of the *D. circumcinctus* female had significantly higher levels than the sulcate form. One explanation on offer is that one form has matured its eggs at a different time from the other.

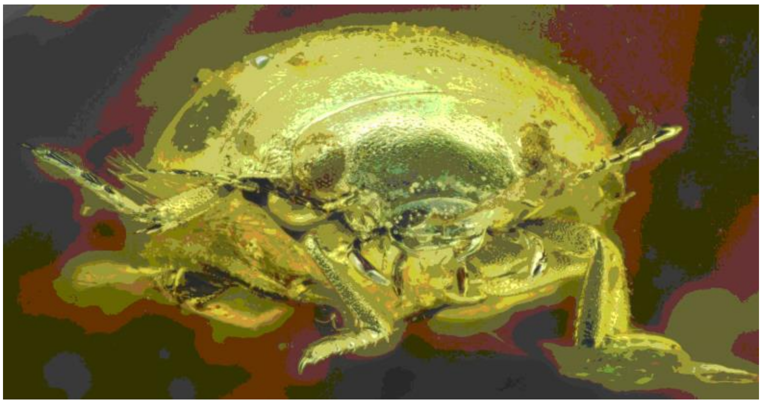
UDODENKO Y G, SELEZNEV D G, PROKIN A A, IVANOVA E S & ZEMLYANUKHIN A I 2019. Mercury accumulation in adults of two large species of diving beetles (Coleoptera: Dytiscidae). *Russian Entomological Journal* **28** 23-29.

WELSH RECORDS

A limestone quarry in Monmouthshire produced species such as *Haliplus obliquus* (Fab.), *Hydroporus discretus* Fairmaire & Brisout, *Enochrus melanocephalus* (Olivier) and *Donacia versicolorea* (Brahm).

DENTON J S 2019. Some beetle records from Monmouthshire. *British Journal of Entomology and Natural History* **32** 8.

BALTIC AMBER LINK TO JAPAN



Japanolaccophilus Sâto was described to accommodate *Neptosternus niponensis* Kamiya, an endangered Japanese endemic running water beetle. The specimen, a female, was found in amber mined in the Kaliningrad region. A new key to Laccophilinae is provided, incorporating a few modifications to the key produced in *Diving beetles of the world. Systematics and biology of the Dytiscidae*.

BALKE M & HENDRICH L 2019. *Japanolaccophilus beatificus* sp. n. from Baltic amber and a key to the Laccophilinae genera of the World (Coleoptera: Laccophilinae). *Zootaxa* **4567** 176-182.

RECREATIONAL EFFECTS ON INVERTEBRATES

Sixteen ponds formed by mining in southern Poland were surveyed, eight of them being subject to recreation – cyprinid angling, power boating, swimming, canoeing, feeding birds – and eight controls. Beetles were twice as common in the used ponds as in the controls, the difference being almost entirely based on Dytiscidae. For macroinvertebrates as a whole, unused ponds had 2,629 individuals per square metre compared to 755 in used ponds. No beetle species are named as the authors have concentrated on the gastropods.

SPYRA A & STRZELEC M 2018. The implication of the impact of the recreational use of forest mining ponds on benthic invertebrates with special emphasis on gastropods. *Biologia* doi.org/10.2478/s11756-019-00221-2 12 pp.

NEOTYPE FOR *BIDESSUS UNISTRIATUS*

The names *Dytiscus parvulus* Müller, *D. unistriatus* Goeze, *D. unistriatus* Schrank and *D. monostriatus* Geoffroy in Fourcroy are treated as nomina dubia, without type material and with poor descriptions. Any uncertainty at this level would have a knock-on effect on the names of the genera *Bidessus* Sharp and *Hydroglyphus* Motschulsky. Consequently a single neotype male from Paris has been selected for the two *unistriatus* and the *monostriatus*. The name *parvulus* will need to be suppressed by application to ICZN, ultimately stabilising the nomenclature around *B. unistriatus* (Goeze, 1777).

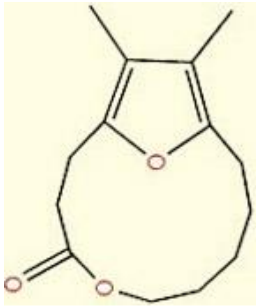
FERY H 2019. Nomenclatural notes on some taxa of *Bidessus* Sharp and designation of a neotype (Coleoptera: Dytiscidae: Hydroporinae: Bidessini). *Zootaxa* **4565** 579-589.

NORTH-EAST CHINA MOUNTAIN STUDY

This paper seems to have become available recently rather than back in 2014 Changbai Mountain has ecosystems ranging from birch forest to tundra with temperate to boreal climates. Thirty sites were analysed producing 72 aquatic beetle species. These included *Amphizoa sinica* Yu & Stork, *Noterus angustulus* Zaitzev, *N. japonicus* Sharp, *Agabus kholini* Nilsson, *Nebrioporus hostilis* (Sharp) and *Dytiscus dauricus* Gebler. Multivariate analysis indicated that the most important factor explaining distribution was pH followed by total organic matter, total phosphorus, altitude, water temperature and conductivity. The author for correspondence is Lanzhu Ji.

BAILI DONG, CHUNNU GENG, YONGJIU CAI & LANZHU JI L2014. Aquatic Coleoptera response to environmental factors of freshwater ecosystems in Changbai Mountain, northeast China. *Aquatic Ecosystem Health & Management* **17** 171-178.

GALERUCELLA PHYLOGENY BY PHEROMONE



This paper was stumbled upon, but better late than never. Dimethylfuran-lactone (which looks a bit beetly) was identified as an aggregation pheromone for *Galerucella calmariensis* (L.) and *G. pusilla* (Duftschmid) by Bartlet *et al*. (2006). Olfactometer tests show that this chemical is also produced by *G. tenella* (L.), but not by *G. lineola* (Fab.) and *G. sagittariae* (Gyllenhal).

FORS L, LIBLIKAS I, ANDERSSON P, BORG-KARLSON A-K, CABEZAS N, MOZURAITIS R & HAMBÄCK P A 2015. Chemical communication and host search in *Galerucella* leaf beetles. *Chemoecology* **25** 33-45.

BARTELT R J, COSSÉ A A, ZILKOWSKI B W, WEISLEDER F, GRODE S H, WIEDEMANN R & POST S L 2006. Dimethylfuran-lactone pheromone from males of *Galerucella calmariensis* and *Galerucella pusilla*. *Journal of Chemical Ecology* **32** 693-712.

CANAL DREDGING IMPACT

This study concerns inlet and outlet canals associated with a chemical plant beside the Vistula, and on the factors that affect 54 insect species. These factors are not only the usual elements of water quality but also the impact of dredging and of the movement of cooling water from the plant. Electrical conductivity was the most important factor explaining assemblage type in the undisturbed river system in the river and its inlets. Dredging had a dramatic effect on many species, mainly the odonates. Numbers of *Haliplus fluviatilis* Aubé shot up in the inlet canals from the small feeder river post-dredging and *Platambus maculatus* (L.) appeared on site in numbers in the inlet canal carrying water from the Vistula to the factory via settling ponds. *Hydroporus glabriusculus* Aubé and *Laccophilus poecilus* Klug turned up in an inlet canal post-dredging.

BUCZYŃSKA E & BUCZYŃSKI P 2019. Survival under anthropogenic impact: the response of dragonflies (Odonata), beetles (Coleoptera) and caddisflies (Trichoptera) to environmental disturbance in a two-way industrial canal system (central Poland). *PeerJ* doi 10.7717/peerj.6215 pp. 31.

NORTHERN APENNINES

Seventy-seven species are recorded from the Ligurian Apennines in the province of La Spezia. These include *Deronectes angelinii* Fery & Brancucci, *Rhithrodytes crux* (Fab.), *Hydrochus grandicollis* Kiesenwetter, *Laccobius albescens* Rottenberg, *Cercyon granarius* Erichson, 13 species of *Hydraena* including *spinipes* Baudi di Selve, *Limnebius myrmidon* Rey, 5 species of *Ochthebius* including *opacus* Baudi di Selve, 10 elmids, 5 dryopids, *Elodes denticulata* (Klausnitzer), *Hydrocyphon ovatus* Nyholm, and *Plateumaris sericea* (L.).

ROCCHI S & TERZANI F 2018. Contributo alla conoscenza dela coletterofauna acquatica dell’Appennino ligure in provincial della Spezia (Appennino settentrionale (Insecta, Coleoptera: Gyrinidae, Haliplidae, Dytiscidae, Helophoridae, Hydrochidae, Hydraenidae, Elmidae, Dryopidae, Scirtidae, Chrysomelidae). *Quaderno di Studi e Notizie di Storia Naturale della Romagna* **48** 97-120.

ELMIS PHYLOGENY IN CROATIA

E. rietscheli was found on Mount Ivanščica in Croatia. This is its southernmost record. The identification is based on morphology and genetic analysis based on six species of *Elmis*.

STANKOVIĆ V M, MAĐARIĆ B B, JÄCH M A & KUĆINIĆ M 2018. *Elmis rietscheli* Steffan, 1958 (Insecta: Coleoptera: Elmidae) in Croatia: first record and DNA barcoding. *Natura Croatica* **27** 185-194.

NEW WORLD *HELOCHARES*

The striking features of this review are how similar these species are to those living in the Palaearctic and yet how different in the male genitalia. More than a hundred species are assigned to subgenus *Hydrobaticus* MacLeay. The primary feature used by Armand d'Orchymont to distinguish *Hydrobaticus* was the ten series of elytral punctures, but such a feature can no longer be regarded as indicating a close relationship in the Hydrophilidae. Nine species are now recognised in the New World, including five newly described here and one yet to be described, from Peru.

Collecting *Helochares trujillo* Short & Girón in atmospheric Venezuela. Photograph courtesy of *Zootaxa*

SHORT A E Z & GIRÓN J C 2018. Review of the *Helochares* (*Hydrobaticus*) MacLeay of the New World (Coleoptera: Hydrophilidae: Acidocerinae). *Zootaxa* **4407** 29-50.

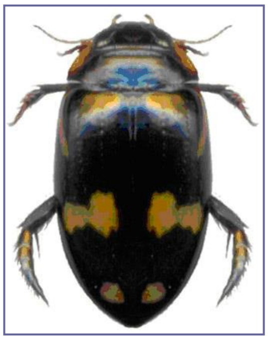
A SWIMMING ELMID LARVA

https://onlinelibrary.wiley.com/action/downloadSupplement?doi=10.1111%2Fens.12333&file=ens12333-sup-0003-VideoS2.mp4

Check out this website for a video of the larva of *Leptelmis gracilis* Sharp swimming, a little like a dixid fly larva. After the tuft-like gills of the last abdominal segment have been opened out a jerky movement is achieved by bending the abdomen into a U very quickly. This larva has a flat body, which is presumably important to get this trick to work. This observation is supported by a genetic analysis of eight elmid species, those other than the *Leptelmis* having cylindrical bodies. It is suggested that the gills are also involved in swimming. A further suggestion is to check out some *Elmis* species.

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

HYDATICUS IN KAZAKHSTAN



Seven species live in Kazakhstan:- in *Hydaticus* s. str. *H. aruspex* Clark, *H. continentalis* J. Balfour-Browne, *H. seminiger* De Geer, *H. transversalis* Pontoppidan, and in *Prodaticus* Sharp – *H. grammicus* Germar, *H. pictus* Sharp (illustrated), and *H. ponticus* Sharp. *H. aruspex* and *H. seminiger* are new for the country.

TEMRESHEV I I 2018. Review of the predaceous diving beetles of the genus *Hydaticus* Leach, 1817 (Coleoptera: Dytiscidae) of Kazakhstan. *Acta Biologica Sibirica* **4**(3) 57-65. [in Russian]

TURKISH PADDIES

Among the inhabitants of Turkish rice fields are listed *Peltodytes caesus* (Duftschmid), *Noterus clavicornis* (De Geer), *Hydroglyphus geminus* (Fab.), *Laccophilus poecilus* Klug, *Helophorus dorsalis* (Marsham), *Berosus spinosus* (von Steven), *Enochrus fuscipennis* (Thomson), and *E. quadripunctatus* (Herbst). Laurie Friday's key for Britain and Ireland is cited amongst the identification aids used, which may well explain the unexpectedly western flavour to the list.

BURCU AYDIN G & ÇAMUR-ELIPEK B 2019. Benthic macroinvertebrate diversity of rice fields in the Meriç-Ergene River Basin, Thrace, Turkey. *Acta Zoologica Bulgarica* **71** 87-94.

COLOMBIAN *LIODESSUS*

Three new species and two new subspecies are added to *Liodessus bogotensis* Guignot occurring in Colombia. Some of these small hydroporines have matt females whilst *L. quillacinga* Megna, Hendrich & Balke has the females either male-like or with the apical third of the elytra finely microreticulate. All have vestigial wings. The author for correspondence is Lars Hendrich.

The site for *Liodessus quimbaya* Megna, Hendrich & Balke in the Lagoon of the Virgin, Colombia.
Photograph courtesy of *Aquatic Insects*

MEGNA Y S, HENDRICH L, GARCÍA-HERNÁNDEZ A, OSPINO-TORRES R, PRIETO C & BALKE M 2019. Diving beetles of the genus *Liodessus* Guignot, 1953 in Colombia, with description of three new species (Coleoptera: Dytiscidae). *Aquatic Insects* doi.org/10.1080/01650424.2018.1538521 24 pp.

SWISS STREAMS

We don't even get the word beetle in this study of pollution, but it is still of interest. Twenty-three streams were surveyed above and below waste water treatment plants. The main data collected were conductivity, pH, chloride, nitrate, ammonium, DOC (dissolved organic carbon), SRP (soluble reactive phosphorus), Cobalt, Copper, Zinc, pesticides (but not pyrethroids), biocides, pharmaceuticals, corrosion inhibitors and no less than 10 indexes based on 85 macroinvertebrate taxa. The findings are inevitably complex and sometimes a little contradictory but trait-based indexes, in particular the Saprobic Index, produced the most significant differences before and after treatment plants. Differences due to organic matter were significant even with the best run treatment plants and were mostly to do with increases in the numbers of oligochaete worms, presumably feeding on sludge particles. The authors note that arable cropping and other intensive agricultural use were four to five more times as important as treated waste water in affecting the SPEAR index whereas the Saprobic Index was twice as affected by waste water as by agricultural use. But wouldn't it be good if one or two named invertebrates (it doesn't have to be a beetle!) were taken through the system? All that work deserves more analyses than just indexes. The author for correspondence is Christian Stamm.

BURDON J, MUNZ N A, REYES M, FOCKS A, RÄSÄNEN K, ALTERMATT F, EGGEN R I L & STAMM C 2019. Agriculture versus wastewater pollution as drivers of macroinvertebrate community structure in streams. *Science of the Total Environment* **659** 1256-1265.

CRETAN *OCHTHEBIUS* (*MICRAGASMA*)

Micragasma minoicus is described from the margins of a rockpool on the seashore along with *Ochthebius* (*Cobalius*) *adriaticus moreanus* Pretner and *O.* (*Cobalius*) *subinteger* Mulsant & Rey. It joins in its subgenus *O.* (*M.*) *paradoxus* Sahlberg, originally from Corfu, and *O.* (*M.*) *substrigosus* Reitter from Azerbaijan. The characteristic tubercles covering the body are illustrated by stereoscans. The author for correspondence is Ignacio Ribera.

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

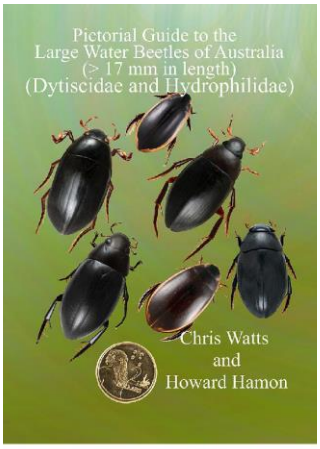
LARGEST METAZOAN ORDER ON EARTH

In the words of the eighteen authors here we have “the largest phylogenetic tree of Coleoptera to date” of “the largest metazoan order on Earth”. These papers need their own glossary for one to keep up with new names and ideas. A “contig” is a set of overlapping bits of DNA from which can be sorted out a sequence and you can look up “shotgun data” on *Wikipedia®* yourself. This is a study based on about 16,000 species of beetle, just for once not too aquatic. *Sphaerius* get mentioned twice, firstly where some genes even suggested that the Myxophaga were not of a single origin, and also because of inconsistency in use of names messing (bunging?) up the “bioinformatics pipeline“.The phenomenon of the distortion of the basal relationships is encountered again, with the heavy reliance on mitochondrial DNA separating Noteridae and Meruidae so much from the rest of the Hydradephaga that they appear to be of multiple origins. More research is required, of course, so watch this space.

LINARD B, CRAMPTON-PLATT A, MORINIERE J, MARTIJN J T N, TIMMERMANS J T N, ANDÚJAR C, ARRIBAS P, MILLER K E…….nine others & VOGLER A P 2018. The contribution of mitochondrial metagenomics to large-scale data mining and phylogenetic analysis of Coleoptera. *Molecular Phylogenetics and Evolution* **128** 1-11.

AUSTRALIAN KEYS

A range of keys are now available at the South Australia website http://www.samuseum.sa.gov.au/research/biological-sciences/terrestrial-invertebrates



The most recent explain themselves in their titles. The worst mistake that people make in the Citizen Science approach is to ignore the importance of the fixed size of adult insects. So here, emphasising 17 mm as the limit, should get users into the right frame of mind. The maps of Australia attached to all sets of photographs will also get them to think about regional limits in the first pamphlet and maximise the chance of getting the name right. *Spencerhydrus pulchellus* Sharp inevitably reminds one of David Sharp’s mentor Herbert Spencer, and Spencer’s rejection of George Eliot’s advances on the grounds that she was anything but *pulchella* – and her subsequent revenge in characterising him in *Middlemarch* as a sophist. In the other work it is good to see the four Australian *Hygrobia* side-by-side.

WATTS C & HAMON H 2019. *Pictorial guide to the large water beetles of Australia (those > 17mm in length).* Families Dytiscidae and Hydrophilidae. Adelaide: South Australian Museum.

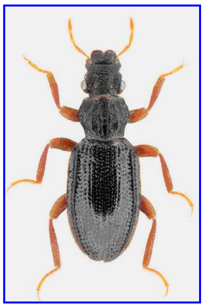
WATTS C & HAMON H 2019. *Pictorial guide to the Screech Beetles (Hygrobidae) and Burrowing Beetles (Noteridae) of Australia*. Adelaide: South Australian Museum.

BARRETTHYDRUS AFFILIATION

The third instar larvae of the Australian endemic *Barretthydrus tibialis* Lea and *B. geminatus* Lea were studied in detail. They are included in the subtribe Sternopriscina on the basis of their similarity to *Antiporus* Sharp. This analysis did not establish any characters to support the single origin of the tribe Hydroporini, but some characters in *Barretthydrus* place it near to some of the Vatellini.

ALARIE Y, MICHAT M C, HENDRICH L & WATTS C H S 2018. Larval description and phylogenetic placement of the Australian endemic genus *Barretthydrus* Lea, 1927 (Coleoptera: Dytiscidae: Hydroporinae: Hydroporini: Sternopriscina). *The Coleopterists Bulletin* **72** 639-661.

MESOCERATION 54 AND 55



This genus of hydraenid is endemic to South Africa. The Piketberg is an Inselberg-like mountain range in the Western Cape Province. The two new species were found at over 800 metres above sea level. *M. piketbergense* is illustrated here, and there are now 55 described species.

BILTON D T & MLAMBO M C 2019, Two new *Mesoceration* Janssens, 1967 from the Piketberg, South Africa (Coleoptera, Hydraenidae). *Zootaxa* **4555** 268-274.

MITES ON *HETEROCERUS* NAMED

It is rare to find a paper naming those mites one sees beneath the elytra. Two new ones – *heteroceri* and *sevastianovi* - are described from unnamed *Heterocerus* species in Ukraine. As is sometimes the case with such comprehensive and exhaustive descriptions one is still left wondering whether these animals are red. The author does not think that they are parasitic, more likely predatory on small invertebrates in the heterocerid burrows.

TRACH V A 2016. Three new unusual beetle-associated species of the genus *Gaeolaelaps* (Acari, Mesostigmata, Laelapidae) from Ukraine. *Vestnik zoologii* **50** 3-16.

GUJERATI DIVERSITY

Sixty-five species were identified, based on 2,690 individuals caught in Vadodara. It is not clear how the Palaearctic *Gyrinus natator* L. and the New World *Cybister fimbiolatus* (Say) came to be involved in this study, they being the only water beetles named to species. The author for correspondence is Pragna Parikh. Ask him.

SINGHAI S, THAKKAR B, PANDYA P & PARIKH P 2018. Unraveling the diversity, phylogeny, and ecological role of cryptic coleopteran species of Vadodara district: a first comparative approach from India. *Journal of Basic and Applied Zoology* doi.org/10.1186/s41936-018-0062-2 pp. 14.

POLISH PEAT BOG STUDY

The study plot was in the Krugłe Bogno peatbog, Western Polesie. This had been a raised bog that was almost completely exploited for peat. Seventy-six species were caught, 51 of them water beetles. *Sphagnum* cover was the key structural factor dictating the distribution of all the insects studied. In addition beetles were dependent on temperature, dragonflies on pH and caddis on dissolved oxygen, with other structural factors – emergent vegetation cover and pool perimeter length – were also important. The seven pools had only a small variation in pH, from 3.95 to 5.91, and average conductivity similarly ranged from 29-51 µS/cm, whereas the zone marginal to the peat bog was more variable. The water beetle fauna is certainly not typical of an intact peat bog, with no *Agabus* species identified to species and *Hydroporus melanarius* Sturm absent. But a very rich fauna.

BUCZYŃSKA E & BUCZYŃSKI P 2019. Aquatic insects of man-made habitats: environmental factors determining the distribution of caddisflies (Trichoptera), dragonflies (Odonata), and beetle (Coleoptera) in acidic peat pools. *Journal of Insect Science* **19** 1-15.

RYUKYUS LIMNICHID

Cephalobyrrhus amami is newly described from the Ryukyu islands. It has been awarded the Japanese name Amami-oome-hoso-chibidoromushi and it lives by a stream in natural woodland. A key is provided for the three known species, *C. latus* Pic being Taiwanese and *C. japonicus* Champion being common in Japan.

YOSHITOMI H 2019. Revision of the genus *Cephalobyrrhus* of Japan and Taiwan (Coleoptera, Limnichidae). *ZooKeys* **817** 61-72.

COMMANDER ISLANDS

Nine species are now known from these islands east of Kamchatka – *Gyrinus opacus* Sahlberg, *Ilybius angustior* (Gyllenhal), *I. fenestratus* (Fab.), *Rhantus notaticollis* (Aubé), *Colymbetes dolabratus* (Paykull), *Dytiscus dauricus* Gebler, and an unnamed *Hydroporus* had been recorded previously. The present paper adds *Helophorus auricollis* Eschscholtz and notes that earlier records of *browni* McCorkle may be referred to this species. *Cercyon symbion* Shatrovskiy was found under decomposing seaweed, and an *Ochthebius* comparable to *yoshotimii* Jäch & Delgado was found on the sea shore in rock crevices: it is probably new to science. The islands get their name for the shipwrecking of Commander Vitus Bering, after whom the surrounding sea is named.

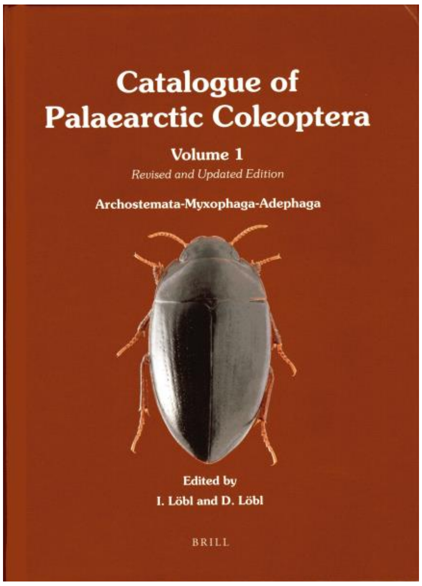
SAZHNEV A S 2018. New records of water beetles (Coleoptera: Helophoridae, Hydrophilidae, Hydraenidae) from Commander Islands. *Far Eastern Entomologist* **365** 26-30.

NEW GUINEAN *PHILACCOLILUS*

The brightly marked *Philaccolilus sagatai* Balke & Hendrich is described from a stream in the Bewani Mountains.

BALKE M, SURBAKTI S & HENDRICH L 2018. *Philaccocilus sagatai* sp. n. from the Bewani Mountains of Papua New Guinea (Coleoptera: Dytiscidae: Laccophilinae). *Russian Entomological Journal* **27** 363-365.

ARCHOSTEMATA CATALOGUE



📖 LÖBL, Ivan & LÖBL, D. 2017. *Catalogue of Palaearctic Coleoptera. Volume* ***1*** *Revised and updated Edition. Archostemata-Myxophaga-Adephaga*. Leiden: Brill ISBN 978-90-04-33028-3 about £200.

This almost escaped detection as a new work but, once you've got it, at 2.96 kg, you can scarcely ignore it! About two-thirds are devoted to Carabidae, balanced by the cover depicting *Sinaspidytes wrasei* (Balke, Ribera & Beutel), *Sinaspidytes* being the new genus replacing *Aspidytes* for this species - see Emmanuel Toussaint *et al*., 2016. The author for most of the water beetles is Jiři Hájek, with Hans Fery helping him for the Gyrinidae apart from the Haliplidae, covered by Bernhard van Vondel. The last Palaearctic Catalogue dates to 2003, from Apollo Books, and was limited to names published up to 2000. The current work contains information on about 34,000 taxa, 5,000 of them being new.

The editors use the preface to have a go at ICZN. "A paradoxical source of problems is based on the International Code of Zoological Nomenclature. Although the Preamble to the Code says of its provisions "… none restricts the freedom of taxonomic thought or actions", some taxonomists consider the suppression of infrasubspecific entities as a restriction of their freedom and deliberately ignore the respective provisions." The result of this has been a tendency to recognise as subspecies forms that might have gone under other names in the past, and potentially to lose valuable information about what goes on inside a species.

TOUSSAINT E F A, BEUTEL R G, MORINIÈRE J, JIA F, XU S, MICHAT M C, ZHOU X, BILTON D T, RIBERA I, HÁJEK J & BALKE M 2016. Molecular phylogeny of the highly disjunct cliff water beetles from South Africa and China (Coleoptera: Aspidytidae). *Zoological Journal of the Linnean Society* **176** 537-546.

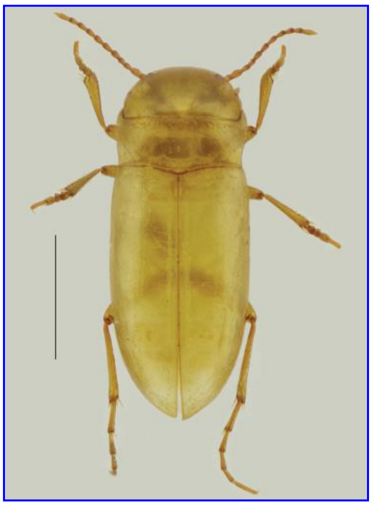
SOUTH AMERICAN ELMID PROJECTION

The most available elmids in the study area of Rio Grande do Sul in Brazil were larvae and *Macrelmis* as adults. Modelling showed that the most important factors dictating the theoretically derived distributions were climate, in particular rainfall, landscape based on forest cover and topography as measured by slope. Other factors, such as vegetation and substratum type have yet to be taken into account.

BRAUN B M, GONÇALVES A S, PIRES M M & KOTZIAN C B 2018. Potential distribution of riffle beetles (Coleoptera: Elmidae) in southern Brazil. *Austral Entomology* doi: 10.111/aen.12381

A REAL CAVE BEETLE?

Iberoporus pluto is based on a single female found in a cave in Coimbra, Portugal. Unlike most stygobiont species, which are usually pumped up from subterranean gravels, this one was actually found in a cave, but of course, one female doesn't prove that this is a the true habitat. This species is almost transparent, 2.8 mm long, flattened, parallel-sided, blind, wingless, without swimming hairs but with long sensory hairs, in other words, normal, with DNA analysis linking it strongly to *I. cermenius* Castro & Delgado, *Rhithrodytes agnus* Foster and *R. argaensis* Bilton & Fery. These are placed in genus *Iberoporus* in the Siettitiina, as would probably be the Italian *Etruscodytes nethuns* Mazza, Cianferoni & Rocchi if some DNA could be obtained.



RIBERA I & REBOLEIRA A S P S 2019. The first stygobiont species of Coleoptera from Portugal, with a molecular phylogeny of the *Siettitia* group of genera (Dytiscidae, Hydroporinae, Hydroporini, Siettitiina). *ZooKeys* **813** 21-38.

RYAZAN BEETLES

Ryazan Oblast lies about 200 km south-east of Moscow. Twenty-eight species are recorded in seven families. The 19 species newly recorded include some surprisingly common ones – *Haliplus ruficollis* (De Geer), *Agabus unguicularis* (Thomson), *Hydroporus angustatus* Sturm, *H. erythrocephalus* (L.), *H. neglectus* Schaum, *H. obscurus* Sturm, *H. palustris* (L.), *H. rufifrons* (Müller), *H. striola* (Gyllenhal), *H. tristis* (Paykull), *Clemnius decoratus* (Gyllenhal), *Hydrochus crenatus* (Fab.), *H. ignicollis* Motschulsky, *Anacaena lutescens* (Stephens), *Enochrus coarctatus* (Gredler), *E. testaceus* (Fab.), *Laccobius colon* (Stephens), and *Augyles hispidulus* (Kiesenwetter).

SAZHNEV A S, LYCHKOVSKAYA I Y & PROKIN A A 2018. New data to the fauna of aquatic and semi-aquatic beetles (Coleoptera: Gyrinidae, Haliplidae, Noteridae, Dytiscidae, Hydrochidae, Hydrophilidae, Heteroceridae) of Ryazan Province. *Eversmannia* **55**-**56** 47-51 [In Russian]

SARATOV RED BOOK

Seven species are recommended for inclusion in the Red Data Book of the Saratov Region, in the south-east of Russia on the Lower Volga. These are: Regionally Extinct - *Hygrotus flaviventris* (Motschulsky); Critically Endangered - *Graphoderus zonatus zonatus* (Hoppe); Endangered - *G. bilineatus* (De Geer); Threat Category 3 - *Macronychus quadrituberculatus* (Müller), *Macroplea appendiculata* (Panzer); Threat Category 4 – *Platypsyllus castoris* Ritsema.

SAZHNEV A S 2019. The water beetles (Insecta: Coleoptera) of Saratov Region, which deserve attention to their condition in environment] *Труды Мордовского государственного природного заповедника имени П. Г. Смидовича* [*Proceedings of the P.D. Smidovich Mordovia State Reserve*] **22** 150-159. (in Russian with English abstract)

KAZAKHSTAN *HELOPHORUS*

Helophorus (*Rhopalohelophorus*) *salinus* is described from a salt flat (solonchak) of the Akzhar salt lake in the Zhambyl Oblast of Kazakhstan. *H*. (*R*.) *karatavicus* is described from the Karatau Mountains, found in streams with *H. syriacus* Kuwert, *H. gurjevae* Angus, *H. kerimi* Ganglbauer and *H. kirgisicus* Knìž. A recent paper had noted four other species of Helophorus requiring confirmation. The current paper is part of a series offered in tribute to the 80th birthday of Dr Ivan Löbl.

ANGUS R B & LITOVKIN S V 2018. Two new *Helophorus* species from Kazakhstan (Coleoptera, Helophoridae). *Entomologische Blätter und Coleoptera* **114** 57-63.

MOOSE DUNG

Not very aquatic but “Hydrophilidae” is in the title and this image (photograph: Dawid Marczak) is bound to appeal to some as a tantalising way to bait your trap. Only three hydrophilids were found, *Cercyon lateralis* (Marsham) being the commonest, followed by *C. impressus* (Sturm) and a couple of *Megasternum concinnum* s. lat.

MROCZYŃSKI R & MARCZAK D 2019. Seasonality of coprophagous beetles (Coleoptera: Hydrophilidae, Geotrupidae, Scarabaeidae) inhabiting moose (*Alces alces* Linnaeus) dung in Kampinoski Park Narodowy, Poland. *The Coleopterists Bulletin* **72** 816-824.

SALINE RIVERS

Spanish saline rivers are of three types. **Hyposaline** ones have a large number of indicator families and genera, but represented at the species level only by beetles, *Ochthebius delgadoi* Jäch, *Laccobius moraguesi* Régimbart and *Enochrus politus* (Küster). An even larger number of groups are indicators of disturbed conditions. **Mesosaline** rivers have mainly beetles as indicators, in particular *Nebrioporus baeticus* (Schaum), *Enochrus jesusarribasi* Arribas & Millán and *Ochthebius notabilis* Rosenhauer. Indicators of disturbance are various *Agabus* and *Ochthebius corrugatus* Rosenhauer. The most extreme **hypersaline** rivers are indicated only by *Ochthebius glaber* Montes & Soler. There are river systems elsewhere in the western Mediterranean that are broadly similar, though without the Iberian endemic species. None of them has previously appeared in a classification of river systems.

GUTIÉRREZ-CÁNOVAS C, ARRIBAS P, NASELLIFLORES L, BENNAS N, FINOCCHIARO N, MILLÁN A & VELASCO J 2019. Evaluating anthropogenic impacts on naturally stressed ecosystems: revisiting river classifications and biomonitoring metrics along salinity gradients. *Science of the Total Environment* **658** 912-921.

CYBISTER VS *ANAX*

This is scholarly piece of work with a dell-designed plan and some citable outcomes but what editor or referee in his or her right mind allows such a bald statement as a title for a ten page paper? Some of us might guiltily remember childhood experiments with gladiatorial combat in a jam jar between a beetle larva and a dragonfly nymph, but this is taken to a new level here. Predator size outweighed the species involved (*Cybister fimbiolatus* (Say) and *Anax junius* (Drury) feeding on small nymphs of the dragonfly *Pachydiplax longipennis* (Burmeister). Not surprisingly, higher numbers of prey could survive if the habitat provided refugia. Cannibalism was identified as an important factor in explaining community structure.

CARTER S K, VODOPICH D & CRUMRINE P W 2018. Heterogeneity in body size and habitat complexity influence community structure, *Journal of Freshwater Ecology* **33** 239-249.

INDIAN *HALIPLUS*

T.G. Vazirani's work dominated in India for many years. Some of his material was stored inaccessibly, but is now available for study. Three of the species he described – *Haliplus kapuri*, *H. manipurensis*, and *H. pruthii* – are re-evaluated with the benefits of stacking imagery. *H. agarwali* is still missing. All 11 species of Haliplidae in India are in the subgenus *Liaphlus* Guignot.

Van VONDEL B J & GHOSH S J 2018. Re-evaluation of Vazirani's *Haliplus* species from India (Coleoptera: Haliplidae). *Tijdschift voor Entomologie* **161** 3-10.

HEAVY METALS IN HYDROPHILIDAE

Five sites were sampled around Erzurum for Hydrophilidae, with three species being named out of 29 reckoned to be present:- *Helochares lividoides* Hansen & Hebauer, *Berosus spinosus* (von Steven) and *Paracymus chalceolus* (Solsky). X-ray fluorescence was used to determine the levels of the following elements – As, Br, Co, Cr, Cu, Fe, Mn, Ni, Pb, Se, Sr, Ti, V, and Zn. Apart from road traffic the main sources of pollution were wastes from cement and sugar factories. The beetles have some quite high levels of some of these elements, showing how they can used to measure pollutant levels. The highest levels were titanium at 926 ppm, manganese at 847 ppm and lead at 557 ppm in the *Paracymus*.

AYDOĞAN Z, GÜROL A & INCEKARA Ū 2016. The investigation of heavy element accumulation in some Hydrophilidae (Coleoptera) species. *Environmental Monitoring and Assessment* doi 10.1007/s10661-016-5197-3 8 pp.

ALPINE PASTURE PONDS IN ITALY

There is nothing quite as enjoyable as sitting beside an alpine pond in the sun. These authors went one better and collected 13,463 specimens which were identified to 58 taxa. The faunas were compared for two ponds on the Valfredda plateau 1300 m above sea level on the side of Mount Baldo. A few beetles can occasionally be glimpsed through the extensive statistical analysis – *Acilius sulcatus* (L.), *Donacia versicolorea* (Brahm), *Haliplus ruficollis* (De Geer), *Helochares lividus* (Forster), *Hydroglyphus geminus* (Fab.), *Hygrotus confluens* (Fab.), and *H. inaequalis* (Fab.). The main conclusions concern the changes between 1984-1985 and 2004-2004, brought about by increasing drought, siltation and weed removal in one pond used for livestock watering.

LENCIONI V, FATTORI D, NARDI G & LATELLA L 2018. Insights into spatio-temporal dynamics of invertebrate communities from two alpine pasture ponds. *Aquatic Insects* doi.org/10.1080/016550424.2018.1523434

PEAT EROSION REDUCES BIODIVERSITY

This study compares the invertebrate faunas found in four mesocosms subject to different 0, 2.5, 5 and 7.5 mg of fine sediment deposition per square metre, and examines most of the fauna associated with headwaters receiving differing amounts of sediment. Coleoptera get a mention, with numbers depleted in all three mesocosms receiving fine sediment, but insufficient beetles were detected in headwaters to draw any conclusions there. Differences were mainly found in the more abundant stoneflies. So this paper is citable enough but the appearance of "*Coelambus*" in the RLQ analysis diagram does not inspire confidence. GNF is among those thanked for helping with identifications. APEM Ltd is also mentioned as providing identifications: The senior author of this paper has been asked not to associate GNF's name with them in the same sentence in any future publication.

BROWN L E, ASPRAY K L, LEDGER M E, MAINSTONE C, PALMER S M, WILKES M & HOLDEN J 2018. Sediment deposition from eroding peatlands alters headwater invertebrate biodiversity. *Global Change Biology* doi: 10.1111/gcb.14516

***BEROSUS* IN THE EASTERN PALAEARCTIC**

New records are given for six species of the subgenus *Berosus*, *B. byzantinus* Ganglbauer, *B. dispar* Reiche & Saulcy, *B. geminus* Reiche & Saulcy, *B. luridus* (L.), *B. punctipennis* Harold and *B. signaticollis* (Charpentier). A key is provided to all Palaearctic species including *B. affinis* Brullé, *B. hispanicus* Küster and *B. japonicus* Sharp with side views of the aedeagophores.

SHATROVSKIY O G 2017. New data on the distribution of Palearctic species of water scavenger beetles from the nominative subgenus of the genus *Berosus* Leach, 1817 (Coleoptera, Hydrophilidae). *The Kharkov Entomological Society Gazette* **25** 5-10. [in Russian, with English summary]

NEW BRANDENBURG FINDS

Pools near Lenzen have a rich fauna including *Hygrobia hermanni*, *Graphoderus austriacus* (Sturm), *Graptodytes bilineatus* (Sturm), *Hydaticus continentalis* Balfour-Browne), *Ilybius neglectus* (Erichson), *Rhantus bistriatus* (Bergsträsser) and *R. latitans* Sharp. In the second paper, *I. erichsoni* is recorded in numbers with *I. neglectus* in beech forest near Vogelsang.

HENDRICH L, WENDLANDT L & WENDLANDT N 2018. Wiederfund des Schlammschwimmers *Hygrobia hermanni* (Fabricius, 1775) und Erstfund von *Helochares lividus* (Forster, 1771) in Brandenburg (Coleoptera: Hygrobiidae, Hydrophilidae). *Markische Entomologische Nachrichten* **20** 281-288.

WENDLANDT L, WENDLANDT N & HENDRICH L 2018. Wiederfund des Schwimmkäfers *Ilybius erichsoni* (Gemminger & Harold, 1868) in Brandenburg nach über 70 Jahren (Coleoptera, Dytiscidae, Agabinae). *Markische Entomologische Nachrichten* **20** 289-293.

NEW *POTAMOGETHES*

Potamogethes is now, with the description of *eliotti*, known as six species from Continental Africa. At 5 mm long and with a fine pubescence it looks more like a *Dryops* than the elmids with which most of us are familiar in Europe. The holotype was caught by light-trapping in a very dry mountain area in South Africa. Other specimens have been found in Tanzania in the Kilimandjaro Province and in Kenya in the Tsavo East National Park. This new journal accepts papers in French, English, German, Spanish or Italian: the current paper has French and English text side-by-side.

ALONSO C 2018. A new African *Potamogethes* Delève (Coleoptera, Elmidae). *Faunitaxys* **6** 1-8.

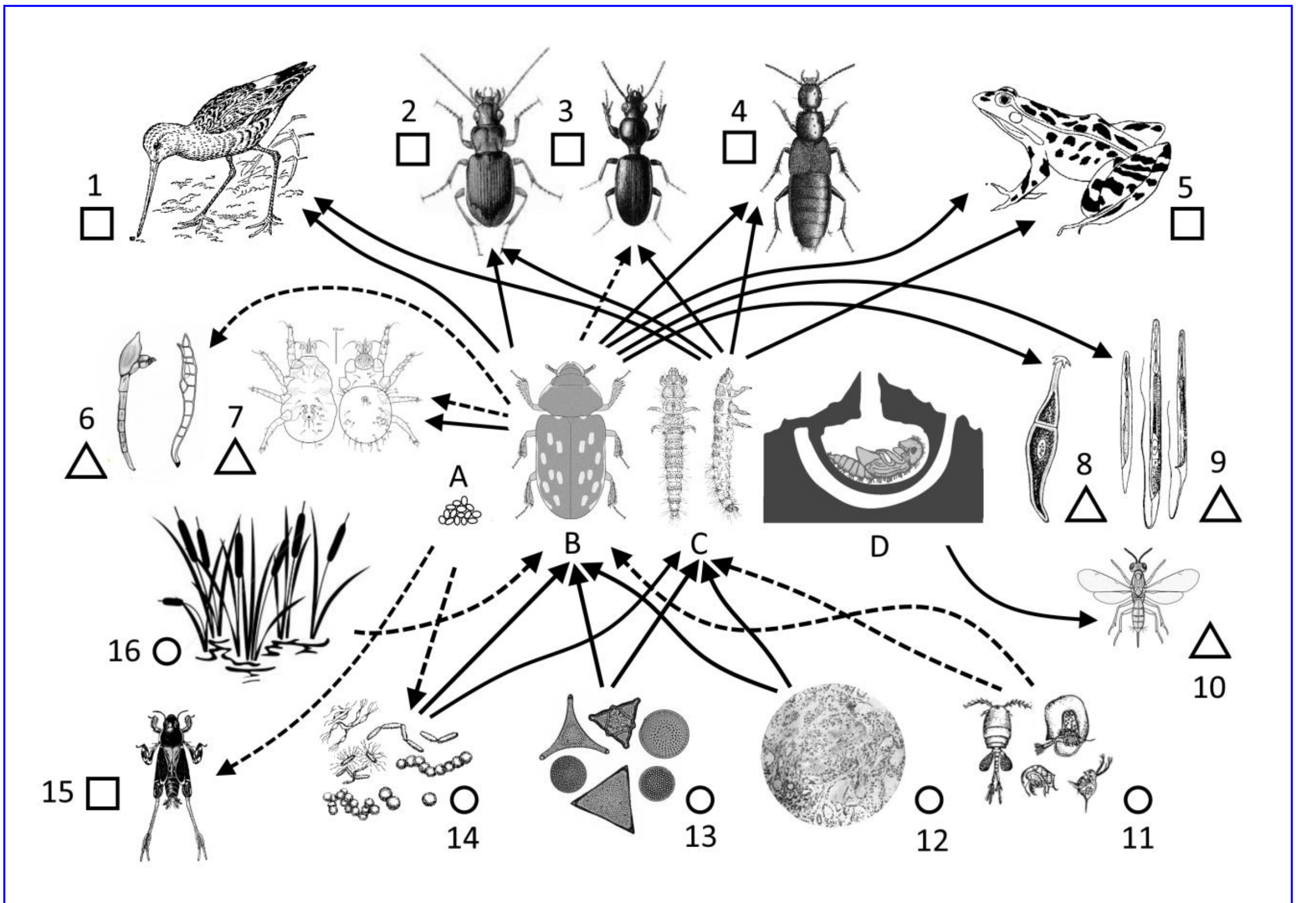
LIMNEBIUS MYRMIDON IN POMERANIA

Paweł notes that it was a surprise to find this most minute species on the northern edge of its distribution in a spring-fed lake. A few common species were also recorded, with *Limnebius atomus* (Duftschmid) and *Hydrobius rottenbergii* Gerhardt.

BUCZYŃSKI P & BUCZYŃSKA 2018. *Limnebius myrmidon* Rey, 1883 (Coleoptera: Hydraenidae) – pierwsze stwierdzenie rzadkiego gatunku na Pojezierzu Pomoskim. *Wiadomości Entomologiczne* **37** 188-189.

HETEROCERIDAE STUDIES

Three of these papers have self-explanatory titles. *Heterocerus faustus* was originally described from Azerbaijan, and later found in Uzbekistan and Turkmenistan. Its map shows it enjoying the shores of the Caspian. Drawings of the aedeagophores of five other species are provided for comparison. The Kyrgyzstan list of 12 species is given with *Augyles turanicus* (Reitter) and *Heterocerus mus* Charpentier new for the country: *A. sericans* (Kiesenwetter) is removed from the list. *Protoallopygmephorus* is a new genus based on a species, *heteroceri*, found on *H. fenestratus* (Thunberg), also the host for the newly described *Allopygmephorus spinisetus* and *A. punctatus*. *Scutacarus sphaeroideus* Karafiat, known to be phoretic on staphylinids, is also found to be phoretic on *H. fenestratus*, *H. flexuosus* Stephens and *Augyles hispidulus* (Kiesenwetter). This draws on Alessandro Mascagni's 105 review (see ***Latissimus*** **37** 4). *Augyles letovi* is a species newly described, caught at UV light in Vietnam.



The paper in *Ecological Transformation* is fascinating in that it shows heterocerids at the centre of a foodweb. Again, the images are largely self-explanatory. The parasitoids are there for adult chalcids found in the pupal chambers, and items 6-9 are laboulbenialian fungi, phoretic mites, parasitic gregarines and nematodes respectively.

KHAUSTOV A A & SAZHNEV A S 2018. Mites of the families Neopygmephoridae and Scutacaridae associated with variegated mud-loving beetles (Coleoptera: Heteroceridae) from Russia and Kazakhstan. *Zootaxa* **4175** 261-273.

LITOVKIN S V & SAZHNEV A S 2018. The variegated mud-loving beetles (Coleoptera: Heteroceridae) of Kyrgyzstan. *Far Eastern Entomologist* **372** 25-32.

SAZHNEV A S 2016. *Heterocerus kamtschaticus* A. Egorov, 1989 is a new synonym of the Holarctic *H*. *fenestratus* (Thunberg, 1784) (Coleoptera: Heteroceridae). *Zoosystematica Rossica* **25** 163-164.

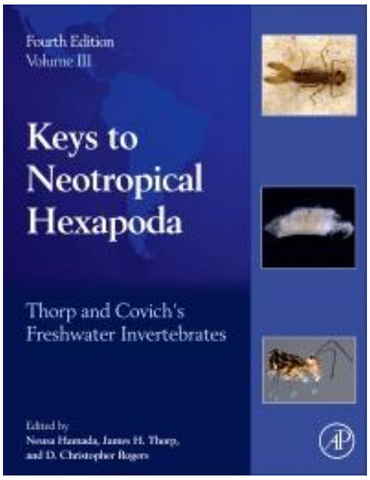
SAZHNEV A S 2018. Redescription of *Heterocerus fausti* Reitter, 1879, bona species (Coleoptera, Heteroceridae). *Zootaxa* **4441** 597-600.

SAZHNEV A S 2018. A new species of the genus *Augyles* Schiödte, 1866 (Coleoptera: Heteroceridae). *Zootaxa* **4521** 597-599.

SAZHNEV A S 2018. Symbiotic associations between beetles of family Heteroceridae (Insecta: Coleoptera) and other organisms. *Inland Water Biology* **11** 108-110.

SAZHNEV A S 2018. On the position of Heteroceridae (Insecta: Coleoptera) in food webs in riparia communities. *Ecosystem Transformation* **1** 49-56.

MASCAGNI A 2015. The variegated mud-loving beetles of Europe (second part) (Coleoptera: Heteroceridae). *Onychium* **11** 117-126.



NEOTROPICAL KEYS CONTINUED

📖 N Hamada, J Thorp & C Rogers (eds) *Thorp and Covich's Freshwater Invertebrates* 4th Edition, Volume 3: *Keys to Neotropical Hexapoda*. Cambridge, Massachusetts: Academic Press. Hardcover £144, US$187, €200 – but shop around.

This book was reviewed in ***Latissimus* 42** (p. 9) on the basis of receipt of Chapter 15.3 concerning Dytiscidae. It is now possible to note the other chapters on water beetles.

The introductory chapter provides an effective summary to families of water beetles on a world scale. Keys and illustrations are given for adults and larvae of 27 Neotropical families, with the main families covered in more detail in ensuing chapters. Some families are a surprise – the Scarabaeidae are here because of the genus *Chalepides* Casey, living in plant axils, and the Cneoglossidae, a family of eight species of *Cneoglossa* Guérin-Méneville, seemingly *Elodes*-like, found from Mexico to Brazil. According to this chapter *Cneoglossa* has eight species but a kindred publication – *Thorp and Covich's Freshwater Invertebrates*, 4th Edition 2015, Volume 1: *Ecology and General Biology* – has Chapter 39 on Coleoptera by Donald Yee and Siegfried Kehl – and ten species of *Cneoglossa* – and some web-based sites have nine.

BENETTI C J, MICHAT M C & ARCHANGELSKY M 2018. Order Coleoptera: Introduction. Chapter 15 pp. 497-517.

Chapter 15.1 has keys to the adults of the four genera of Hydroscaphidae and to the three genera of Torridincolidae. The larvae are not known enough for this treatment to generic level, but some are illustrated.

SAMPAIO B H L & SHORT A E Z 2018. Families Hydroscaphidae and Torridincolidae. Chapter 15.1 pp. 519-525.

Chapter 15.2 covers all the non-dytiscid families of Hydradephaga except the Meruidae, with its one Venezuelan species, keyed out in the introductory chapter. The five genera of gyrinid and the two of haliplids are keyed to adults and larvae. The key to noterid larvae covers only the three out of nine genera for which the larvae are known. Fully illustrated, of course.

BENETTI C J, TOLEDO M, COLPANI & GUIMARÃES B A C 2018. Families Gyrinidae, Haliplidae, and Noteridae. Chapter 15.2 pp. 527-537.

Coverage of adults is good, 35 genera being keyed. Despite Miguel Archangelsky's great efforts, the larvae of ten genera remain undescribed, and coverage of all three instars of others is patchy. It is good to get so much information condensed into one short paper.

CLARKSON B, ARCHANGELSKY M, TORRES P L M & SHORT A E Z 2018. Family Hydrophilidae. Chapter 15.4 pp. 561-575.

The nine genera of Neotropical Hydraenidae are keyed and illustrated for adults.

DELGADO J A, GARRIDO J, DELER-HERNÁNDEZ A & VALLADARES L F 2018. Family Hydraenidae. Chapter 15.5 pp. 577-582.

There is coverage here of adults of the four genera of Dryopidae and 40 genera of Elmidae. Twenty-five genera of elmid larvae are keyed, and larvae of six species of Psephenidae

PASSOS M I S, MANZO V & MAIER C A 2018. Families Dryopidae, Elmidae, and Psephenidae. Chapter 15.6 pp. 583-598.

The Scirtidae are the least known group, with only 200 species known so far from the Neotropical region. No keys are available. Thirteen illustrations are provided for the larva of a *Scirtes*, of *Contacyphon cadornai* Pic, a *Prionocyphon*, *Pseudomicrocara antartica* Libonatti & Ruta, and *Ora depressa* (Fab.).

LIBONATTI M L & RUTA R 2018. Family Scirtidae. Chapter 15.7 pp. 599-603.

The editors must be congratulated for achieving such a monumental work with such an impressive list of authors. A minor problem with such compendia is the perceived need by someone, perhaps an editor, perhaps a publisher, for each section to conform to a set pattern. The sections on "Material preparation and preservation" in each chapter are inevitably repetitive, and may even occasionally give conflicting advice, deliberately not sought out here, as any such criticism would be trifling.

ALGERIAN LIST

The Lake of Birds is at El Taref in north-east Algeria. Samples of invertebrates produced some likely and some highly unlikely species of water beetle. These include *Berosus affinis* Brullé, *B*. *frontifoveatus* Kuwert, *B. luridus* (L.), *B. signaticollis* (Charpentier), *Hydrophilus piceus* L., *Enochrus halophilus* Bedel. Dytiscidae are *Agabus brunneus* (Fab.), *Dytiscus circumflexus* Ahrens, *D. dimidiatus* Bergsträsser, *D. marginalis* L., *D. semisulcatus* L., *Laccophilus minutus* (L.) and *L. poecilus* Klug. *Hydroporus pubescens* (Gyllenhal) is listed as a hydrophilid. The most surprising records are for the noterid *Hydrocanthus iricolor* Say, a North American species, and *Agabus bifarius* (Kirby), also North American, but also across Russia to Ukraine. These possible and certain mistakes spoil an otherwise interesting piece of work. The author for correspondence is Professor Fatiha Bendali-Saoudi.

SERRADJ N, BENDALI-SAOUDI F & SOLTANI N 2018. Inventory of the invertebrate fauna at the level of the lake of Birds (North-east Algeria). *Journal of Entomology and Zoology Studies* **6** 98-106.

SOUTHERNMOST NEW WORLD *PLATAMBUS*

Platambus americanus (Aubé) is newly recorded from El Salvador. It was found in a 1927 expedition into cloud forest over 6,000 ft above sea level.

HENDRICH L, MEGNA Y S & BALKE M 2018. First record of *Platambus* Thomson, 1860 from El Salvador (Coleoptera: Dytiscidae: Agabini). *Mitteilungen der Münchner Entomologischen Gesellschaft* **108** 5-8.

BEAVER AND BEETLES

This study compares abandoned, beaver-dammed ponds with other wetlands for their plants and beetles in central southern Sweden. The old beaver ponds were much more diverse botanically than other wetlands, and the beetles, though not more species-diverse, were 17% more abundant in the beaver ponds. The paper states that there is an appendix at STORRE listing the data, but this doesn't seem to work well. Fifty-seven species of water beetle were identified out of 570 specimens. The most interesting was *Agabus striolatus* (Gyllenhal) found in a beaver pond near Uppsala. This study contributes to the evidence in favour of reintroduction of beaver into Scotland. The photograph shows an abandoned beaver pond in Knapdale where in 2018 *Noterus clavicornis* (De Geer) had recently colonised and become the dominant species, being otherwise known in Kintyre only from the island of Gigha.

WILLBY N, LAW A, LEVANONI O, FOSTER G & ECKE F. 2018. Beaver as architects of within-habitat heterogeneity and the responses of contrasting freshwater biota. *Philosophical Transactions of the Royal Society B* doi:10.10968/rstb.2017.0444 pp. 23.

CARPATHIAN BEETLES

The Turnicki Parlk lies in the south-west of Poland in the Carpathians. This review concerns the entire fauna and flora with the chapter on beetles largely to do with woodland species. The only water beetles mentioned are *Gyrinus distinctus* Aubé, *G. substriatus* Stephens, *Platambus maculatus* (L.), *Hydrobius fuscipes* sensu lato, *Hydraena gracilis* Germar, *H. morio* Kiesenwetter, *H. nigrita* Germar, *H. saga* d'Orchymont and *H. schuleri* (Ganglbauer).

In the second paper *Dryops striatopunctatus* (Heer) is recorded among some terrestrial species from the Beskid Sądecki Mountains in the Western Carpathians.

BUCHHOLZ L & MELKE A 2018. 4.6 Owady chrząszcze Coleoptera pp. 314-377 in: Andrzej Bereszyński *et al*. *Projektowany Turnicki Park Narodowy*. Nowosiółki Dydyńskie.

WOJAS T 2018. Rzadkie i interesujące gatunki chrząszczy (Coleoptera) z Beskidu Sądeckiego. *Wiadomości Entomologiczne* **37** 133-138.

CANADIAN CHALLENGE

The beetle fauna of Canada is assessed, 70,000 records indicating 8,302 species, a 23% increase over the 1979 survey. It is estimated that about a thousand species remain to be detected. So far, so good – but what about water beetles? No more Haliplidae, Noteridae, Georissidae, Helophoridae, Hydrochidae, Dryopidae, Hydraenidae, Dryopidae, Elmidae, Heteroceridae, Limnichidae, Psephenidae? Maybe, but who will get the predicted 7 Dytiscidae, 21 Scirtidae, and 3 Hydrophilidae? Seventy per cent of the known beetles have at least some DNA data available.

BRUNKE A J, BOUCHARD P, DOUGLAS H B & PENTINSAARI M 2019. Coleoptera of Canada. *ZooKeys* **819** 361-376.

BROWN COAL SEEPAGE

This looks like an expert attempt to summarise all of the macroinvertebrates found in man-made seepages arising from brown coal mining spoil-heaps, mainly in Slovakia. Twenty-nine water beetle species are named including some of the more usual seepage species such as *Agabus paludosus* (Fab.), *Hydroporus discretus* Fairmaire and *Laccobius sinuatus* Motschulsky, but larvae of *Eubria palustris* (Germar) also occurred as well as *Hydroporus longicornis* Sharp, its first published record in an artificial habitat. The authors conclude that such post-industrial sites have great potential as refuges for specialist species.

POLÁŠKOVÁ V, SCHENKOVÁ J, BARTOŠOVÁ M, RÁDKOVÁ V & HORSÁK M 2017. Post-mining calcareous seepages as surrogates for aquatic macroinvertebrate biota of vanishing calcareous spring fens. *Ecological Engineering, Part A* **109** 119-132.

TURKISH HETEROCERIDAE

This overlooked paper covers the thirteen species known from Turkey. The six *Heterocerus* species are well known in parts of Europe but the seven *Augyles* include some unfamiliar species – *A. flavidus* (Rossi), *A. marmota* (Kiesenwetter), *A. obliteratus* (Kiesenwetter), *A. pruinosus* (Kiesenwetter) and *A. turanicus* (Reitter). All species except *obliteratus* are mapped.

TAŞAR G E & MASCAGNI A 2014. Checklist of Heteroceridae (Coleoptera) of Turkey. *Pakistan Journal of Zoology* **46** 1685-1690.

NORTH OSSETIA LIST

Sixty-five species of water beetles are listed from this Caucasian republic (Gyrinidae 5 spp., Haliplidae 8 spp., Noteridae 2 spp., Dytiscidae 31 spp., Noteridae 2 spp., and 19 “palpicorn” spp. The ones jumping out of the page for a western European entomologist are *Gyrinus colymbus* Erichson, *Agabus amoenus* Solsky, *A. glacialis* Hochhuth, *Platambus lunulatus* (von Waldheim), *Hydaticus grammicus* (Germar), *Hydroporus jacobsoni* Zaitzev, *Laccobius syriacus* Guillebeau, and *Hydrochara dichroma* (Fairmaire).

SHAPOVALOV M I, MAMAEV V I, & CHERCHESOVA S K 2018. The water beetles (Insecta, Coleoptera) of North Ossetia. I. Dytiscidae, Noteridae, Haliplidae, Gyrinidae, Hydrophilidae, Hydrochidae, Spercheidae. *Russian Entomological Journal* **27** 249-254.

NORTHERN INDIAN WATER BEETLES

Eighty-six water beetle species are listed from 13 wildlife protection areas. The maximum number was 15 species, from Sundarban Biosphere Reserve. Forty species were in only one area and *Regimbartia attenuata* (Fab.) was the most widely distributed species, found in nine areas.

GHOSH S K, CHAKRABORTI U, PATI P & MITRA B 2018. Similarity analysis in species composition of the aquatic beetle fauna among some Indian Protected Areas in respect of Satkosia and Biasipalli Wildlife Sanctuary, Odisha. *Ambient Science* **5** (2) 25-30.

NEW DATA ON *OCHTHEBIUS* (*COBALIUS*) *ALGICOLA* WOLLASTON FROM MADEIRA, WITH OTHER RECORDS OF INTEREST

Ignacio Ribera & Alexandra Cieslak

The subgenus *Cobalius* currently includes nine species exclusively found in marine rockpools, with the only exception *Ochthebius* (*Cobalius*) *serratus* Rosenhauer, typical of coastal marshes and saline pans. The species are distributed through the Mediterranean and the Atlantic coast, from Cape Verde to Scotland and in all Macaronesian islands (including the Canaries, Balfour-Browne 1958) (Jäch & Skale 2015). The relatively cryptic habitat, the morphologically uniformity of some species and, likely, the common assumption that the great temporariness of the rockpools should lead to wide geographical distributions has resulted in a gross underestimation of their diversity (Sabatelli *et al.* 2016; Jäch & Delgado 2017). An example of this neglect is the scarcity of data of some species, such as the Madeiran *O. algicola* Wollaston. The species was described based on two specimens collected by him among green filamentous algae in pools with sea water (Wollaston 1871). D'Orchymont (1940) reports having collected in May 1935 three more specimens among hundreds of *O. heeri* Wollaston in the type locality (Gorgulho), noting its rarity as he could not find it in any other locality both in Madeira and Porto Santo. There are no other published records of this species except for the mention of the capture of *O. lejolisii* Mulsant & Rey in Madeira by Balfour-Browne (1958), which should be attributed to *O. algicola* as it seems that the species was unknown to him (Ribera & Foster 2018). We collected *O. algicola* in two localities in a visit to Madeira in 2017, in one of them where it was the dominant species (17.x.2017 Camara de Lobos, 32°38'48.0"N 16°58'25.5"W, 103 exx.) (Figure 1). Our observations agree with those of Balfour-Browne (1958): after collecting dozens of specimens of *O. heeri* in two previous localities (17.x.2017 Caniço de Baixo, 32°38'38.3"N 16°49'41.5"W, 144 exx.; Sao Martinho, 2°38'0.6"N 16°56'38.3"W, 185 exx.), at first sight AC recognised that the ones in Camara de Lobos were different, as they had shorter legs and were not that active. They were mostly found in pools away from the shore, some of them with foul water and with only few *O. heeri* (a total of 9 exx. collected). In a second locality (Seixal, 18.x.2017 32°49'35.8"N 17°6'54.2"W) we found seven specimens among the much more abundant *O. heeri* (70 exx.).

Figure 1

Figure 2

All five species of *Ochthebius* known from the Madeiran archipelago were described by Wollaston from either Madeira or Porto Santo, but only *O. algicola* is currently considered endemic (Hughes *et al*. 1998; Jäch & Skale 2015). The species of *Cobalius* from Gran Canaria recorded by Balfour-Browne (1958) represents a new species, described by Ribera & Foster 2018. The other species present in rockpools, *O. heeri*, is assumed to be present in the Canary Islands, although genetic data showed it to be a separate species (Sabatelli *et al.* 2016 and unpublished data). *Ochthebius* (*Asiobates*) *rugulosus* Wollaston was described from Porto Santo, and currently is considered to be present in Madeira and the Canaries, where it is the only *Asiobates* (Gutiérrez-Álvarez *et al*. 2014). However, molecular data also shows that the Canarian populations should be considered a separate species (1 female sequenced from a stream in Lombo do Moleiro, 32°44'30.2"N 17°1'4.2"W 510m, 18.x.2017). The case of *O. subpictus* Wollaston is more complex. It was described from streams in Porto Santo, but recorded from a single specimen from Madeira collected by Baron Paiva, likely in a coastal environment (Wollaston 1871). The species is considered to be widespread in the Mediterranean (Jäch & Skale 2015), even after the consideration of the former subspecies *O. deletus* as a valid species (Villastrigo *et al*. 2018). However, the true Madeiran *O. subpictus* seems to be a distinct species not even sister to what is currently considered as *O. subpictus* in the Mediterranean, being genetically more close to *O. deletus* (1 male sequenced from Praia da Maiata, river mouth 32°46'4.6"N 16°49'21.7"W, 21.x.2017, Figure 2). Finally, *O. quadrifoveolatus* Wollaston, currently considered present in Madeira, the Canary Islands and the Mediterranean, seems to represent a single species, or at least for the Madeiran, Canarian and Maghrebian populations.

Among the species collected in coastal habitats in Madeira two, both in the Hydrophilidae, represent new records for the island (Hughes *et al*. 1998): *Coelostoma hispanicum* (Küster) and *Helochares lividus* (Forster), collected in the same pond in Praia da Maiata (Figure 2). Both are widespread Mediterranean species, common in the Canary Islands (Gutiérrez-Álvarez *et al*. 2014).

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GUTIÉRREZ-ÁLVAREZ J, SANTAMARÍA FIERRO A & RÉGIL CUETO J A 2014. Catálogo de los coleópteros acuáticos (Coleoptera: Adephaga & Polyphaga) de las Islas Canarias. *Boletín de la Sociedad Entomológica Aragonesa (S.E.A.)* **55** 117-130.

HUGHES S J, FURSE M T, BLACKBURN J H & LANGTON P H 1998. A checklist of Madeiran freshwater macroinvertebrates. *Boletim do Museo Municipal do Funchal* **50** 5-41.

JÄCH M A & DELGADO J A 2017. Revision of the Palearctic species of the genus *Ochthebius* Leach, 1835 XXXIII. *Ochthebius* (*Cobalius*) *biltoni* sp.n. from Sicily (Italy). *Koleopterologische Rundschau* **87** 85-88.

JÄCH M A & SKALE A 2015. Family Hydraenidae. Catalogue of Palaearctic Coleoptera. Volume 1, Revised and updated edition. Hydrophiloidea–Staphylinoidea (ed. by I. Löbl and D. Löbl), pp. 130–162. Leiden: Brill.

d'ORCHYMONT A 1940. Les Palpicornia des Îles atlantiques. *Mémoires du Musée Royal d'Histoire Naturelle de Belgique* **(2) 20** 1-86.

RIBERA I & FOSTER G N 2018. Report of Frank Balfour-Browne's collecting in Gran Canaria and Madeira (1932-1933), with the description of *Ochthebius* (*Cobalius*) *lanthanus* sp.n. *Zootaxa* **4524** 65-76.

SABATELLI S, AUDISIO P, ANTONINI G, SOLANO E, MARTINOLI A & TRIZZINO M 2016. Molecular ecology and phylogenetics of the water beetle genus *Ochthebius* revealed multiple independent shifts to marine rockpools lifestyle. *Zoologica Scripta* **45** 175-186.

VILLASTRIGO A, JÄCH M A, CARDOSO A, VALLADARES L F & RIBERA I. 2018. A molecular phylogeny of the tribe Ochthebiini (Coleoptera, Hydraenidae, Ochthebiinae). *Systematic Entomology* doi: 10.111/syen.12318.

WOLLASTON T V 1871. On additions to the Atlantic Coleoptera. *Transactions of the Entomological Society of London* **1871** 203-314.

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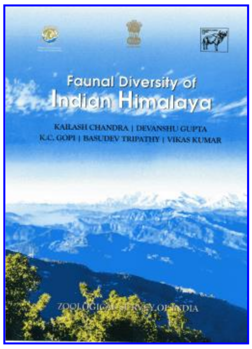
INDIAN HIMALAYA



CHANDRA K, GUPTA D, GOPI K C, TRIPATHY B & KUMAR V (eds) 2018. *Faunal Diversity of Indian Himalaya*. Kolkata: Zoological Survey of India. ISBN 978-81-8171-478-7. Downloadable from the web, or obtainable from Zoological Survey of India, M-Block, New Alipore, Kolkata-700 053, India. 4,500 rupees or €160 or £100.

About half of India's diversity of beetles live in the Indian Himalaya, 10,533 species in 2,684 genera. The Dytiscidae include 254 in India, with again about half of the species living in the Himalaya. The North-west Himalaya have the maximum diversity at 62 species and the Tibetan Plateau the least, with six species. The Hydrophiloidea have 135 species, 118 Hydrophilidae, 7 Helophoridae, 6 Georissidae, 2 Epimetopidae 2, Syntelidae and Spercheidae each 1. *Laccobius*, with 41 species, is the most diverse genus. The Hydraenidae have 32 species with 18 in *Ochthebius*. There are 30 species of Scirtidae, 22 Limnichidae, Psephenidae 21, Heteroceridae 17, Elmidae 11, Dryopidae 5, plus several small families. The massive checklist takes up the bulk of the chapter.

GUPTA D, CHANDRA K, DAS P & GHOSH J 2018. Chapter 35. Insecta: Coleoptera. pp. 399-590.

TUVAN LIST

The Tuvan Republic lies in southern Siberia bordering Mongolia and three Russian republics. Beetles reported from this survey include *Agabus adpressus* Aubé, *A. costulatus* (Motschulsky), *Colymbetes dahuricus* Aubé, *Hydroporus notatus* Sturm (new for the Republic), *H. uenoi* Nakane, *Oreodytes mongolicus* (Brinck), *O. shorti* Shaverdo & Fery – and, putting them in their new genera (see ***Latissimus* 42** 7-8) *Nectomimus okulovi* (Lafer) and *Nectoporus sanmarkii* (Sahlberg).

KUZHUGET C N 2017. Water beetles (Insecta, Coleoptera: Haliplidae, Dytiscidae, Gyrinidae and Hydrophilidae) of the Elegest river basin, Tuva Republic, Russia. *Euroasian Entomological Journal* **16** 550-553. [Russian with English abstract]

FLUKE LIFE-CYCLE

The fluke *Allocreadium neotenicum* was identified from *Hydroporus rufifrons* (Müller) amongst other dytiscids by Rod Bray *et al.* (2012). Its host cycle was then unknown. The paper by Soldánová *et al.* notes the occurrence of this fluke in the beetle *Oreodytes* (now *Nectoporus* – see ***Latissimus* 41** 8) *sanmarkii* (Sahlberg). The paper by Romualda Petkevičiūte noted a perfect match of a 1150 base-pair sequence of *A. neotenicum* in the pea mussel *Pisidium casertanum* (Poli) from two Norwegian sites, providing a missing link in the parasite cycle.

BRAY R A, FOSTER G N, WAESCHENBACH A & LITTLEWOOD D T 2012. The discovery of progenetic *Allocreadium neotenicum* Peters, 1957 (Digenea: Allocreadiidae) in water beetles (Coleoptera: Dytiscidae) in Great Britain. *Zootaxa* **3577** 58-70.

PETKEVIČIŪTĖ R, STUNŽĖNAS V, ZHOKHOV A E, PODDUBNAYA L G & STANEVIČIŪTĖ G 2018. Diversity and phylogenetic relationships of European species of *Crepidostomum* Braun, 1900 (Trematoda: Allocreadiidae) based on rDNA, with special reference to *Crepidostomum oschmarini* Zhokhov & Pugacheva, 1998. Parasites & Vectors 11:530 https://doi.org.10.1186/s13071-018-3095-y

SOLDÁNOVÁ M, GEORGIEVA S, ROHÁČOVÁJ, KNUDSEN P, KUHN J A, HENRIKSEN E H, SIWERTSSON A, SHAW J C, KURIS A M, AMUNDSEN P-A, SCHOLZ T, LAFFERTY K D & KOSTADINOVA A 2017. Molecular analyses reveal high species diversity of trematodes in a sub-Arctic lake. *International Journal of Parasitology* **47** 327-345.

THAI DYTISCIDAE

Nine genera and 22 species were identified in this survey, including four species new to Thailand – *Copelatus oblitus* Sharp, *Cybister convexus* Sharp, *Hydrovatus sinister* Sharp, and *Laccophilus latipennis* Brancucci.

ATTHAKOR W, HENDRICH L, SANGPRADUB N & BALKE M 2018. Diving beetles of the Sakaerat Biosphere Reserve, Nakhon Ratchasima Province, with four new records for Thailand. *Spixiana* **41** 91-98.

***COPELATUS* IN GREATER SUNDA**

Sunda is the complex of islands including Borneo, Java, Sulawesi and Sumatra, mostly in present-day Indonesia. *Copelatus* is the most speciose dytiscid genus, and it is well-represented here, with three new species being described. In the past the arrangement of the elytral striae was used a lot to separate species and groups but "the use of this character contributes to chaos in the current classification". For example Sharp's *C. doriae*, from Indonesia and Malaysia, based on genetic analysis and morphology, is placed within the *C. irinus* group whereas its five main striae per elytron have had it placed in two other groups in the past. The newly described *C. babyrousa* from Sulawesi is interesting in that there are two forms of female, one form largely lacking the striolate surface structure. *C. brendelli*, named after Martin Brendell, is a closely related species.

HÁJEK J, HENDRICH L & BALKE M 2018. The *Copelatus doriae-masculinus* species complex in Greater Sunda, with description of three new species and a new synonymy. *Spixiana* **41** 77-90.

TURKMENISTAN BEETLES

This paper is mainly concerned with terrestrial species, but Hans Fery identified *Gyrinus distinctus* Aubé, *Hydroporus planus* (Fab.), *Nebrioporus airumlus* (Kolenati) and a *Hydaticus*, probably *pictus* (Sharp) [see also this issue of ***Latissimus*** p. 10]. Borislav Guéorguiev identified *Augyles turanicus* (Reitter), which is depicted.

GUÉORGUIEV B, MERKL O, SCHÜLKE M, FERY H, SZÉNÁSI V, KRÁL D, KEJVAL Z, NÉMETH T & SZALÓKI D 2018. Coleoptera (Insecta) from Ashgabat City and Köýtendag Nature Reserve, with nine first records for Turkmenistan. *Historia naturalis bulgarica* **29** 9-20.

A NEW CANARIAN *OCHTHEBIUS* FROM 1932

It is not often that a scientific paper notes the accommodation of the recorder. In February 1932 Professor Frank Balfour-Browne arrived at the Grand Metropole Hotel in Las Palmas, Tenerife. On 3 March he searched some rockpools and took what he recorded in his journal as *Ochthebius lejolisii* Mulsant & Rey. What a pity that he had not gone to the hotel five years earlier because he might then have been a witness to the famous disappearance there of the crime writer Agatha Christie, and the argument might have been swung for a new name *Ochthebius agatha*! Ignacio Ribera found that the Canarian beetle was a distinct endemic species when in 2018, with Andres Millán and Adrian Villastrigo, he took more material and was able to analyse its DNA, a good 10% different for *O. algicola* Wollaston. This paper also ratifies the existence of the other rockpool species *O. heeri* (Wollaston) and *O. algicola* on Gran Canaria and Madeira respectively, plus notes on the other species that Balfour-Browne found.

RIBERA I & FOSTER GN 2018. Report of Frank Balfour-Browne's collecting in Gran Canaria and Madeira (1932-1933), with the description of *Ochthebius* (*Cobalius*) *lanthanus* sp. nov. (Coleoptera, Hydraenidae). *Zootaxa* **4524** 65-76.

BIOACCUMULATION (EDIBILITY)

Beetles identified as *Agabus bipustulatus* (L.), *A. biguttatus* (Olivier), *A. conspersus* (Marsham), *A. didymus* (Olivier), *A. guttatus* (Paykull), *A. labiatus* (Brahm) and *A. nebulosus* (Forster) were analysed for heavy elements in Turkey. High concentrations were confined to *A. bipustulatus* (e.g. 86 ppm cobalt, 60 ppm lead) and *A. didymus* (86 ppm cobalt, 82 ppm lead and 101 ppm titanium), but more levels were less than 1 ppm. *Enochrus* named as *E. ater* (Kuwert), *E. bicolor* (Fab.), *E. fuscipennis* (Thomson), *E. halophilus* (Bedel), *E*. *quadripunctatus* (Herbst), and *E. segmentinotatus* (Kuwert) were also assessed, being compared with water and sediments: there was a great of variation, perhaps with *E. bicolor* being outstanding in having up to 756 ppm iron, 464 ppm manganese. *E. quadripunctatus* seems quite good at accumulating lead with measurements of 606, 505, 250, 166, 100 and 6 ppm. *Laccobius* species identified as *L. bipunctatus* (Fab.), *L. simulatrix* d'Orchymont, *L. sulcatulus* Reitter, and *L. syriacus* Guillebeau were also assessed. *L. bipunctatus* and *L. syriacus* had high chromium levels and most species achieved high levels of lead.

Although insects are not eaten to any extent in Turkey their popularity is increasing and this includes tinned *Cybister*. A sample from a pack bought online was analysed. No heavy elements exceeded 1 ppm and most were much lower, certainly lower than medical guidelines, with the proviso that lead and arsenic levels should be monitored.

AYDOĞAN Z, GÜROL A & INCEKARA Ü 2018. Heavy element accumulation in aquatic beetles of the genus *Enochrus* (Coleoptera: Hydrophilidae) in Erzurum Province. *Journal of Environmental Pollution and Control* **1** 1-7.

AYDOĞAN Z, INCEKARA Ü & GÜROL A 2018. Bioaccumulation of heavy elements in *Laccobius* spp. (Coleoptera: Hydrophilidae) and their abiotic environment from polluted and unpolluted areas of Erzurum wetlands, Turkey. *Austin Environmental Sciences* **3** 1-5.

AYDOĞAN Z, INCEKARA Ü & GÜROL A 2018. Preliminary study on edible insect species *Cybister limbatus* (Fabricius 1775) and its heavy element contents. *Anodolu Journal of AARI* **28** 94-99.

AYDOĞAN Z, INCEKARA Ü, DARILMAZ M C & GÜROL A 2018. Heavy element accumulation in some *Agabus* species (Coleoptera: Dytiscidae) from different provinces of Turkey. *Munis Entomology & Zoology* **13** 698-701.

BOSNIAN RIVER TRAITS

At 106 km the Cetina is the longest Croatian river. It runs to the south-east in Bosnia and Herzegovina, reaching the Adriatic near Omiš. Thirty-one species of water beetle were identified, with Elmidae the most diverse family with nine species. Only six species were founding in the rising spring area and the highest number was in the middle reaches. *Elmis* species tended to dominate with one section having 17,558 individuals per square metre. The presence of aquatic flowering plants was associated with greater beetle diversity than with bryophytes. A feature of this study is the way in what it endorses and integrates the findings of many earlier river studies across Europe. For example, alkalinity, conductivity and water temperature greatly influenced community structure as in other karstic systems. *Orectochilus villosus* (Müller), *Hydraena riparia* Kugelann, *Riolus cupreus* (Müller) and *R*. *subviolaceus* (Müller) had the same water temperature preferences as in the 1990s Rhône studies. And *Limnius volckmari* (Panzer) was just as unfussy, sorry – eurytopic, as in Peter Maitland's study of the River Endrick in Scotland.

STANKOVIĆ V M, JÄCH M A, VUČKOVIČ I, POPIJAČ A, KEROVEC M & KUĆINIĆ M 2018. Ecological traits of water beetles in a karstic river from the eastern Mediterranean region. *Limnologica* **71** 75-88.

ARGENTINIAN ELMID LARVAE

Last instar larvae of two species of *Austrolimnius* Carter & Zeck are described and compared with that larva of *A. mucubajiensis* Gómez & Bello, all from Patagonia. They are copiously illustrated.

MARTÍNEZ ROMÁN N & ARCHANGELSKY M 2018. Description of the mature larva of *Austrolimnius nyctelioides* (German, 1892) and *A. elatus* Hinton, 1941 (Coleoptera: Elmidae). *Zootaxa* **4216** 585-595.

CRIMEAN WATER BEETLES

This paper reviews findings to date, starting with a report in 1871. Five water beetles are recorded new for the Crimean Peninsula, *Agabus fulvaster* Zaitzev, *Berosus fulvus* Kuwert, *Cercyon tristis* (Illiger), *Enochrus ater* (Kuwert) and *Limnoxenus niger* (Gmelin). The list now stands at 63 species of Dytiscidae and 62 of Hydrophilidae.

GREŃ C 2018. Additions to Crimean fauna of water beetles (Coleoptera: Dytiscidae, Hydrophilidae). *Annals of the Upper Silesian Museum in Bytom, Entomology* **27** 1-3.

SLOVENIAN RIVER DYTISCIDS

Thirty-five sites were sampled along the River Drava, which runs from the Tyrol to Croatia with ten hydroelectric power stations affecting its structure. Nineteen dytiscid species were identified, mainly the larger species and surprisingly only one *Hydroporus*, *palustris* (L.). Redundancy correlation analysis was used to establish the relationships between the beetles and the principal plants. The importance of rooted and submerged plants, in particular *Potamogeton trichoides* Cham. & Schltdl., was established for species such as *Cybister lateralimarginalis* De Geer), two *Graphoderus* species, *Hydaticus seminiger* (De Geer) and *Acilius canaliculatus* (Nicolai), whilst other species such as *Ilybius fenestratus* (Fab.) were associated more with floating plant species. The author for correspondence is Mateja Germ.

AMBROŽIČ Š, GABERŠČIK A, VREZEC A & GERM M 2018. Hydrophyte community structure affects the presence and abundance of the water beetle family Dytiscidae in water bodies along the Drava River. *Ecological Engineering* **120** 307-404.

SABAH LEAF BEETLES

This survey covered 13 of the smaller islands of the Sabah archipelago, a part of Malaysia on the northern part of Borneo. OTUs are the operational taxonomic units. The number of species was put at 12 named ones and 56 unnamed OTUs based on 1,104 specimens. Galerucinae, presumably many of which will be associated with wetland plants, dominated the survey with 18 genera and 18 OTUs overall (i.e. including named species). All are illustrated by photographs. Donaciinae are surprisingly absent.

YEONG K-C, TAKIZAWA H & LIEW T-S 2018. Investigating leaf beetles (Coleoptera, Chrysomelidae) on the west coast islands of Sabah via checklist-taking and DNA barcoding. *PeerJ* doi 10.7717/peerj.5811 48 pp.

***EXOCELINA* 180!**

The *casuarina* group is formed to take on these 19 new species plus five that were already known, making this the second largest group of *Exocelina*. Most of them occur in the central mountainous area of Papua New Guinea. One hundred and eighty species are now known, 125 of them from New Guinea.

SHAVERDO H, SAGATA K & BALKE M 2018. Introduction of the *Exocelina casuarina*-group, with a key to its representatives and descriptions of 19 new species from New Guinea (Coleoptera, Dytiscidae, Copelatinae). *ZooKeys* **803** 7-70.

BAGOINE WEEVIL STATUS

This reappraisal of the phylogeny of weevils includes ratification of the subfamily Bagoinae (as opposed to the tribe Bagoini). This is an isolated lineage sister to the higher curculionids, and this work supports an earlier genetic analysis by Gillett *et al*. (2014).

SHIN S, CLARKE D J, LEMMON A R, LEMMON E M, AITKEN A L, HADDAD S, FARRELL B D, MARVALDI A E, OBERPRIELER R G & McKENNA D D 2018. Phylogenomic data yield new and robust insights into the phylogeny and evolution of weevils. *Molecular Biology and Evolution* doi: 10.1093/molbev/msx324 14 pp.

GILLETT C P D T, CRAMPTON-PLATT A, TIMMERMANS M J T N, JORDAL B H, EMERSON B S & VOGLER A P 2014. Bulk *de novo* mitogenome assembly from pooled total DNA elucidates the phylogeny of weevils (Coleoptera: Curculionidae). *Molecular Biology and Evolution* **31** (8) 2223-2237.

ALTITUDE ALL IMPORTANT IN THE WESTERN GHATS

The Western Ghats are mountainous areas on the west side of the southern extremity of the Subcontinent. This survey of 213 samples from 105 sites produced 66 species. Canonical correspondence analysis showed the most important factor to be altitude partly related to the nature of the substratum, rock being the opposite of mud, with salinity obviously being related to the lowest sites. The commonest was *Laccophilus inefficiens* (Walker) in 43 sites. Pools had species not found in ponds, and vice versa. *Patrus assimilis* Ochs was found only in two streams and *Hygrotus nilghiricus* (Régimbart) was found only in three man-made tanks in hill forts. *Clypeodytes hemani* Vazirani, *Microdytes sabitae* Vazirani and *Lacconectus lambai* Vazirani were found in temporary pools on rocky outcrops.

SHETH S D, PADHYE A D & GHATE H V 2019. Factors affecting aquatic beetle communities of Northern Western Ghats of India (Arthropoda: Insecta: Coleoptera). *Annales de Limnologie – International Journal of Limnology* **55** doi:.org/10.1051/limn/201803012.

ISLE OF WIGHT

Thirty-five million years ago beetle collecting on the Isle of Wight would have been very different, but with the reassurance provided by recognising many genera. Thirty-one families can be recognised from 994 specimens in 19th Century samples taken from the Insect Bed. These include 42 newly described species of which some water beetle examples are *Agabus latissimus* Ponomarenko, *Ilybius gratshevi* Ponomarenko, *Spercheus punctatus* Ponomarenko, *S. wightensis* Ponomarenko, *Hydrochara woodwardi* Ponomarenko & Soriano, *Berosus barclayi* Ponomarenko & Soriano, *Ochthebius rossi* Kiretjtshuk, *Hydraenites gracilimmus* Kiretjtshuk, *Scirtes calcarifens* Kiretjtshuk & Ponomarenko, *Contacyphon insularis* Kiretjtshuk & Ponomarenko, *Plateumaris wightensis* Kurochkin & Kiretjtshuk.

KIRETJTSHUK A G, PONOMARENKO A G, KUROCHKIN A S, ALEXEEV A V, GRATSHEV V G, SOLODOVNIKOV A Y, KRELL F-T & SORIANO C 2019. The beetle (Coleoptera) fauna of the insect limestone (late Eocene), Isle of Wight, southern England. *Earth and Environmental Science Transactions of the Royal Society of Edinburgh* **2019** 1-88.

NEW VENEZUELAN NOTERID

This is the fourth member of *Prionohydrus* Gómez & Miller to be described, two of the others being Venezuelan, plus *N. matogrossensis* Gómez & Miller in Brazil. This one is 2.4 mm long and was caught at light.

GARCÍA RAMÍREZ M 2018. *Prionohydrus plurunum*, nueve especie de coleóptero acuático (Coleoptera: Hydradephaga: Noteridae) del sudeste de Venezuela. *Revista Chilena de Entomología* **44** 419-426.

INDIAN PARK FAUNA

Arunachal Pradesh is the north-easternmost of Indian states, next to China. The material here was collected by Dr Biswas in the 1980s – *Platambus balfourbrownei* Vazirani, *P. fletcheri* Zimmermann, *Rhantus sikkimensis* Régimbart, *R. suturalis* (MacLeay), *Sandracottus manipurensis* Vazirani, *Cybister sugillatus* Erichson, *C. tripunctatus lateralis* (Fab.), *Hydaticus ricinus* Wewalka, *H. satoi satoi* Wewalka, and *Laccophilus chinensis* Boheman.

GHOSH S K, 2018. Diving beetles (Coleoptera: Adephaga: Dytiscidae) of Namdapha National Park, Arunachal Pradesh, India. Records of the zoological survey, India **118** 156-161.

***ERETES* IN CZECH REPUBLIC**

E. sticticus (L.) is newly recorded from the Czech Republic, a male caught at light in southern Moravia, and probably the furthest north specimen known.

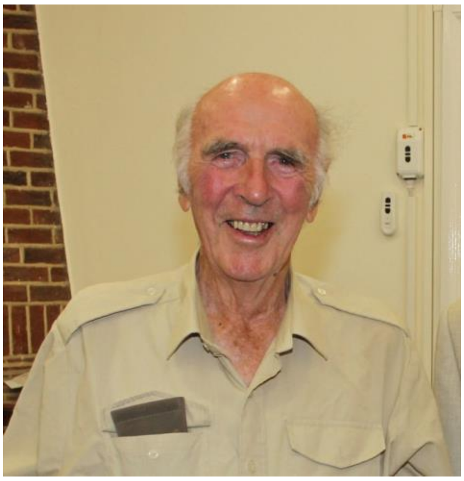
HÁJEK J 2017. Potápník *Eretes sticticus* (Coleoptera: Dytiscidae) dorazil do České republiky. *Klapalekiana* **53** 279-282.

***MEGADYTES DUCALIS* NO LONGER ON ITS OWN!**

The title of this paper raised hopes that the world's largest diving beetle had resurfaced alive. The male specimen in the Natural History Museum measures 47.2 mm long, and, as can be seen in this image of it before the days of stacking it has only the locality information "Brazil". David Sharp (1882) added that the specimen originated from Saunders. It is now possible to pinpoint a locality, Santo Antônio de Barra (= Condeúba), Bahia, because ten more specimens have been found in the Muséum National d'Histoire Naturelle, Paris. The largest known specimen, a female at 47.4 mm, is in the collection of Maurice Régimbart there. It also appears that the actual collector of the main series was Pierre-Émile Gounelle (1850-1914) and that he collected in Brazil from 1884 to 1914, but this is too late for the specimen in the British Museum. The rumour about the first specimen being found in a dugout canoe gets short shrift, but what about Saunders? Michael Darby's *Biographical Dictionary* has three well-travelled Saunders with an interest in Coleoptera and active in the 1880s, but no entry mentions South America. This copiously illustrated paper is supplemented by notes on *Megadytes lherminieri* (Guérin-Méneville) and *M. magnus* Trémouilles & Bachmann, and also worrying comments on the state of the Brazilian cerrado, and how best to bait and deploy traps.

HENDRICH L, MANUEL M & BALKE M 2019. The return of the Duke – locality data for *Megadytes ducalis* Sharp, 1882, the world's largest diving beetle, with notes on related species (Coleoptera: Dytiscidae). *Zootaxa* **4586** 517-535.

SHARP D 1882. On aquatic carnivorous Coleoptera or Dytiscidæ. *Scientific Transactions of the Royal Dublin Society* **2** 179-1003, plates VII-XVIII.



BRYAN SAGE 6 August 1930- 30 November 2018
Bryan was an all round naturalist originally interested in birds, but he also recorded dragonflies and beetles. His main work as BP's first ecologist took him abroad to Iraq and Alaska, and birds drew him as far as Antarctica, but he contributed greatly to the Hertfordshire Natural History Society, and latterly to the wildlife, mainly the beetles, of Norfolk, when he retired to Wells-next-the-Sea. He freely supplied over 200 records from 1948 to 2004 to the national scheme. His funeral was there at St Nicholas Church in December 2019. He leaves a daughter, Annette. Bryan's collection has gone to the Castle Museum, Norwich. Publications mainly concerning water beetles are below: Trevor James is preparing a full entomological bibliography for *The Coleopterist*, and he and Martin Collier are thanked for advice on this note, as is David Utting, who took the photograph.

COLLIER M J & SAGE B 2005. *Bagous lutosus* (Gyllenhal) (Curculionidae) in Norfolk. *The Coleopterist* **14** 25-28.

SAGE B 1977. The Coleoptera of Skomer Island, Pembrokeshire, and their ecology. *Nature in Wales* **15** 184-208.

SAGE B 1996. Coleoptera of Holkham National Nature Reserve, Norfolk. *Transactions of the Norfolk and Norwich Naturalists' Society* **30**(5) 523-553.

SAGE B 2013. An analysis of the water bodies and water beetles (Coleoptera) of the Stanford Training Area (STANTA), Norfolk. *Transactions of the Norfolk and Norwich Naturalists' Society* **46** 5-44.

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