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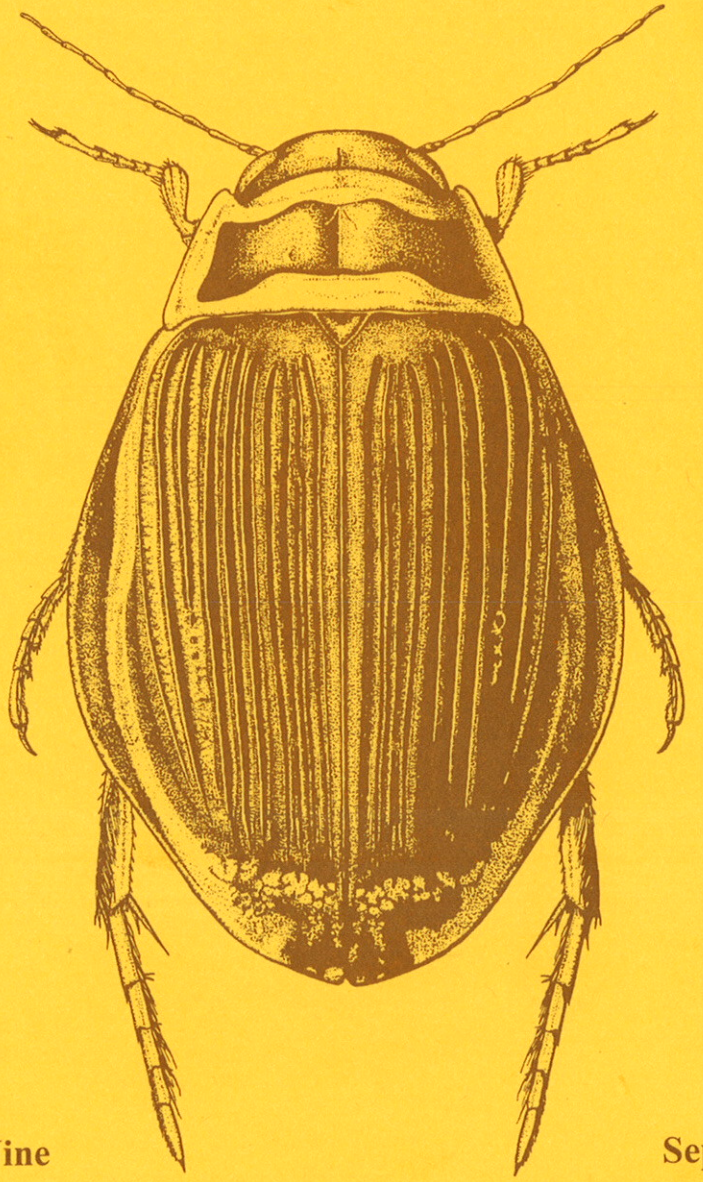
LATISSIMUS

NEWSLETTER OF THE BALFOUR-BROWNE CLUB



Number Nine **September 1997**

PROCEEDINGS OF THE FOURTH INTERNATIONAL CONFERENCE ON CLASSIFICATION, PHYLOGENY, AND NATURAL HISTORY OF HYDRADEPHAGA (COLEOPTERA) *HYDROVATUS*, BIBLIOGRAPHIES, *PELTODYTES*, LIFE HISTORY STUDIES, A FIFTH TERRESTRIAL DYTISCID, *CANTHYPORUS* SPERMATHECAE, AND THE *AGABUS OPTATUS* GROUP

BRANCUCCI, M. & WITTMER, W. (eds) 1997. Proceedings of the Fourth International Conference on Classification, Phylogeny, and Natural History of Hydradephaga (Coleoptera). *Entomologica Basiliensia* **19**. 673 pp. Natural History Museum, Basel. Available for 75 Swiss Francs from the Naturhistorisches Museum, Augustinergasse 2, CH-4001, Basel, Switzerland. Telephone (0) 61 266 55 00; fax (0) 61 266 55 46.

The Fourth Conference took place in August 1993 at Waleska, Georgia, USA. Ten papers have been produced in this special edition based on the proceedings.

ARCHANGELSKY, M. 1997. A bibliographic compilation on the immature stages of Hydrophiloidea (Insecta, Coleoptera. *Entomologica Basiliensia* **19** 653-673.

BARMAN, E.H. 1997. Life history analysis of dytiscids in selected habitats. *Entomologica Basiliensia* **19** 31-42.

BISTRÖM, O. 1997. Morphology and function of a possible stridulation apparatus in genus *Hydrovatus* (Coleoptera, Dytiscidae). *Entomologica Basiliensia* **19** 43-50.

BISTRÖM, O. 1997. Two new *Hydrovatus* species described from Kenya and Indonesia (Coleoptera, Dytiscidae). *Entomologica Basiliensia* **19** 51-55.

BISTRÖM, O. 1997. Taxonomic revision of the genus *Hydrovatus* (Coleoptera, Dytiscidae). *Entomologica Basiliensia* **19** 57-584.

BRANCUCCI, M. & DETTNER, K. 1997. Annual compilation (1992 and 1993) of Hydradephaga (Coleoptera) papers. *Entomologica Basiliensia* **19** 5-18.

BRANCUCCI, M. & MONTEITH, G.B. 1997. A second *Terradessus* species from Australia (Coleoptera, Dytiscidae). *Entomologica Basiliensia* **19** 585-591.

KNIGHT JASPER, S. 1997. *Peltodytes* species new to Texas, with habitat notes (Coleoptera, Haliplidae). *Entomologica Basiliensia* **19** 19-29.

MAZZOLDI, P. 1997. Spermathecal structure in *Canthyporus* Zimmermann (Coleoptera, Dytiscidae). *Entomologica Basiliensia* **19** 593-619.

NILSSON, A. 1997. A redefinition and revision of the *Agabus optatus*-group (Coleoptera, Dytiscidae); an example of Pacific intercontinental disjunction. *Entomologica Basiliensia* **19** 621-651.

One cannot help noticing that Olof Biström's contributions account for 80% of the pages, and certainly, we have here a remarkable treatise on the 202 species of *Hydrovatus*, a genus thought to have arisen in Gondwanaland at least 100 million years ago. In addition to the main work on *Hydrovatus*, there is a paper about their stridulatory apparatus and a supplementary about two new species. Two bibliographies are presented, one concerning Hydrophiloidea, the other the annual compilation concerning Hydradephaga. The life history studies concern dytiscids at two sites in central New York. The other papers have fully descriptive titles.

THE DYTISCID GUT FLORA

This is a truly pioneering study of potential long-term value. It came about because of interest in how dytiscid beetles are able to produce defensive steroids. Twenty years ago, it was suggested that this might be mediated by micro-organisms, probably starting with cholesterol; given the diversity of steroid substances associated with dytiscids it might also be conjectured that the bacterial flora might vary consistently from species to species. Thirty bacterial strains were isolated from the fore guts of *Agabus affinis* (Paykull) and *Hydroporus melanarius* Sturm. Forty-one other isolates were found in associated water. Stereoscanning has revealed colony-forming, rod-shaped or pleomorphic bacteria attached to the gut wall. Although the possibility of "milking" beetles to obtain steroids has long been considered unsustainable, there is now open the possibility that the specialised substances may be mass-produced with modern biotechnological techniques.

SCHAAF, O. & DETTNER, K. 1997. Microbial diversity of aerobic bacteria inside the foregut of two tyrphophilous water beetle species (Coleoptera: Dytiscidae). *Microbial Res.* **152** 57-64.

ADDRESSES OF AUTHORS The addresses of authors of articles, and of the contacts for reviewed works, are given at the end of this issue of ***Latissimus***, together with a selection of e-mail numbers. The address for other correspondence is:- Dr G N Foster, 3 Eglinton Terrace, Ayr KA7 1JJ, Scotland, UK.

AGABUS BRUNNEUS (FAB.) A CIRCUM-MEDITERRANEAN SPECIES COMPLEX

by A. Millán, I. Ribera, J. Fresneda & H. Fery

Two species of the *Agabus brunneus* group *sensu* Nilsson & Holmen (1995, p 103) are recognised in the Palaearctic region, *Agabus brunneus* (Fab.) and *A. didymus* (Olivier). Diagnostic characters for the group are a more or less continuous beading of anterior edge of the clypeus, no anterior beading to the pronotum, the anterior row of punctures on the pronotum interrupted medially (or at least less defined), the hind legs short and robust, the male pro- and mesotarsomeres 1 - 3 with ventral adhesive setae, and the penis without a subapical ventral spine.

In a survey of the Segura basin (SE Spain) some differences were recognised between what were considered to be typical specimens of *A. brunneus* and *A. brunneus rufulus* Fairmaire, described from Corsica but widely recorded in the Mediterranean area (Millán 1991). Specimens with the same morphology were subsequently recorded from Huesca (central Aragón, Spain) under the name *A. brunneus rufulus* sensu Millán (1991) (*A. brunneus* gr. hereinafter) (Ribera & Aguilera 1995; Ribera *et al.* 1996a). Differences between the two forms refer mainly to the aedeagus, which is very narrow and with the apex slightly curved to the left in dorsal view, and regularly curved and with the maximum width short before the apex in lateral view (fig. 1). *A. brunneus* gr. does not have a defined dark spot in the head, something normal in *A. brunneus,* though occasionally it can be weakly defined; its general size is also consistently smaller than *A. brunneus* (Table 1 and fig. 2). No significant differences were found in the male parameres or in the female genitalia. There were no differences in the number of chromosomes (as studied by Robert Angus): a single female of *brunneus* gr. that survived the trip to England had 43 pairs, a common karyotype in *Agabus* and the same as in *brunneus* s. str., with an XO system for sex determination.

TABLE 1. Average measurements (mm) ± standard deviation of *A. brunneus* and *A. brunneus* gr. from different localities in eastern Spain and the Balearic Islands

Species	Sex	n	total length	maximum width	maximum depth
A. brunneus	♀♀	38	7.45 ± 0.24	4.40 ± 0.19	2.75 ± 0.19
	♂♂	32	7.37 ± 0.23	4.32 ± 0.15	2.74 ± 0.21
	both	70	7.41 ± 0.20	4.37 ± 0.18	2.75 ± 0.24
A. brunneus gr.	♀♀	14	8.70 ± 0.45	5.06 ± 0.29	2.96 ± 0.25
	♂♂	15	8.50 ± 0.36	4.92 ± 0.26	2.93 ± 0.25
	both	29	8.60 ± 0.41	4.99 ± 0.28	2.94 ± 0.25

The magnitude and constancy in the differences in the shape and size of the aedeagus of all the studied specimens of both forms, even in those from the infrequent coexisting populations, ruled out the possibility of *A. brunneus* gr. being a subspecies or a morphological variety of *A. brunneus*.

Distribution *Agabus brunneus* gr. has been found in:- ALBACETE: Yeste, Arroyo de Morotes (30SWH55), 1 ♂ 1 ♀ 27.4.1997 IR leg. ALMERÍA: Tabernas, Rambla de Tabernas (30SWF49), 2 ♂♂ 2 ♀♀ 11.5.1997 AM & IR leg. HUESCA: Alcampel (UTM 10x10 km grid square 31TBG89), 1 ♂ 26.5.1984 JF leg.; Candasnos (31TBG50), 1 ♀ 4.12.1994 IR & P. Aguilera leg.; Pallaruelo de Monegros, Barranco de Lafarda (30TYM32), 1 ♂ 25.6.1994 IR & P. Aguilera leg.; Sariñena, river Flumen (30TYM32), 14 specimens 8.6.1995 D. T. Bilton leg.; Villanueva de Sigena, Barranco del Hospital (31TBG52), 8 ♂♂ 2 ♀♀ 4.12.1994 IR & P. Aguilera leg. JAÉN: river Madera (30SWH33), 1 ♂ 17.8.1985 J. J. Sánchez Meca leg. MURCIA: Rambla Caputa (30SXH31), 1 ♂15.5.1990 AM leg.; Rambla del Judío (30SXH33), 1 ♀ 3.9.1982 AM leg.; Rambla de Malvariche, in Pliego (30SXG29) 4 ♂ ♂ 2.6.1981, 3 ♂♂ 1 ♀ 20.5.1981 M. L. Suárez & M. R. Vidal-Abarca leg.; Rambla de las Moreras, Majada (30SXG46), 1 ♀ 25.8.1994 AM, IR & P. Aguilera leg.; Rambla del Puerto de la Cadena (30SXG69), 1 ♀ 20.4.1986 A. Belmonte leg.; river Argos, after Cehegín (30SXH01), 3 ♂♂ 25.9.1982 AM leg.; river Mula, Puebla de Mula (30SXH31), 1 ♂ 12.8.1980 M. L. Suárez & M. R. Vidal-Abarca leg.; river Pliego (30SXG29), 2 ♂♂ and 3 ♀♀ 25.5.1996 AM & IR leg.; river Segura, before river Argos (30SXH13), 2 ♂♂ 25.9.1982 C. Montes & col. leg.; El Salar de Blanca (30SXH42), 1 ♂ 22.8.1989 AM leg.; spring Zarzadilla (30SXG29), 3 ♂♂ and 3 ♀♀ 4.3.1980 M. L. Suárez & M. R. Vidal-Abarca leg. TERUEL: Calaceite, tributary of river Matarraña (31TBF53), 1 ♂ 18.11.1995 P. Aguilera leg. VALENCIA: Alzira, Fte. Barber (30SYJ33) 1 ♂ 21.3.1994 A. Pujante & G. Tapia leg; Venta del Moro, Casas del Rey (30SXJ37), 1 ♂ 10.1994 A. Pujante & G. Tapia leg; Vilanova d'Alcolea, Font la Vila

(31TBE55), 1 ♂ 9.7.1994 A. Pujante & G. Tapia leg. ZARAGOZA: Fuentes de Ebro, river Ginel (30TXL99), 1 ♂ 1 ♀ 6.7.1996 IR, P. Aguilera & J. Blasco-Zumeta leg, Villafranca de Ebro, Barranco de Villafranca (30TXM90), 2 ♂♂ 1 ♀ 28.12.1996 IR, P. Aguilera & C. Hernando leg. BALEARIC ISLANDS: Mallorca, Torrent de Solleric (31TDD89), 5 ♂♂ 11 ♀♀ 25.5.1988 J. García Avilés leg.; Menorca, Torrent Es Puntarró (31TFE02), 1 ♀ 6.3.1988 J. García Avilés leg.; Torrent d'Algendar (31TEE82), 1 ♀ 1.6.1988 J. García Avilés leg.; pond on Cavallería beach (31TEE93), 1 ♂ 2.6.1988 J. García Avilés leg.; Torrent de la Font de Na Vermella (31TFE02), 2 ♂♂ 6.6.1988 J. García Avilés leg.; Torrent Els Alocs (31TEE83), J. García Avilés leg.

Agabus brunneus gr. is widespread in eastern Spain (fig. 3), but its detailed distribution is still unknown. Its occurrence in the Balearic islands suggest a wider geographical range, perhaps extending to north Africa. The present distribution in the Iberian Peninsula could be ecologically limited, being replaced by *A. brunneus* in freshwater, more permanent rivers, and at higher altitudes. However, it is still not possible to know whether this is the relict distribution of a species formerly widespread in the west Palaearctic, but confined to arid areas in east Spain and the Balearics in more recent times, or a Baetic endemism that has extended its range to some ecologically similar neighbouring areas. The presence in both the Segura basin and central Aragón of other typical southern Mediterranean species of aquatic Coleoptera does not allow other conclusion than that this is a common distributional pattern. This would be the case of *Nebrioporus baeticus* (Schaum), *Ochthebius auropallens* Fairmaire, *O. maculatus* Reiche, or *Enochrus politus* Küster, all of which have a similar distribution and habitat as *A. brunneus* gr. in the Iberian peninsula, but are also widespread in the southern coast of the Mediterranean basin (Ribera & Aguilera 1995; Ribera *et al.* 1996; and unpublished data). The study of more material from north Africa and other Mediterranean islands, in order to establish the distribution of *Agabus brunneus* gr., will allow the discrimination of both possibilities.

Biology *Agabus brunneus* gr. was found in small streams or rivers ("ramblas" in Murcia, "torrents" in the Balearic islands, and "barrancos" in Huesca), often temporary or highly seasonal, with mineralised waters, silt or clay substratum, and sparse riparian vegetation. Altitude of the localities ranged from sea level to 500 m. The specimens were mainly collected in shallow areas with a slow water flow, usually clean and well oxygenated, although in the Segura basin the species was found in some eutrophic, or even anoxic, waters (Millán 1991).

In some rivers and springs (Argos, Madera, Pliego, Matarraña, Flumen, and some localities in Valencia), as well as in the northernmost point of its known distribution (Alcampel), the species coexisted with *A. brunneus*, but in its more characteristic habitats (lowland mineralised ramblas or barrancos) *A. brunneus* was not found, or only occasionally (see Millán 1991 and Ribera & Aguilera 1995 for a detailed list of the co-occurring aquatic Coleoptera). In Menorca the species coexisted with *A. brunneus* in most of the sites.

Agabus sp. larva collected from March to June in company of adults of *A. brunneus* gr. in the ramblas in Murcia could correspond to this species, and are currently under study. The species seems thus to be a spring or summer breeder. Immature adults were found in December in Huesca, and at the end of May in the Balearic Islands.

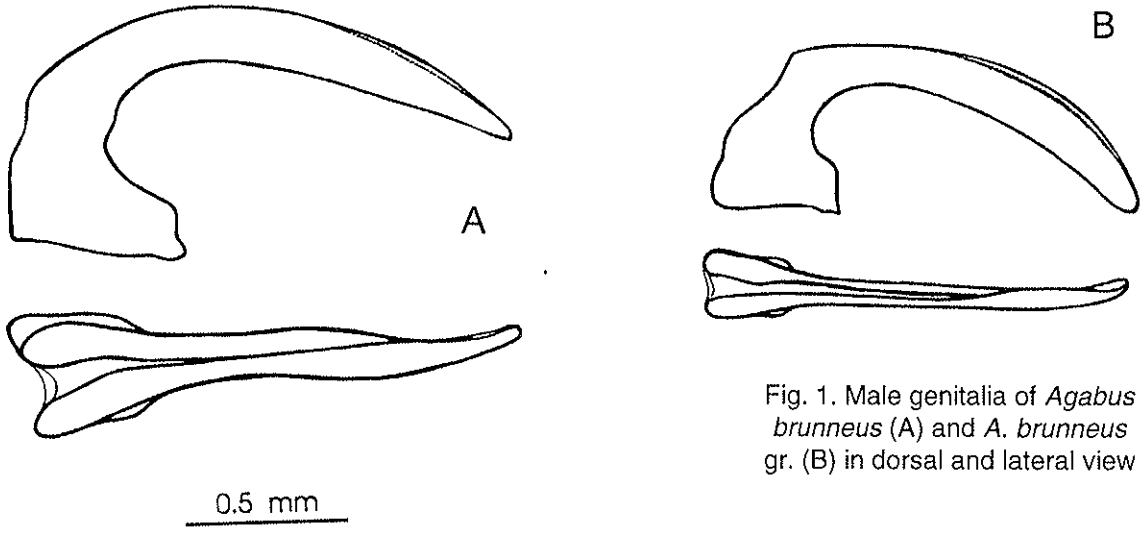


Fig. 1. Male genitalia of *Agabus brunneus* (A) and *A. brunneus* gr. (B) in dorsal and lateral view

Discussion Giving a correct name to the newly recognised species poses a problem. The only syntype of *A. brunneus* found in the Zoologisk Museum, Copenhagen, was a female (labelled "*Dytiscus brunneus*", "Tanger", "Mus Leh. et T. Luns. leg.", "Type" [red label]). Although the condition of the specimen did not permit recognition of the black spot on the crown, its total length (8.5 mm) was well outside the range of the known *A. brunneus* gr. (Table 1 and fig. 1). Some additional specimens from Tangier were studied (Ksar-es-Seghir, small stream, Tangier, 1 male and 1 female 25.4.1988; and Cap. Spartel, pond in small stream, Tangier, 1 male 30.3.1988 HF leg.), and confirmed not to be *A. brunneus* gr.

Agabus brunneus has five recognised synonyms (see e.g. Guignot 1933):

1. *Agabus rufulus* Fairmaire, 1859. One male of *A. rufulus* without locality data in Fairmaire's collection in the Muséum National d'Histoire Naturelle, Paris (MNHN), plus some males from Corsica (Bocca Capana, Olmi-Capella, 2 examples 24.vi.1989 JF leg., Riviére Gravona, Ucciani, 1 ex. 27.vi.1989 JF leg., Col Vizzavona, Vivario, 1 ex. 30.vi.1989 JF leg., San Ciprianu, Rau l'Osu, Porto Vecchio, 1 ex. 25.vii.1991 M. Toledo leg.), did not correspond to the newly recognised *A. brunneus* gr. However, there is always the possibility that *A. brunneus* gr. is the third member of the *brunneus* complex. The small number of specimens available for study does not allow a proper estimate of variability of this form. Fairmaire's description of *rufulus* does not help too much either - size 7 mm, "la tache frontale est peu visible".
2. *Agabus ferrugineus* (Stephens 1828). The species was described with British specimens, in where *A. brunneus* is a rare species confined to SW England. Although we have not studied any type material, they are unlikely to correspond to *A. brunneus* gr.
3. *Agabus marginicollis* Fairmaire 1859. Some specimens identified as *A. marginicollis* from the MNHN (from Spain, Algeria and Corsica, all in Régimbart's collection) did not correspond to *A. brunneus* gr. - but they were not type material.
4. *Agabus castaneus* (Gyllenhål in Schönherr 1808). We have not studied the types or any other reliable identified material of this species, and the size given in its description ("Magnitudo et statura *D. maculati*"), although probably referring to the range of typical *A. brunneus*, is clearly not a sound basis on which to discard other possibilities. The type locality ("Barbariae aquis") is not helpful.
5. *Agabus rotundatus* Wehncke 1872. A syntype female from the Deutsches Entomologisches Institüt, Eberswalde (DEI) was studied (labelled "*collaris* Dahl, Sardin. Dahl", small blue label, "*rotundatus* Wehncke, n. sp. Original, 2^{he} Exeml. an Wehncke gegeben" [a second specimen given to Wehncke], "43", "Seidl. vid." [Seidlitz vidit], "*rotundatus* Wehncke", "Syntypus" [red label].

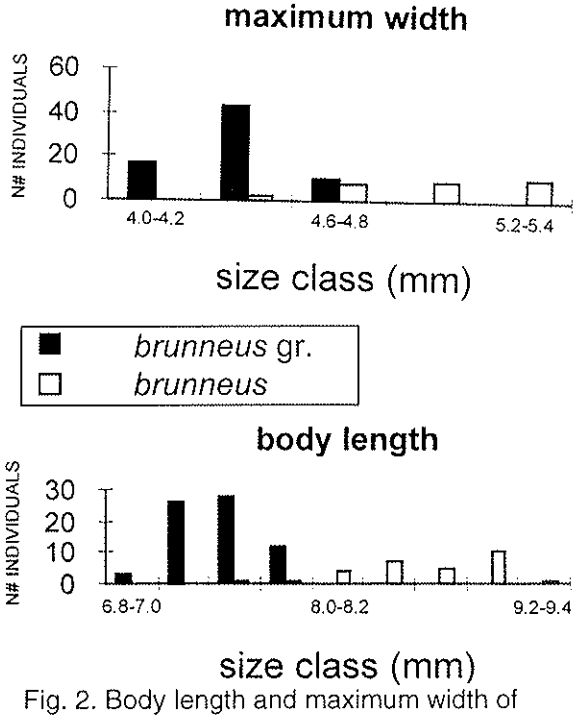


Fig. 2. Body length and maximum width of *A. brunneus* and *A. brunneus* gr.

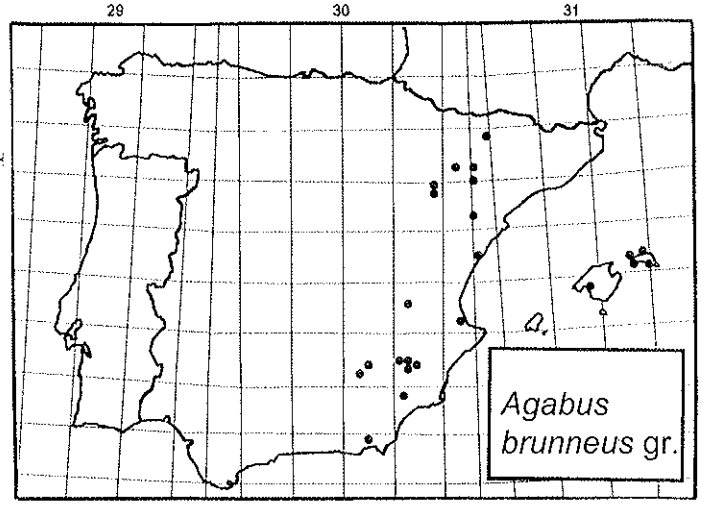


Fig. 3. Known distribution of *A. brunneus* gr.

Additional studied material from Sardinia (the type locality of *A. rotundatus*) clearly did not correspond to *A. brunneus* gr. (Fiume Silis, Sorso, 17 examples 26.vii.1988 P. Mazzoldi leg.). The identity of material studied from other Mediterranean islands (Elba, Fosso Barbone, Pomonte, 3 examples 29.v.1994 M. Toledo leg.; Sicily, Fiume Calatubo, Alcamo, Palermo, 3 exxs 24.iv.1992 M. Toledo leg., Bosco Ficuzza, Palermo, 2 exxs 15.x.1972 Romano leg.) is not clear, except in that they are not the species occurring in the west Mediterranean.

It is clear that a revision of the *A. brunneus* complex of species is badly needed, and that what was supposed to be a widespread and morphologically homogeneous single species (*A. brunneus*) comprises several taxa with more restricted distributions in the Mediterranean area. With this note we want to draw attention to this taxonomic and biogeographical problem, and to prevent further uncertain records of species of the group. More detailed work is in progress, with the hope of solving this interesting but certainly complex taxonomic problem.

Acknowledgements We are grateful to O. Martin (Zoologisk Museum, Copenhagen), Mademoiselle H. Perrin (MNHN), and L. Zerche (DEI) for the loan of material of *A. brunneus* s.l. for study. We also thank Pedro Aguilera, David Bilton, Javier García Avilés, Paolo Mazzoldi, Ana Pujante, María Luisa Suárez, Gloria Tapia, Mario Toledo, and Chari Vidal-Abarca for allowing us to study their material and for unpublished information. Anders Nilsson, Robert Angus and Garth Foster give us many suggestions and useful comments. Andrés' work was partially supported by project AM/OM PCT 94/97 for the study of the ramblas in Murcia.

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MILLÁN, A. 1991. *Los Coleópteros Hydradephaga (Haliplidae, Gyrinidae, Noteridae y Dytiscidae) de la cuenca del rio Segura, SE de la Península Ibérica.* Ph.D. Thesis, Universidad de Murcia, Murcia.
NILSSON, A. N. & HOLMEN, M. 1995. *The Aquatic Adephaga (Coleoptera) of Fennoscandia and Denmark. II. Dytiscidae.* Fauna Entomologica Scandinavica **32**. E. J. Brill, Leiden.
RIBERA, I. & AGUILERA, P. 1995. Coleópteros acuáticos de la provincia de Huesca (Aragón, España). *ZAPATERI Revta. aragon. ent.* **5** 7-34.
RIBERA, I., FRESNEDA, X., HERNANDO, C. & AGUILERA, P. 1996. Insecta: Coleoptera 8 (Familias 11-26): Coleópteros acuáticos. Familias: Gyrinidae, Haliplidae, Noteridae, Hygrobiidae, Dytiscidae, Hydraenidae, Helophoridae, Georissidae, Hydrochidae, Hydrophilidae, Elmidae, Dryopidae, Heteroceridae, Psephenidae, Scirtidae, Chrysomelidae Donaciinae. Cat. entomofauna aragon. **10** 3-22.
SCHÖNHERR, C. 1808. *Synonymia Insectorum* **2** 21.

Received July 1997

WATER LEVEL REQUIREMENTS OF WETLAND PLANTS (AND ANIMALS?)

NEWBOLD, C. & MOUNTFORD, O. 1997. *Water level requirements of wetland plants and animals.* English Nature Freshwater Series, 5, 36 pp. Peterborough, English Nature. ISBN 1-85716-269-2 paperback available free from the Environmental Impacts Team, English Nature, Northminster House, Peterborough PE1 1UA, England, UK (telephone (0)1733 455200).

This short work is an extremely useful summary of wetland plant requirements, set up in such a way that one can characterise a site's water level fluctuations on the basis of its plant list. Where one must take issue is, as seems so increasingly the case, with the inability of English Nature to undertake adequate consultation. Thus the title, in claiming that it covers water level requirements for animals, is misleading. Attempts to cover birds, amphibians and dragonflies are very weak, and there does not appear to be any comment about the effects on fish and of fishlessness. Clearly, few fish can survive drought but beetles and other invertebrates benefit from ponds drying out, in that this eliminates predators.

RARE AUSTRIAN BEETLES

Notes are provided concerning *Ochthebius pusillus* Stephens, *Hydraena pulchella* Germar and *Elmis obscura* Müller.

JÄCH, M.A. 1997. Bemerkenswerte Käferfunde aus Österreich (VI) (Coleoptera: Hydraenidae, Elmidae). *Koleopterologische Rundschau* **67** 263-264.

INSECTS OF ROME

Gianluca Nardi records 75 taxa of Hydradephaga, while Paolo Audisio and Alessio de Biase record 11 species of Hydraenidae. There is a also a useful summary in English by the editor (pp. 357-358), in which the environmental effects of urbanisation and eradication of malaria are noted. These effects are all too apparent in the loss of species, many of which disappeared after the colonisation of the Campagna Romana at the beginning of the Century.

AUDISIO, P. & DE BIASE, A. 1997. Coleoptera Hydraenidae, p. 135. In: Zapparoli, M. (ed.), *Gli Insetti di Roma*. Comune di Roma, Dip. X Risorsa Suolo e Tutela Ambiente, Quaderni dell'Ambiente **6** 360 pp.

NARDI, G. 1997. Coleoptera Haliplidae, Hygrobiidae, Gyrinidae, Dytiscidae, pp. 130-135. In: Zapparoli, M. (ed.), *Gli Insetti di Roma*. Comune di Roma, Dip. X Risorsa Suolo e Tutela Ambiente, Quaderni dell'Ambiente **6** 360 pp.

EAST MEDITERRANEAN *HYDRAENA*

H. (Haenydra) magnessa is described from western Turkey, with a new subspecies of *H. scitula* d'Orchymont from Lesbos, for which 10 *Hydraena* species are now known (III). *Hydraena* (s. str.) *bicolorata* is newly described from Yugoslavia, Greece and Turkey. *H. phassilyi* d'Orchymont, from which the new species has been separated, is now seen to be restricted to the Peloponnese. *H. corcyra* Jäch is synonymised with *H. canakcioglui* Janssens, known from Greece and Turkey.

JÄCH, M.A. 1997. New and little known Palearctic species of the genus *Hydraena* (s.l.) Kugelann. III. (Coleoptera: Hydraenidae). *NachrBl. bayer Ent.* **46** 29-32.

JÄCH, M.A. 1997. New and little known Palearctic species of the genus *Hydraena* (s.l.) Kugelann. IV. (Coleoptera: Hydraenidae). *Koleopterologische Rundschau* **67** 173-175.

FRIESIAN RECORDS

Having tried to bring together records from many entomologists visiting the same place, I have nothing but envy for the effort of the Dutch entomologists, who have amassed a comprehensive list of insects less than a year after their survey of the Friesian island of Terschelling Water beetles are well represented, including *Gyrinus distinctus*, *Hydroporus scalesianus*, *Graptodytes granularis*, *Ochthebius punctatus* and *Heterocerus intermedius* (the latter three species new for Friesland).

CUPPEN, J.G.M., VORST, O., DROST, M.B.P., van de SANDE, C., HEIJERMAN, T., HUIJBREGTS, J., TEUNISSEN, A.P.J.A., van VONDEL, B., EDZES, H.T., VALLENDUUK, H. van den BERG, K. & KRIKKEN, J. 1997. Coleoptera - kevers. *In:* Koomen, P. (ed.) Verslag van de 151e zomervergadering van de Nederlandse Entomologische Vereniging, 29 mei t/m 2 juni 1996, te Formerum op Terschelling. *Entomologische Berichten, Deel* **57** (5) xxiv-xxxiv.

NEW TUNISIAN AND IBERIAN *OCHTHEBIUS*

O. tunisicus and *O. tudmirensis* are newly described as members of the *Ochthebius punctatus* group. Neither can be distinguished externally from *O. punctatus* Stephens and *O. grandipennis* Fairmaire.

JÄCH, M.A. 1997. Revision of the Palearctic species of the genus *Ochthebius* Leach. XIV. Additional notes on the *O. punctatus* group, with description of two new species (Coleoptera: Hydraenidae). *Koleopterologische Rundschau* **67** 177-180.

INSECT FAUNA OF AN ISOLATED BAVARIAN POND

The entire insect fauna of an isolated sinkhole (or doline) was studied near Lessau. Over 50 species of water beetle were found, including *Agabus fuscipennis* Paykull, at the south-western extremity of its range.

DETTNER, K. 1996. Die Insektenfauna einer wassergefüllten Doline bei Lessau (Ldkrs. Bayreuth). Ein Beitrag zur Bedeutung von Kleingewässern für den Naturschutz. *Ber. Natuswiss. Ges. Bayreuth* **23** 455-488.

REVISION OF *MICRODYTES*

The maximum length of *Microdytes* is 2.3 mm. These miniature dytiscids are revised, necessitating description of 21 new species from the Far East, mainly from Thailand. A key to the 30 species, with supporting illustrations, is provided.

WEWALKA, G. 1997 Taxonomic revision of *Microdytes* Balfour-Browne. *Koleopterologische Rundschau* **67** 13-51.

AQUATIC COLEOPTERA OF SALISBURY PLAIN

by Ron Carr

Introduction This is a rather belated attempt to place on record a list of water beetles recorded from the Salisbury Plain area of southern England between 1991 and 1992.

Twenty sites were investigated during combined visits to my son, who at the time was stationed with H.M Forces on the Plain. His subsequent departure from the army terminated what was originally intended to be a more comprehensive project, though the publication of these records may hopefully promote further attention to this interesting area by others.

Salisbury Plain is situated in the county of Wiltshire and comprises an extensive area of gently undulating Chalk Downland. The poorly defined boundaries of the Plain are bordered to the north and south by overlying Tertiary deposits and to the east and west by rocks of Cretaceous origin.

The region is mainly devoted to agriculture though vast tracks of undeveloped land are used by the Ministry of Defence for military training.

Interest in the water beetles of the area has previously been negligible (probably due to the erroneous concept that water is lacking upon the Plain). Few and recently published records exist for the area other than Cooling (1981).

The Plain is bisected by the river Avon, which runs roughly north to south and is fed by several tributaries. These include the Wylye, the Nadder and the Bourne Rivers. Other small, intermittent chalk streams, artificial fish pools and cattle watering ponds occur sporadically throughout the area.

The limited survey produced a total of 48 species of aquatic Coleoptera, including several notable beetles that typically inhabit intermittent calcareous streams and underground water.

TABLE 1. List of sites with grid references

1	SU 188448	Nine Mile River, Bulford	Intermittent chalk stream
2	SU 175442	Nine Mile River	Intermittent chalk stream
3	SU 237519	River Bourne	Polluted chalk stream
4	SU 065447	River Till, Elston	Intermittent chalk stream
5	SU 004517	The Warren	Permanent chalk stream and fish pond
6	ST 972408	Codford St. Peter	Intermittent chalk stream and adjacent pool
7	SU 196382	River Bourne, Idmiston	Intermittent chalk stream
8	SU 187447	Bulford	Muddy pond with *Mentha aquatica*
9	SU 134539	River Avon, Upavon	Slow flowing, permanent river
10	SU 138412	River Avon, Amesbury	Slow flowing, permanent river
11	SU 153468	River Avon, Figheldean	Fast flowing permanent river
12	SU 078413	River Till, Winterbourne Stoke	Sluggish chalk stream
13	SU 007370	Wylye	Temporary stream
14	ST 962532	Erlestoke	Muddy pond with abundant *Fontinalis*
15	SU 005382	River Wylye, Wylye	Permanent river
16	ST 914412	Tytherington	Small permanent stream
17	SU 025437	Chitterne Down	Shallow dew pond
18	SU 074426	River Till, Rollestone	Polluted stream
19	SU 293553	Limmer Ponds	Clay pits
20	SU 076406	River Till, Winterbourne Stoke	Permanent chalk stream

Discussion Several species recorded in the survey are nationally local. *Agabus biguttatus* and *Hydroporus marginatus* are considered by Foster (1983 and 1984) to be facultatively subterranean, typically thriving in chalk and limestone habitats. *H. ferrugineus* is also a characteristic springwater species, though not confined to calcareous environments (Carr 1983).

Balfour-Browne (1950) cites records for *Agabus uliginosus* from Winterbourne Stoke and Weyhill (North Hants) in 1828 by G. T. Rudd. Third instar larvae of this species were taken from temporary pools at Idminster and near Codford St Peter during April and July, 1991. Subsequent visits to the latter site in April and May, 1992 produced an adult male and three shining female specimens.

The pond at Bulford yielded four specimens of *Dryops auriculatus*, including one male. This species is typical of fenland habitats (Foster 1995) and its occurrence in what is almost certainly a waterbody of man-made derivation is not easily explained.

The occurrence of *Agabus didymus* in a remote muddy dew pond approximately 75 mm in depth at Chitterne Down raises some doubt as to the hitherto considered flightlessness of the species (Jackson 1956). *A didymus* was present in the pond in August, 1991 and again in May, 1992, though it is unlikely to have bred in the absence of running water.

TABLE 2. Beetles on Salisbury Plain. Numbers refer to site numbers in Table 1. ③ = Third instar larva.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HALIPLIDAE																				
Haliplus fluviatilis									◆	◆					◆					
Haliplus lineatocollis	◆	◆				◆		◆	◆		◆		◆		◆			◆		
HYGROBIIDAE																				
Hygrobia hermanni																			◆	
DYTISCIDAE																				
Laccophilus hyalinus															◆					
Laccophilus minutus																	◆		◆	
Hydroglyphus geminus																	◆			
Hygrotus confluens							◆										◆			
Hygrotus inaequalis																				◆
Hydroporus discretus	◆					◆			◆											
Hydroporus ferrugineus						◆														
Hydroporus marginatus				◆							◆									
Hydroporus memnonius						◆														
Hydroporus palustris		◆			◆			◆	◆	◆	◆	◆	◆					◆		◆
Hydroporus planus			◆									◆	◆				◆			
Hydroporus pubescens						◆					◆									
Nebrioporus elegans									◆		◆				◆					
Oreodytes sanmarkii																◆				
Platambus maculatus									◆		◆									
Agabus biguttatus				◆		◆														◆
Agabus bipustulatus					◆		◆	◆					◆		◆		◆		◆	◆
Agabus chalconatus	③					◆														
Agabus didymus					◆		◆	◆				◆					◆			◆
Agabus nebulosus							◆	◆				◆					◆		◆	◆
Agabus paludosus		◆			◆		③		◆						◆					③
Agabus uliginosus						◆	③													
Ilybius ater																	◆			
Ilybius fuliginosus								◆	◆						◆				◆	
Colymbetes fuscus							◆						◆				◆	③		◆
Acilius sulcatus																			◆	
GYRINIDAE																				
Gyrinus substriatus																			◆	
HYDROPHILIDAE																				
Helophorus brevipalpis					◆	◆														
Helophorus grandis	◆			◆	◆	◆											◆			
Helophorus minutus							◆	◆	◆	◆	◆				◆		◆		◆	◆
Helophorus obscurus						◆											◆			
Hydrobius fuscipes	◆				◆	◆		◆				③	◆				◆	◆		
Anacaena globulus		◆				◆			◆						◆					
Anacaena limbata	◆					◆				◆	◆		◆		◆			◆	◆	
Anacaena lutescens													◆							
Laccobius bipunctatus					◆			◆												
Laccobius striatulus						◆				◆										
Helochares lividus																	◆		◆	
HYDRAENIDAE																				
Ochthebius minimus	◆	◆			◆			◆		◆			◆		◆		◆			◆
Hydraena riparia						◆				◆								◆		
Limnebius nitidus								◆	◆	◆	◆			◆						
Limnebius truncatellus						◆						◆			◆					◆
DRYOPIDAE																				
Dryops auriculatus								◆												
Dryops luridus						◆														
ELMIDAE																				
Elmis aenea					◆						◆	◆		◆	◆					
Oulimnius tuberculatus															◆					

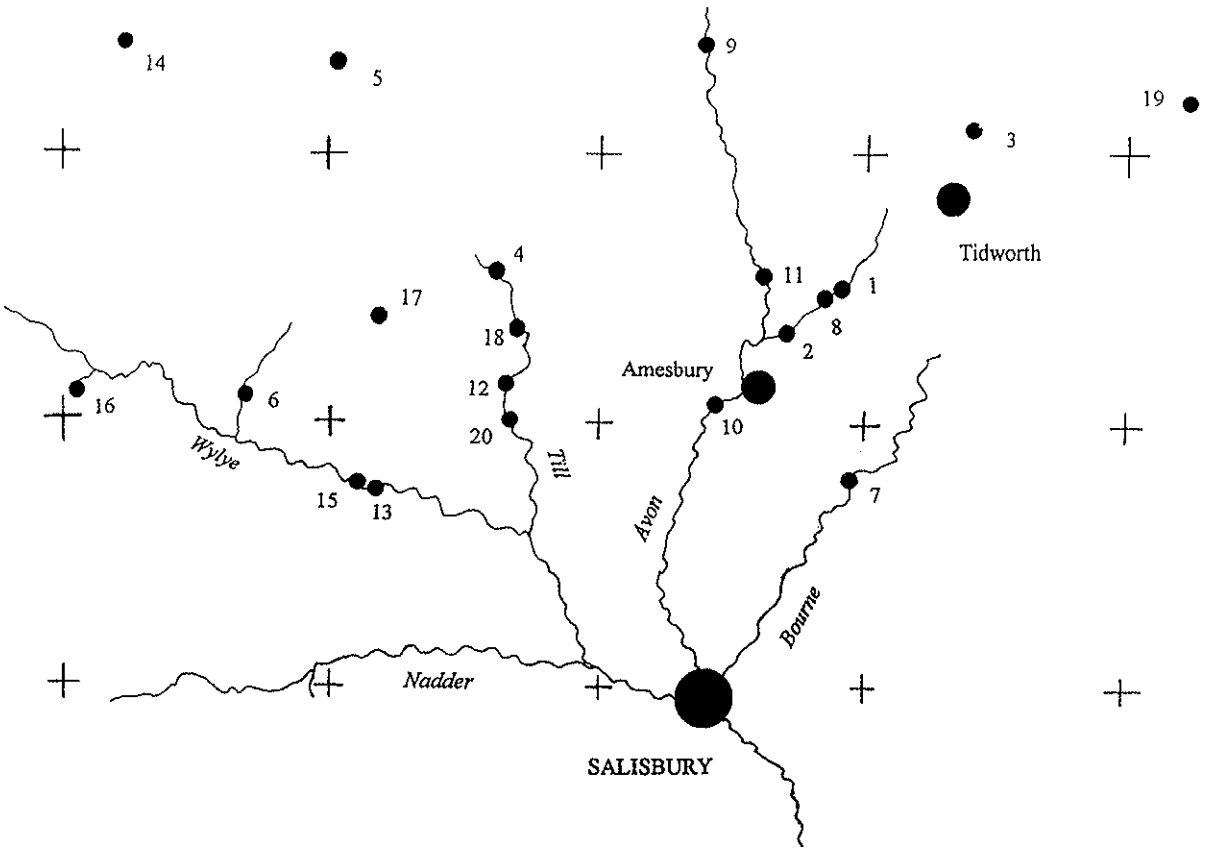

Figure 1. Sketch plan showing approximate locations of sites

Acknowledgement My thanks are conveyed to several ex-numbers of 94 Locating Regiment, Royal Artillery (now disbanded) for a number of convivial evenings spent in their company - the majority of which I have difficulty in remembering.

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NEW IBERIAN *AGABUS*

A new species is described very closely related to *Agabus heydeni* Wehncke. So far it is only known from the Foia and Picota mountains at Monchique, Portugal. Although *A. picotae* is larger than *A. heydeni*, its penis is smaller. A key is provided to the members of the *Agabus guttatus* group in the western Palaearctic. One weird feature is that the male fore claws are slightly smaller than those of the female. As the species appears to live on wet rocks (as well as being found in the streams below them) it has been suggested that the male's claws have worn away as they chase after the females, who are obviously not impressed by the male apparatus.

FOSTER, G.N. & BILTON, D.T. 1997. A new species of *Agabus* from south-west Portugal (Coleoptera: Dytiscidae). *Koleopterologische Rundschau* **67** 113-118.

DAYTIME SWARMING OF RHEOPHILIC WATER BEETLES IN AUSTRIA (COLEOPTERA: ELMIDAE, HYDRAENIDAE, HALIPLIDAE)

by M.A. Jäch

Abstract An interesting case of daytime swarming of rheophilic water beetles (Elmidae - 7 species, Hydraenidae - 2 species, Haliplidae - 1 species) was observed in Lower Austria on 10 and 11 August 1996. Beetles appeared to perform a synchronized dispersal flight in the course of which they were landing on top of a car, parked about 30 m from the stream from which it is supposed that they had newly emerged. The flight capability of the Central European species of Elmidae, which had been placed in doubt by Beier (1948), is therefore proved.

Introduction Swarming is a common phenomenon known from several water beetles families. It is especially noted at night (e.g. in Dytiscidae, Noteridae, Elmidae, Dryopidae, Hydrophilidae), when beetles are attracted to light sources, often in great numbers (Seagle 1980). However, in a few water beetle families, swarming also occurs during daytime and has been often reported in connection with the genus *Helophorus* (Helophoridae) (Benham 1976, Grensted 1939, Jäch 1994, Landin 1968, Last 1976, Owen 1956).

Elmidae (Elminae) swarm at night and during daytime, but - owing to their small size - such aggregations are rarely noticed.

Flight records for Hydraenidae are generally very rarely reported. Only few species have so far been collected at light (Jäch 1993) and few species are known to have been collected with car nets (Schillhammer 1995, Takahashi & Satô 1988, Ziegler 1984) and intercept traps (H. Schillhammer, pers. comm.). Flight records for Haliplidae are rare as well - at least in temperate regions (van Vondel 1995).

In August 1996 the author was able to observe a very interesting case of daytime swarming including seven species of Elmidae, two species of Hydraenidae, plus a single specimen of Haliplidae in Lower Austria.

TABLE 1. Swarming water beetles collected on a car in August 1996

Species	number of specimens 17.30-18.30 10 August	number of specimens 16.00 11 August
ELMIDAE		
Elmis aenea Müller	72	37
Elmis maugetii Latreille	2	10
Esolus parallelepipedus Müller	101	122
Limnius perrisi Dufour	-	4
Limnius volckmari Panzer	-	13
Riolus cupreus Müller	43	6
Riolus subviolaceus Müller	28	16
HYDRAENIDAE		
Hydraena minutissima Waterhouse	3	-
Hydraena gracilis Germar	-	13
HALIPLIDAE		
Haliplus lineatocollis Marsham	-	1
Total	159	222

Results In the afternoon/early evening of August 10, 1996, between 17.30 and 18.30, the author collected 159 specimens of water beetles (almost exclusively Elmidae) as they landed on the bonnet, roof and boot of a car (a tornado red Audi 100). On 11 August flight activity was even greater and the author took just those specimens (222 examples) which were sitting on the same car at 16.00 (Table 1).

Obviously, all these specimens were on their dispersal flight (many specimens were teneral and none of the elmids was provided with encrustations typical of specimens collected from streams).

All these water beetles must have emerged from a nearby stream, the Lueggrabenbach, flowing about 30 m south from the car. The level of the car was about 5 m above the water level of the stream. Between the stream and the car was a house - thus the stream was not visible from the car. Ecologically, the Lueggrabenbach is a metarhithron. It is about 3 m wide, and its margins are formed of massive, vertical concrete walls, about 1.5 m high, which were built in the late 1960's.

The weather during these two days was partly sunny, partly overcast, very humid; the air temperature was about 23 °C. The top of the car was quite hot, most specimens died within minutes after they landed on the car.

Discussion According to White (1978) and Seagle (1980) the emergence of elmid adults is often synchronized, depending on water level fluctuations; dispersal flights of newly emerged adults seem to be synchronized as well, depending on factors like air temperature, humidity, solar radiation, wind velocity (Brown 1987, Takahashi & Satô 1988), which might be an explanation for these remarkable activity peaks.

The flight capability of the Central European species of Elmidae was placed in doubt by Beier (1948: 136): "*Abendliche Schwärmflüge, die Bollow (1941) erwähnt, konnte ich niemals beobachten und halte sie bei unseren* [Elmidae-] *Arten auch für unwahrscheinlich*". This hypothesis is evidently incorrect, whereas Bollow's (1941: 2) observations ("*Die Imagines* [der Elmidae], *die nur an wenigen Abenden das Wasser zu kurzen Schwärmflügen verlassen, sind das ganze Jahr über im Wasser zu finden.*") are herewith confirmed for at least seven species.

The most abundant beetle on both days was *Esolus parallelepipedus*, the smallest of all these species. No specimens of the genus *Limnius* were found on the first day. Furthermore remarkable is the fact that on the first day only *Hydraena minutissima* was collected and on the second day only *H. gracilis*. Quantity and diversity was generally greater on the second day.

Control samples of Elmidae in the Lueggrabenbach showed that the swarm samples quite well reflected the community structure found in the stream itself. However, two species of Elmidae which were collected in the stream were absent from the swarm samples: *Elmis rietscheli* Steffan and *Esolus angustatus* Müller. While *Esolus angustatus* was rare in the control samples, *Elmis rietscheli* was rather common in the stream and its absence from the swarm samples is thus notable.

It is unknown whether the the colour of the car played a crucial role in attracting the water beetles. There were no other cars for comparison in the vicinity.

On 11 August the flight activities started in the early afternoon, and the intensity varied throughout the afternoon, and continued at least until the early evening. Apart from the 222 specimens collected on the car at 16.00 there were only a few terrestrial beetles (Scolytidae, Staphylinidae).

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ON FLYING *HYDROPORUS* AND THE ATTRACTION OF *H. INCOGNITUS* TO RED CAR ROOFS

by Anders N. Nilsson

Introduction Dytiscid flight is a phenomenon with a certain appeal. It is probably very important in the life histories of many species, although it is quite hard to study under natural conditions. Direct observations of flying specimens tend to be occasional, although rare moments of mass flights do occur. To try to find some pattern in these observations I have started to build a computerised database, including all notes and data I had. This was supposed to be a long-term project that could get together material for analysis in the future. Then I experienced some stunning evenings of *Hydroporus* flight, which provided enough inspiration for going into the subject directly. As the data so far are scanty for other genera, I will here restrict myself to *Hydroporus*.

Comparing species, it is obvious that great differences exist in the number of times flight has been observed or deduced from the circumstances in which specimens have been found. Jackson (1952, 1956, 1973) placed this variation in three categories, relying mainly on morphological evidence: those that do it regularly, those that do it sometimes, and those that never do it. As is normally the case, the variation is probably more gradual than this scheme suggests. Arranging species from "all specimens always capable of flight" to "no specimens ever capable of flight" would theoretically be possible. However, the data are not at hand, and what there are are blurred by geographical variation and the number of observations being dependent on the frequency and abundance of individual species.

Going beyond the pure documentation of flight capacity we would like to know when and why these beetles actually use their skills. It has been suggested that flight capacity is in some ways correlated with habitat preferences, i.e. species in larger permanent habitats tend to be poor fliers, whereas those in smaller more temporary habitats are more mobile (Jackson 1956). This would make sense, although statistical tests which also consider phylogenetic constraints are lacking. Eriksson's (1972) data from Finnish Lapland suggest that flight in dytiscids is rarer in colder climates.

Bilton (1994) reviewed dytiscid flight and compared the capacities of *H. glabriusculus and H. planus*. Jackson (1973) provided information on the flight capacities of no less than 20 species of *Hydroporus*. The only study that directly addresses natural flight in *Hydroporus* is that of Behr (1990). He collected the specimens that were attracted to six small water-filled containers operated over two years at the margins of bog pools in Germany. His success is clear as 1,253 *Hydroporus* specimens flew to his traps, and the data could be compared to net samples from the adjacent bog pools.

I will here match Behr's and others' literature data with my own five data-sets, in an attempt to find patterns in *Hydroporus* flight. As *H. incognitus* is the leading star in my data, I will go more into the details of the biology of this species.

My data-sets My five data-sets are all from North Sweden. They are here coded after the province names: Ångermanland ÅN1-2, Västerbotten VB1-2, and Norrbotten NB. ÅN2 and VB1 both include specimens collected manually on the roofs of my red cars when parked in the yard; a dark red 1974 Volvo combi changed in spring 1997 to a red 1987 VW minibus. ÅN2 is where I live today, in the village Mullsjö, 30 km SW of Umeå. VB1 refers to my former place of living, Gottland, 85 km NW of Umeå, with observations made from 1983 to 1997. These car roof records are of course of a sporadic kind. When at home, I have developed the habit of inspecting the car for beetles whenever I pass it. When beetles have been found I have tried to continue collecting them until no more specimens arrive, or the activity is strongly reduced.

ÅN1 originates from Håkan Söderberg who collected the occasional dytiscids that landed in a white plastic tray while he was sorting fresh benthic samples near small rivers in Ångermanland Province from 26 May to 14 June 1992. Normally he did this sitting by a camping table in the sunlight.

VB2 consists of the specimens caught in surface-traps placed on the surface of two temporary ponds studied by Nilsson & Svensson (1994). Five transparent plastic boxes 320 x 215 x 160 mm, partly filled with water, were placed floating on the pond surface and inspected regularily from early May to late October 1989. Both ponds are close to the VB1 locality.

NB includes the specimens landing in childrens' paddling pools (1.57 m²) near the Kuusivaara Forest Reserve just north of the Arctic Circle from late May to early October 1987 (Nilsson & Svensson 1995). Six basins operated in wet spruce forest, and six others in a nearby clearing.

Data on the relative abundance of *H. incognitus* is based on five net samples taken monthly in a seasonal pond near Ekorrträsk (100 km NW of Umeå) in 1994.

Results Dytiscids landed in the ÅN1 trays on 16 occasions; all were *Hydroporus*, and all but one male of *geniculatus* were *incognitus*. In total 22 males and 29 females of *incognitus* were collected. The four other data-sets are shown in Tables 1-4 and Table 5 gives an overview of all five sets. In total, my data include 972 specimens of nine species.

The following occasional records of three other species can also be added. One specimen of *Hydroporus memnonius* was found in a small white plastic container on the Alnö Island in the Medelpad Province on 30 June 1992 (leg. R.B. Pettersson). One specimen of *H. planus* was seen landing in a light blue childrens' paddling pool at Dalum in the Västergötland Province on 7 July 1994 at four o'clock PM. On 13 August 1985 I observed near Siksele in Lapland two specimens of *H. erythrocephalus* sitting on *Carex* stems above the water at the margin of a small lake. Most probably they were about to take off into the air. As David Bilton pointed out to me, they could also be renewing their antibacterial secretions.

Hydroporus incognitus dominates three of the data-sets, whereas NB is dominated by *H. morio* and *H. nigrita*. VB2 includes only nine specimens, most of them belonging to *H. geniculatus*.

In ÅN2 flight activity was concentrated to 9-14 June, whereas VB1 shows that flight may occur already in early May, although it peaks in late May and early June. In NB this peak continued into the second half of June and another smaller peak occurred in late August/early September.

The sex ratio was analysed only for *H. incognitus*. It was not significantly different from 1:1 in ÅN1 or VB1. There were significantly more females than males in ÅN2 (χ^2 7.89, p = 0.005), and also when all three data-sets were combined (χ^2 10.55, p = 0.0012).

My experience from periodic sampling of pond dytiscids indicates that *H. incognitus* is normally absent or at low abundance early in the season, compared with its congeners. However, in most ponds studied so far it was too scarce for any firm conclusions to be drawn. I here show the situation in one pond 1994 (Fig. 1). Other species found were: *acutangulus, erythrocephalus, geniculatus, neglectus, puberulus, rufifrons, striola, tristis* and *umbrosus*. Larvae were abundant only in the July sample.

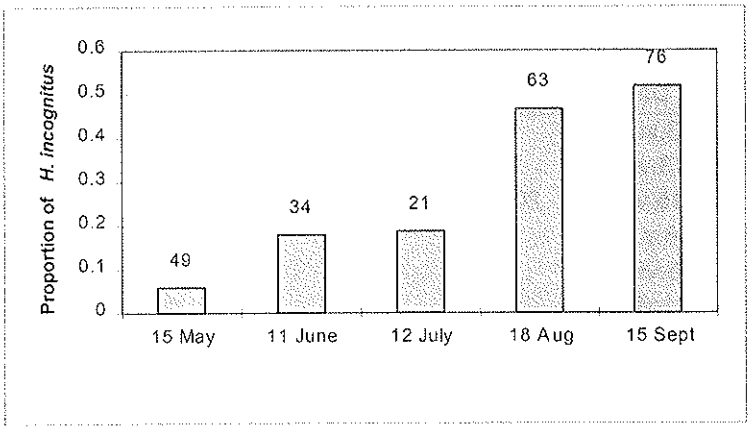

Figure 1. Proportion of *Hydroporus incognitus* in captures of *Hydroporus* in one pond in 1994. The top values for each bar are the total numbers of beetles found

Discussion The main flight period of *Hydroporus* seems to occur in late spring or early summer, and another less evident peak may occur in autumn. Behr's (1990) data are more heterogeneous with peak flights differing among species and years, although within the range from early June to late August. It seems that most *Hydroporus* species overwinter in water (Braasch 1989), which means that no seasonal migrations between water and land are needed. Moreover, many species seem to overwinter within temporary or seasonal ponds even if the basins dry out in autumn. This is supported by their presence in early spring. If so, flight in *Hydroporus* would mainly serve for dispersal to new habitats. As the main peak occurs in early summer it seems that dispersal is not linked to the drying out of inhabited ponds. My data include few teneral specimens, of which a high proportion should be expected if flight is chiefly performed early in adult life, before the histolysis of flight muscles (cf. Bilton 1994). Most of the specimens flying to Behr's (1990) containers were, however, teneral.

The three species dominating my material, *H. incognitus, morio* and *nigrita* (Table 5), are also the species of the genus most likely to be found in numbers in smaller water bodies of recent origin. I have sampled a few ditches and roadside ponds from their first year of occurrence and a few subsequent years, and always found these three species abundant. However, their distributions differ in that *H. incognitus* is much rarer in northernmost Sweden than the other two species. Other good fliers, like *H. planus* and *pubescens*, are very rare in North Sweden and chiefly confined to coastal rock pools.

It should be noted that about the same number of specimens landed on my car roof during two hours on 9 June 1997, as collected by Behr (1990) in his six containers during two years. Probably the prevailing cold wheather in late May and the first week of June 1997 had delayed the onset of flight this year, resulting in an extreme situation when the warm weather suddenly arrived. As Behr (1990) found 382 specimens in his first year and only 16 the second year, mirroring the values for *H. tristis*, the interpretation of flight data is really hazardous.

TABLE 1. *Hydroporus* specimens landing on red car roof at Mullsjö in the Nordmaling County in June 1997. Air temperature given in °C.

Species	Nos	♂♂	♀♀	Date	Hour	°C	Note
angustatus	2	2		9.vi.97	19.30-21.30	20-16	Clear
	1		1	11.vi.97	18.30-20.15	21.0-19.5	Clear
incognitus	381	169	212	9.vi.97	19.30-21.30	20-16	Clear
	85	32	53	10.vi.97	19.00-20.15	18.5-20.5	Clear
	23	9	14	11.vi.97	18.30-20.15	21.0-19.5	Clear
	11	7	4	14.vi.97	20.30-20.45	16.5	Cloudy
	3	3		27.vi.97	14.30	22	Mixed
morio	1		1	9.vi.97	19.30-21.30	20-16	Clear
	2		2	10.vi.97	19.00-20.15	18.5-20.5	Clear
nigrita	3	2	1	9.vi.97	19.30-21.30	20-16	Clear
	1		1	27.vi.97	14.30	22	Mixed
palustris	5	3	2	9.vi.97	19.30-21.30	20-16	Clear
striola	6	3	3	9.vi.97	19.30-21.30	20-16	Clear

TABLE 2. *Hydroporus* specimens landing on dark red car roof at Gottland in the Vindeln County 1983-1997. Air temperature given in °C. Soft refers to juvenile specimens and other notes to weather conditions. Some specimens were not sexed.

Species	Nos	♂♂	♀♀	Date	Hour	°C	Note
geniculatus	1		1	3.vi.94	15	18	
incognitus	1			13.vi.83	19		Warm
	1			15.v.84	20.30		
	1			6.v.86			
	1			6.vi.87		18	
	1		1	21.vii.89	17		
	2			28.v.91			
	1			24.viii.91	10		Soft
	2		2	26.v.92	22		
	2	1	1	7.v.93			
	1	1		19.v.93	14.30	18	Clear
	45	29	16	20.v.93	20	22	Clear
	49			3.vi.94	15	18	
morio	24			26.vi.94	19	19	Cloudy
	11	5	6	30.v.95	19	20	
nigrita	1			6.vi.87		18	
	2	1	1	19.v.93	14.30	18	Clear
	1	1		20.v.93	20	22	Clear
	1		1	14.vii.93	16		Clear
	6			3.vi.94	15	18	
	1		1	30.v.95	12	20	
	1		1	30.v.95	19	20	
	6			2.vi.95	14	19	Cloudy
palustris	1	1		28.vi.97	20	20.5	Mixed
striola	1	1		15.viii.91			Soft

TABLE 3. Numbers of *Hydroporus* specimens collected in five surface traps on two ponds in the Vindeln County in 1989. The traps were operating from 4 May to 9 October and were emptied every fifth to seventh day. Only the visits producing *Hydroporus* are included, and juvenile specimens are given in bold.

	19-24.v	18-23.vi	23-28.vi	2-8.vii	8-16.vii	16-23.vii
acutangulus					1	
geniculatus	1	**1**			**1**	**2**
morio			1			
nigrita				1		
tristis					**1**	

TABLE 4. Numbers of *Hydroporus* specimens collected in childrens' paddling pools near the Kuusivaara Forest Reserve in 1988. Pooled values from six pools in each habitat.

	22.v-1.vi	1-17.vi	17-30.vi	30.vi-19.vii	19.vii-7.viii	7-25.viii	25.viii-15.ix	15.ix-6.x	Σ
Forest									
morio			2	1			2		5
nigrita	1	5	7				1		14
Clearing									
acutangulus	1				1				2
geniculatus	3	6		2			6	1	18
incognitus			1				1		2
morio	6	20	19	2		1	11	2	61
nigrita	7	49	26	1			1	1	85
tristis								1	1
S	18	80	55	6	1	1	22	5	188

TABLE 5. Number of specimens of different *Hydroporus* species present in five data-sets with landing specimens from North Sweden. Data sets coded as: (ÅN1) white trays near rivers in the Ångermanland Province 1992, (ÅN2) on read minibus roof at Mullsjö in the Ångermanland Province June 1997, (VB1) on dark red car roof at Gottland in the Västerbotten province 1983-1997, (VB2) in surface traps on two ponds in the Vindeln County in the Västerbotten Province 1989, and (NB) in 12 childrens' paddling pools at Kuusivaara in the Norrbotten Province 1988.

	Data-sets					
Species	**ÅN1**	**ÅN2**	**VB1**	**VB2**	**NB**	**S**
acutangulus				1	2	3
angustatus		3				3
geniculatus	1		1	5	18	25
incognitus	51	503	148		2	704
morio		3	35	1	66	105
nigrita		4	13	1	99	117
palustris		5	1			6
striola		6	1			7
tristis				1	1	2
S	52	524	199	9	188	972

The data at hand show that both sexes fly. Few studies have reported on enough specimens for meaningful tests of flight ratios. Behr (1990) did not give any information on sex ratios. My data indicate that sex ratios are often not different from 1:1, although the single highest catch had significantly more females than males. Presumably males are more likely to get matings if they stay put than risk dispersal, unless female density dips below a certain threshold or sex ratios are excessively high in the source populations. From a female's point of view it is "safer" to have mated before dispersal, since the chance of finding a mate may be low in newly-colonised habitats. However

mating in new habitats may be an important way of increasing outcrossing. The evaluation of sex ratios also demands more data from local populations for comparison.

Dytiscid flight seems to be more spectacular in warmer regions. Zalom *et al.* (1980) caught tremendous numbers of dytiscids in light traps in California; if I have interpreted their diagrams correctly 10,000 *Hygrotus medialis* and about 100,000 *Laccophilus mexicanus* specimens entered their traps. Flight peaked at 23-24°C without wind at about one hour after sunset. In more northern regions flight at high temperatures is normally only possible in sunlight. My car roof data indicate that *Hydroporus* fly chiefly in the afternoons and evenings at temperatures between 16 and 22°C (Tables 1 and 2).

Is *incognitus* different? The high numbers of *H. incognitus* landing on red car roofs indicate that this species is not like the rest. The first questions are whether it is a more active flier and is it more strongly attracted to red reflecting surfaces than its congeners? I am sure that colour is important as during peak flights differently coloured cars parked close by have largely escaped attention from the beetles. However, as Behr's (1990) black containers attracted almost 400 *incognitus* specimens, and lots of other species, the red colour is seemingly not all that matters. Also British *incognitus* are known as strong fliers (Jackson 1956, 1973; Foster 1972). Behr (1990) documented that all or most specimens have relatively large wings and well-developed flight muscles.

Accepting that *incognitus* is the best flying *Hydroporus* in the parts of north Sweden where it is abundant, the next question is whether it has a unique habitat strategy or not? Compared to the larger dytiscids, the *Hydroporus* of temporary ponds seem to be less prone to leave their habitats, aestivating and overwintering within the pond basins. In the case of other dytiscids many of the *Agabus* species overwinter on land, probably within their pupal cells, and it appears that *Colymbetes paykulli* performs seasonal flights between its breeding habitats and permanent ponds or lakes for overwintering. Could it be that *incognitus* is up to something similar? This would fit with the observation that it is often rare or absent in temporary or seasonal ponds in early spring, and subsequently builds up a stronger population (Fig. 1). Moreover, it would also fit with a flight peak in late May or early June, interpreted as migration from overwintering to breeding habitats.

However, it seems that the German *incognitus* have a different flight pattern than their northern companeros. Whereas the majority of Behr's (1990) specimens were teneral, only a few of the specimens caught in August in north Sweden belonged to this category. Moreover, when the phenology of flight is compared, it seems obvious that flight is pre-reproductive in Sweden, and directly following the breeding season in Germany. So, maybe the question should be narrower, asking "Are Swedish *incognitus* different?" I bet they are!

Acknowledgement David Bilton kindly made comments on an earlier draft.

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NILSSON, A.N. & SVENSSON, B.W. 1995. Assemblages of dytiscid predators and culicid prey in relation to environmental factors in natural and clear-cut boreal swamp forest pools. *Hydrobiologia* **308** 183-196.

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Received September 1997

REVISION OF SPERCHEIDAE

Sixteen species of *Spercheus* are recognised in this revision of the family. The pronota and aedeagi of all species are illustrated. The family would appear to be well known in that no new species are described and no new synonymies are required.

HEBAUER, F. 1997. Revision der Arten der Familie Spercheidae Erichson, 1837 (Coleoptera, Hydrophiloidea). *Entomologische Blätter* **93** 9-42.

NEW MACRONYCHINE ELMIDS

Aulacosolus (six new species mainly from Thailand) and *Nesonychus* (two new species from the Sunda islands) are described as new genera. Three apparently endemic Bornean genera add a further six species. *Graphosolus* is described with two new species from the Philippines and one from Java and Indonesia.

JÄCH, M.A. & BOUKAL, D.S. 1997. Description of two new genera of Macronychini: *Aulacosolus* and *Nesonychus* (Coleoptera: Elmidae). *Koleopterologische Rundschau* **67** 207-224.

JÄCH, M.A. & KODADA, J. 1996. Three new riffle beetle genera from Borneo: *Homalosolus*, *Loxostirus* and *Rhopalonychus* (Insecta: Coleoptera: Elmidae). *Ann. Naturhist. Wien* **98**B 399-419.

JÄCH, M.A. & KODADA, J. 1996. *Graphosolus* gen. nov. from Southeast Asia (Coleoptera: Elmidae). *Entomological Problems* **27** (2) 93-98.

WORK ON *NEBRIOPORUS*, IN PARTICULAR *N. CAZORLENSIS*

N. cazorlensis was originally described as a new species from Spain in the *carinatus*-group of *Potamonectes*. It is now recognised that the taxon should be treated as a subspecies of *N. bucheti* from the Alpes Maritimes. *N. besucheti cazorlensis* is now known to be distributed over several mountainous regions of Spain from the Pyrenees to Málaga. The opportunity is taken to designate lectotypes for other *Nebrioporus* - *Hydroporus sansii* Aubé, *H. fenestratus* Aubé, *H. schaumei* Aubé, *H. luctuosus* Aubé and *H. laeviventris* Reiche & Saulcy. The holotype of *H. variegatus* Aubé has also been checked.

FRESNEDA, J., FERY, H. & HERNANDO, C. 1997. Ein neuer Status für *Nebrioporus cazorlensis* (Lagar, Fresneda & Hernando 1987) als Subspecies von *Nebrioporus bucheti* (Régimbart 1898) sowie Designation von Lectotypen weiterer Arten der Gattung (Coleoptera: Dytiscidae). *Entomologische Zeitschrift* **107**(7) 277-289.

THE ROLE OF NEW WATER BODIES IN CONSERVING THE FAUNA OF LOWLAND MOORS

A survey of 30 new water bodies in Schwabian lowland moors indicated their importance in the conservation of invertebrate communities, in particular water beetles. Beetles found in the survey included *Haliplus variegatus* Sturm, not found in Schwabia since 1958, *Hydroporus obscurus* Sturm, new for Schwabia, *H. elongatulus* Sturm and *H. rufifrons* (Müller). A set of 13 water beetles is defined typical of Schwabian lowland bogs. The preferred habitat conditions for optimising the lowland bog fauna are defined using a multivariate analysis of physicochemical variables, succession and biomass.

SCHMIDL, J. 1997. Numerisch-statische Untersuchungen zu Besiedlung, Biomasse und Nährstoffangebot von Gewässerneuanlagen in schwäbischen Niedermooren. *Naturschutz-zentrum Wasserschloß, Materialien* **1/97** 125-129.

COMMUNITY STRUCTURE IN FRANCONIA

These papers concern multivariate analyses of water beetle community structures in Franconia. Three major types are recognised, those associated with bogs, those of open ponds and those of waters over bare substrata. The first group can be subdivided into associations with *Sphagnum* and with shade. The analysis is reproducible irrespective of season. Explanatory variables included pH, conductivity, chloride and oxygen. The 1997 paper gives details of species communities and preferred physicochemical water conditions.

SCHMIDL, J. 1996. An analysis of community-structure and habitat preference of adephage waterbeetles (Coleoptera: Haliplidae, Noteridae, Dytiscidae) in Central Europe, using 17 physicochemical parameters. *Proceedings XX International Congress of Entomology, Firenze*, 352.

SCHMIDL, J. 1997. Wasserkäfer-Assoziationen als Indikatoren für Qualität und Sukzessions-stadium stehender Gewässer. Prodromus eines Indikatorsystems für stehende Gewässer. *Natur-schutzzentrum Wasserschloß, Materialien* **1/97** 41-46.

ON THE *ENOCHRUS* OF IRAN (COLEOPTERA, HYDROPHILIDAE)

by Shidokht O. Hosseinie & H. Jowhari

Seven species of *Enochrus* have been found in Iran in 510 samples from a total of 200 samples of water beetles taken from 1969 to late 1996. These are presently named: *E. ater* Kuwert, *E. quadripunctatus* (Herbst), *E. latus* (Kuwert), *E. segmentinotatus* Kuwert, *E. mesopotamiae* (Kuwert), *E. fuscipennis* (Thomson), and *E. salomonis* (Kuwert). *E. quadripunctatus* has previously been reported from Fars (Hosseinie 1974, 1978) and its life history has been worked out (Hosseinie 1995a, 1995b), but the other species are newly recorded from Iran.

The species all prefer relatively warm waters at 15°C to 25°C , although have been found at higher or lower temperatures. They were found in all kinds of lotic and lentic habitats, but some prefer one over the other. *E. quadripunctatus* was more collected in lotic waters, while *E. fuscipennis, E. salomonis, E. mesopotamiae* and *E. segmentinotatus* preferred lentic waters. *Enochrus* spp. were mainly associated with water plants, algae, reeds and others, but some were even found in mud, sands, and at the bank or on the open surface of the water. Some species, *E. segmentinotatus, E. ater* and *E. mesopotamiae*, prefer low altitude from almost sea level to 500 metres, but others were mostly found at higher altitudes, 1000 to 2500 metres.

All seven species were found in the semidesert warm zone, but other climatic zones, such as the Mediterranean, Caspian, montane and cold semidesert had some species, mainly *E. ater, E. quadripunctatus* and *E. segmentinotatus*. These climatic zones mostly coincide with the watershed basins of Neiriz-and-Shiraz and the Persian Gulf, in which all seven occurred. This fits with the distribution of these species along the Zagros mountains in the west and south-west, and the Alborz mountains in the north.

Thus *Enochrus* species appear to be found in almost any kind of habitat under a wide range of conditions. More extensive and quantitative data should allow their distributions and habitat preferences to be more clearly defined.

Unfortunately the literature on these species appears to be sparse. The authors would appreciate receiving notices, in particularly copies of papers.

The authors wish to thank Drs Schödl, Hebauer, Foster and Ribera for verification of identifications and for other information.

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HOSSEINIE, S.O. 1995a. Life history, behaviour and morphology of the immature stages of *Enochrus quadripunctatus* Herbst in the laboratory (Coleoptera: Hydrophilidae). I. Life history and behaviour. *Journal of Science of the Islamic Republic of Iran* **6** (1) 8-13.

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Received August 1997

THE PHYLOGENY OF *STICTONECTES* AS INDICATED BY ITS LARVA

There may be some doubt about the status of *Stictonectes canariensis* Machado, but at least when one catches its larvae, there can be no doubt that they belong to this taxon alone. All three instars are described, with special emphasis on naming setae and pores. Within the tribe Hydroporini, the genus *Stictonectes* is thought to be monophyletic, along with *Hygrotus*, being based on the absence of a primary pore on the third antennal segment. The presence of sublateral striae on the adult pronotum should be viewed as a homoplastic character, not supporting a close relationship with either *Oreodytes* or *Neonectes*.

ALARIE, Y. & NILSSON, A.N. 1997. Larvae of *Stictonectes* Brinck: generic characteristics, description of *S. canariensis* Machado, and analysis of phylogenetic relationships with other genera of the tribe Hydroporini (Coleoptera: Dytiscidae). *The Coleopterists Bulletin* **51** (2) 120-139.

GOTHA 1997

Most readers of ***Latissimus*** will occasionally wonder whether any of the Club Meetings that we advertise ever take place. We always have good intentions of describing what happened, but somehow it rarely gets written down. We should therefore be grateful this year to Ronald Bellstedt, the local organiser, for taking the trouble to provide the detail for this report.

The international meeting of water beetle specialists took place at the Museum der Natur in Gotha at the Whitsun weekend, 16-18 May. Fifty participants at the meeting came from Austria, China, the Czech Republic, France, Latvia, the Netherlands, Spain, Sweden, and the United Kingdom, with a strong contingent from the host country.

The meeting started on Friday, being prefaced by a discussion to initiate the Red List of Germany's water beetles, chaired by Mr Dietmar Spitzenberg, of Hecklingen/Sachsen-Anhalt. This centred on the first circular and the categories to be used, with participation by Monika Hess and Ulrich Heckes from Munich, Peter Haase of Göttingen, Wolfram Sondermann from Marburg, Lars Hendrich of Berlin, and Ronald Bellstedt.

The official opening of the conference took place in the Conservation Exhibition Hall of the Museum der Natur. Mr H.-H. Erdmann, deputising for the mayor of Gotha, welcomed participants, referring to the rich traditions of research at Gotha, specially at the Museum. Mr R. Samietz, the Museum's Director, gave a short review of the building's history referring to its rich collections and displays. Garth Foster then chaired the rest of meeting, welcoming participants to the first Club meeting in Germany, and reserving a word of special praise for the attendance of those participants who had spent much of the night in discussion.

Dr Rolf G Beutel, from the Institut für Spezielle Zoologie und Evolutionsbiologie der Friedrich-Schiller Universität Jena, talked about an aspect of his research on the phylogeny of water beetles, "The three-dimensional reconstruction of the larva of *Hydroscapha natans* (Hydroscaphidae), and a phylogenetic analysis of larval characters of Myxophaga". He supported his talk with a video sequence showing the computerised reconstruction of the hydroscaphid larva's head, which illustrated particularly well the problem of being so small and yet still requiring a central nervous system, which filled every available cavity within the head.

Dr Jan Cuppen, from the Agricultural University, Wageningen, followed with a talk on the "Ecology and distribution of *Berosus* in the Netherlands".

Jochen Mölle, of the University of Bonn, talked about "Die Auftauchfalle - eine neuartige Methode zum Fang von Wasserkäfern", in which he demonstrated a floating trap, designed to catch beetles alive as they surfaced.

Wolfram Sondermann, of the University of Marburg, explained his method of collating "post-Horion" data in "Horizontale und vertikale Verbreitungsmuster von Dytisciden in der Bundes Republik Deutschland.

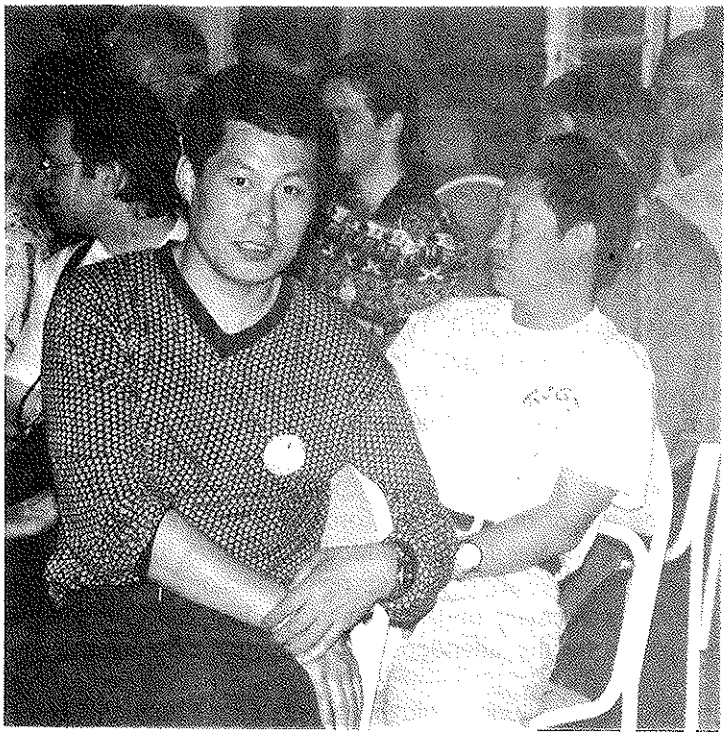
Dmitry Telnov, from Riga, gave an illustrated account of the habitats to be found in Latvia in "Natur und Entomologie in Lettland". The continued occurrence of *Dytiscus latissimus* there naturally focused the following discussion.

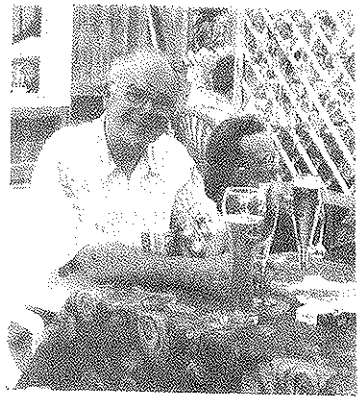
Garth Foster ended the morning's session by dealing with "A new *Agabus* from Portugal".

The group photograph session did not take its usual toll and everyone managed to find the China Town restaurant, chosen in honour of our Chinese guests, Miao Wang and Lanzhu Ji. Fine weather conditions graced our excursion into the Thuringian Forest, and participants were legally able to study of protected area of mountain streams with a rich water beetle fauna including *Ochthebius metallescens* and *O. (Enicocerus) exsculptus*, and *Hydraena pygmaea.* In the tradition of Club meetings some of us became lost in the hills, being sustained only by local bratwurst and beer dispensaries.

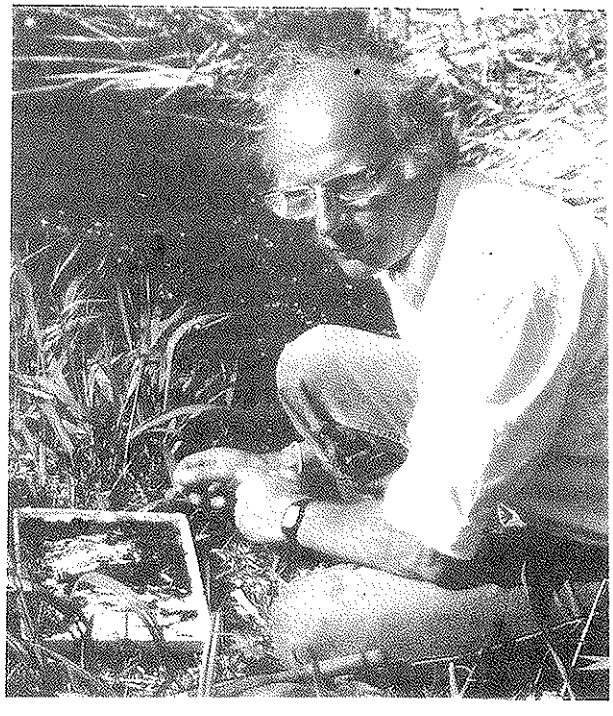
The meeting reconvened in the evening at the Museum, where dinner was sponsored by "Gotha Kultur" and Brewery Gotha. Two further lectures illustrated the breadth of Club members' experience. Lars Hendrich talked about "Die Schwimmkäfer des Kakadu Nationalparkes in Nordaustralien." Lars could not show us any crocodile bites but he seems to have been very close. Then PD Dr Franz Hebauer took us through his excellent collection of slides of beetles in "Zur Ökologie mitteleuropäischer Wasserkäfer".

On Sunday the cortège of cars descended on the Herbsleben ponds, Unstrut-Hainich, where *Hygrotus parallelogrammus, Spercheus emarginatus* and *Georissus crenulatus* were to be found. Lunchtime was spent in brilliant sunshine at a local restaurant; heavy storm clouds formed and discharged electricity and heavy rain at our next sites in the hills, mainly the springs running into the

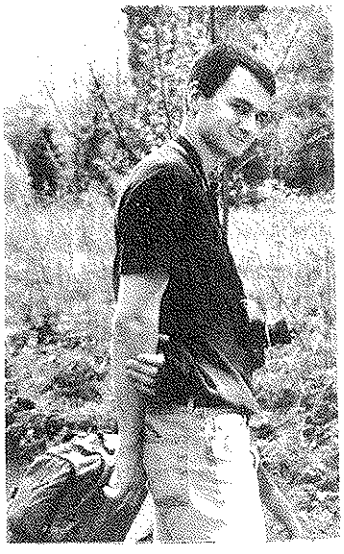


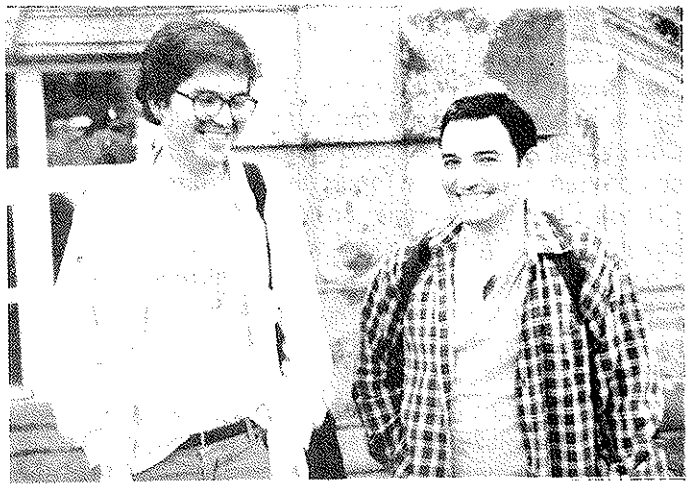


Miao Wang and **Lanzhu Ji** (top left)
Ronald Bellstedt (top right)
Franz Hebauer (centre) **Monika Hess** (bottom left)
Pierre Queney (bottom right)

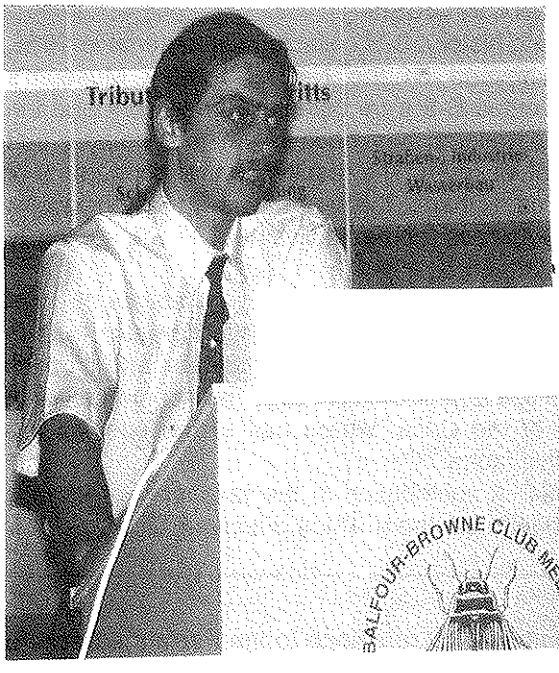


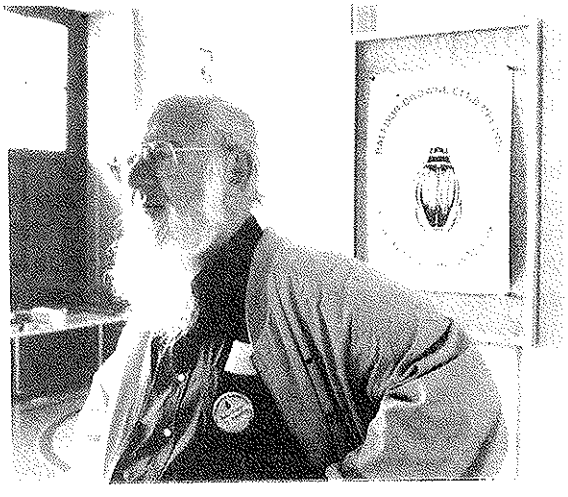
Gotha 1997

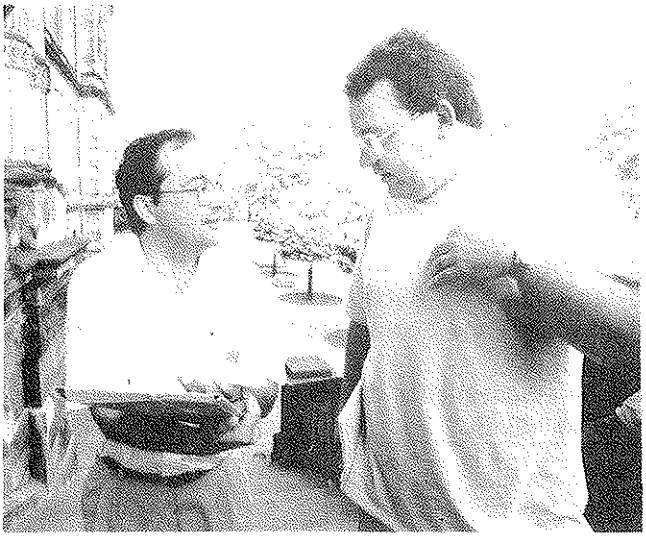




Michael Balke (top left);
Ignacio Ribera and **Andres Millan** (top right)
Dmitry Telnov (centre left);
David Boukal (top head); **Rolf Beutel** (bottom head)
Klaus Graser (centre right);
Franck Bameul and **David Bilton** (bottom left);
Paolo Mazzoldi (bottom right)







Gotha 1997

Photographers:- R Bellstedt, K Bogon, D Boukal, P Mildner

Siegelbach, Crawinkel. Fortunately the weather cleared in time to allow the collecting of *Hydroporus ferrugineus* and *H. longicornis*. Ronald entertained many of us that evening in his house, dominated by his beetle collections and where a barbecue had to take place on a balcony shielded from the Continental rain. The Club's orator, Derek Lott delivered his "thank you" speech at a level comprehensible to most (apart, that is, from those with four glasses, two in each hand).

Those who could remain on Monday spent much of the time at the "Erlebach" fish ponds, where several *Hydrochus* species were found, then the Saukopfmoor near Oberhof, and lastly the Siegelbach, where it was a relief to discover that species had survived from the previous day's activities. In the rush at Frankfurt Airport, it might be noted that we had the sense to deny any relationship with the Orator became an orifice for police inspection after the saw and Bowie knife were discovered in his baggage.

In reporting our meeting the *Thuringer Allgemeiner* had it right with the headline "Naturschutz braucht solides Fachwissen". Conservation needs solid facts. The Club meeting ensures exchange of information to get those facts right. Meetings are now being planned for Italy, Spain, the Czech Republic and France.

July 1997

THE HYDRAENIDAE OF SOUTHERN AFRICA - A FAUNA IN CRISIS

The studies associated with this *magnum opus* have a long history. B-B collected his material in 1954. The beetles were among the first objects to be examined on the Natural History Museum's stereoscanning microscope in the 1960's. Ill health prevented B-B from completing the work and the material was sent to the senior author in 1985. Other material has been examined, notably that acquired by Sebastian Endrödy-Younga, of the Transvaal Museum. The resulting paper concerns 8 of the 11 genera of Hydraenidae occurring in southern Africa. Hitherto, this fauna was virtually unknown to science, necessitating description of 5 genera and 38 species, and establishment of one subfamily and five tribes.

This fauna is in crisis, being highly endemic and highly diverse, occurring in fragile habitats of great age. The authors note that the biodiversity of southern temperate regions is much greater than is generally recognised, being higher for many groups than in the northern temperate and tropical regions. Much of the world's biodiversity is shaped more like a pear than an egg. The richest centre in the present study appears to be the south-west part of the Cape, where half of the species are endemic. Water extraction poses the greatest threat to this fauna.

PERKINS, P.D. & BALFOUR-BROWNE, J. 1994. A contribution to the taxonomy of aquatic and humicolous beetles of the family Hydraenidae in southern Africa. *Fieldiana Zoology* **77** i-viii 1-159.

LUXEMBOURG DONACIINAE

Raoul Gerend reassessed the donaciine fauna of Luxembourg by reference to the Ferrant collection, within which several specimens had been previously misidentified. Fifteen species of *Donacia* and four of *Plateumaris* are recognised. Unfortunately the misidentifications affect the value of the atlas issued in 1984.

GEREND, R. 1996. The Donaciinae of Luxembourg (Coleoptera, Chrysomelidae) Part 1 - *Donacia* and *Plateumaris* from the Ferrant collection. *Bull. Soc. Nat. luxemb.* **97** 207-210.

MOUSSET, A. 1984. *Atlas provisoire des insectes du Grande-Duché de Luxembourg. Coleoptera*, Part **5**, Maps 622-846. Publications du Musée d'Histoire Naturelle, Luxembourg.

LUXEMBOURG GRAVEL PIT FAUNA

Forty nine species of water beetles in a gravel pit in the Moselle valley include several rare species, and five new for Luxembourg including *Peltodytes rotundatus* Aubé, at its northern extremity in Europe. The loss of *Nebrioporus canaliculatus* (Lacordaire) and *Scarodytes halensis* (Fab.) from the area has resulted from cessation of extraction.

GEREND, R. 1996. Beitrag zur Kenntnis der Wasserkäfer des Baggerweihergebietes von Remerschen/Wintringen im Luxemburger Moselthal. *Bull. Soc. Nat. luxemb.* **97** 193-204

FLIGHT RECORDS FOR ELMIDS

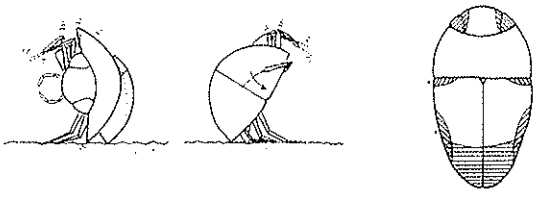
Among beetles recorded in flight in southern Scotland in 1983 were specimens of *Esolus parallelepipedus* (Müller) and *Limnius volckmari* (Panzer).

SINCLAIR, M. 1997. Some minor Scottish beetle swarms. *The Coleopterist* **6**(2) 75.

HYDRAENID DEPENDENCE ON THE RESPIRATORY BUBBLE AND CHANGES IN TAXONOMY

The exocrine secretion delivery system (ESDS) of hydraenids is described and used to raise several issues concerning their phylogeny. ESDS are pivotal to the ability of hydraenids to survive in water. ESDS components include secretion-grooming behaviour, usually done out of the water, and a variety of cuticular structures associated with secretion. ESDS function mainly to keep some areas clear of hydrophilic microbes. Suprageneric taxa are proposed on the basis of the evolution of ESDS and the antennal socket. These include one new subfamily, three new tribes and four new subtribes. In the Ochthebiinae, the subgenera *Calobius, Cobalius, Liochthebius* and *Notochthebius* are reduced to synonyms of *Ochthebius*, whereas it is proposed that *Aulacochthebius* Kuwert and *Enicocerus* Stephens are given generic status, the latter in its own new subtribe Enicocerina. This would necessitate use of the following names in Europe: - *Aulacochthebius exaratus* (Mulsant), *A. narentinus* (Reitter), *Enicocerus exsculptus* (Germar), *E. gibbosus* (Germar), and *E. granulatus* (Mulsant). *Hydraenopsis* Janssens and *Spanglerina* Perkins are synonymized with *Hydraena*, whereas *Haenydra* Rey and *Hadrenya* Rey are regarded as subgenera. This is a somewhat controversial area, and this paper is bound to promote some heated discussion.

The secretion-grooming behaviour of *Limnebius picinus* (Horn) is illustrated. whereby the beetle turn on edge out of the water to achieve coverage of parts of the head and elytra. Grooming movements can also be made under the water if a specially large bubble is trapped from the surface.



PERKINS, P.D. 1997. Life on the effective bubble: exocrine secretion delivery systems (ESDS) and the evolution and classification of beetles in the family Hydraenidae (Insecta: Coleoptera). *Annals of Carnegie Museum* **66**(2) 89-207.

CALOBIUS A VALID GENUS ON LARVAL CHARACTERS

Calobius species are hydraenids living in the intertidal zone of the Mediterranean and the Atlantic coast of North Africa. Examination of the larvae of *C. quadricollis* provided 20 characters on which to differentiate *Calobius* from *Ochthebius* s. str. On this basis *Calobius* should be restored as a valid genus within Hydraenidae, as originally intimated by Manfred Jäch (1993).

DELGADO, J.A. & SOLER, A.G. 1997. Morphology and chaetotaxy of larval Hydraenidae (Coleoptera) 3. The genus *Calobius* Wollaston, 1854. *Aquatic Insects* **19** (3) 165-175.

JÄCH, M.A. 1993. Revision of the Palaearctic species of the genus *Ochthebius* XI. The subgenus *Calobius* Wollaston, 1854 (Insecta: Coleoptera: Hydraenidae). *Reichenbachia* **30** (7) 33-45.

LARVA OF _OCHTHEBIUS SUBINTEGER_

All three instars are described. Several characters separate this species - as a representative of *Cobalius* - from other *Ochthebius* larvae, in particular the lack of a particular temporal seta.

DELGADO, J.A. & SOLER, A.G. 1996. Descripción de la larva de *Ochthebius* (*Cobalius*) *subinteger* Mulsant & Rey, 1861 (Coleoptera, Hydraenidae). *Graellsia* **51** 121-128

BAVARIAN BEETLES

Heinz Bussler's papers concern Central Franconia, for which he lists 70 species of Hydradephaga (Haliplidae and Gyrinidae) and Hydrophiloidea. Amongst the more interesting species with Red List status are *Hydrochus megaphallus* van Berge Henegouwen, *Helophorus redtenbacheri* Kuwert and *H. laticollis* Thomson. Jürgen Schmidl's papers concern hew records for northern Bavaria and study of Hydradephaga in artificial fen pools in Schwabian Bavaria. A new map is provided of the eight locations for *Hygrotus nigrolineatus* (von Steven) (as *Coelambus lautus* (Schaum)) in north Bavaria.

BUSSLER, H. 1995. Faunistik der Hydradephaga und Hydrophiloidea Westmittelfrankens. Teil **2**. Col.: Haliplidae, Gyrinidae, Hydraenidae, Hydrochidae, Spercheidae und Hydrophilidae. *Nachrichtenblatt der bayerischen Entomologen* **44** 29-39.

SCHMIDL, J. 1995. Beitrag zur Faunistik und Ökologie nordbayerischer Hydradephaga (Coleoptera: Dytiscidae, Haliplidae). *Nachrichtenblatt der bayerischen Entomologen* **44** 64-69.

SCHMIDL, J. 1997. Adephaga Wasserkäfer in schwäbischen Niedermooren. Faunistische Ergebnisse von Aufsammlungen in Kleingewässer-Neuenlagen der Natur- und Artenschutz-programme. *Bericht der Naturforschenden Gesellschaft Augsburg* **56** 6-17.

A NOTE ON THE HOSTPLANT AND STATUS OF *TELMATOPHILUS SCHOENHERRI* (GYLLENHAL) (CRYPTOPHAGIDAE)

by Peter J. Hodge

The note on *Telmatophilus* species (Bratton 1997) has reminded me of my own observations on the status and likely hostplant of *T. schoenherri* in England. Although my records were sent to the Joint Nature Conservation Committee (JNCC) during the preparation of the Great Britain National Coleoptera Review (Hyman & Parsons 1994) a full account has never been published.

Ever since I first encountered numerous *T. schoenherri* on *Typha angustifolia* (Lesser Reedmace) in a ditch on East Guldeford Level, East Sussex (TQ 9522) in 1990 I have kept a sharp look out for the species wherever substantial stands of this plant was discovered, and in two further instances the beetle was present. Furthermore, I cannot ever recall finding *T. schoenherri* on *Typha latifolia*.

T. schoenherri is not listed in the Red Data Book (Shirt 1987) but is listed by Hyman & Parsons (1994) as **RDBK - Insufficiently Known**, implying that it either belongs to a poorly recorded family, or is difficult to identify, or requires further research into its distribution or life history before its true status in the British Isles can be determined.

Although *T. schoenherri* belongs to the 'difficult family' Cryptophagidae, this particular species is usually easy enough to recognise, even in the field. In its typical form, the femora are black, or at least very dark, a character not shared with any other British species of *Telmatophilus*, and difficulty is only experienced when a solitary specimen with pale femora is encountered. In practice this problem seldom arises because *T. schoenherri* is generally a gregarious species.

Hyman & Parsons (1994) state that *T. schoenherri* is found "in the stems of reedmace, lesser reedmace and bur-reed" and that there are records for "East Sussex, East Norfolk, West Lancashire and South-west Yorkshire for the period since 1969". Recent surveys of wetland habitats in Kent and Sussex have convinced me that the species is probably not so rare as current literature suggests. The preferred host plant is almost certainly *T. angustifolia* and when present, *T. schoenherri* is easily beaten off the leaves.

I can add little to the known general distribution of *T. schoenherri* in England, but the fact that I have recorded it from three sites (Table 1) during general entomological fieldwork in recent years suggests that it may not be rare in areas where *Typha angustifolia* grows, and may merely be overlooked because the hostplant is relatively infrequently investigated. *T. schoenherri* almost certainly prefers *T. angustifolia* to any of the alternatives quoted in the literature and it may only be on rare occasions that it is attracted to other plants.

TABLE 1. Recent records for *Telmatophilus schoenherri*

Date	Site	vice-county	Grid reference
17 June 1990	East Guldeford Level, Rye	East Sussex	TQ 956226
25 June 1992	Brede Level, Rye	East Sussex	TQ 916199
30 August 1996	Holborough Marshes, Snodland	East Kent	TQ 708623

In view of the widely scattered post-1969 distribution quoted in Hyman & Parsons (1994) and the additional records by John Bratton and myself, it seems likely that the status **RDBK** is no longer justified and that one of the **Nationally Scarce** categories is more realistic.

References

BRATTON, J., 1997. Notes on the distribution and hostplants of *Telmatophilus* species (Cryptophagidae). ***Latissimus*** **8** 7-9.

HYMAN, P. S. & PARSONS, M. S. 1994. *A review of the scarce and threatened Coleoptera of Great Britain. Part 2.* Peterborough, Joint Nature Conservation Committee, Peterborough, England, U.K.

SHIRT, D. B. (ed.) 1987 *British Red Data Books: 2 : Insects.* Peterborough, Nature Conservancy Council, Peterborough, England, U.K.

Received April 1997

FAR EAST SCIRTIDS

Flavohelodes taiwanensis and *F. humeralis* are newly described from Taiwan, these being the first records of this genus from Taiwan. Thirteen species of *Cyphon* are now known from Japan, with the description of *C. sannoides*.

YOSHITOMI, H. 1996. Two new species of the genus *Flavohelodes* (Coleoptera, Scirtidae) from Taiwan. *Elytra, Tokyo* **24** (2) 303-309.

YOSHITOMI, H. 1996. A new species of the genus *Cyphon* (Coleoptera, Scirtidae) from Japan. *Jpn. J. syst. Ent.* **2** (1) 97-100.

THE WATER BEETLES OF CYPRUS. PART 1 HYDRADEPHAGA

by Keith Miller, David Bilton & Hans Fery

Introduction Cyprus is the third largest island (after Sicily and Sardinia) in the Mediterranean. Lying in the north east of the east Mediterranean basin it is ca 80-110 km from Turkey, ca 160-180 km from Syria and may be considered an off-shore extension of the Levant, the area of land wedged between the sea and the Syrio-Arabian desert (Wewalka 1986). There are two mountain ranges running more or less east-west, the largest being the Troodos range rising to just under 2000 m at Mount Olympus and occupying with its foot hills most of the south and west of the island and the Kyrenia range in the north which forms a narrow ridge along the coast, while between these ranges lies a central plain the Mesaoria stretching from Morphou Bay in the west to Famagusta Bay in the east.

The island has no perennial rivers although some of the small streams in the mountains will run throughout the year while the seasonal rivers are swollen during the late winter months and spring with the heavy rainfall and the melting snows in the mountains. Some of these will continue to flow well into the summer gradually drying in their lower reaches and when flowing over limestone often disappearing underground and reappearing as pools lower down their courses. Nor are there any large natural bodies of fresh water, the lakes at Akrotiri and Larnaca being saline and regularly frequented by over-wintering greater flamingos feeding on the brine shrimps. There are however a number of large reservoirs built in the past twenty years by damming the major rivers and numerous small ones dotted around amongst the hills.

Since 1974 the island north of a line from Famagusta through Nicosia to the south of Morphou Bay (some 37% of the total area) has been occupied by Turkey and the authorities there have now declared independence as the Turkish Republic of Northern Cyprus, although this is not recognised by much of the international community. The division has had a number of side effects of relevance to the island's ecology. The influx of large numbers of Greek refugees from the north and the economic problems following partition has stimulated the rapid growth of industry, tourism, and agriculture in the south of the island with the concomitant reservoir building, land drainage and pollution. In the north on the other hand the pace of development has been much slower so that more water beetle habitats have probably survived.

Since 1988 one of the authors (KWM) has lived for much of each year near Paphos and has collected extensively in the southern part while DB spent some two weeks in the north in April 1994 and HF two weeks in the south in March and April 1996. The problems of the division of the island have already been touched upon; travel from the south to the north is difficult as one is only allowed to go there for a day at a time (and Greek Cypriots not at all), while it is forbidden to enter Greek Cyprus from the north. Consequently while collecting in the south has been extensive and spread throughout the year so that the list is probably reasonably complete it may be that there are still discoveries to be made in the north.

In the past there have been a number of sporadic records of Cyprus water beetles and one published list of Cyprus insects in general (Georghiou 1977). In 1932 Mr. A. Ball from Brussels went there on a collecting trip and this resulted in the publication of a comprehensive account of the Palpicornia (d'Orchymont 1940). Nothing however was published on the other groups of water beetles so in February 1996 KWM paid a visit to the Natural History Museum in Brussels and thanks to the kindness of the staff there was able to track down much of Ball's Cyprus material and the results are included in this paper. In addition KWM had access to the insect collection kept at the Cyprus Department of Agriculture which contains a number of beetles taken in the first half of this century and these have also been included.

This report is therefore the result of a study of available museum material along with records in the literature and our own collecting.

Zoogeography The proximity of Cyprus to the Levant has already been noted and although lacking the range of habitats to be found there and consequently having far fewer species, these can nevertheless be grouped into similar faunistic groups as discussed by Wewalka (1986).Two main groups of Palaearctic species are recognised in the region by Wewalka. The holomediterranean elements having a circum-mediterranean distribution which in many cases expands to large parts of the adjacent Palaearctic, twenty six (63%) of the Cyprus species belong to this group. Next in importance are the pontomediterranean elements which are distributed in the eastern Mediterranean countries and are absent at least from the Iberian Peninsula and North Africa, in this group Wewalka includes some species with a Syrian distribution. Ten (25%) belong to this group in Cyprus leaving five species, two Irano-Turanian, two Ethiopian and one so far as is known endemic.

List of species recorded from Cyprus To illustrate the changes which appear to have occurred in the Cyprus fauna the records are divided arbitrarily into pre-1900, 1900 to 1950, and post-1950. The faunal elements are designated as follows; Hm holomediterranean, Pm pontomediterranean, Sy Syrian, Et Ethiopian, IT Irano-Turanian. Species which do not appear to have been recorded from Cyprus previously are marked *. Species recorded for the first time but not seen by one of the authors are also marked †.

	Zoogeography	pre-1900	1900-1950	post 1950
Aulonogyrus striatus (F.)	Hm	+		
A. concinnus (Klug)	Hm			+*
Orectochilus villosus (Müller)	Hm	+		
Gyrinus distinctus Aubé	Hm			+*
G. dejeani Brullé	Hm	+	+	+
G. caspius Ménétriés	Hm		+	
G libanus Aubé	PmSy	+	+	
Haliplus kulleri Vondel	PmSy		+	+
H. gafnyi Vondel	PmSy		+	+
Noterus crassicornis (Müller)	Hm			+*†
Canthydrus diophthalmus (Reiche & Saulcy)	Et			+*
Hydrovatus cuspidatus (Kunze)	Hm			+*
Bidessus calabricus Guignot	PmSy		+	
Hydroglyphus pusillus (F.)	Hm		+	+
H. signatellus (Klug)	Hm		+	+
Hygrotus saginatus (Schaum)	Pm		+	+
H. confluens (F.)	Hm			+*
Herophydrus musicus (Klug)	Hm			+
Methles spinosus Sharp	IT			+*
Hydroporus dobrogeanus Ienistea	Pm			+*
H. cuprescens Miller & Fery	Endemic			+*
H. pubescens (Gyllenhal)	Hm		+	+
H. tessellatus Drapiez	Hm	+	+	+
H. discretus Fairmaire & Brisout	Hm	+	+	+
H. kasyi Wewalka	Pm Sy			+*
H. brucki Wehncke	Pm			+*†
Graptodytes sedilloti (Régimbart)	PmSy		+	+
Nebrioporus ceresyi (Aubé)	Hm		+	+
N. laeviventris (Reiche & Saulcy)	Et	+	+	+
Laccophilus minutus (L.)	Hm			+
L. ponticus Sharp	Hm			+*
Agabus biguttatus (Olivier)	Hm	+	+	+
A. dilatatus Brullé	Pm	+	+	+
A. bipustulatus (L.)	Hm		+	+
A. conspersus (Marsham)	Hm			+
Rhantus suturalis (MacLeay)	Hm			+*
Colymbetes fuscus (L.)	Hm			+*
Eretes sticticus (L.)	Hm			+*
Dytiscus marginalis L.	Hm		+	+
Cybister tripunctatus Castelnau	IT			+*
C. lateralimarginalis (De Geer)	Hm		+	+

Notes on the Species

Gyrinidae

Aulonogyrus striatus (F.) and *Orectochilus villosus* (Müller): Both were recorded by Régimbart (1877 and 1890) but no subsequent records found.

Aulonogyrus concinnus (Klug): One in June 1996 in reeds by the Yermasoyia river.

Gyrinus distinctus Aubé: In a reservoir SE of Panagra in the north and in a pool above Yermasoyia reservoir

G. dejeani Brullé: Recorded by Ochs (1967). There has been a lot of confusion about this species in the past The Cyprus Dept. of Agriculture collection contains a number of specimens taken in 1926 and 1942 and labelled *marinus*, and one *thomsoni*, which are referable to this species. There is no evidence that the last two taxa have ever been found in Cyprus. KWM so far has only taken two single examples of this species from different localities in the south so it would to be scarce nowadays.

G. caspius Ménétriés: One specimen (labelled *marinus*) in Dept. of Agriculture collection Nicosia.

G. libanus Aubé: Recorded from Cyprus by Régimbart (1890) and Ochs (1967).

Haliplidae

Haliplus kulleri Vondel and *H. gafnyi* Vondel: These appear to be the only members of this group to have been found so far on the island. Both were first recorded in 1948 and since then DTB has found *kulleri* in a drying gravel-bedded river near Ercan airfield while KWM has taken two specimens from the Ezousas river and a further four from a small reservoir fed by the Kapotamos river, both in the south west. Bernhard van Vondel kindly examined these, confirming their identification and pointing out that *H. ortali*, previously placed on the Cyprus list on the strength of the earlier specimens, is a junior synonym of *kulleri* (van Vondel 1995). There do not appear to be any recent records of *H. gafnyi* until KWM took a number in a small reservoir near Lithrodonda in 1996. Both species would seem to be local . Apart from Cyprus they occur in Israel and Syria, while *kulleri* is also recorded from Turkey, so they fall into the Syrian sub-division of the Pontomediterranean group.

Noteridae

Noterus crassicornis (Müller): Recorded by R. Ortal (personal communication) in 1992 from the south of the island.

Canthydrus diophthalmus (Reiche & Saulcy): One taken by KWM in the reservoir at Panagra.

Dytiscidae

Hydr*ovatus cuspidatus* (Kunze): Reservoir at Panagra in the north and Phasouri reed beds April/May 1996 in the south.

Bidessus calabricus Guignot: A number of records including two by Ball pre 1950 (Fery 1991) in the south.

Hydroglyphus pusillus (F.): Common in pools and low level streams throughout the island.

H. signatellus (Klug): Common throughout the island, usually in permanent ponds and reservoirs.

Hygrotus saginatus (Schaum): A pontomediterranean species found in brackish ponds near Famagusta and in a drying gravel-bedded river near Ercan airfield in the north and at Paralimni in the south. Also two records pre-1950.

H .confluens: (F.): Paralimni lake, May 1993, and pools in drying gravel-bedded river near Ercan airfield in the north.

Herophydrus musicus (Klug): Common in lowland pools throughout . A species with a Syrian distribution occurring from the Levant to India but also found in Spain (Hernando & Aguilera 1994). The Cyprus specimens are referable to the var. *interruptus* Sharp.

Methles spinosus Sharp: Taken by HF, 11 April 1996, at Phasouri.

Hydroporus dobrogeanus Ienistea: In streams at all altitudes. Pederzani (1989) considers this species identical with *H. jurjurensis* Régimbart.

H. cuprescens Miller & Fery: The only endemic dytiscid known so far. Found in mountain streams in the Paphos forest and the Troodos range (Miller & Fery 1995)

H. pubescens (Gyllenhal): Not common. Many of the specimens in the Nicosia collection under this name would appear to be referable to *discretus* Fairmaire & Brisout.

H. discretus Fairmaire & Brisout var. *cyprius* Régimbart: In streams in the hills. HF has examined the types of *H. cyprius* Régimbart and considers them to be identical to this.

H. tessellatus Drapiez:: Probably the commonest water beetle on the island, found in streams at all altitudes and occasionally in standing water.

H. kasyi Wewalka: Phasouri reed beds. Previously known from southern Turkey and Syria.

H. brucki Wehncke: Recorded by Ortal in June 1992 (personal communication).

Graptodytes sedilloti (Régimbart): A pontomediterranean species recorded in 1995 from both the Zakaki marshes and from Famagusta and also from the north in 1993. Present in large numbers, Phasouri reedbeds, March 1996. Hans Fery (1994) has discussed this species and it's relationships, the Cyprus specimens being referable to the type *G. sedilloti sedilloti* (Régimbart).

Nebrioporus ceresyi (Aubé): A coastal species locally common.

N. laeviventris (Reiche & Saulcy): This species has a south Mediterranean distribution. Recorded by Unger & Kotschky (1885), Zimmermann (1933) and by Ortal in 1992 (personal communication). As yet however the authors have failed to find it.

Laccophilus minutus (L.) and *L. ponticus* Sharp: Of these widely distributed species, *minutus* is common in suitable habitats in the south and *ponticus* has so far only been taken in the north.

Agabus biguttatus (Olivier): Common in streams with stony bottoms especially in the mountains. The variety *nigricollis* Zoubk. is frequent.

A. dilatatus Brullé: A pontomediterranean species found mostly in mountain streams.

A. bipustulatus (L.): In the Dept. of Agriculture collection there is a specimen dated May 1926 from a water tank in the Troodos Mountains, where it was recorded in the same general area by Ball in 1932. Ortal (personal communication) records it from one of the river valleys in the south but so far the authors have failed to find it.
A. conspersus (Marsham): Phasouri reed beds, April/May 1996.
Rhantus suturalis (MacLeay): In reservoirs and irrigation canals throughout.
Colymbetes fuscus (L.): Recent records from near Famagusta and from Phasouri. Also by Klaus Lienemann from a pool left by the drying river Pedhieos near Nicosia on 13 October 1988.
Eretes sticticus (L.): From pools beside the Serrakhis river in the north. No other records.
Dytiscus marginalis L.: There are specimens in the Dept. of Agriculture collection dated 1929 and 1931. Klaus Lienemann recorded it from Panagra reservoir in the north on 6 June 1988 This appears to be the only recent record.
Cybister tripunctatus Olivier: One in a permanent pond amongst old iron mining spoil heaps at Kalavassos, September 1993; one in a small reservoir near Paphos, February 1995; one in a pool in a drying gravel-bedded river near Ercan airfield and another Panagra reservoir, both in April 1994. All these specimens appear to belong to the ssp. *gotschi* Hochhuth a steppe element previously recorded from western and central Asia (Guéorguiev 1963). This is the first report of this taxon in the Mediterranean basin.
C. lateralimarginalis (De Geer): One in Dept. of Agriculture collection. Two along with the previous species near Kalavasos and one from Panagra reservoir in the north in June 1996.

Acknowledgements The authors gratefully acknowledge the help they have received from Bernhard J. van Vondel and Lars Hendrich in determining some of the more critical species and to Prof. G. Wewalka for his help and advice. Dr. K. Desender kindly allowed KWM access to the collection in the Natural History museum in Brussels while Dr. J. Melifronides, Senior Entomologist, and Yiannakis Antoniou, Agricultural Superintendent of Entomology, Dept. of Agriculture , Nicosia, Cyprus, allowed him to examine the collection in their Department. Dr. K. Lienemann who collected in the north in the summer of 1988 and Dr. R. Ortal who took part in a survey of three river valleys in the south in 1992, allowed us to incorporate some of their records in this paper. Finally we would thank Garth Foster for his invaluable help with identification, literature and general encouragement.

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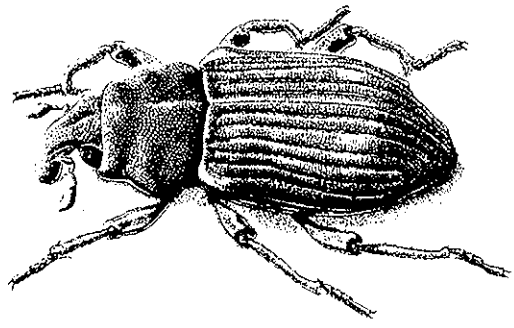
Received April 1997

BAGOUS BREVIS

Bagous brevis is not only recorded from the Netherlands for the first time, but its life-cycle, on *Ranunculus flammula* L., has been elucidated with a description of the larva. The habitus figure, here reproduced, is by P.J. Kostense, of the Department of Entomology of Wageningen Agricultural University.



CUPPEN, J.G.M. 1995. A description of the larva of *Bagous brevis* Gyllenhal, 1836 (Coleoptera: Curculionidae) with notes on its biology. *Elytron* **9** 45-63.

THE END OF *AGABUS SOLIERI*?

Those of us who live in northern climes have difficulty in understanding why some should continue to accept *Agabus solieri* (Aubé) as a species distinct from *A. bipustulatus* (L.). Equally there are those who live in areas where the mountains and lowlands are so sharply divided that *bipustulatus* and *solieri* may indeed function as separate breeding units. Marcus Drotz's thesis concerns a study of a transect from Umeå to Hemavan in Sweden, coupled with examination of material from south-east England. All chromosomes are metacentric with the formula 2N = 42 + XO for males, and 42 + XX for females. Most of the quantified morphological characters showed clinal variation along the transect, whereas others were more stable. There was enormous genetic variation, as based on enzyme electrophoresis, and there were no predominant alleles that could separate out *solieri*. Drotz concludes that there is only one species, based on a range of techniques. There will still be some who doubt this conclusion so eventually someone will have to undertake some breeding experiments.

DROTZ, M. 1997. *Genetical and morphological variation in the diving beetle* Agabus bipustulatus *(Coleoptera: Dytiscidae) along an altitudinal gradient across north Sweden.* Degree Thesis in Biology, University of Umeå.

AFRICAN *CERCYON*

New work on *Cercyon* is always to be welcome. This paper keys the *Cercyon marinus* group, comprising two Palaearctic species, *marinus* Thomson and *bifenestratus* Küster, and four Ethiopian species, *putricola* Wollaston, *dieganus* Régimbart, *marshalli* Knisch and the newly described *martialis*, the latter species being from South Africa. The male genitalia of the Ethiopian species are described.

HEBAUER, F. 1997. Eine neue afrikanische Art der *Cercyon marinus*-Gruppe (Coleoptera, Hydrophilidae). *Acta Coleopterologica* **13**(1) 3-10.

AGABUS REVISION CONTINUED

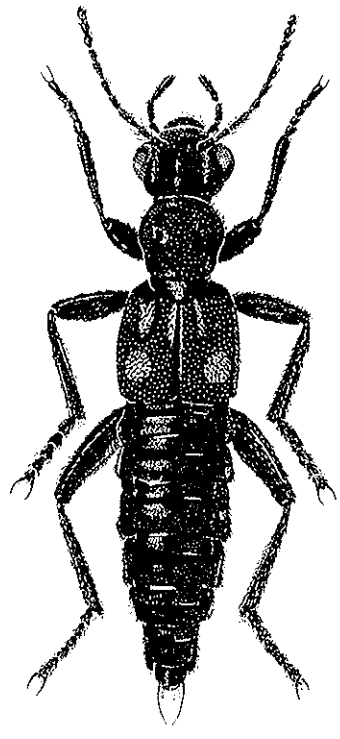
Thirteen species are recognised as belonging to the *opacus*-group, which subsumes the *lineellus*-group of an earlier paper in the same series. Two, *Agabus wasastjernae* (Sahlberg) and *A. opacus* Aubé, are Holarctic, and the remaining 11 are confined to the Cordilleran region of western North America. These include three newly described species, *A. euryomus*, *A. jimzim* and *A. austrodiscois*. With *A. wasastjernae*, it is noted that western Palaearctic specimens have wider metasternal wings than Holarctic specimens, for which is may yet be necessary to recognise *kenaiensis* Fall as a subspecies.

The *seriatus*-group comprises nine Nearctic species, the transcontinental *Agabus seriatus* (Say), seven species occurring west of the Rockies, plus *A lugens* LeConte, also found on the Great Plains. *A. roguus* is newly described. *A. regularis* LeConte was originally described as an *Ilybius*, and the genus *Ilybiosoma* was proposed for it by Crotch; it is recognised as a highly modified member of the *seriatus*-group.

LARSON, D.J. 1996. Revision of North American *Agabus* Leach (Coleoptera: Dytiscidae): the *opacus*-group. *Canadian Entomologist* **128** 613-665.

LARSON, D.J. 1997. Revision of North American *Agabus* Leach (Coleoptera: Dytiscidae): the *seriatus*-group. *Canadian Entomologist* **129** 105-149.

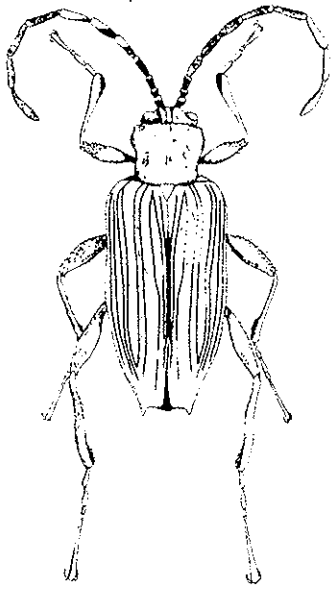
DUTCH LEAF BEETLES, WEEVILS AND STENINAE



van STUIVENBER, F. 1997. Tabel en verspreidingsatlas van de Nederlandse Steninae (Coleoptera: Staphylinidae). *Nederlandse Faunistische Mededelingen* **6** 1-60. This book can be purchased direct from EIS-The Netherlands, Postbus 9517, 2300 RA Leiden, the Netherlands for 14 Dutch Guilders.

BEENEN, R. & WINKELMANN, J. 1993. Naamlijst van de Nederlandse bladkevers (Coleoptera: Chrysomelidae). *Nederlandse Faunistische Mededelingen* **5** 9-18. HIEJERMAN, T. 1993. Naamlijst van de snuitkevers van Nederland en het omliggende gebied (Curculionoidea: Curculionidae, Apionidae, Attelabidae, Urodontidae, Anthribidae en Nemonychidae). *Nederlandse Faunistische Mededelingen* **5** 19-46. Volume 5 can be purchased direct from EIS-The Netherlands, Postbus 9517, 2300 RA Leiden, the Netherlands for 20 Dutch Guilders.

Roy Kleukers, of the European Invertebrate Survey, has sent two volumes for review. Although the articles are in Dutch, much of the information lies in the checklists and illustrations. We seem to be covering every aquatic beetle, so *Stenus* have a right to be mentioned in ***Latissimus***. The treatment includes a key to the 78 Dutch species (plus *Dianous coerulescens* Samouelle, which obviously has a terrible job finding Dutch waterfalls!), phenological diagrams and maps of Dutch distributions, plus seven habitus figures.



Better late than never, the illustrated checklists of Chrysomelidae and Curculionoidea are also of value. EIS uses eight letter codes for computer recording, some of which have been mentioned before. What a pity we cannot view MACRAPPE, that well known Scots relative of the *Macroplea mutica* (Fab.) shown here. But the weevils have the best ones, BAGOLUTS and POOPSISY being the choicest aquatics.

SCIRTIDS HELP MIDGES?

A laboratory study involved the scirtids *Prionocyphon discoideus* and *Elodes pulchella* that live in association with the midge *Culicoides guttipennis* in treeholes in Pennsylvania. Scirtid larvae have a positive effect on midges, appearing to increase the availability of food by acting as keystone decomposers. It would be interesting to repeat this type of work with European treehole assemblages. It is also interesting to note that, whereas dytiscid beetles are the principal predators of mosquito larvae in woodland pools, scirtid beetles actually increase midge activity.

PARADISE, C.J. & DUNSON, W.A. 1997. Insect species interactions and resource effects in treeholes: are helodid beetles bottom-up facilitators of midge populations? *Oecologia* **109** 303-312.

ENGLISH NATURE'S AGENDA FOR FRESHWATER CONSERVATION

Wildlife and freshwater. An agenda for sustainable management is a colourful, 56 page brochure available free from Telelink, PO Box 100, Fareham, Hampshire PO14 2 SX (telephone ++ 1329 668600). It identifies seven habitat areas for England's freshwater wildlife - rivers and streams; lakes; ponds; canals; flooded pits and reservoirs; fens; and lowland wet grassland. Estuaries and bogs are subject to separate programmes. Each habitat type is reviewed on the basis of its flora and fauna, impacts, objectives of the conservation programme, and identification of key issues and the extent they are being addressed. Beetles get illustrated twice and are listed as characteristic animals of all habitats except lakes, canals, and the pits and reservoirs. Clearly we still have some educating to do! The contact given is David Withrington, Senior Freshwater Officer, English Nature, Northminster House, Peterborough, PE1 1UA, England. Some members may wish to know that separate conservation agencies cover the other parts of the United Kingdom.

SOUTH AMERICAN *HYDROCHUS* - AND A TIP ABOUT BIOLOGICAL DETERGENTS

This revision has resulted in more synonymies than new species, as indicated in the checklist below. Twenty eight species are keyed, one species (*iduae*) being left out because the type has not been seen. The species are tentatively divided into four groups.

Hydrochus argutus Knisch 1921
johannapietersanae Makhan 1995
H. baloghi Makhan 1993
H. battjai Makhan 1992
H. choenii Makhan 1992
H. coeneni Makhan 1992
H. cristatus Oliva 1996
H. dewnaraini Makhan 1992
H. drakei Knisch 1920
ramchharani Makhan 1992
jialalae Makhan 1993
H. drechseli Makhan 1995
H. ducalis Knisch 1920
desenderi Makhan 1992
H. iduae Makhan 1995
H. jethoeae Makhan 1993
H. metallipes Knisch 1921
H. multicostatus Oliva 1996
H. obscurus Sharp 1882
corruscans Bruch 1915
vanbergehenegouweni Makhan 1992
elsjeae Makhan 1994
H. orchymonti Oliva 1996
H. pietersenae Makhan 1993
H. piroei Makhan 1992
bruggei Makhan 1992
beeneni Makhan 1992
merkli Makhan 1993
ramdhanii Makhan 1995
H. pseudosecretus Oliva 1996
H. pumilio Knisch 1920
rattanae Makhan 1992
radhakishunae Makhan 1994
H. pupillus d'Orchymont 1939
soekhnandanae Makhan 1992
H. purpureus Knisch 1920
H. richteri Bruch 1915
soesilaae Makhan 1994
H. secretus Knisch 1920
mahunkai Makhan 1993
H. stopli Germain 1901
bruchi Knisch 1924
H. studiosorum Oliva 1996
H. teunissenii Makhan 1994
H. variabilis Knisch 1921
H. zicsii Makhan 1993
jenniferiduae Makhan 1995

This piece of research appears to have done a lot to repair some recently generated misunderstandings about the genus. It is regretted that it cannot do much to repair the damage that Adriana encountered when examining some types.

Enzyme soap - Adriana Oliva notes that she successfully followed the advice of Professor H Bruge of Brussels to clean specimens by soaking them overnight in a concentrated solution of "biological" detergent, i.e. with enzyme.

OLIVA, A. 1996. The genus *Hydrochus* Leach (Coleoptera: Hydrophiloidea; Hydrochidae) in South America, with special reference to Argentina. *Bull. Annls Soc. r. belge. Ent.* **132** 301-341.

NEW *HYDROCHUS* SPECIES

Three new species are described, *H. lachmoni* from South Africa, surprisingly named after the leader of a political party in Surinam, *H. jiawanae* from Texas, and *H. martinae*, from undated specimens in the Museo Nacional de Ciencias, Madrid, emanating from Escorial. *H. martinae* is described as similar to *H. nitidicollis* Mulsant. The mobile appendage of the median lobe is short in *martinae*, and the author claims that this appendage is long in *nitidicollis*, though those I have seen of *nitidicollis* s.s. are about the same length as illustrated in this paper. The author does not distinguish this species from *grandicollis* Kiesenwetter, 1870 and there is no comment on *H. interruptus* Heyden, 1870, the type locality of which is the Guadarrama.

MAKHAN, D. 1996. Descriptions of three new species of *Hydrochus* (Coleoptera: Hydrochidae). *Phegea* **24** (4) 183-185.

***OCHTHEBIUS DENTIFER* IN SPAIN**

O. dentifer is recorded from Cádiz, Córdoba and Murcia, sometimes away from the brackish water with which it is normally associated.

CASTRO, A., DELGADO, J.A., TEJEDO, M. & REQUES, R. 1996. Primera cita ibérica de *Ochthebius* (s. str.) *dentifer* Rey, 1885 (Coleoptera: Hydraenidae). *Boln. Asoc. esp. Ent.* **20** (3/4) 130.

SPOTTINESS, SWAGMEN, SNAKES AND HOMOPLASY comment on Dave Larson's paper

Professor Larson notes that dytiscines of stream bed pools the world over share a strikingly bold colour pattern of spots. This is illustrated for *Thermonectus* (Arizona), *Sandracottus* (Queensland), *Hydaticus* (Kenya) and *Prodaticus* (India). There is general acceptance of the idea that this is disruptive camouflage to prevent detection by predators. Dave notes that such habitats are not normally occupied by fish and that therefore the predators must be kingfishers, herons or possibly even water snakes, a subject on which he has yet to expound.

In any other habitat a beetle with a combination of black and yellow spots is assumed to be using this a warning coloration. Anyone who has tried to eat such a dytiscine will know that there is good reason for such warning coloration. The corticosteroid dose is an effective emetic!

Can one reconcile these two seemingly conflicting views? How about the spotting being effective as warning coloration *on land*, specially during the treacherous period when the adult leaves the pupal cell, whereas the same pattern serves as disruptive camouflage *under the water*? If this were the case, then there would be even stronger selective pressure to recreate this form many times. Would anyone care to design the experiment(s)?

Dave replies-

"...the question remains as to why this pattern is habitat specific. You would think that warning coloration would be effective in various habitat types and if it was a primary defense then bold, contrasting patterns would be more widespread. On the other hand the general pattern in dytiscids seems to be reliance first on crypsis. their steroid defenses may be too slow acting to be selected as a primary defense. the two possibilities are so intermingled that it would be hard to devise an experiment to separate the effects. But it is an interesting challenge."

LARSON, D.J. 1996. Color patterns of dytiscine water beetles (Coleoptera: Dytiscidae, Dytiscinae) of arroyos, billabongs and wadis. *The Coleopterists Bulletin* **50** (3) 231-235.

THURINGIAN SURVEYS

Among over 700 taxa identified in a survey of a doleritic quarry were 31 water beetles, some, such as *Hydraena pygmaea* Waterhouse, being characteristic of headwaters. Another headwater survey, of the Sembactal valley, revealed 22 water beetles. *Elmis latreillei* Bedel was found in both surveys.

BELLSTEDT, R., FAULSTICH-WARNEYER, T., SAMIETZ, J. & WINTER, R. 1996. Zur Kenntnis der Fauna des Dolerit-Gebietes bei Schnellbach/Thüringer Wald (Landkreis Schmalkalden-Meiningen). *Thür. Fauna. Abhandlungen* **3** 4-27.

BELLSTEDT, R. 1996. Zur Fauna des Sembachtales am Großen Inselsberg im Thüringer Wald (Landkreis Gotha). *Thür. Fauna. Abhandlungen* **3** 28-42.

PALAEOENTOMOLOGY

Two papers review beetle matters in this special issue of the *Boletin* (available from the Sociedad entomologica Aragonesa, Avda. Radio Juventud no. 6, 50012 Zaragoza). Chronodiversity is the cumulative biological diversity of all life, and it could easily reach 3,000 million species, with palaeodiversity (extinct life) comprising 99%. The remaining 1% might have only 5% of itself, 1½ million species being described (which is where the beetles come in). On this basis, we may well know less than 0.03% of the total number of species that have ever lived on earth. The other paper underlines one the reasons, namely that beetle remains are biodegradable, and can be found only in damp, anaerobic conditions. Virtually no information is available on Quaternary insects in the Iberian Peninsula. However, the examples of interbreeding between disjunct populations of *Helophorus lapponicus* Thomson and of 43,000-year-old, English fossils of the northern Spanish *Ochthebius figueroi* Garrido, Valladares & Régil serve to emphasise what can still be achieved.

ANGUS, R.B. & RIBERA, I. 1996. Entomologia del Cuaternario. *Boletin de la Sociedad entomologica Araginesa* **16** *PaleoEntomología* 175-182.

MELIC, A. & RIBERA, I. 1996. La Cronodiversidad biologica. *Boletin de la Sociedad entomologica Araginesa* **16** *PaleoEntomología* 189-206.

HAIRWORMS/NEMERTEANS WANTED

Dra Leonor Cristina de Villalobos is gathering information on hairworms (*Gordiacea*), which are often found infesting water beetles. She would be particularly interested in receiving preserved material associated with named species of beetle.

IBERIAN *HYDRAENA*

Nineteen species of *Hydraena* were found in the Iberian mountain system (between the Ebro river and the province of Albacete, in East Spain), nine of them currently considered to be Iberian or Ibero-Pyrenean endemics. The known distribution of some northern species was extended to the southern range of the mountain systems (*H. subimpressa* Rey, *H. gracilis* Germar, *H. saga* d'Orchymont, and *H. truncata* Rey). *Hydraena quilisi* Lagar, Fresneda & Hernando, previously known from southern France and South Spain, was found in some intermediate localities, and new sites are reported for *H. lucasi* Lagar, previously known only from the type locality in Tarragona.

AGUILERA, P. & GEREND, R. 1995. El género *Hydraena* Kugelann, 1794 (Col., Hydraenidae) en el conjunto orográfico del Sistema Ibérico (España). *Zapateri* **5** (1995) 63-74.

RECORDS FOR THE SHEFFIELD AREA OF ENGLAND

The Rother flows north for 40 km from Chesterfield in Derbyshire to join the River Don at Rotherham in Yorkshire. Its catchment is dominated by the Coal Measures and the river itself is heavily polluted. However, the surrounding land has many good wetlands, some derived from natural oxbows and many of recent origin as subsidence ponds associated with coal-mining. Ninety six species of water beetle are recorded as a result of survey work from 1993 onwards; these include *Gyrinus distinctus* Aubé and *Helophorus arvernicus* Mulsant. This paper reports the 7th and 8th - and northernmost - records of *Hygrotus nigrolineatus* (von Steven) in Britain.

MERRITT, R. 1996. The water beetles of the Rother Valley in north-east Derbyshire and south Yorkshire. *Sorby Record* **32** 3-7.

EXCHANGE - *SENCKENBERGIANA*

The Club's newsletter is now being exchanged for *Senckenbergia biologica*. This arrangement has been made via Sabine Jessel, of the Naturmuseum, Frankfurt am Main.

WHEN IS A PINGO NOT A PINGO?

Well, it could be a Portuguese supermarket (Pingo Doce). But it is more likely to be a mineral palsa.

We have come to use the term "pingo fen" in association with relict water beetle sites of considerable importance on a European scale. There was always an element of doubt about use of the term pingo; this is an Iniktuit word for active systems in the tundra of Alaska, the Mackenzie delta in Canada and East Greenland. In the Soviet Asian tundra pingos are known as bulgunnjakhi. The precise origin of some cryogenic mounds formerly associated with permafrost zones is unknown. It seems that the term "pingo" is probably not appropriate as this implies the presence of large ice lenses receiving groundwater. Modern palsas are hummocks up to 10 metres high found in Lapland and Arctic Russia. They grow as ice lenses in peat. The "open system pingo scars" found in parts of Europe formerly on the edge of the Ice Cap may well be based on "mineral palsas", developing by cryosuction (i.e. small ice lenses that suck in more water, growing so big that they burst through the surface and melt) in frost-susceptible lake deposits. The most recent papers are by Stephen Gurney and his associates, and are in part based on reappraisal - and detailed mapping - of cryogenic mounds in Shropshire and Wales. The lure of these pingo-like features has resulted in several water beetle finds of great interest, in particular *Laccornis oblongus* (Stephens) by David Bilton in the Owlbury site.

Continued use of the term pingo fen is, one supposes misleading, but the term is well embedded in conservation literature at points where it should not cause offence to Quaternary geologists. "Mineral palsa fen" doesn't have quite the same ring, but it may be something with which we have to live.

GURNEY, S.D. 1995. A reassessment of the relict Pleistocene "pingos" of west Wales: hydraulic pingos or mineral palsas? *Quaternary Newsletter* **77** 6-16.

GURNEY, S.D. & WORSLEY, P. 1996. Relict cryogenic mounds at Owlbury, near Bishop's Castle, Shropshire. *Mercian Geologist* **14** (1) 14-21.

WORSLEY, P., GURNEY, S.D., & COLLINS, P.E.F. 1995. Late Holocene 'mineral palsas' and associated vegetation patterns: a case study from Lac Hendry, northern Québec, Canada and significance for European Pleistocene thermokarst. *Quaternary Science Previews* **14** 179-192.

CRIMEAN DYTISCIDS

Hydroporus kryshtali is described as a new species of *Sternoporus* on the basis of a male from Mount Kara-Dagh. *Agabus amoenus* Solsky is recorded from Crimea as the first report from Europe. It is known from eastern Transcaucasia and Central Asia.

BILASHIVSKY 1993. A contribution to the dytiscid-beetle fauna (Coleoptera, Dytiscidae) of the Crimea. *J. Ukr. ent. Soc.* **1** (1) 15-18. [In Ukrainian]

THE STATUS OF *AGABUS AUBEI*

Agabus aubei Perris lives in Corsican streams in areas where the rocks are overgrown with mats of *Narthecium reverchonii* (Celakovsky), a habitat it shares with *Hydroporus regularis* Sharp, *Ochthebius semisericeus* Deville and *O. metallescens* ssp. *viganoi* Pirisinu. In creating the genus *Metronectes* for it, David Sharp noted its short and stout antennae and palps and the almost entirely absent coxal lines. He stated that "*it must rank as a low form; on the whole its nearest systematic ally is the* Agabus cephalotes, *which also is peculiar to Corsica*". The present paper points out that acceptance of *Metronectes* as a sister group to *Agabus* would imply that *Agabus* s. str. is monophyletic. This is almost certainly not the case, and the authors argue in favour of subgeneric status for *Metronectes*. In describing I-III larvae for the first time, they note that too few *Agabus* larvae are yet described sufficiently for a phylogenetic analysis.

BALKE, M., DETTNER, K. & HENDRICH, L. 1997. *Agabus* ("*Metronectes*") *aubei* Perris: habitats, morphological adaptations, systematics, evolution, and notes on the phanerofluicolous fauna (Coleoptera; Dytiscidae). *Aquatic Insects* **19** 75-90.

AQUATIC INSECTS OF NORTH EUROPE VOLUME 1

NILSSON, A.N.(Ed.) 1996. *Aquatic insects of north Europe - A taxonomic handbook*. Volume 1: Ephemeroptera, Plecoptera, Heteroptera, Megaloptera, Neuroptera, Coleoptera, Trichoptera and Lepidoptera. 274 pp. Apollo Books, Kirkeby Sand 19, DK-5771 Stenstrup, Denmark. ISBN 87 88757 09 9. This book can be purchased direct from the publishers @ DKK 400 plus postage. If Volume 2 (Odonata and Plecoptera - to be published in 1997) is ordered at the same time, both may be had for DKK 700, a saving of DKK 100.

The ten orders of aquatic insects occurring in Nordic Europe are reviewed in this two volume work. North Europe is here taken to comprise Denmark, Norway, Sweden, Finland, the fennoscandian parts of Russia, Iceland, the Faroes and Svalbard. The set is edited by Anders Nilsson. He and others cover the Coleoptera in 10 chapters, as follows:

NILSSON, A.N. Coleoptera, introduction. 115-122.
NILSSON, A.N. Coleoptera Gyrinidae, whirligig beetles. 123-129.
NILSSON, A.N. Coleoptera Haliplidae, crawling water beetles. 131-138.
NILSSON, A.N. Coleoptera Noteridae, burrowing water beetles 139-143.
NILSSON, A.N. Coleoptera Dytiscidae. 145-172.
HANSEN, M. Coleoptera Hydrophiloidea and Hydraenidae, water scavenger beetles. 173-194.
NILSSON, A.N. Coleoptera Dryopoidea, riffle beetles. 195-202
KLAUSNITZER, B. Coleoptera Scirtidae, marsh beetles. 203-208.
NILSSON, A.N. Coleoptera Donaciinae, water lily beetles. 209-216.
PALM, E. & NILSSON, A.N. Coleoptera Curculionidae. 217-222.

Each chapter has sections on the classification, biology and ecology of the group, descriptions of immature stages, methods of collecting and rearing, a key to the genera of Nordic countries, a set of key references and a checklist of Nordic species. The whole book is profusely illustrated (1,371 figures) in glossy, A4 hardback. Many of the drawings of beetles will be familiar and are largely reproduced at a high quality. There are some pleasing originals, particularly of the donaciines ("water lily beetle" as a name at least gives an impression of their Monet-like beauty, unlike the British equivalent, "reed beetles") and the weevils.

As with works in the *Fauna Entomologica Scandinavica* series, this book obviously has great value even outside Nordic Europe. A little caution needs to be exercised because of the absence of coverage of a few European genera - *Aulonogyrus, Pomatinus* (*Helichus*), *Potamophilus* and *Dupophilus* - but the price should not prohibit purchase of this as a general reference work by all European limnologists and coleopterists.

EVALUATION OF CONSERVATION PROSPECTS FOR WATER BEETLES

The Red List of supposedly extinct and very rare species of Dutch water beetles is used to consider the possibilities of habitat reinstatement. This doesn't work for many species lost from streams in South Limburg as these are marginal to the Netherlands and common in mountainous areas. It makes better sense for those species found in heathland pools on sandy soils and for those in peat bogs receiving nutrient-poor water from sandy areas. However, basic information on the biology of rare species is almost by definition poor and this hampers clear advice on management.

CUPPEN, J.G.M. 1994. Waterkevers en natuurontwikkeling. *Entomologische Berichten, Amsterdam* **54** (4) 60-65.

CYMBIODYTA MARGINELLA IN IBERIA AND THE BALEARICS

The first record of *C. marginella* (Fab.) in mainland Spain is cited by Carmen and Josefina for the Laguna de Vixán, La Coruña, in 1995. About as far from that as possible is the S'Albufera Parc Naturel on Mallorca where Paul Whitehead recorded this species in 1990 and I found it again in 1994. There is a record for Menorca by Pons (1987). **GNF**

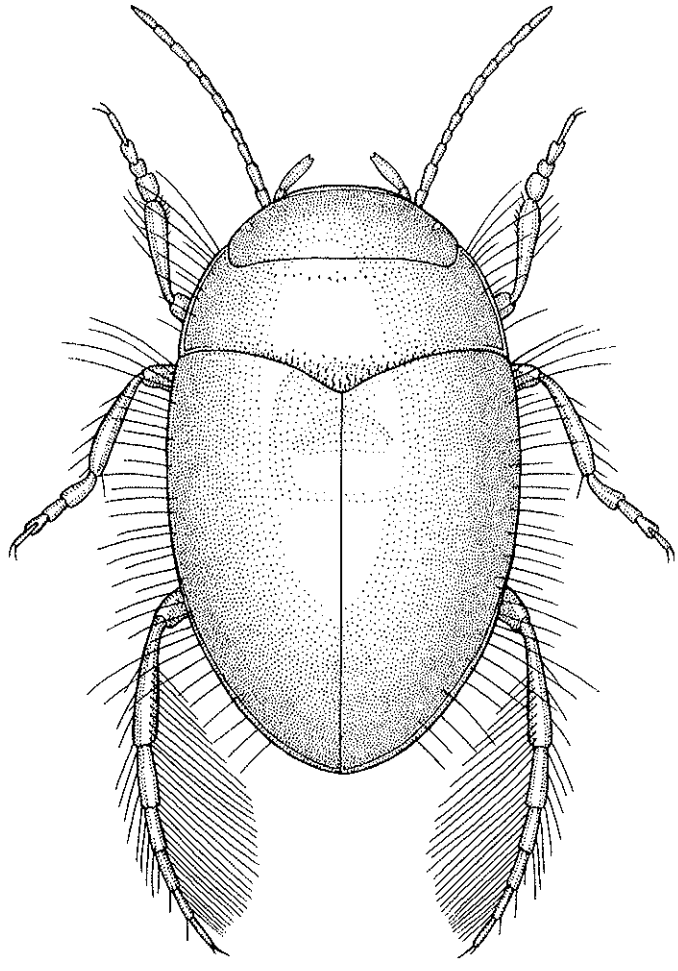
PONS, L. 1987. Heterópteros y coleópteros acuáticos de Menorca. *Misc. Zool.* **11** 121-133.
SAÍNZ-CANTERO, C.E. & GARRIDO, J. 1996. Primera cita de *Cymbiodyta marginella* (Fabricius, 1792) en España (Col., Hydrophilidae). *Bull. Soc. ent. France* **101**(5) 508.
WHITEHEAD, P.F. 1993. Observations on Coleoptera of Mallorca, Balearic Islands. *Boll. Societat d'història natural de les Balears* **36** 45-56.

MORE JAPANESE CAVE LIFE

This remarkable paper makes a significant contribution to the world phreatic fauna, let alone the Japanese one. Eight new species are described. These are five *Phreatodytes*, two *Morimotoa* and one in a new genus, *Dimitshydrus*. Some of these species have been pumped up from wells inside buildings.

The six known species of *Phreatodytes* are classified into three groups, the *archaeicus* group (monotypical from Kyushu), the *sublimbatus* group (three species from Shikoku), and the *relictus* group (two species on Honshu). The first group is the most archaic and resembles some primitive caraboids. the presence of marginal furrows on the pronotum and elytra is regarded as a very primitive condition in the Hydradephaga, and the Phreatodytidae are regarded as one of the most primitive surviving adephagan groups quite different from the Noteridae.

The two new species of *Morimotoa* were found in the same well. *Dimitshydrus typhlops* (right) is the first phreatobiontic representative of the Hyphydrini. It looks like the hydrovatines, but is most probably related to *Hyphydrus*.



UÉNO, Shun-Ichi 1996. New phreatobiontic beetles (Coleoptera, Phreatodytidae and Dytiscidae) from Japan. *J. speleol. Soc. Japan* **21** 1-50.

AND MORE CAVE-DWELLERS FROM THE FAR EAST ... AND ECUADOR

Siamoporus deharvengi and *Sinodytes hubbardi* are described as new genera and species from Thailand and China respectively. *Speonoterus bedosae* is a new Noterid genus and species from Indonesia and *Neoelmis sketi* is a new elmid species from Ecuador. The paper contains an update of the known world stygobionts, which now needs yet further updating for Uéno's paper.

SPANGLER, P.J. 1996. Four new stygobiontic beetles (Coleoptera: Dytiscidae; Noteridae; Elmidae). *Insecta Mundi* **10** 241-259.

ILYBIUS ANGUSTIOR IN GERMANY

Ilybius angustior (Gyllenhal) was recorded from Sylt in 1994, surprisingly in the company of brackish water species such as *Haliplus apicalis* Thomson and *Hygrotus parallelogrammus* (Ahrens), as well as *Agabus labiatus* (Brahm) and *A. uliginosus* (L.).

SONDERMANN, W. 1996. *Ilybius angustior* (Gyllenhal) in Deutschland auf Sylt. *Bombus* **3** (21-22) 88.

BROWSING SECTION - DON'T ASK QUESTIONS

Several enquiries require the airing of this poem, well known to some.

The waterbeetles here shall teach
A sermon far beyond your reach
He flabbergasts the Human race
By gliding on the water's face
With ease, celerity, and grace,
But if he ever stopped to think
Of how he did it, he would sink.

Hilaire Belloc *A Moral Alphabet*

SUCTION SAMPLING FOR *OCHTHEBIUS AURICULATUS*, ETC. IN EAST SUSSEX

by Peter J. Hodge

Recently, many Coleopterists have taken to sampling for terrestrial species by using a two-stroke garden blo-vac adapted to collect insects (Stewart & Wright, 1995). I have been using a Flymo BVL 320 for the past year, with a Diptera net secured inside the suction tube, with amazing results, but using it to collect water beetles is something new to me.

On 4 April 1997 I decided to record terrestrial Coleoptera along the tidal banks of the River Ouse, just south of Lewes (TQ 4209). The main reason for visiting the site was to fill a gap in the recording of the water meadows between the river and the railway and nothing particularly unusual was expected.

The site chosen was the south-east facing river bank just east of the railway, where there is a rather poorly developed saltmarsh plant community. Surprisingly several coastal species were caught that have not previously been recorded from the upper tidal reaches of the River Ouse, including the **Nationally Scarce (Nb)** weevil *Sibinia arenariae*, the weevil *Trichosirocalus thalhammeri* and the pselaphid *Brachygluta helferi*, all by suction sampling using the Flymo BVL 320. Several *Ochthebius* were also present in the sample, almost all of which proved to be *Ochthebius auriculatus*.

This uncommon hydraenid is only reliably recorded in East Sussex from the Rye/Camber area and Pevensey (Foster 1972). Although this species can sometimes be found in saltmarsh pools it is more frequently found at the roots of plants in the drier parts of saltmarshes and because it is frequently encrusted with a layer of mud, it is a difficult species to find by hand searching. Having now found it right on my doorstep, using the suction sampler in a not particularly spectacular saltmarsh, I am wondering just how under recorded this species really is.

Another potential aquatic application for the suction sampler is for separating *Bagous* and *Cercyon*, species from marsh or pondside litter. At present I have limited practical experience of this aspect of suction sampling but initial trials suggest that the net bag gets too wet when sampling litter laying over very wet ground, but where it is fairly dry the device works well.

I am not suggesting that all Balfour-Browne Club members should rush out and buy a suction sampler, but clearly this machine has its uses for collecting some species of water beetles. For example, it should make easy work of finding species such as *Helophorus tuberculatus*, which so closely resembles a speck of charred wood that it is almost impossible to see in the field.

If anyone is seriously interested in purchasing a Flymo BVL 320, the place to buy it is one of the superstore warehouses such as (in the U.K.) B & Q, rather than in a garden centre or agricultural machinery supplier. The recommended retail price for the Flymo BVL 320 is £156 but warehouses have been offering it for £99. There is a confusing assortment of alternative makes to choose from, most of which are very similar to the Flymo. My main reason for selecting the Flymo was the likely future availability of spare parts.

References

FOSTER, G.N. 1972. The aquatic Coleoptera of East Sussex. *Entomologist's Gazette* **23** 25-60.

HYMAN, P. S., & PARSONS, M. S. 1994. *A review of the scarce and threatened Coleoptera of Great Britain. Part 2.* Peterborough, Joint Nature Conservation Committee, Peterborough, U.K.

STEWART, A.J.A. & WRIGHT, A.F. 1995. A new suction apparatus for sampling arthropods in grassland. *Ecological Entomology* **20** 98-102.

Received April 1997

EFFECTS OF LIMING ON WATER BEETLES

Liming of catchments has been proposed as a means of reducing the effects of acid rain. Comparison of the pitfall-trapped invertebrates of limed with unlimed catchments in Wales ten indicates a claimed significant increase in hydrophilid abundance in response to liming, and a reduction in the abundance of ground beetles. The Hydrophilidae alluded to are almost entirely *Anacaena globulus* (Paykull) and catches of this species in 5 pitfall traps in each catchment range from 0 to 84 in 13 unlimed catchment and 70 to 87 in the three limed catchments. These results differ from those based on a single catchment in Galloway (Foster, 1995. *Chemistry & Ecology* **9** 207-215 - see ***Latissimus* 6**), in which I could only detect one significant change, an increase in abundance on ground beetle species in response to liming. Interestingly the only Dytiscidae detected in pitfall traps were *Hydroporus longicornis* Sharp and *Agabus guttatus* (Paykull).

BUCKTON, S.T. & ORMEROD, S.J. 1997. Effects of liming on the Coleoptera, Hemiptera, Araneae and Opiliones of catchment wetlands in Wales. *Biological Conservation* **79** 43-57.

MORE *RHITHRODYTES*

Further work in northern Portugal has permitted description of the male of *R. agnus* Foster, and recognition of two subspecies, the nominate form from the Lima catchment, and ssp. *argaensis* from the Ancora catchment, both being found in the Serra de Arga. *R. agnus* is shown to be brachypterous. *R. dorsoplagiatus*, described from Algeria, is separated from *R. bimaculatus* Dufour. Additional records of *bimaculatus* s. str. indicate that it has an almost continuous distribution from the Pyrenees to the Cordillera Cantabrica. The status of *Rhithrodytes* as a distinct genus is discussed. In passing, the occurrence of *Hydroporus brancoi* Rocchi is noted from the Serra de Estrêla and through Galicia to the Picos de Europa, and *H. brancuccii* Fery is noted from Spain, near estancas in the province of Pontevedra.

As someone who has spent four weeks in the vallée d'Ossau, I review the other paper with mixed feelings! Franck Bameul notes that *Rhithrodytes bimaculatus* was for a long time considered as a "mythical" species. It was originally described from Eaux-Bonnes (where I couldn't find it), in the 1850's. In the 1970's it was found on the Spanish side of the Pyrenees, at Zarauz, and on the French side in the forêt d'Iraty. Additional records have also come from the Asturias and Huesca. Franck rediscovered it in the vallée d'Ossau in 1996, after a gap of 130 years. This was in the Gave de Bious in June (where I couldn't find it in July!).

BAMEUL, F. 1996. *Rhithrodytes bimaculatus* (Dufour) retrouvé en vallée d'Ossau (Pyrénées-Atlantiques) (Col., Dytiscidae). *Bulletin de la Société de France* **101** (4) 381-387.

BILTON, D.T. & FERY. H. 1996. Revisional notes on *Rhithrodytes* Bameul 1989, with the description of a new subspecies and the introduction of *Rhithrodytes dorsoplagiatus* (Fairmaire) as a valid species (Coleoptera, Dytiscidae). *Linzer biol Beitr.* **28**(2) 917-931.

XX INTERNATIONAL CONGRESS OF ENTOMOLOGY, FLORENCE/FIRENZE, 25-31 AUGUST 1996 - AN INDIVIDUAL VIEW

So, the Most Important Congress in the past decade (because it was held in Italy?..) started with a bloody boring talk by Baccio Baccetti.

After that we all moved (trying not to run to get the best places) back again to the garden where some long tables were prepared with food and wine. Long queues of northern gentlemen formed on the side of the table while those of us, the dirty, dark impolite southern streetwise started eating from the front! Some filled dishes with food and pockets with bottles of wine so as to get a seat on the grass happily watching the others queuing I really believe that some never got to the food... even because some queues were queuing at nothing!

The water beetle talks were all interesting but what I enjoyed more was the collecting trip, kindly guided by Saverio Rocchi, to a famous water beetle area near to Florence: "Il Padule di Fucecchio", the remains of an old and large marsh. At night Saverio invited all of us to a wonderful and excellent restaurant on the hill around the town.

Other interesting features of the congress were the "Giangiuliani's Quest: looking for chat" in which she (Guiliana) and I tried unsuccessfully to meet for the whole week with a long series of messages exchanged via the message board and the "Volpe's Australian mystery book": I "booked" (writing my name on it) a book from CSIRO telling them Professor Audisio will collect the book for me on Saturday, but once I have been there "someone" had already collected it! **Vincenzo Volpe**

SOUTHERN SPANISH MOUNTAIN HYDRADEPHAGA

Twenty five species are recorded from the Tejada and Almijara mountains, which many tourists may know as the heights north of the road from Málaga to Almuñecar. Perhaps the most interesting taxon is *Nebrioporus cazorlensis* Lagar, Fresneda & Hernando, which was found in 1991 in the Arroyo del Cerezal in Granada province. When I took it near Nerja, in the same mountains, in January 1992, I thought it was new to science, but it is now regarded as a subspecies of *bucheti* (Régimbart) (see page 17 of this issue of ***Latissimus***). One looks forward to the second paper as this part of Spain has a remarkable hydrophilid and hydraenid fauna.

SAÍNZ-CANTERO, C.E. & CORTES-ROMERO, J.L. 1996. Coleopterofauna acuática de las sierras de Tejeda y Almijara (Sur de España). I. Adephaga (Col. Haliplidae, Gyrinidae, Dytiscidae). *Nouv. Revue Ent.* **13** (3) 249-260.

NEW CHINESE DYTISCIDS

Rhantus pederzanii and *Hydroporus nanpingensis* are described from Sichuan. The *Rhantus* is related to *yessoensis* Sharp, and the *Hydroporus* is in the *tristis* group.

TOLEDO, M. & MAZZOLDI, P. 1996. Two new Dytiscidae from south-western China. *Natura Bresciana* (1994) **30** 237-245.

***DERONECTES AUBEI* IN GERMANY**

It is suggested that Black Forest specimens of *D. aubei* may be vagrants from the south. The hind wing structure indicates flight ability.

SÜSELBECK, G. 1996. Ein neuer Nachweis von *Deronectes aubei* (Mulsant) (Coleoptera, Dytiscidae). *Entomologische Blätter* **92** 105-109.

REVISION OF *HYDRETHUS*

Hydrethus is a genus of laraine elmids from Madagascar. Four species are known, one, *elouardi*, being newly described.

BAMEUL, F. 1996. Les *Hydrethus* Fairmaire (Coleoptera, Elmidae). *Bulletin de la Société de France* **101** (3) 273-288.

SEVENTEENTH IBERIAN *HAENYDRA*

H. zezerensis is newly described from the River Zezere in the Serra de Estrela, Portugal. It does not fit into any of the groups previously identified, although it resembles externally *H. monstruosipes* Ferro.

DÍAZ PAZOS, J.A. & BILTON, D.T. 1995. *Hydraena* (*Haenydra*) *zezerensis* sp. nov. from the Iberian Peninsula (Coleoptera: Hydraenidae). *Entomol. Probl.* (1994) **25**(2) 49-53.

***MICRAGASMA* ON THE EUROPEAN MAINLAND**

This 1.1 mm long hydraenid looks like an *Ochthebius* but has a strongly deflected labral edge. Previously it was known only from Corfu but it has recently been found in Puglia.

FERRO, G., AUDISIO, P. BIASE, A. DE. 1996. Presenza in Italia di *Micragasma paradoxum* (Coleoptera, Hydraenidae). *Bollettino dell'Associazione Romana di Entomologia* **50** (1995) 3-5.

Papers in brief

ALARIE, Y., WANG, L.-J. & YANG, P.-S. 1996. The description of the larvae of *Neonectes babai* Satô (Coleoptera: Dytiscidae: Hydroporinae), with a discussion of its phylogenetic relationships with members of the *Oreodytes scitulus* group. *The Coleopterists Bulletin* **50** (4) 373-381.

BAMEUL, F. 1996. A new *Hydrochara* Berthold from North Korea (Coleoptera, Hydrophilidae). *Nouv. Revue Ent.* **13** (1) 3-11.

MAZZOLDI, P. 1996. A new species of *Aulonogyrus* Motschulsky, 1853 from the eastern highlands of Zimbabwe (Coleoptera: Gyrinidae). *Koleopterogische Rundschau* **66** 47-58.

SPANGLER, P.J. 1996. A new genus and species of aquatic beetle, *Caenelmis octomeria*, from Kenya, Africa (Coleoptera: Elmidae: Elminae). *Insecta Mundi* **10** 19-23.

YOSHITOMI, H. 1996. New record of *Flavohelodes burmensis* (Klausnitzer, 1974) (Coleoptera, Scirtidae) from Thailand. *Elytra, Tokyo* **24** (2) 310.

EXCHANGE WANTED Herr Andreas Herrmann (Bremervörder Straße, D-21682 Stade, Germany) wishes to exchange material with others interested in collecting the beetles of Central Europe, i.e. those referred to in Freude-Harde-Lohse. Please write to him direct. Please note that Club policy is to promote free exchange of beetle material for scientific study only.

CZECH WATER BEETLE GROUP

There is a new group of Czech water beetle entomologists. It was founded as a subsection of the Czech Entomological Society but its *modus operandi* is rather unofficial. Our main aim is, of course, to amend the knowledge of the fauna of the Czech (and Slovak) Republic. Any papers, faunistic data and other valuable information concerning our territory and NEIGHBOURING AREAS would be therefore greatly appreciated. There is still not very much output from our side as we have just begun but we are willing to help anyone with Czech-related problems.

Contact addresses of (most) of our members appear below but DSB can be contacted general information, papers on water beetles as a whole, etc. E-mail addresses, where available, appear in the usual directory.

- David S. Boukal, Dept. of Biomathematics, Inst. of Entomology, Czech Academy of Sciences, Branisovska 31, CZ - 370 05, Ceske Budejovice, Czech Rep. (Dryopoidea except Heteroceridae, Hydraenidae, Scirtidae)
- Milan Boukal, Dept. of Zoology, Palacky University, tr. Svobody 26, CZ -771 46, Olomouc, Czech Rep. (Haliplidae, Hydrochidae, Hydrophilidae Sphaeridiinae)
- Petr Kocarek, Dept. of Ecology, Placky University, tr. Svobody 26, CZ -771 46, Olomouc, Czech Rep. (Gyrinidae)
- Stanislav Skalicky, Dukla 322, CZ - 562 00, Usti nad Orlici, Czech Rep. (Heteroceridae)
- Jaroslav Šťastný (chairman), Kosmonautu 359, CZ - 460 05, Liberec, Czech Rep. (Dytiscidae, Noteridae).
- Dusan Travnicek, Museum of SE Moravia, Soudni 1, CZ - 762 57, Zlin, Czech Rep. (Georissidae, Helophoridae, Hydrophilidae Hydrophilinae).

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WWW and WBW - WATER BEETLE WORLD

Visit Sharon Jasper's Water Beetle World on

http://bio-www.tamu.edu/beetles

SUFFOLK FRESHWATER INVERTS ON THE NET

Visit Adrian Chalkley's Web Page for a view of *Dytiscus marginalis*.

HTTP://ourworld.compuserve.com/homepages/A_C_Chalkley/

Please keep us informed of other relevant (and interesting) Web pages

Latissimus is a publication of the Balfour~Browne Club. Issue **9** was published on 19 September 1997. Our new *Dytiscus latissimus* was drawn by Mrs G Marklund of Umeå.

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