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LATISSIMUS

NEWSLETTER OF THE BALFOUR-BROWNE CLUB

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HERON PREDATION ON AQUATIC COLEOPTERA

by Ignacio Ribera & Pedro Aguilera

To add to the line of reports about water beetles as prey to vertebrates, this is an account of the heron's meal apparently based on aquatic Coleoptera. In Schaeflein's (1993) review grey herons (*Ardea cinerea*) were included, but the only detailed data refer to larvae of *Dytiscus* sp. Like owls, this species regurgitates the undigested parts of its prey, which often include the elytra and other hard bits of Coleoptera. According to Guignot (1931-33) these pellets are frequent around ponds, sometimes in large numbers (e.g. in the Camargue).

Last September we found a regurgitated heron pellet in the Capmany (or Canadal) fens, in La Junquera, province of Girona (Spanish Oriental Pyrenees). The fens were completely dry, with water only in an excavated pond in the middle of the larger fen. This pond is rectangular (about 5 x 3 m, 1 m deep), with vertical edges, and completely surrounded by *Phragmites australis* except along one edge, which had been cleared to allow farmers access for water. It was completely filled with abundant filamentous green algae and other floating macrophytes, and the water was turbid (see Ribera *et al.* 1994 for further details about these fens).

The pellet was found on the open side, next to the water. It had a fresh appearance, and contained remains of *Cybister lateralimarginalis* and *Hydrophilus* (probably *H. pistaceus*) among a mess of filamentous green algae and some mammal hairs. No vertebrate bones were found, in spite of the local abundance of *Rana temporaria*, *Hyla meridionalis* and *Discoglossus pictus* ssp. *auritus* (just because they were totally digested?). It also contained some small bits of Corixidae, and the pronotum of a *Lestes* (Odonata). Most of the remains of *Cybister* and *Hydrophilus* were fragments of legs, elytra, and abdominal sternites. There were also well preserved - and carefully cleaned - male genitalia of *Cybister*. It seems that the hardest bit to digest (and the most useful for counting the number of victims) is the head, six of which were found in the pellet. Five belonged to *C. lateralimarginalis* and one to either *H. pistaceus* or *H. piceus* (both species were present in the pond, see Table 1). There was an additional, damaged *Hydrophilus* post-labrum, so at least two specimens of this genus had been eaten.

Although it is always possible that the heron had fed at other sites and regurgitated the pellet in the pond later, it is more likely that this was the result of a local meal. The pond was full of beetles, being the only refugium remaining in the fens since June. Both *Cybister* and *Hydrophilus* were particularly abundant: in our previous visit to the pond in August, 30 seconds netting in the 3 metre-wide open edge yielded 18 *H. pistaceus*, 3 *H. piceus* and 6 *C. lateralimarginalis* (among hundreds of other specimens). In September the density of beetles was much lower: in the semiquantitative 30 second sample we collected one *Cybister*, and no *Hydrophilus*. However, the *Cybister* were particularly active (they were hungry?), and many of them could be seen at any moment wandering slowly below the surface.

If the heron took the beetles in the pond, it must have stayed in the edge and picked up the specimens from the surface. It preyed on the biggest species (see Table 1), although it is not possible to say if species of intermediate size (such as *Graphoderus*, *Hygrobia*, *Rhantus* or *Ilybius*) were specifically ignored or just not taken because of their low densities (only one or two specimens were collected in each of the semiquantitative samples). Obviously, the Corixidae and other minor pieces were "side dishes" taken together with the filamentous algae and the big beetles.

References

GUIGNOT, F. 1931-1933. *Les Hydrocanthares de France*. Douladoure, Toulouse.

SCHAEFLEIN, H. 1993. Wasserkäfer (s.l.) as Beute und Nahrung von Vertebraten (Coleoptera: Dytiscidae, Haliplidae, Gyrinidae, Elmidae, Hydraenidae, Hydrophilidae). *Entomologische Blätter* **89** 120-126.

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.

Table 1 "Menu" available in the pond in 10 August 1994 (A) and 10 September 1994 (S). A detailed faunistic work about the area is in communication.

	S	*Gyrinus caspius* Ménétriés	A		*Ilybius meridionalis* Aubé
	S	*Haliplus lineatocollis* (Marsham)	A	S	*Laccophilus minutus* (L.)
A	S	*Noterus laevis* Sturm	A	S	*L. ponticus* Sharp
A	S	*Hygrobia hermanni* (Fab.)	A	S	*Graphoderus cinereus* (L.)
A	S	*Hyphydrus aubei* Ganglbauer	A	S	*Cybister lateralimarginalis* (DeGeer)
A	S	*Hydrovatus clypealis* Sharp		S	*Hydraena atrata* Desbroches des Loges
	S	*Bidessus coxalis* Sharp	A	S	*H. testacea* Curtis
A	S	*B. goudoti* (Castelnau)	A	S	*Hydrochus angustatus* Germar
A	S	*Hygrotus inaequalis* (Fab.)	A	S	*H. smaragdineus* Fairmaire
A	S	*Hydroporus vagepictus* Fairmaire & Laboulbène		S	*Anacaena bipustulata* (Marsham)
				S	*A. lutescens* (Stephens)
A	S	*Graptodytes flavipes* (Olivier)		S	*Helochares lividus* (Forster)
	S	*G. ignotus* (Mulsant)	A	S	*Enochrus isotae* Hebauer
A	S	*G. varius* (Aubé)	A	S	*Hydrophilus piceus* (L.)
	S	*Rhantus suturalis* (McLeay)	A	S	*H. pistaceus* (Castelnau)

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WATER BEETLE RECORDS FOR THE DANUBIAN FLOOD PLAIN

by Monika Hess

Working on water beetle communities in the Danubian flood plain in Eastern Bavaria, I am looking for unpublished records of water beetles either from this area or from the Danubian flood plain in the adjacent regions. If you have any unpublished data or any information about such data, please contact me at the address in the address section at the end of ***Latissimus***.

Received January 1995

HYDRADEPHAGAN COMMUNITIES OF THE SPANISH PYRENEES

More than 200 samples and 11,000 specimens of Hydradephaga, collected between 1984 and 1990, were subject to TWINSPAN. This produced the usual first split into lotic and lentic types, the final types of assemblage being characterised by reference to water body size, amount of vegetation, conductivity and water transparency. The results of Multiple Discriminant Analysis, trying to predict which of the nine groups a sample might belong to, based either on species present or on site characteristics, were good, with more than 80% being correct.

RIBERA, I. & ISART, J. 1994. Classification of the communities of Hydradephaga (Coleoptera) from the Spanish Pyrenees. *Verh. Internat. Verein. Limnol.* **25** 2475-2477.

CENTRAL EUROPEAN CLASSIFICATION OF WATER BEETLE ECOLOGICAL TYPES

Most of us are familiar with some of the terms used to describe aquatic insect preferenda in Central Europe, the halophiles, halobionts, acidophiles and so on. Franz Hebauer has provided a useful, complete classification of water beetles based on this system. This approach provides for some interesting comparisons in opinion about what species prefer, occasionally based on real differences in habitat selection between regions. But there are other differences of opinion to be tackled concerning the approach itself. Certain descriptions such as acidotolerant beg the question as to what it is the species is tolerating, or, in the case of acidophiles, why it is the species love acid conditions. It is a relief to note that some species appear in several parts of the classification as associated species, e.g. *Haliplus flavicollis* Sturm as an associate of acidotolerant relict water species in the major acidophile division, but also appearing in the major thermophile division within the phytophile algophile section. If only we could assemble the data on which these systems are based, it would be interesting to see to what extent the classification can be achieved by "blind" analysis.

HEBAUER, F. 1994. Entwurf einer Entomosoziologie aquatischer Coleoptera in Mitteleuropa (Insecta, Coleoptera, Hydradephaga, Hydrophiloidea, Dryopoidea). *Lauterbornia, Zeitschrift für Faunistik und Floristik des Süßwassers, Dinkelscherben* **19** 43-57.

WATER BEETLES (ADEPHAGA) OF THE BEREZINSKY BIOSPHERE RESERVE, BELARUS

by Mikhail D Moroz

Berezinsky Biosphere Reserve (BBR) is situated in the northern part of the Poozerie Region of Belarus, on the upper part of the Berezina Lowland. The total area exceeds 800 km², with large areas of southern taiga forest and many raised bogs. There are practically no data on the water beetle fauna of the BBR, and this inventory was the main objective of my study. Sampling was carried out in August 1978 and July 1980 at the sites as marked in the figure:- Domzheritskoe Lake; Velikaya, Serguch, Gurba and Buzyanka Rivers; Serguchsky Canal; and several unnamed bogs, fens and temporary pools. Sixty seven species were identified from 1,052 specimens (Table 1).

An analysis of the ranges of Belarussian water beetles by Zakharenko & Moroz (1988) and Moroz (1993) revealed that at least 20-25 more species might be expected to be found by additional survey work.

Table 1 Water beetle numbers recorded in the Berezinsky Biosphere Reserve. I - Domzheritskoe Lake; II - fen pools; III - temporary pools; IV - bogs; V - Velikaya, Serguch, Gurba, Buzyanka Rivers; VI - Serguchsky Canal.

	I	II	III	IV	V	VI
Peltodytes caesus (Duftschmid)	-	-	3	-	-	-
Haliplus fulvicollis Erichson	-	1	-	16	2	-
H. ruficollis (DeGeer)	-	-	-	5	2	-
H. wehnckei Gerhardt	-	-	11	-	-	-
Noterus crassicornis (Müller)	-	20	-	1	1	-
Laccophilus hyalinus (DeGeer)	-	-	-	-	3	-
L. minutus (L.)	-	-	-	1	-	3
Hyphydrus ovatus (L.)	-	-	1	2	4	-
Hydroglyphus pusillus (Fab.)	-	-	1	-	-	-
Hygrotus decoratus (Gyllenhal)	-	-	-	3	-	-
H. inaequalis (Fab.)	1	4	-	6	3	3
H. versicolor (Schaller)	-	-	-	-	1	1
Coelambus impressopunctatus (Schaller)	-	1	-	2	-	-
C. polonicus (Aubé)	-	-	6	-	-	-
Suphrodytes dorsalis (Fab.)	-	1	1	2	3	-
Hydroporus angustatus Sturm	-	-	-	3	-	-
H. brevis Sahlberg	-	-	-	1	-	-
H. erythrocephalus (L.)	-	2	1	9	-	1
H. incognitus Sharp	-	-	-	2	-	-
H. nigrita (Fab.)	-	-	2	-	-	-
H. obscurus Sturm	-	-	-	2	-	-
H. palustris (L.)	1	21	56	24	14	3
H. planus (Fab.)	1	-	6	2	-	-
H. rufifrons (Müller)	-	3	24	-	1	-
H. striola (Gyllenhal)	-	1	3	6	-	1
H. tristis (Paykull)	-	3	1	21	-	-
H. umbrosus (Gyllenhal)	-	1	-	13	-	-
Porhydrus lineatus (Fab.)	2	26	-	1	27	6
Copelatus haemorrhoidalis (Fab.)	-	-	-	-	2	-
Agabus biguttulus Thomson	-	-	-	1	-	-
A. bipustulatus (L.)	-	-	1	-	-	-
A. congener (Paykull)	-	-	23	-	-	-
A. nigroaeneus (Erichson)	-	-	2	-	-	-
A. sturmi (Gyllenhal)	-	-	56	-	-	-
A. subtilis (Erichson)	-	-	1	-	-	-
A. uliginosus (L.)	-	-	-	-	2	-

	I	II	III	IV	V	VI
Ilybius aenescens Thomson	-	-	-	-	1	-
I. ater (DeGeer)	1	3	-	1	2	-
I. fenestratus (Fab.)	-	1	-	1	6	-
I. fuliginosus (Fab.)	-	-	22	3	1	-
I. guttiger (Gyllenhal)	-	1	-	8	6	-
I. quadriguttatus (Lacordaire & Boisduval)	-	-	-	-	8	-
I. subaeneus Erichson	-	-	-	1	-	-
Rhantus exsoletus (Forster)	-	-	-	-	7	-
R. frontalis (Marsham)	-	2	-	1	-	-
R. grapii (Gyllenhal)	-	-	-	-	2	-
R. suturalis (Macleay)	-	-	-	2	-	-
R. suturellus (Harris)	-	-	1	-	-	-
Colymbetes fuscus (L.)	-	-	5	-	-	3
C. paykulli Erichson	-	-	1	-	5	-
C. striatus (L.)	-	2	-	1	5	1
Hydaticus seminiger (DeGeer)	1	-	1	3	-	-
H. transversalis (Pontoppidan)	-	-	-	-	8	-
Graphoderus bilineatus (DeGeer)	-	2	-	-	7	-
G. cinereus (L.)	-	-	-	-	2	-
Acilius canaliculatus (Nicolai)	-	-	3	-	3	1
A. sulcatus (L.)	-	-	6	-	-	-
Dytiscus circumcinctus (Ahrens)	-	1	-	-	7	1
D. dimidiatus Bergstraesser	-	-	-	-	11	-
D. latissimus L.	-	-	-	-	2	-
D. marginalis L.	-	-	5	-	-	-
Gyrinus aeratus Stephens	68	-	-	-	15	-
G. marinus Gyllenhal	20	1	1	-	107	28
G. minutus Fab.	5	-	1	9	28	-
G. natator L.	1	-	18	26	14	5
G. paykulli Ochs	12	-	-	-	2	-
G. substriatus Stephens	-	-	23	6	-	-

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MOROZ, M.D. 1993. Ecological and zoogeographical characteristics of the Hydradephaga (Coleoptera, Adephaga) in the land reclamation canals of Belarus. *Entomological Review* **72** (2) 321-325.

ZAKHARENKO, V.B. & MOROZ, M.D. 1988. Material on Fauna of water beetles (Coleoptera: Haliplidae, Dytiscidae, Gyrinidae) of Byelorussia. *Revue d'Entomologie de l'URSS* **67** 282-290 [in Russian]

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ADDITIONS TO HANS SCHAEFLEIN'S BIBLIOGRAPHY

Fernando Pederzani has drawn attention to the following:

1962. Kritische Gedank zu *Bidessus grossepunctatus* Vorbr. und *unistriatus* Schrk. (Beitrag zur Morphologie der Dytisciden). *Nachrbl. bay. Ent.* **11**(8) 73-76 and **11**(9) 92-94.

1993. Literaturbesprechungen. *Ent. Bl.* **89** 157-158.

1993. Roesel von Rosenhof, sein Leben und Werk. *Ent. Nachr. Ber.* **37** 264-266.

WATER BEETLES OF THE RESTORED SEA OF CASTILE

The Laguna de la Nava, 12 km west of Palencia, was finally destroyed in 1950. Being as large as 5,000 ha in an exceptionally wet year, this was the most important inland wetland ecosystem in Iberia. A new pool was created, 60 ha in extent, in 1990, and it was surveyed monthly from July 1991 to June 1992. Fifty species of aquatic Coleoptera were found, 24 of them Hydradephaga and 26 of them Polyphaga. Interesting species include *Coelambus fresnadai* Fery, *Graptodytes bilineatus* (Sturm), 8 species of *Helophorus* including *H. bameuli* Angus. Abundance was highest in October and species richness was lowest in July and August. There are few studies of stagnant water covering the whole year, and none that I can recall done in Iberia. The seasonal variations in species numbers are in themselves instructive, as will be further studies when the pool has begun to mature.

VALLADARES, L.F., GARRIDO, J. & HERRERO, B. 1994. The annual cycle of the community of aquatic Coleoptera (Adephaga and Polyphaga) in a rehabilitated wetland pond: the Laguna de La Nava (Palencia, Spain). *Annls Limnol.* **30** 209-220.

HYDROPHILOID HEADS - WILL CLADISTICS ROLL?

BEUTEL, R.G. 1994. Phylogenetic analysis of Hydrophiloidea based on characters of the head of adults and larvae. *Koleopterologische Rundschau* **64** 103-131.

Here is something to put the cat among the pigeons! In a careful study of 39 head characters (16 adult, 23 larval), Beutel has performed a cladistic analysis of the Hydrophiloidea (*sensu* Crowson), and has arrived at a number of conclusions startlingly different from those of Hansen (1991).

The first of these is that the Hydraenidae are placed in the Hydrophiloidea as a sister group to all the rest, rather than in the Staphylinoidea. In support of this, Beutel cites ten adult synapomorphies (derived features in common) and one larval one (cephalic egg bursters), though he cautions against placing too much weight on the latter as cephalic egg bursters have certainly evolved on more than one occasion (Derodontidae). Because Beutel confines himself to head characters he does not concern himself unduly with other features, for example, wing venation and folding, and aedeagal structure - but he does discuss them, noting that they are reductions, possibly associated with small size, or parallelism.

The problem here encapsulates much of the difficulty with cladistic analyses: always there is conflicting evidence, and it is a matter of which features are considered genuine synapomorphies and which are due to parallelism or convergence. "You pays your money and takes your choice!" However, this is a serious work and it certainly reopens the debate.

The next point of difference from Hansen's work is that the Spercheidae are placed as a sister group to all other hydrophiloids (i.e. excluding Hydraenidae). In support of this, these "other hydrophiloids" are shown to possess two larval synapomorphies and five adult ones not found in the Spercheidae. This is an interesting conclusion. Spercheids are weird, with a very primitive larval head (gular sclerite present) and unique antennae. I know Michael Hansen pondered long and hard before placing *Spercheus* as sister group to his Hydrophilidae, rather than associating it with his helophorid lineage. However, I do feel that he undervalued the primitive larval head of *Hydrochus* (also with a gular sclerite).

We now come to a part of the work that is "music to my ears"! Beutel next takes out the Hydrochidae, then associates *Helophorus*, *Epimetopus* and *Georissus* (as families) because of their larval heads. I have long regarded these three as a sort of "terrible trio" because of their larval heads, but Beutel does better: he notes that the larval heads of *Epimetopus* and *Georissus*, like those of true hydrophilids, have a separate submental sclerite at the base of the labium, while *Helophorus* lacks this (I have checked my single *Georissus* larva, a trophy from the Oksbøl trip, and it is quite true!). Because of this he takes out Helophoridae as a sister group to Georissidae, Epimetopidae and Hydrophilidae, then takes out Georissidae and Epimetopidae as his next branch, leaving the Hydrophilidae *sensu stricto*. I like this very much!

And there you have it! In his concluding paragraph, Beutel writes "It should be re-emphasised that this study is a hypothesis which is based on a complex but still limited character set. For a final solution of phylogenetic questions concerning Hydrophiloidea, Histeroidea, and Staphylinoidea more detailed studies are required, especially of internal structures and functional aspects." I am sure that Michael Hansen did not regard his arrangement as final either. Beutel's work demonstrates the uncertain position of the Hydraenidae and serves to illustrate that cladistics, for all its "objectivity" and computing mystique, is really no different from the considered assessment of characters by which traditional taxonomists (apart from numerical ones!) arrive at their suggested phylogenies.

This is a valuable paper. I hope someone, perhaps Beutel, will go on to tackle the more extensive studies needed to throw further light on these questions. From a practical point of view, it is comforting to note that the families accepted by Michael Hansen are left unaltered. The integrity of these groupings is a reflection of both the robustness of the cladistic techniques and the good judgement of both Hansen and Beutel.

Robert Angus Received January 1995

JÜRGEN SCHMIDL, DIPLOMARBEIT

Jürgan has provided the Club library with a copy of his thesis, which includes a detailed study of 85 sites in Bavaria (Mittelfranken), and recognition of three major assemblages that can be characterised by physicochemical factors. The data are copyrighted until the author has had an opportunity to publish the analyses as papers.

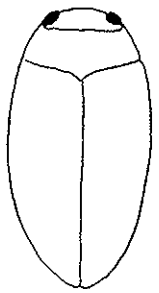
SCHMIDL, J. 1992. *Vergellschaftung und Habitatwahl adephager Wasserkäfer (Coleoptera: Haliplidae, Noteridae, Dytiscidae) in Abhängigkeit von physikalischen und chemischen Wasserparametern. Eine Canonische Korrespondenzanalyse*. Diplomarbeit, Institüt für Zoologie, Lehrstuhl I der Universität Erlangen-Nürnberg.

WITH A PINCH OF SALT?

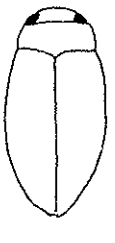
R.S.K. BARNES, 1994. ***The brackish-water fauna of northwestern Europe. An identification guide to brackish-water habitats, ecology and macrofauna for field workers, naturalists and students.*** ISBN 0 521 45556 1, £15.95 (paperback), Cambridge University Press.

❖ This book is in two parts. Forty five pages deal with brackish water habitats and aspects of the biology of brackish water animals. Part 2 consists of 223 pages of identification keys, notes on species, and line illustrations. As well as nematodes, molluscs, crustaceans, fish and others, it covers 52 species of aquatic beetle, all of them British. Are there really no brackish water beetles found in north-western Europe that do not occur in Britain? The choice of beetles which are included is also slightly surprising. The majority of brackish water beetles are covered, plus a selection of common species which are not characteristic of brackish water but which are likely to be found there occasionally. However, there are no *Cercyon* species, *Graptodytes bilineatus, Hydrovatus clypealis, Helophorus fulgidicollis* or *Ochthebius lejolisi*, and there are at least twelve water beetles [*Haliplus lineatocollis, H. fluviatilis, Hydroporus palustris, H. erythrocephalus, H. striola, Suphrodytes dorsalis, Laccophilus minutus, Helophorus grandis, Laccobius sinuatus, Berosus signaticollis, Ochthebius minimus* and *Bagous limosus*] absent from the key which I have caught in British coastal waters. The key does include such long shots as *Agabus biguttatus, Nebrioporus elegans* (as *Potamonectes depressus*) and *Helophorus arvernicus*.

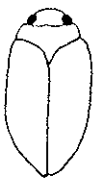
The key confines itself to external characters, having been "designed for use without harm on living animals that can then be returned to their habitats". I tested the key on three (dead) water beetles. For *Noterus clavicornis*, it foundered at couplet 35, where one has the choice "A) Each elytrum (*sic*) with 10 longitudinal rows of pits" (= *Haliplus*) or "B) Each elytrum with various grooves but without 10 longitudinal rows of pits". *Noterus* lacks anything that could be described as various grooves, but by luck or by following the key in both directions one may arrive at the couplet containing *N. clavicornis*. Here, the correct choice is "A) Third article of tarsi of fore and middle legs not U-shaped; coxal processes of hind legs broad, combined length of processes > their length [in my specimen, this ratio was 3.25 : 3.10 so perhaps this is not an easy character to see on a live beetle]; central articles of the antennae cup-shaped". Unfortunately, the figure of *N. clavicornis* is a dorsal view, so the characteristic coxal processes are not shown; the antennae in the figure do not have cup-shaped central segments; and the front legs, whilst certainly lacking U-shaped articles, differ from each other in shape and number of segments, and so do not inspire confidence in the reader. I found *Hygrotus inaequalis* keyed out correctly, except for the problem of couplet 35. *Hydrobius fuscipes* keyed out very clearly and easily, but regrettably to *Berosus affinis* (front legs shorter than hind legs; antennae short, palps more obvious; pronotum lacking furrows, large pits or grooves; elytra with pits in regular rows; each elytrum with 10 long rows and a short row between first and second; elytra without terminal spines and head dark).



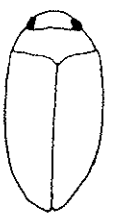
H. tessellatus



H. angustatus



H. planus



H. pubescens

The figures are without doubt the most remarkable part of this book. My favourites are *Agabus bipustulatus* - the left 'elytrum' has a concave anterior outer edge and the antennae are depicted as long bristles - and the genus *Hydroporus*. The *Hydroporus* figured are *angustatus, pubescens, tessellatus* and *planus*. The last is distinguished from the others on three counts: it is by far the smallest; it is strongly asymmetrical; and the hind margin of the pronotum extends in an acute point about a sixth of the way down the elytra. In "Sources of illustrations", *H. planus* is listed as an original drawing, with which I cannot disagree.

I feel there is a need for Biological Records Centre record cards to require recorders to state which identification key was followed. This would help scheme organisers to distinguish between agg. and seg. records following a taxonomic split; and would expose those recorders who simply flick through a picture book and write down the name of the likeliest-looking picture, like I do. For some time now, this desirable amendment to BRC cards has been my sole topic of conversation at cocktail parties. With the publication of *The brackish-water fauna of northwestern Europe,* I rest my case.

Of course, the rest of the book might be marvellous.

John Bratton

Received December 1994

ORIENTAL *CHAETARTHRIA*

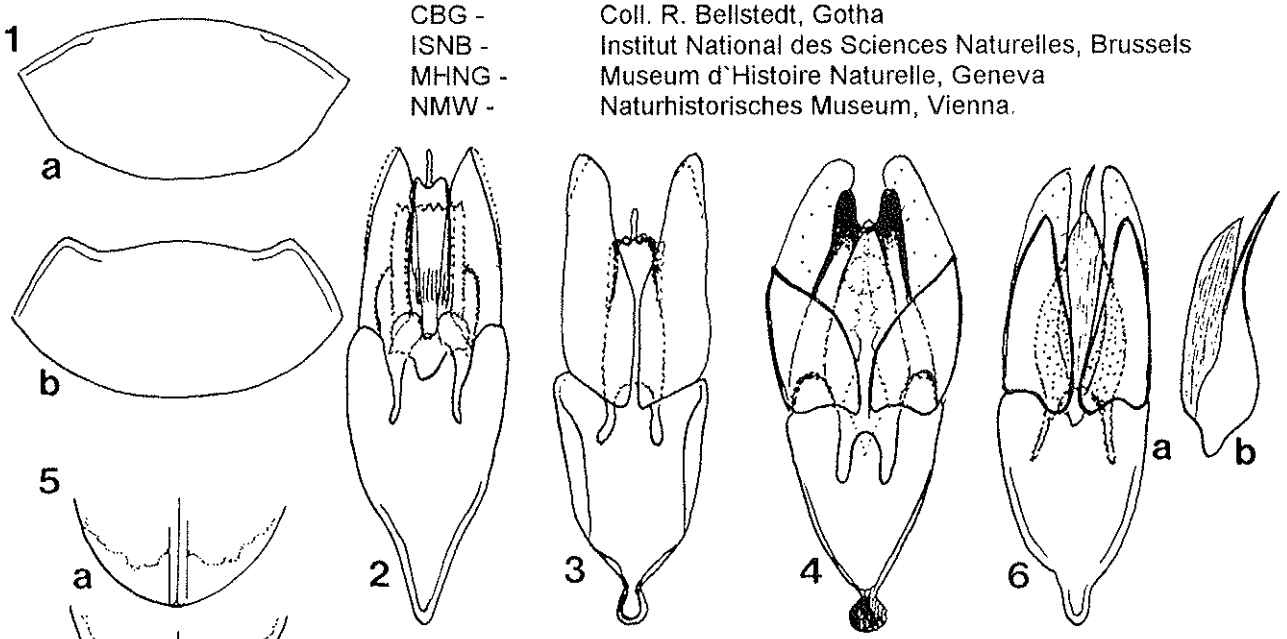
by Franz Hebauer

When d`Orchymont described his *Chaetarthria indica* in 1920 from India (Nilgiri Hills), the method of dissection and examination of male genitalia was not yet usual. In 1923 he described *C. saundersi* from Singapore based on a single specimen without mentioning in his description the most important external difference between that species and *C. indica*, the presence of distinct pronotal fore-angles in his new species. In 1924 Knisch described *C. almorana* from Kumaon on the basis of three specimens without having seen *C. indica* and without dissection the type specimen.

In contrast to those times numerous specimens of oriental *Chaetarthria* are now available for examination and for comparison with one another. After having dissected males and after having examined the type specimens from the d`Orchymont collection in Brussels, I can report some interesting news, but nevertheless I can still only list a few species distributed in the Oriental region.

Abbreviations:

CHD -	Coll. F. Hebauer, Deggendorf
CBG -	Coll. R. Bellstedt, Gotha
ISNB -	Institut National des Sciences Naturelles, Brussels
MHNG -	Museum d`Histoire Naturelle, Geneva
NMW -	Naturhistorisches Museum, Vienna.



Figures:

1. Pronotum: a) *Chaetarthria indica* - group, b) *C. saundersi.*
2. Aedeagus: *Chaetarthria indica* d`Orchymont, typical form.
3. Aedeagus: *Chaetarhria indica* a. *orchymonti.*
4. Aedeagus: *Chaetarthria almorana* Knisch.
5. Elytral apex: a) *Chaetarthria malickyi* sp. n., b) *C. almorana* Knisch, c) *C. indica* d`Orchymont.
6. Aedeagus: *Chaetarthria malickyi* sp. n., a) dorsal view, b) lateral view.

1. ***Chaetarthria indica*** d'Orchymont, 1920

1920 *Chaetarthria indica* d'Orchymont - *Ann. Soc. Ent. Belg.* **60** 18-20.

1926 *Chaetarthria almorana* d'Orchymont - *Philipp. Journ. Sci.* **30** 383-384.

Size 2.0 - 2.5 mm. Subglobular. Piceous to black (pronotum sometimes reddish). Labrum uniformly red; mouthparts yellow; legs dark reddish: sides of pronotum and elytra diffusely narrowly reddish. Pronotum without distinct fore-angles; hind angles triangulate, acute (Fig. 1). Elytra smooth, shining, almost devoid of punctures, except of two irregular, very inconspicuous punctured series.

A single larger (2.5 mm) male from the type locality (in coll. d'Orchymont) has a coarsely punctured elytral series. Because no other substantial difference can be detected, either externally or in the male genitalia, it can be considered as an *aberratio sculpturae* and should be named "a. *orchymonti* a. nov."

The aedeagophore of *C. indica* presents a broad and nearly parallel-sided median lobe, apically not narrowed, but with a soft flagellum arising out of the middle of anterior margin (Figs 2, 3).

***Records*: INDIA**: Nilgiri Hills (type specimens), coll A. d`Orchymont (2 male paratypes seen, dissected).- Nilgiri Hills (same data) 1 male, here designated as "orchymonti a. nov." **NEPAL**: Prov. Bagmati, Gokana For. 1400 m nr. Kathmandu, 30.3.1981, Loebl & Smetana leg. (MHNG, CHD).- Bagmati, Nagarjun For. nr. Kathmandu, 1850 m, 2.4.1981 Loebl & Smetana leg. (MHNG, CHD).- **SIKKIM**: Mt. Everest (Dikchu), 2500 ft, 22.4.(1922?) t. d`Orchymont 1926. **CHINA**: Guangxi, 10 km N Liuzhou, 150-200 m, 11.11.1993, 1 female leg. Schönmann (18; NMW). **THAILAND**: Prov. Rayong, Khao Chamao NP, 12./13.12.1990 leg. Jäch (NMW).-Chiang Mai, 28.1.1958, T. Umesao leg. (t. Chujo 1961). **HONG KONG**: Tao Po Kau (upstr.) 14.7.1983 leg. Dudgeon (NMW). **MALAYSIA**: West Sumatra, 25 km E Padang T. R. Hatta, 14.2.1991, leg. Schillhammer (NMW). - Kalimantan W. Nanga Sarawai env. Tontang 24.7.-2.8.1983, leg. Schneider (NMW). - Kalimantan W Nanga Ela env. 4.-10.8.1983, Nanga Nyuruh 700 m, leg. Schneider (NMW).- Sarawak Mulu NP 3.3.1993, leg. M Jäch (NMW). - Johor env. de Dohol Kota Tinggi, 23.6.1969 leg. R. Pilet (CHD).- Java, Ranoe Bedali 29.10.1928 Exp. Thienemann (ISNB). - Java, Buitenzorg (Bot. Garten, Quellmorast), Exp. Thienemann (ISNB). **PHILIPPINES**: Montalba, coll. A. d`Orchymont (ISNB).

2. ***Chaetarthria almorana*** Knisch, 1924

1924 *Chaetarthria almorana* Knisch - *Wien. Ent. Ztg.* **41** (1-3) 39-45.

Size 2.0-2.5 mm. Subglobular. Piceous to black; pronotum sometimes castaneous to red. Labrum basally darkened, apically testaceous. Pronotum and elytra with narrow reddish margin, apically a little more distinct and more yellowish than in *C. indica*. Whole surface smooth and shining, without distinct sculpture (except two obsolete and irregular, but hardly visible series). Pronotum without distinct fore-angles. Legs rufo-testaceous. Aedeagophore very distinct by an apically attenuated median lobe flanked by heavy chitinised endosclerites partly overlapping the lobe. (Fig. 4). This is the only certain distinguishing character known to me to separate *C. almorana* from *C. indica*! d'Orchymont (1926) made *C. almorana* a synonym of *C. indica*, not having examined the very different male genitalia. Unfortunately the distribution patterns of these species overlap, so there will always be uncertainty about the identity of females.

***Records*: INDIA**: Kumaon Haldwani U. P. Bodair H. G. Champion leg. "Cotypus" (det. A. Knisch, 1922) in coll. A. d`Orchymont 10 ex. (ISNB). **VIETNAM**: Lactho, Tonkin de Cooman (coll. A. d`Orchymont ISNB).- North Vietnam, Tonkin, Dr. Santschi leg. (coll. A. d`Orchymont ISNB).- **THAILAND**: Mae Ping, (light) 5.-10.9.1991, leg. H. Malicky (NMW).- NW-Thailand, Mae Hong Son, Huai Sua Tao, 11.-17.5.1992, leg. Jan Strnad; 29.-30.4.1992 leg. Horak (NMW).- Mae Ping, 16.-20.6.1991, leg. Malicky (NMW).- S-Thailand: Betong, Gunung Cang dun vill., Yala distr., 26.3.-22.4.1993, leg. Horak & Strnad (NMW). **BURMA**: Tavory, Burma R. N. Parker, 1927 (coll. A. d`Orchymont ISNB).- **MALAYSIA**: Sumatra Utara 99/14 E- 02/45 N, Huta Pedang 400 m, 2.1991, leg. H. Malicky (NMW).- Palang Island, Tioman, Kg. Tekek Umg. 15.-26.7.1992, leg. R. Schuh (NMW).- Perak, Kuala Woh, 10 km NE Tapah, 1.8.1993, leg. Schuh (NMW).- Sumatra: Fort de Kock, 920 m, 1924 leg. E. J. Jacobson (coll. A. d`Orchymont ISNB).- Sarawak (Borneo): ca. 40 km SE Kapit, 03.1994, leg. J. Kodada (NMW).

3. ***Chaetarthria malickyi*** sp. n.

Size 1.8 - 2.0 mm. Almost globose; castaneous to piceous; pronotum frequently reddish; labrum and mouthparts rufo-testaceous. Legs reddish. Whole surface glabrous, shining, without distinct sculpture. Pronotum without fore-angles; hind angles sharply pointed like in *C. indica*. Sides of pronotum and elytra with pale margin, which extends at the apex of elytra widely, covering the last quarter of elytra, interrupted by the dark sutural interval (Fig. 5). This character makes it easy to separate females from other members of the *C. indica*-complex. Underside dark; the pseudobasal abdominal segment with the characteristic fringe of golden hairs. The aedeagophore presents a median lobe pointed apically and continued by a subapical arising long and stiff, spine-like flagellum (Fig. 6).

Etymology: This pretty species is dedicated to its discoverer, the Trichoptera-specialist Hans Malicky, Lunz, Austria.

***Records*:** Holotype (male): **THAILAND** 18/49 N-98/67 E Chiang Mai, Zoo (light) 10-17.4.1989 leg. Chantaramong-koi & Malicky (NMW). Paratypes: same data 46 ex. (NMW, CHD).- Thailand: Khoo Yai NP 16.11.1988 (8), 8 ex. leg. M. Jäch (NMW).- East Thailand: Ko Chang, Klong Prao, pool (13,1) 11.12.1990, 11 ex. leg. Jäch (NMW).- Prov. Rayong, Chao Chamao NP, 12.12.1990 (14), 3 ex. leg. Jäch (NMW).- NW-Thailand: Mae Hong Son, Ban Si Lang, 1200 m, 19/19N - 97/59E, 23.-31.5.1991, 3 ex. leg. . Dembichy (NMW). - NW-Thailand: Chiang Mai (Zoo) light, 9.-16.6.1988 leg. Malicky (NMW). **MALAYSIA**: Kedah, Langkawi 30.1.192 leg. Jäch (16), 2 ex.(NMW).- West Sumatra: S Padang, waterfall, Pantai Bungus, 23.2.1991, 1 ex. leg. Schillhammer (NMW). - Bali: (3) Ubud-Tegalalang 11.-12.4.1992, 1 ex. leg. Jäch (NMW).

4. ***Chaetarthria saundersi*** d'Orchymont, 1923

1923 *Chaetarthria saundersi* d'Orchymont.- *Treubia* **III** (3-4) 420-421.

Size 2.0 - 2.5 mm. Entirely black, smooth and shining. Labrum uniformly black; palpi and tarsi paler, legs reddish; elytra apically diffusely reddish. Pronotum with distinct fore-angles! Elytra with almost regular series of punctures, even until the sutural strip; intervals with coarser and more irregular punctures. The lateral border of elytra in its middle section characteristically turned down like epipleura. The abbreviated sutural strip is more extended forward than in the species of the *C. indica*-complex.

This species is not likely to be confused with any other Oriental species, but it is very similar to the African *C. polita* J. Balfour-Browne.

Records: Holotype (female): **MALAYSIA** lectotype hereby designated from a paratype labelled "Spore" in red ink - Singapore, Medan 4.9.1921, J. B. Corporaal leg. (in coll. A. d`Orchymont ISNB). Paratypes: the other female in the same collection labelled in the same way as the lectotype.- Kalimantan, W Nanga Sarawai env. Tontang, 24.7.-2.8.1993, leg. Schneider (NMW).- Johor, Lombong, 15 km N Kota Tinggi, 27.-30.7.1992, leg. R. Schuh (NMW).-Kalimantan, W Nanga Ela env. 4.-10.7.1993, Nanga Nyuruh, 700 m, leg. Schneider (NMW). **THAILAND**: Phrae, 12.1978, leg. Pelosin (CHD). - Chiang Mai 320 m, 8.9.1986, leg. P. Schwendinger (MHNG, CHD).- North Thailand, Mae Hong Son, 1000 m, 16.-23.6.1993, leg. Schneider (NMW).- North Thailand: 18/40N-98/67 E, Chiang Mai Zoo (light), 1.-8.5.1989 leg. Chantaramongkoi & Malicky (NMW); same loc.: 9.-16.5.1988, light, leg. Malicky (NMW).-South Thailand: Betong, Gunung Cang dun vill. Yala distr. 26.3.-22.4.1993, leg. Horak & Strnad (NMW).- East Thailand: Ko Chang (10) Than Mayom 8.12.1990, leg. Jäch (NMW).- Mae Hong Son env. Ban Hual Po, 24.-30.6.1993 leg. Schneider.- North Thailand: Mae Taeng, Chiang Mai, 13.9.1988, leg. Yimyam (NMW).- North Thailand: Chiang Mai, Chom Thong, 24.4.1991 leg. Pacholatko (NMW).- Mae Ping (light) 24-25.6.1991 leg. Malicky (NMW).- **VIETNAM**: S-Vietnam: Long Xuyen, Conchinchine Dorr. (Paratype, coll. A. d`Orchymont ISNB).- Hanoi 6.1991, leg. Jan Strnad (NMW).- N-Vietnam Hanoi (light) 20.-30.4.1991, leg. E. Jender (NMW).- **NEPAL**: (centr.) Sauraha, 20.-25.5.1992, leg. Ivo Jenis (NMW).- **BANGLADESH**: "E-Pakistan" Dinajpur, 10.1969, leg. Barde (CHD, CBG).

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Received November 1994, revised January 1995

LACCOPHILUS STROHMI IS _L. BIGUTTATUS_ - AND SOME OLD COMMON NAMES

It is shown that *Laccophilus strohmi* Thomson, originally described from Sweden, and *L. apricornis* Reitter, from northern Mongolia, are synonyms of *L. biguttatus* Kirby, which is now seen to be an Holarctic species. The original description of *L. biguttatus* was in Richardson's *Fauna Boreali-Americana*. The Club copy reveals this as an interesting first (?) attempt to give water beetles common names. They are mostly rather dull, *L. biguttatus* being the "two-spotted Laccophilus", but one fascinating name is "Ooligbuk's Dytiscus", named in honour of a pair taken "by the Esquimaux Ooligbuk in the Great Bear Lake River". *Gyrinus analis* might take exception to being known more generally as the "Anal Gyrinus". Why do whirligigs attract rude names?

ROUGHLEY, R.E. & NILSSON, A.N. 1994. Taxonomy and distribution of the Holarctic diving beetle *Laccophilus biguttatus* Kirby (Coleoptera: Dytiscidae). *Journal of the New York Entomological Society* **102** 91-101.

A NEW IBERIAN _LIMNOXENUS_

Limnoxenus olmoi Hernando & Fresneda 1994 is described from the Baixo Alentejo, Portugal and Corchuela, Toledo, Spain. The main differences are in the aedeagophore, that of *niger* having the opening of the penis on a level with the tip of the aedeagal strut, whilst the strut in *olmoi* extends beyond the opening. It is assumed that the true date of publication of the description is 1994, not 1993.

HERNANDO, C. & FRESNEDA, J. 1994. *Limnoxenus olmoi* sp. n. de la Peninsula Iberica (Coleoptera: Hydrophilidae). *Elytron* **7** (1993) 81-85.

A TYRRHENIAN EPISODE - SPRINGTIME COLLECTING ON CORSICA AND SARDINIA

by Robert Angus

Helophorus obscurus, like Gaul of old, is currently divided into three parts. *H. obscurus obscurus* is the normal European form, while North African material is placed as *H. obscurus algiricus* and the third form, *H. obscurus subarcuatus*, is endemic to Corsica and Sardinia. This interesting situation, which seemed by far the best example of widely distributed subspecies in *Helophorus*, appeared entirely satisfactory until Nezha Aouad sent me living *algiricus* from Morocco in 1991. Chromosome preparations from this material were sufficient to show that *algiricus* is a good species, thereby undermining the assumption that *subarcuatus* might be a subspecies of *obscurus*. This was still possible, but it seemed very likely that *subarcuatus* was also a good species, or even a subspecies of *algiricus*. There was only one way to find out!

A one week fly-drive trip was booked to Corsica, the type locality for *subarcuatus*. So it was that on 7th April 1993 I arrived late in the evening at Bastia, and met up with Dave Bilton and Juan Diaz, who had flown in from Santiago de Compostela. We collected our car and holed up for the night in a hotel near to the airport. The next morning we collected Mick Eyre at Île Rousse on the north coast, as he had travelled on the night ferry from Nice. Driving through the small town, we noted the Hotel Napoleon Bonaparte, and then were amused to find that Mick had arrived aboard the good ship Napoleon, to which might be added Mick's detection of two further hotels, the Napoleon and the Bonaparte. Was this to be our Waterloo?

A picnic lunch was followed by fruitless exploration of floods by a coastal stream, after which we shifted our base to the mountain fastness of Corte. We set off up the beautiful wooded valley of the Restonica in the hope of collecting round the Lac de Melo. This turned out be under ice and snow, but we did get *H. glacialis* in typical snowmelt pools a little below the lake. We duly returned to Corte for the first of three memorable dinners in a small restaurant - all splendid occasions and culminating, at midnight on Easter Saturday, with volleys of rifle fire as the Corsicans celebrated the resurrection of the Prince of Peace.

Next morning we went first to Vizzavona to see what we could find in the mountain forest. Very little as it turned out, though David managed to find an endemic woodlouse he particularly wanted, and we also found a curious *Agabus* in the streams - looking like *A. paludosus* gone wrong. It turned out to be *A. binotatus*, and we found it to be quite common in the streams. After that we headed over the pass towards Ajaccio. At last I began to find *obscurus*-type *Helophorus*, first in floods beside a small stream in a lowland valley, and then in a coastal pool near Ajaccio airport, behind a beach shack poetically named "Sun, Sand and Sex". The pleasures of the flesh notwithstanding, I had a disconcerting feeling that the *Helophorus* were awfully like normal *obscurus*. Still, some of the specimens were very small and I consoled myself with the notion that the differences were very slight and that I was at the limit of what I could do with a hand lens.

The next day we decided to go down towards Porto Vecchio, the type locality of Rey's *H. purpuratus*. On the way down to the coast, we stopped at an area carpeted with the magenta flowers of *Cyclamen repandum* - all sadly doomed by imminent road-widening. Wild cyclamen are not shy and we found this species widely distributed in the forest. At the coast, we had some interesting collecting around the Étang d'Urbino, with finds including *Limnebius doderoi, Berosus jaechi* and more disconcertingly ordinary *H. obscurus*. Collecting around Porto Vecchio was curiously disappointing, for, although we found numerous pools and marshes, they seem very poor in beetles. As on our first day, the answer may have been recent flooding after a cold spell. Anyway, we headed north again, stopping at the river Solenzara just outside the town of Solenzara. This was a splendid, clean lowland river, with *Stictotarsus procerus, Nebrioporus martini* and *Rhithrodytes sexguttatus* among other things.

On Sunday we decided to go for some woodlice which had been recorded from the Golo river, which turned out to be near Corte. The woodlice escaped, but we had more good stream collecting, remarkably similar to that in the Solenazara, though considerably higher. I also found two *Sisyphus schaefferi* rolling a diminutive dung ball - a beetle I had long wanted to find. Juan had to fly back to Spain early on Monday morning, so that night we headed for the Bastia airport hotel, but not before some interesting collecting in old gravel workings near the airport - here we found the big stuff - *Cybister lateralimarginalis* and *Hydrophilus piceus*, as well as *Helophorus milleri* (later chromosomed) and *H. obscurus*.

I was by this time feeling increasingly doubtful that I had any *Helophorus subarcuatus*, so we decided to devote Monday to another attempt on the "deep south". This time we found an excellent grassy, crowfoot pool near Porto Vecchio, with plenty of beetles, including *Hydrobius convexus* and more *Helophorus obscurus*. Another good pool south of Porto Vecchio yielded the only *Hydrochus* of the trip (*flavipennis* plus one unidentified female). We then went down to Bonifacio and along the south coast where we had good views across to Sardinia and some collecting in a coastal pool. We got back to the car just as the heavens opened, and headed north with a view to finding a hotel in Porto Vecchio. This proved difficult,

so I suggested we pressed on northward, but mutiny was averted by the discovery of a very cheap and comfortable hotel in Solenzara, coupled with a superb restaurant.

And so to Tuesday, our last day. A morning of torrential rain! In desperation I suggested that we pretend that *H. subarcuatus* was really the Spanish *H. seidlitzii* in disguise, so perhaps if we looked in *seidlitzii* habitats we might get somewhere. We didn't and all too soon it was time to head for Île Rousse to deliver Mick to Napoleon. The weather cleared, and we had time for a bit of coastal work, when David found *Ochthebius quadricollis* in a pool halfway down a cliff, before we all went our separate ways.

Dave and Mick in *glacialis* country, below the Lac de Melo

Back in the laboratory it was clear that all the *H. obscurus* were indeed *obscurus*, with perfectly normal chromosomes. However, a re-examination of Rey's types of *H. subarcuatus* and *purpuratus* showed that I had interpreted them correctly, so that we now knew of two forms on the island. As two subspecies cannot coexist, they had to be separate species. So, *H. subarcuatus* had to be either a good species or a subspecies of *H. algiricus*. Thus, at least I had found out what it wasn't, even if not what it was! We had also collected a good selection of other species, which have given some very useful chromosomes. We also agreed that we had done all that we could have done. Thus, although I felt that our expedition could be claimed a success with rather more conviction that Mr Major's recent assessment that the Conservative Party was in credit after 1994, I was not totally happy. It seemed that the only possible way forward was to try my luck in Sardinia, from where I had seen many more specimens (including Sharp's types of *aritzuensis* and *lancifer*), even though it was not the type locality of *subarcuatus*.

So, I set out on 4th April 1994 (Easter Monday), alone this time, for Cagliari. A four hour stopover at Rome Airport lent credibility to the concept of the Eternal City, but - I had my net and some collecting jars as hand luggage. I found a marshy place behind the car park, scrambled over a fence, and found a muddy puddle. Here I found *Helophorus obscurus, brevipalpis, alternans* and *milleri*, which I later chromosomed. It was falling dusk when at last I reached Cagliari, and by the time I had collected my car it was almost dark. Nothing daunted I headed away from Cagliari towards an area from where d'Orchymont's collection had *subarcuatus*. Sardinian roads tend to skirt the towns, which can appear remarkably dead in the dark. This and my total lack of any Italian, which reinforced my congenital reluctance to stop and ask directions, meant that I drove long into the night before asking at a roadside pizzeria where I might find a hotel. Fortunately for me the man at the hotel in Carbonia spoke German, and I was soon fixed up with a room and my first pizza of the trip - so much better than the English ones.

Next morning, refreshed and eager, I stocked up with provisions and set off towards Torre Corsair, a d'Orchymont locality. A drive over remarkably dry terrain had me increasingly worried, but eventually I found a promising area where a valley had been dammed at its seaward end by a wall of windblown sand. The area is being developed as a holiday complex, and I had to thread my way between piles of builders' rubble before finding a difficult scramble down to the pool. It was steep-sided and very hard work, but among other things, I got two *H. subarcuatus* - and this time the hand lens left me in no doubt! Much cheered, I headed further north and, skirting the southern edge of Oristano Bay, I came upon a good pond right beside the road - and it was teeming with *subarcuatus*! Now I felt I could have a good look at the island, using not only my list of d'Orchymont's *subarcuatus* localities, but also Burmeister's excellent account of the Hydradephaga (1987 *Spixiana* **10**(2) 157-183). And so to Oristano for a comfortable night.

I awoke to high wind and pouring rain, with the hills totally obscured by cloud. The only hope seemed to be to return to the east coast, and I saw nothing to be lost by taking a look at the Roman remains at Tharros. That done and the stormy sea admired, I set out to see what I could find on the Sinis peninsula. Overhead the clouds were somewhat broken, and the rain held off, but all the time I could that central Sardinia was totally blanketed by thick dark cloud. It reminded me of childhood trips to Walney Island when the Lake District was bathed in torrential rain! As I approached a complex of shallow pools only a short walk from the road, five flamingos flew away - promising! A good selection of beetles included *Nebrioporus cerisyi*, which I was pleased to have as I wanted to compare its chromosomes with those of Spanish *N. baeticus*, which Hans Fery had sent me.

By mid afternoon I had decided that I had collected all I was going to on Sinis, and as the clouds seemed to be lifting I travelled inland to Aritzo, a pretty alpine resort, even in the evening sleet. Next morning I worked round to the pass of S'Arcu de Tascussi, at 1200 metres altitude. A rocky pool which looked as though it might have had *Stictotarsus griseostriatus* yielded instead *Hydroporus tessellatus*, but a trackside ditch lower down had plenty of *H. subarcuatus* - near enough to Sharp's *aritzuensis* locality! After this I worked my way round the Gennargentu massif to reach some of Burmeister's localities in the upper valley of the Flumendosa. This area is being spoiled by major road construction, and even though I found what looked an excellent place the river here had few beetles but instead *Crangon*-type prawns similar to those that Garth and I found in central Spain in 1985. I decided to head east again with a view to trying the Giara de Gesturi next day. The Giara, now a national park, is a fantastic place. It rises like a great elongate flat-topped basalt molar, and its plateau is clothed with cork oak forest which reminded me of the Spanish Extremadura. The Warden, despite language difficulties, was extremely helpful, providing me with a plan of the tracks, and allowing me to drive round. It is amazing what deep puddles a small Lancia will cross, though I had some anxious moments. I didn't find *Acilius duvergeri*, the main speciality of the area, but I did get two female *Haliplus rubidus* in a windswept crowfoot lake. In early afternoon I descended, thinking wistfully of what much of Sardinia must once have been like. I decided to go north, to Sharp's other locality at Golfo Aranci. The hotel was not as expensive as I feared, and at dinner I had the novel experience of listening to the well lubricated speech of the hotel's main occupants, Swiss cyclists, in Schweitzerdeutsch - very strange and, to me, utterly incomprehensible! Golfo Aranci is a pretty place, seeming especially so as the western side of the island was sheltered from the wind and rain, and I found yet more *subarcuatus*, though sadly none with the very narrow aedeagophore of Sharp's *lancifer*. Working southwards I found a place where a grassy meadow stream crossed a track in a gravelly ford, and there found abundant *Scarodytes halensis fuscitarsis* and *Nebrioporus martini* - both meriting chromosomal investigation, and to which I later added *Stictotarsus procerus* from the Posada river. I spent the night at Dorgali and next day continued south, with splendid views of the Gennargentu in the morning sunshine. Snow drove me back towards Cagliari. Some grassy pools near Mandas provided a last sample of *H. subarcuatus*, and larvae of *H. milleri,* and my last night was spent in a remarkably cheap hotel north of Cagliari.

Although I got very good samples of *H. subarcuatus*, I found Sardinia harder to work than Corsica. It is much more managed, and lacks the plentiful, high quality lowland streams. On Sardinia I took no *Hydrochus*, and on Corsica we found it in only one pool. A source of deep embarrassment is the complete absence of *Helophorus brevipalpis*. It never occurred to me that it would be absent from such large islands - has anyone else found it there? The abundance of *H. subarcuatus* on Sardinia and its absence from my Corsican material is very puzzling. All my Sardinian specimens were teneral, unlike my Corsican *obscurus*. I did not find *obscurus* on Sardinia. I was struck by the readiness with which *subarcuatus* would fly - like *flavipes* but unlike *obscurus*. Is it possible that *subarcuatus* is really a Gardinian endemic which is occasionally blown across the Strait of Bonifacio. However, Rey's *subarcuatus* locality, Monte Renoso, is in central Corsica, and his material is teneral. Another possibility was that we were "between generations" on Corsica - even though David Bilton had been taking the related Spanish *H. seidlitzii*, sometimes at high altitude, just before he came to Corsica. Anyway, I can reveal that, following my chromosome preparations, *H. subarcuatus* is a good species. I have some

livestock left, and still hope to get larvae. At last I have been able to solve the problem of the *H. obscurus* complex, and I have a lot of other chromosome material for use in due course.

Finally, I gratefully acknowledge the Central Research Fund of the University of London for making both trips possible.

Received January 1995

THURINGIAN CORRECTIONS

The checklist was reviewed in ***Latissimus* 4**. Seven corrections and amendments have been made since then.

BELLSTEDT, R. 1993. Wasserkäfer (aquatische Coleoptera), pp. 21-23 in FRITZLAR, F. & BELLSTEDT, R. (eds) *Check-listen Thüringer Insekten.* **1**, 56 pp.

BELLSTEDT, R. 1994. Ergänzungen zur Checklist (1993) Thüringer Wasserkäfer. *Check-listen Thüringer Insekten.* **2**, p. 47.

THURINGIAN FAUNA

Forty nine species of water beetle are included in a survey of the fauna and flora of gravel pits at Stotternheim.

BELLSTEDT, R., LEHMANN, C. & WESTHUS, W. 1994. Flora und Fauna der Alperstedter Kiesgruben bei Stotternheim, Kreis Erfurt-Land. *Abhandlungen und Berichte des Museums der Natur Gotha* **17** 65-82.

WATER BEETLE GUILDS & MOSQUITOES

Assemblages of dytiscids and mosquito larvae were compared in two northern Swedish snowmelt pools which differed in their temperature regimes because of different shading and duration. The total abundance of beetles was about the same in both pools, but species richness was twice as high in the warmer, more permanent pool. This pool had five species guilds, of which only two were present in the more temporary, cooler pool. There was a greater degree of species turnover in the warmer pool. Beetles were the only predators of the mosquitoes, mainly *Aedes communis* (DeGeer), in the cooler pool. Initial populations of mosquitoes were similar in both pools, but the first instar larvae suffered greater mortality in the warmer, species-rich pool. A study of 40 pools indicated that beetle guild numbers increased with pool duration, that the number of species within each guild increased with increasing pool size and that species composition varied based on cold- and warmth-adapted species.

NILSSON, A.N. & SVENSSON, B.W. 1994. Dytiscid predators and culicid prey in two boreal snowmelt pools differing in temperature and duration. *Annales Zoologici Fennici* **31** 365-376.

SEVENTEEN AFRICAN *BEROSUS*

This paper concerns the species of the *Berosus nigriceps* group in the Ethiopian and Madagascan faunas. The 17 species recognised include three new ones, *B. maximiliani* from South Africa, *B. mucronatus* from Somalia, Kenya and Zimbabwe, and *B. nudicollis* from Madagascar. The treatment includes the usual high quality drawings and maps of distributions.

SCHÖDL, S. 1994. Revision der Gattung *Berosus* Leach 5. Teil: die äthiopischen und madegassischen Arten der Untergattung *Berosus* Leach, s. str. A: Die *Berosus nigriceps* Gruppe (Insecta: Coleoptera: Hydrophilidae). *Ann. Naturhist. Mus. Wien* **96B** 209-246.

FIFTEEN SOUTH AMERICAN *BEROSUS* PLUS

The title of this paper is misleading as it is actually provides a comprehensive survey of the whole genus in South America, with a key to the 80 described species, 15 of which are redescribed from the IRSNB, Brussels.

OLIVA, A. 1993. Some types of *Berosus* (Coleoptera; Hydrophilidae) kept in the collections of the Institut royal des Sciences naturelles de Belgique. *Bull. Annls Soc. r. belge Ent.* **129** 183-230.

GB NETS - CHANGE OF ADDRESS

The increasingly popular range of sturdy pond nets is featured in Gill Baldwin's 1995 catalogue. Importantly, one should note a change of address - GB Nets, 45 Burnley Road, Todmorden, Lancs. OL14 7BU - telephone and fax in the UK 01706 813941 - from abroad ++ 44 1706 813941. An export catalogue is available.

FIFTEEN SOUTH AMERICAN *HYDROCHUS*

The following new species are described:

Hydrochus battjai	Surinam	*H. dewnaraini*	Surinam
H. beeneni	Cayman	*H. piroei*	Surinam
H. bruggei	Brazil	*H. ramcharani*	Surinam
H. choennii	Surinam	*H. rattanae*	Surinam
H. coeneni	Brazil	*H. soekhnandanae*	Surinam
H. descenderi	Brazil	*H. vanbergehenegouweni*	Venezuela.

MAKHAN, D. 1992. Twelve new *Hydrochus*-species from South America (Coleoptera: Hydrophilidae). *Phegea* **20** 95-103.

OLD WORLD *CRENITIS*

This enigmatic genus of beetles is known to European coleopterists as *C. punctatostriata* (Letzner), originally described as an *Hydrobius*, and resembling a small *Enochrus* or an *Anacaena* in the field. The second species to be described was *C. apicalis* (Reitter), described as a *Paracymus* from Transbaikalia. The next, the African *C. zimmermanni* (Knisch), began recorded life in a genus created for it, *Noxonus* d'Orchymont, which d'Orchymont later synonymised with *Crenitis*. The latest synonymy comes with the loss of *Aparacymus* Matsui & Nakane, previously a Japanese subgenus of *Anacaena*. Franz Hebauer characterises the genus primarily on the basis of the non-keeled prosternum and the lack of a protuberance on the mesosternum. The Old World checklist runs to 23 species, included 12 new to science, mainly described from South Africa, eastern Siberia and Nepal. These are fully described and keyed. The New World checklist, also included in the paper, stands at 15 species.

HEBAUER, F. 1994. The *Crenitis* of the Old World (Coleoptera, Hydrophilidae). *Acta Coleopterologica* **10** 3-40.

***OCHTHEBIUS NOTABILIS* GROUP UPDATE**

Study of further material has allowed Manfred Jäch (1993) to confirm the split of *O. lanarotis* Ferro from *O. salinator* Peyerimhoff, with the description of a new subspecies of *lanatoris, gereckei*, found in inland saline seepages in Sicily.

JÄCH, M.A. 1992. Revision of the Palaearctic species of the genus *Ochthebius* Leach, 1815. IX. The *andraei* and *notabilis* species groups (Coleoptera, Hydraenidae). *NachrBl. bayer. Ent.* **41** 7-21.

JÄCH, M.A. 1993. Revision of the Palaearctic species of the genus *Ochthebius* Leach 1815. XII. additional notes on the *notabilis* species group (Coleoptera: Hydraenidae). *Entomological Problems, Bratislava* **24** 59-62.

IRISH WEEVILS

A welcome series of papers on Irish weevils by Mike Morris includes a check list and a critical review that refers to wetland species. The review is also useful for its discussion of the progress in understanding the Irish fauna, and for bringing some of us up-to-date on weevil taxonomy. At the risk of bringing about the usual argument about what is and what isn't a wet species, probably by accidental omissions, the following are noted as Irish:

Nanophyes marmoratus	*Erirhinus aethiops*	*Notaris bimaculatus*
Bagous brevis	*E. scirpi*	*Pelenomus* (= *Phytobius* auctt.) *canaliculatus*
B. collignensis	*Eubrychius velutus*	*P. comari*
B. limosus	*Grypus equiseti*	*P. quadrituberculatus*
B. glabrirostris	*Gymnetron beccabungae*	*Phytobius* (= *Litodactylus*) *leucogaster*
B. lutulentus	*Hydronomus alismatis*	*Poophagus sisymbrii*
Erirhinus acridulus	*Leiosoma deflexum*	*Tanysphyrus lemnae*

MORRIS, M.G. 1993. A critical review of the weevils (Coleoptera, Curculionoidea) of Ireland and their distribution. *Biology and Environment: Proceedings of the Royal Irish Academy,* **93B** 69-84.

MORRIS, M.G. 1993. A check list of the weevils of Ireland (Coleoptera: Curculionoidea). *Entomologist's Gazette,* **44** 289-296.

CHINESE *HYDRONEBRIUS*

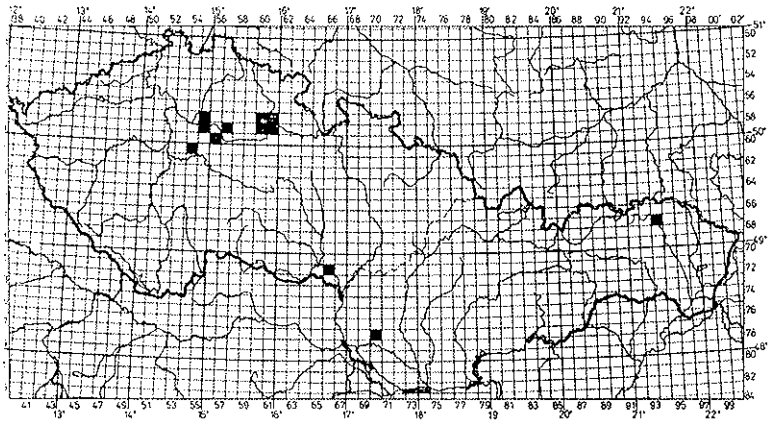
Hydronebrius amplicollis Toledo, 1994 is described as the first *Hydronebrius* from China, being found in Sichuan province by Radek Dunda.

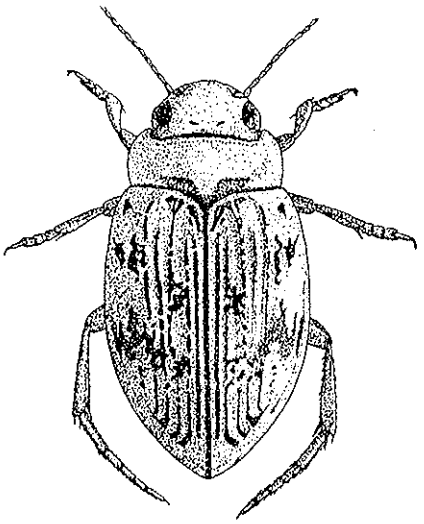
TOLEDO, M. 1994. A new species of *Hydronebrius* Jakovlev, 1897 from China (Coleoptera Dytiscidae). *Natura Bresciana* (1993) **29** 207-211.

NEBRIOPORUS CANALICULATUS (LAC.) IN CZECHOSLOVAKIA

by Jaroslav Štastný

This southern and west European species was until the 1930's supposed to be rare and found only in territories including Portugal, Spain, southern France, Italy and Greece. It was also rarely found in northern France, Belgium, the Netherlands and Germany. In about the 1920's it began to extend its range northwards and to the north-east. Other locations in the Netherlands, Belgium and Germany - on the Middle Elbe - were added. It was first discovered in Poland near to Lodza in the 1950's.





In Czechoslovakia it was mentioned for the first time Říha (1986) from Pencice (square 6054) near Javany. It had been found by Mr Danek in Bohemia in 1977 (Sokolec near Podebrady - square 5956) but this record was made known until 1987. Other locations around Nymburk (squares 5755, 5855, 5857) and Hradec Králové (5760, 5960, 5861) are mine (see Schaeflein 1989).

The beetle was found in all cases on substrata with a layer of detritus, usually in sandpits. It is usually associated with the pioneer species *Coelambus confluens* (Fab.) and *Hydroporus marginatus* (Duftschmid), and with euryoecious species as *Hydroglyphus pusillus* (Fab.), *Hydroporus planus* (Fab.) and *Rhantus suturalis* (Macleay).

I suppose that its occurrence is nowadays possible in suitable habitats in most places in Czechoslovakia, as evidenced by its discovery in Moravia (square 7166 leg. Štastný) and Slovakia (square 6794 Ernest leg. and square 7770 leg. Štastný).

References

HOLMEN, M. 1970. *Deronectes canaliculatus* Lac. ny for Danmark. *Flora og Fauna* **76** 19-20 [figure].

RÍHA, P. 1986. Faunistic records from Czechoslovakia. Coleoptera, Dytiscidae, *Potamonectes canaliculatus* Lacordaire. *Acta entomologica Bohemoslovaca* **83** 154

SCHAEFLEIN, H. 1989. Beitrag zur Dytiscidenfauna Mitteleuropas (Coleoptera) mit okologischen und nomenklatorischen Anmerkungen. *Stuttgarter Beitrage zur Naturkunde Ser. A* **430** 1- 39.

ŠTASTNÝ, J. 1992. Faunistic records from Czechoslovakia. Coleoptera, Dytiscidae. *Acta entomologica Bohemoslovaca* **89** 71.

Received October 1994

GERMAN BALTIC FAUNA

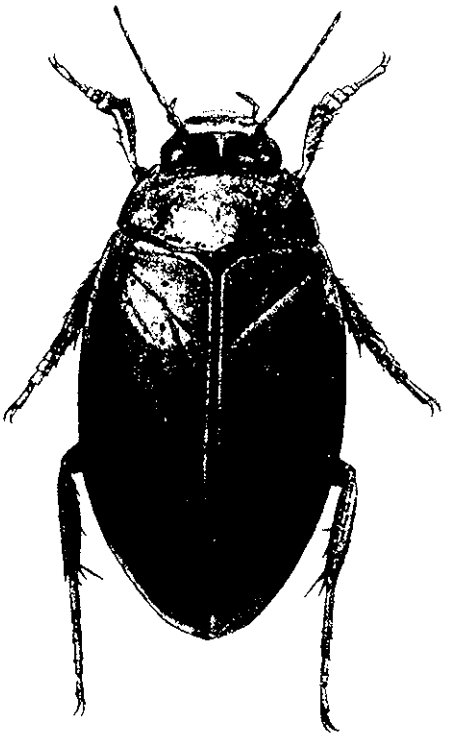
Eighty one species of water beetle have been recorded from the Zingst peninsula, a spit in the Baltic Sea. The fauna includes *Haliplus fulvicollis* Erichson, *Hydroporus obsoletus* Aubé and *Colymbetes paykulli* Erichson.

STÖCKEL, G., BELLSTEDT, R. & BRAASCH, D. 1994. Zur Wasser-käferfauna der Halbinsel Fischland/Darß/Zingst sowie der Boddinseln Großer Kirr und Oie. *Natur und Naturschutz in Mecklenburg-Vorkommern* **30**: 53-57.

HYDROPORUS JURJURENSIS IN ITALY

Mario Toledo notes the presence of this species in the Apennines. This distinctive member of the *Hydroporus longulus* group was previously known from Greece, Crete, Cyprus and Sicily.

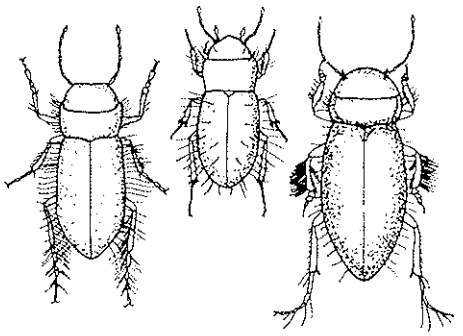
TOLEDO, M. 1994. Segnalazione di *Hydroporus jurjurensis* Régimbart (Coleoptera Dytiscidae) nuovo per l'Italia continentale raccolto sui Monti della Laga (Appenino Centro Meridionale). *Natura Bresciana* (1993), **29** 203-206.



CZECH PUBLICATIONS

Štastný (1990) discusses some species found in the West Bohemian part of Czechoslovakia. These include *Deronectes platynotus* Germar and *Agabus neglectus* Erichson. Štastný (1993a) lists 41 Hydradephaga found in a survey of an old riverbed system in Central Bohemia. The survey was undertaken by the "Children of the Earth" but could be destroyed by a construction of a Eurocamp. Štastný (1994) lists 34 species of Dytiscidae found in mountains north of Prague in the Czech Republic (part of the Erzgebirge). There are no great surprises, though one would expect more of the typical Central European species to occur in the area.

The papers from Ziva are both of considerable interest. Štastný (1993b) describes and illustrates some of the finds from the Fan Mountains in the alpine zone of Tadjikistan, Central Asia. These include the carabiform *Hydronebrius cordaticollis, Agabus dichrous* [right], *A. biguttatus winkleri* and *Hydroporus glazunovi*, and what must now be called *Nebrioporus airumlus*. Jaroslav Smrz's paper concerns the adaptations of subterranean Dytiscidae, in particular noting their blindness, small size, and abundance of long, fine sensory hairs. In *Morimotoa*, the specialist pressure receptors on the head are noted as well as the tracheation of the wings, facilitating their use as "lungs".



SMRZ, J. 1993. Broucí emigranti aneb Strašrybkové z podzemí. *Ziva* **2** 75-76.

ŠTASTNÝ, J. 1990. Zajímavé nálezy vodních brouku (Coleoptera, Haliplidae, Dytiscidae, Gyrinidae) pro faunu západních *Cech. Zprav. Zpc. pob. CSE v Plzni* **8** 13-18.

ŠTASTNÝ, J. 1993a. Výsledky inventarizacního pruzkumu brouku skupiny Hydradephaga (Col. Haliplidae, Noteridae, Dytiscidae, Gyrinidae). *Polabská Príroda* **4** 4-6, one plate.

ŠTASTNÝ, J. 1993b. Potápníci alpínského pásma Fanských hor. *Ziva* **2** 77-78.

ŠTASTNÝ, J. 1994. Potápníkovití Rezervace rašeliniště Jizerky (Coleoptera: Dytiscidae). *Fauna Bohemiae Septentrionalis* **19** 169-182.

FRENCH SUBFOSSIL HISTORY

Philippe Ponel's study of La Grande Pile, a 13 metre deep peat bog, reconstructs variations in mean July temperature on the basis of remains of beetles and crustaceans. Two phases of climatic improvement are recorded, one just after 70,000 BP (with a rise in temperature from 10-13°C to 15-16°C) and a second just before 34,000 BP (from 10-13°C to 14-21°C). A cold period with a temperature as low as 6-11°C is recorded at about 30,000 BP. The latter period is characterised by species such as *Stictotarsus griseostriatus* (DeGeer), *Agabus arcticus* Paykull, *Colymbetes dolabratus* (Paykull), *Helophorus glacialis* Villa, *H. sibiricus* (Motschulsky), and *H. oblongus* LeConte, not to mention the well known Tibetan *Aphodius holdereri* Reitter. As usual, the insects provided a more detailed picture than study of pollen alone.

PONEL, P. 1994. Les fluctuations climatiques au Pléniglaciaire würmian déduites des assemblages d'Arthropodes fossiles à La Grande Pile (Haute-Saône, France). *C. R. Acad. Sci. Paris* **319** 845-852.

***ILYBIUS CRASSUS* IS A COMPLEX**

Zaitzev described *Ilybius crassus* Thomson as from "Siberia to the Far East [of Russia]" in 1953. Anders Nilsson establishes that there are three species:- the original central and northern European *I. crassus*; the new species *I. nakanei* from South Sakhalin and Hokkaido; and *I. chishimanus* Kôno from East Siberia, Primorye, North Kuril Islands and north-east China (with which is newly synonymised *I. weymarni* J. Balfour-Browne). An earlier record of *I. crassus* from Mongolia by Guéorguiev is found to be based on a single male *I. subaeneus* Erichson, new for Mongolia.

NILSSON, A.N. 1994. A revision of the Palearctic *Ilybius crassus*-complex (Coleoptera, Dytiscidae). *Ent. Tidskr.* **115**: 55-61.

POND CLUSTER TERMINOLOGY - THE PONDSCAPE

There is nothing about water beetles in Robin Grayson's paper but some of the ideas are appealing. In particular, a terminology was evolved in order to describe the intensity of ponds of Cheshire and South Lancashire:

POND SUPERCLUSTER: a large tract of land, typically hundreds of kilometres in extent, which is very rich in mapped ponds. A workable definition is to include only those one kilometre squares with six or more mapped ponds each.

POND CLUSTER: a relatively small tract of land, usually in the range of one to 100 square kilometres, appreciably richer in mapped ponds than surrounding areas. No lower limit of pond density or numbers is applied. In everyday speech, a cluster can be as few as three ponds.

PONDWAY: a corridor of land relatively rich in ponds in comparison with adjacent areas. A pondway has six or more mapped ponds per one kilometre square, and may be an elongate pond cluster, a linear extension of a pond supercluster or else be an essentially isolated entity.

CORE AREA: a tract of land with a density of 15 or more mapped ponds per one kilometre square. A pondway, pond supercluster or a pond cluster may have one or more core areas, or none at all.

PONDSCAPE: a landscape with six or more mapped ponds per one kilometre square, and therefore capable of being visually materially affected by the presence of either ponds or attendant features such as swamp vegetation and clumps of trees.

CORE PONDSCAPE: a landscape with a density of 15 or more mapped ponds per one kilometre square, and therefore capable of being visually dominated by the presence of either ponds or attendant features.

GRAYSON, R.F. 1993. The distribution and conservation of the ponds of north-west England. *Lancashire Wildlife Journal* **2/3** 23-51.

MULTIVARIATE ANALYSES OF NORTH GERMAN *HYDROPORUS* ASSEMBLAGES

Hauke Behr's analysis is based on 15 species of *Hydroporus* in 22 bog pools near Hamburg. Assemblages identified by TWINSPAN can be related, by DECORANA and CANOCO, to shade, light-absorption, calcium and sodium. There was no correlation with pH, possibly because the range of values (3.5-4.3) was narrow. A larger analysis, involving 93 ponds and including other small Hydradephaga, identified four typical communities associated with bogs, woods, sandpits and agricultural land.

BEHR, H. 1994. Lebensgemeinschaften koexistierender Arten der Wasserkäfergattung *Hydroporus* aus zwei norddeutschen Untersuchungensgebieten (Coleoptera: Dytiscidae). *Int. Revue ges. Hydrobiol.* **79** 337-355.

NEAR EAST *GRAPTODYTES*

The nominate form of *Hydroporus sedilloti* Régimbart is described as *Graptodytes sedilloti sedilloti*, seen from Syria, Israel and Cyprus. *G. phrygius* Guignot is given a new status as a subspecies of *G. sedilloti*, being known from Turkey, Greece, Macedonia. It includes the newly synonymised *G. pseudophrygius* Guéorguiev. *G. bussleri* is described as a new species from Israel and Syria on the Golan Heights.

FERY, H. 1994. Taxonomische Notizen zu *Graptodytes sedilloti* (Régimbart 1877) und *Graptodytes phrygius* Guignot 1943 nebst Beschreibing von *Graptodytes bussleri* n. sp. vom Golan (Coleoptera: Dytiscidae). *Entomol. Z.* **104** 389-402.

WICKEN FEN BEETLES

Duncan Painter has reviewed the status of rare beetles on one of Britain's oldest nature reserves, the National Trust's Wicken Fen. Some Red Data Book species, such as *Agabus undulatus* and *Dryops anglicanus,* are still frequent there. Species recently added to the Wicken list are *Limnebius aluta* and *Dryops auriculatus.*

PAINTER, D. 1994. Some records of aquatic Coleoptera and Mollusca from Wicken Fen. *Nature in Cambridgeshire*, **36**: 88-91.

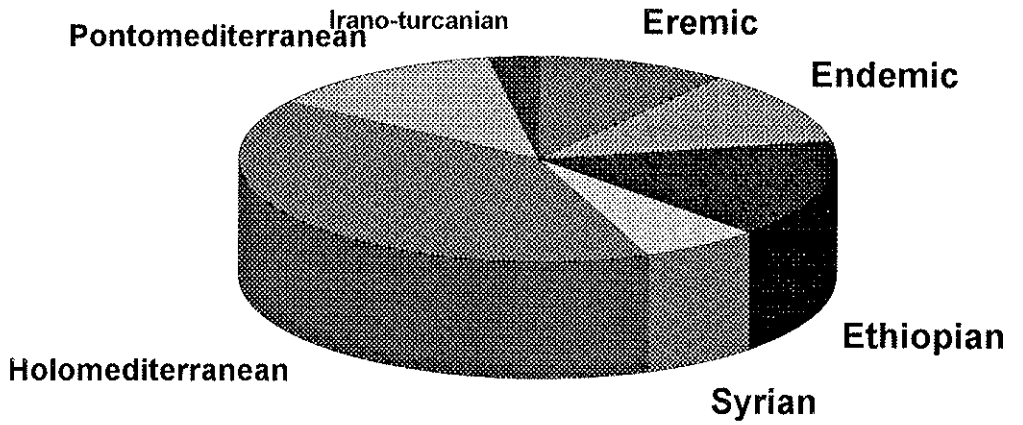
INDOPACIFIC *RHANTUS*

Five new species of *Rhantus* are described in this revision of the Pacific species (*R. oceanicus*, Hawaii; *R. pseudopacificus*, Hawaii; *R. intermedius*, Tahiti; *R. hiekei*, Samoa; *R. cheesmanae*, New Hebrides). This brings the total to 15, split into two groups, one around the wide-ranging *R. suturalis* MacLeay, and one based on *R. pacificus* (Boisduval). The species are comprehensively illustrated and keyed.

BALKE, M. 1993. Taxonomische Revision der pazifischen, australischen und indonesischen Arten der Gattung *Rhantus* Dejean, 1833 (Coleoptera: Dytiscidae). *Koleopterologische Rundschau* **63** 39-84.

HYDROPHILOIDEA OF ISRAEL AND THE SINAI

This survey includes a checklist, descriptions, keys, maps, and accompanying illustrations including many excellent quality photographic life studies. A list for the Levant based on previously published records includes 2 *Hydrochus*, 15 *Helophorus*, 4 *Sphaeridium*, 6 *Cercyon*, *Coelostoma orbiculare* Fab., *Dactylosternum abdominale* Fab., 2 *Paracymus*, *Hydrobius fuscipes* L., *Limnoxenus niger* Zschach, 4 *Anacaena*, 15 *Laccobius*, 5 *Helochares*, 11 *Enochrus*, *Chaetarthria similis* Wollaston (as *seminulum*), *Sternolophus solieri* Castelnau, *Hydrobiomorpha levantina* Balfour-Browne, *Hydrochara dichroma* Fairmaire, 5 *Hydrophilus*, 3 *Amphiops*, and 5 *Berosus*, plus, of course, many doubtful records. The present listing for Israel and the Sinai greatly reduces the areas of uncertainty, extends the list considerably, and takes us a considerable step towards an accurate appreciation of this very special Biogeographical zone.



HEBAUER, F. 1994. The Hydrophiloidea of Israel and the Sinai (Coleoptera, Hydrophiloidea). *Zoology in the Middle East* **10**: 73-137.

DESCRIPTION OF A *LACCOBIUS* LARVA

Only three Laccobius species have been described previously as larvae - the Nearctic *L. agilis* (Randall), *L. minutus* (L.) and the Madeiran endemic, *L. atricolor* d'Orchymont. An opportunity is taken to describe another island endemic, *L. canariensis* d'Orchymont. This has been treated as a subspecies of *L. atrocephalus* Reitter.

VALLADARES, L.F. 1994. Descripción de la larva de *Laccobius canariensis* Orchymont, 1940 (Coleoptera, Hydrophilidae). *Nouv. Revue Ent.* **11** 117-121.

NORTH AMERICAN *BEROSUS* STUDIES

Egg cases, larvae and pupae of *Berosus corrini* Woodridge and *B. hoplites* Sharp, both from Florida, and the Texan *B. pugnax* LeConte are described and illustrated. Observations on biology and behaviour are included.

ARCHANGELSKY, M. 1994. Description of the immature stages of three Nearctic species of the genus *Berosus* Leach (Coleoptera: Hydrophilidae). *Int. Revue ges. Hydrobiol.* **79** 357-372.

AUSTRALIAN DYTISCIDAE

Dave Larson's sabbatical from Newfoundland to Queensland has resulted in a series of papers. *Boongurrus rivulus* is described as a new genus and species of Bidessini. *Carabhydrus mubboonus* is a new species of running water hydroporine. A longer paper concerns the ecology of the Hydradephaga of the Atherton Tablelands, where he found 100 species of Dytiscidae, 5 Noteridae, 10 Gyrinidae and 4 Haliplidae, the latter yet to be identified. Twelve other species of Dytiscidae are known from the area.

LARSON, D.J. 1993. Ecology of Tropical Australian Hydradephaga (Insecta: Coleoptera). Part I. Natural history and distribution of northern Queensland species. *Proceedings of the Royal Society of Queensland* **10** 47-63.

LARSON, D.J. 1994. *Boongurrus rivulus*, a new genus and species of water beetle (Coleoptera: Dytiscidae: Bidessini) from Northern Queensland, Australia. *Journal of the Australian Entomological Society* **33** 217-221.

LARSON, D.J. & STOREY, R.I. 1994. *Carabhydrus mubboonus*, a new species of rheophilic water (Coleoptera: Dytiscidae) from Queensland, Australia. *Canadian Entomologist* **126** 895-906.

HABITAT TEMPLETS, FUZZY CODING AND THE UPPER RHÔNE

A special issue of the journal *Freshwater Biology* (1994, Volume **31**, Number 3, 253-556) has been edited by Bernhard Statzner, Vincent Resh and Sylvain Dolédec. It contains 18 papers, many of which deal with methods of analysing ecological data for Coleoptera. The basic idea is that the habitat provides the anvil (termed a templet) on which evolution forges characteristic life-cycle strategies. The principal aim of this special issue is to develop a river habitat templet, and to predict the species traits associated with particular habitats. Possibly the most interesting result comes from a comparison of Plecoptera, Ephemeroptera, Odonata, Trichoptera and the Coleoptera. At two sites on the Upper Rhône subject to special analysis, habitat utilisation can be related to species traits, but many traits do not conform with trends derived from the river habitat templet. In particular, beetles differ widely from the other orders in that they have high morphological variation and the highest diversity of physiological adaptation associated with adaptation to the full range of riverine habitats, from the main channel to the stagnant oxbows. Also, some of their traits have been "homogenised" by adaptation to desiccation and to shortage of food, though these release them from many of the constraints of the aquatic environment that have a major impact on other groups. Not being primary invaders of the aquatic environment, beetles have not had to solve the same set of problems as the other orders.

Papers specially relevant to Coleoptera are:

CHEVENET, F., DOLÉDEC, S. & CHESSEL, D. 1994. A fuzzy coding approach for the analysis of long-term ecological data. *Freshwater Biology* **31**: 295-309.

DOLÉDEC, S. & CHESSEL, D. 1994. Co-inertia analysis: an alternative method for studying species-environment relationships. *Freshwater Biology* **31**: 277-294.

DOLÉDEC, S. & STATZNER, B. 1994. Theoretical habitat templets, species traits, and species richness: 548 plant and animal species in the Upper Rhône River and its floodplain. *Freshwater Biology* **31**: 523-538.

RESH, V.H., HILDREW, A.G., STATZNER, B. & TOWNSEND, C.R. 1994. Theoretical habitat templets, species traits, and species richness: a synthesis of long-term ecological research on the Upper Rhône River in the context of concurrently developed ecological theory. *Freshwater Biology* **31**: 539-554.

RICHOUX, P. 1994. Theoretical habitat templets, species traits, and species richness: aquatic Coleoptera in the Upper Rhône River and its floodplain. *Freshwater Biology* **31**: 377-395.

USSEGLIO-POLATERA, P. 1994. Theoretical habitat templets, species traits, and species richness: aquatic insects in the Upper Rhône River and its floodplain. *Freshwater Biology* **31**: 417-437.

The whole issue can be had for the bargain price of £22.50 (possibly a little more outside UK, to cover additional postal costs) from Anna Rivers, Blackwell Science, Osney Mead, Oxford OX2 OEL. You can contact her on + 44 1865 206206 or fax + 44 1865 206096, quoting your credit card number if you wish.

An additional paper concerns a detailed treatment of the same work, specifically regarding Coleoptera. A list of 200 Coleoptera forms, larvae and adults, covering 120 species, was obtained from the alluvial floodplain of the Upper Rhône over 20 years. The 200 forms were linked with their environmental variables and species traits, the information being structured by a fuzzy coding technique. Simultaneous ordination of the taxa, environmental variables and species traits provides a visualisation of the correspondence between the ecological and the biological characteristics of beetles. There is a "transverse" ordination from the central channel to permanent oxbow lakes and temporary waters, and there is a vertical separation from interstitial towards superficial habitats, the Rhône having as its most extreme interstitial species, *Siettitia avenionsis*. The 200 forms can be positioned on these two main gradients in seven faunal groups. The observed species richness increases with the spatio-temporal variability of the transverse gradient.

RICHOUX, P. 1994. Synthèse des connaissances écologiques des peuplements de coléoptères aquatiques de plaines alluviales. *Bulletin de la Societé entomologique de France, 99*: 93-100.

BROWSING SECTION - GLADIATORIAL COCKROACHES

Barry Constantine has drawn attention to a query by Mr A Smith of Express Pests Services in "Your technical questions answered" (*Professional Pest Controller*, Spring 1994, page 9, British Pest Control Association):

I have been called out several times to "cockroaches" at a rural vegetable packers only to identify the insects as great water beetles. Have you any ideas where they have come from and why they are there?

Usually at this point, one grits one's teeth as one waits for the first major gaff in the expert's reply. Fortunately, the BPCA expert provides a perfectly correct answer, allowing his or herself the luxury at the end of stating that "not even these gladiators of the insect world can bite their way through a wire mesh screen or strip curtain door."

HAVE YOU SEEN THIS MAN?

A REPORT OF THE TREASURER

The photograph shows the Treasurer practising for a quick escape by participating in a half marathon. Note the policeman in the background. The Club's funds are healthy but we intend to reduce them a little in the interests of keeping the subscription a multiple of £10. Cash transactions are the only answer to the preposterous charges made by banks.

ROBERT ANGUS, D.Sc.

Congratulations are due to our chairman Robert Angus on the award, in September 1994, of his second doctorate, a D.Sc. from University of London, based on his contributions to the study of water beetles.

HYDROPHILUS PICEUS AT SEA

by Mark Young

I was recently given a specimen of *Hydrophilus piceus* found on the Conoco Loggs oil platform, which lies at 53° 25'N 02° 05'E in the North Sea. It was found by W. B. Sterling in September 1993 in an open-topped steel container, which had been on the platform for 2-3 years. This container is repeatedly filled with and emptied of heavy industrial staples. Had the beetle been there long, it would have crushed to pulp. The beetle's front end had been seen in the container but could not be found when Mr Sterling went back to look for it. The container is dirty and rusty, as is the beetle fragment, now in the collection of G.N. Foster.

The beetle could have arrived on the platform by direct flight, although it is possible that it came in with supplies from Great Yarmouth. The rig is approximately 65 kilometres from the East Anglian coast, roughly in grid square TG 77.

Received September 1994

WATER BEETLES IN THE PROVINCE OF MĀZANDARĀN, NORTHERN IRAN

by Sh. O. Hosseinie

The province of Māzandarān forms part of the watershed basin of the Caspian Sea on its south side. The province has been surveyed for its water beetle fauna partly or wholly at intervals in the past few years, the last time being in the summer of 1992. The beetles are identified to generic level, with more detailed studies to follow.

A total of 104 habitats including ponds, rivers, streams and marshlands has been searched. The total number of specimens collected is 8,977 comprised of 31 genera within seven families. These are: Dytiscidae - *Guignotus* (4,431 specimens), *Laccophilus* (839), *Coelambus* (132), *Eretes* (132), *Hypophorus* (92), *Agabus* (33), *Platambus* (22), *Nebrioporus* (17), *Scarodytes* (17), *Hydaticus* (9), *Cybister* (8), *Hydrovatus* (5), *Rhantus* (2), *Graptodytes* (1); Gyrinidae - *Aulonogyrus* (205), *Gyrinus* (2); Haliplidae - *Peltodytes* (161), *Haliplus* (25); Hydrophiloidea - *Enochrus* (949), *Laccobius* (830), *Berosus* (271), *Hydrochara* (270), *Paracymus* (144), *Helophorus* (22), *Helochares* (3), *Spercheus* (3), *Hydrophilus* (1), *Hydrobius* (1). Of the remaining three families, Hydraenidae were represented by 227 *Ochthebius*, Noteridae by 120 *Noterus* and Dryopidae by 3 *Dryops*.

Among the habitats, ponds were the most populated (34% of all specimens), followed by rivers (30%), streams (25%) and marshland.

Among the Coleoptera larvae were 34 Dytiscidae, 5 Gyrinidae, 37 Hydrophiloidea and 2 Hydraenidae. Other aquatic animals were also collected. They include 8 adult pond snails, 8 leeches, 50 adult mites and 6 adult crustaceans. Insects included: Ephemeroptera (6 families, 123 nymphs); Odonata (5 families, 216 nymphs); Orthoptera (4 families, one adult and 4 nymphs); Plecoptera (one nymph); Heteroptera (10 families, 494 adults and 145 nymphs); Homoptera (5 adults from one family); Trichoptera (6 larvae from one family); terrestrial Coleoptera (17 families, 56 adults and 63 larvae). The remainder of the collection comprises: Lepidoptera (6 families represented by a pupa and 19 larvae), Diptera (13 families, 21 adults, 46 pupae and 136 larvae); Hymenoptera (4 families, 10 adults and 2 larvae); 205 adult bony fish and 110 frog tadpoles.

This work is supported by a grant from the Shiraz University Research Council. The author also wishes to thank all the colleagues who, after the previous reports, have contacted and offered to cooperate on work on the aquatic Coleoptera of Iran.

Received April 1994

1991 COMPILATION OF PAPERS

Copies of the latest compilation of 84 papers by Michel Brancucci and Konrad Dettner were issued with ***Latissimus* 4**. There were not quite enough copies for all recipients of ***Latissimus***. If you were one of the unlucky ones, contact Garth Foster for a photocopy or one of the authors for a reprint.

BRANCUCCI, M. & DETTNER, K. 1993. Annual compilation (1990) of Hydradephaga (Coleoptera) papers. *Entomologica Basiliensia* **15** 205-214

***HYDROCHARA CARABOIDES* AND *HYDROPHILUS PICEUS* IN SPAIN**

The occurrence of these two species in Spain is formally confirmed, being based on their presence at Capmany, Girona Province, in the Spanish Pyrenees. *H. piceus* also occurs on the Ebro Delta in Tarragona.

VALLADARES, L.F. & RIBERA, I. 1993. Sobre la presencia de *Hydrochara caraboides* (Linnaeus, 1758) e *Hydrophilus piceus* (Linnaeus, 1758) en la Península Ibérica (Coleoptera: Hydrophilidae). *Zoologica Baetica* **4** 7-12.

GRANSMOOR - BEETLES IN THE LATE GLACIAL PERIOD

Basically, the beetles win and the pollen diagrams lose, but plant fragments may have the last say. An almost complete profile of deposits from the full Glacial, and then through the Late Glacial Interstadial and the whole of the Loch Lomond (Younger Dryas) Stadial, has been worked for beetle fragments for comparison with pollen analysis. The beetles tell us that the warmest times occurred immediately after the retreat of the Ice Cap, and that bushes and trees took a long time to catch up. At best, East Yorkshire had a summer temperature around 18-23°C and winter values ranging from -4 to +9°C, which should be compared with present day values of 16° and 4°C, respectively. More interestingly, it used to have some wonderful beetles such as *Agabus serricornis*. *Stictotarsus griseostriatus* occurred throughout the whole period, with species such as *Ochthebius pedicularius* Kuwert in basal sands and silts, and *Oreodytes alpinus* during the readvance. Radiocarbon dates for this massive and unique profile are not very helpful and it may be necessary to resort to large plant fragments to get a more precise fix on the dates involved.

WALKER, M.J.C., COOPE, G.R. & LOWE, J.J. 1993. The Devensian (Weichselian) Lateglacial palaeoenvironmental record from Gransmoor, East Yorkshire, England. *Quaternary Science Reviews* **12** 659-680.

BAVARIAN WATER BEETLES

This survey of south-east and southern Bavaria in 1990-1992 included 195 species. The list is most notable for the presence of 15 species of *Hydraena*.

SCHULTE, H. 1993. Notizen zur Faunistik der Wasserkäfer im südöstlichen und südlichen Bayern (Insecta, Coleoptera: Hydradephaga, Hydrophiloidea, Dryopoidea). *Lauterbornia* **13** 1-19.

***LIMNIUS MUELLERI* NOT IN CENTRAL EUROPE?**

The occurrence of *L. muelleri* in Central Europe is placed in doubt by Heinz Schulte's analysis of the records.

SCHULTE, H. 1994. *Limnius muelleri* (Erichson 1847) - eine verschollene Art? (Coleoptera, Elmidae). *Lauterbornia* **19** 59-67.

FAUNA OF SPRINGS IN BELARUS, KARELIA AND THE ALTAI

A widely based survey of springs turned up a disappointingly small number of water beetles, only five of which are named to species.

KHMELEVA, N., NESTEROVICH, A. & CZACHOROWSKI, S. 1994. The macroinvertebrate fauna of some Byelorussian, Karelian, and Altaian springs and its relation with certain factors. *Acta Hydrobiologia, Kraków* **36** 75-90.

TWO LONDON LISTS

Nine water beetle species are recorded in a survey of two ponds on Bookham Common. The record for *Hydrochus nitidicollis* should be referred to *angustatus*.

KETT, S.M. & KIRK, R.S. 1994. A survey of the aquatic macro-invertebrate communities of Isle of Wight Pond and Western Hollow Pond, Bookham Common. *The London Naturalist* **73** 175-180.

SZCZECIN WATER BEETLE FAUNA

The commonest species in this survey were *Laccobius minutus* (L.), *Limnius volckmari* (Panzer) and *Ochthebius minimus* (Fab.). In all, 132 species were identified from 6 families of beetles. Most of the names correspond to modern usage and include interesting finds such as *Haliplus furcatus* Seidlitz, *Hydroporus glabriusculus* Aubé, *Agabus fuscipennis* (Paykull), and *Helophorus asperatus* (Rey). Monthly samplings are included, for some sites showing extreme mid-season dips in abundance. The fauna is influenced by the proximity of the Szczecin Haff and the Baltic shores, resulting in the occurrence of several halophil species, some of which live happily in the basins of urban fountains.

WICHTOWSKA, M. & SOBCZAK, A. 1994. Formation of the water beetle (Coleoptera) fauna in conditions of the urban agglomeration of Szczecin (Western Pomerania). *Acta Hydrobiologica, Kraków* **36** 57-74.

LES PINGEAUX BORDELAIS ET ANGLAIS

Franck's paper should serve to remind those who attended the 1992 Club Meeting in Arcachon of the wonders of the the Gironde, not the wine but the French pingo systems. It also throws out a challenge, as 109 species of water beetle have been recorded since just before the time of the meeting. What is the 1990's record for number of species at any one site in Europe? Elevn species of weevil are included in Franck's total, but it must be remembered that weevils were specially evident at these pingos. This paper marks official recognition of the discovery of *Graphoderus bilineatus* (DeGeer) in south-west France. The other rare species is *Haliplus furcatus* Seidlitz. A striking feature of the East Anglian pingos, the virtual absence of *Gyrinus*, is also evident in the Marais de la Perge, and there are many other similarities between the two faunas. The paper about East Anglian pingos is mainly a vehicle for some rather old jokes, plus a faunal list which unfortunately omits a few *Haliplus* species. But I enjoyed writing it, so there.

BAMEUL, F. 1994. Les Coléoptères aquatiques des Marais de la Perge (Gironde), témoins de la fin des temps glaciaires en Aquitaine. *Bulletin de la Societé entomologique de France* **99** 301-321.

FOSTER, G.N. 1993. Pingo fens, water beetles and site evaluation. *Antenna* **17**(4) 184-195.

A MALAGASY *HYDROCANTHUS*

Hydrocanthus fabiennae is described from Madagascar. The opportunity is taken to list the Old World fauna, which runs to 31 African species and 3 Indo-australian species.

BAMEUL, F. 1994. Un nouvel *Hydrocanthus* Say de Madagascar (Coleoptera Noteridae). *Bull. mens. Soc. linn. Lyon* **64** 356-365.

BERLINER BEETLES

A survey of a temporary pool at Spandau revealed 38 species of Hydradephaga, 2 Hydraenidae and 13 Hydrophiloidea. These included *Agabus subtilis* Erichson, *Graphoderus austriacus* (Sturm), *G. zonatus* (Hoppe), and *Hydaticus continentalis* Balfour-Browne. A record for "*Rhantus adpressus*" in the table should be referred to *bistriatus* (Bergsträsser) as in the text according to Lars.

HENDRICH, L. & BALKE, M. 1994. Die Wasserkäferfauna eines temporären Kleingewässers im Berliner Stadtbezirk Spandau (Coleoptera: Hydradephaga und Hydrophiloidea). *Novius* **17** 357-364.

EASTERN *NEBRIOPORUS*

The genus *Potamonectes* seems to have taken a new lease on life with its name change. *N. sichuanensis* is the 58th species to be described. In the Eastern Palaearctic, seven species are now recognised as belonging to the *depressus* group. The other six are *N. airumlus* (Kolenati), ranging from the Caucasus to China, *N. anchoralis* (Sharp) from Japan, *N. brownei* (Guignot) from China, *N. hostilis* (Sharp) from Japan, Korea and Siberia, *N. laticollis* (Zimmermann) from China, and *N. simplicipes* (Sharp) from Japan.

HENDRICH, L. & MAZZOLDI, P. 1995. *Nebrioporus sichuanensis* n. sp. - ein neuer Schwimmkäfer aus Nordsichuan, China (Coleoptera: Dytiscidae). *Entomol. Z.* **105** 1-32.

Papers received in brief

ANOTHER TURKISH *HAENYDRA* The 93rd Hydraena from Turkey is *H. akbesiana.*

AUDISIO, P., DE BIASE, A. & JÄCH, M.A. 1993. A new species of the *Hydraena* (*Haenydra*) *excisa*-complex from Turkey (Coleoptera, Hydraenidae). *Linzer biol. Beitr.* **25** 489-492.

HYDROTRUPES The north-west North American *Hydrotrupes palpalis* lives in seepages along the seashore, and has several peculiar features. It should be excluded from the Colymbetinae, but its final "resting place" is not yet decided.

BEUTEL, R.G. 1994. On the systematic position of *Hydrotrupes palpalis* Sharp (Coleoptera: Dytiscidae). *Aquatic Insects* **16** 157-164.

HEMIOSUS A new species recognised by its unusually flattened head.

OLIVA, A. 1994. Une nueva especie de *Hemiosus* Sharp (Coleoptera: Hydrophilidae) de Venezuela. *Rev. Soc. Entomol. Argent.* **53** (1-4) 75-77.

DANISH & SCANDINAVIAN CHECKLIST

SILFVERBERG, H. 1992. *Enumeratio Coleopterorum F noscandiae, Daniae et Baltiae*, Viestipaino Oy, Tampere. Available from: Helsingin Hyönteisvaihtoyhdistys, Zool. Mus., P. Rautatiek 13, SF-00100 Helsinki 10, Finland. I-V, 94 pp. ISBN 951 96510 0 4.

SEYCHELLES ELMID The first Seychelles elmid is described in a new genus.

JÄCH, M.A. 1993. *Microlara* gen. n. *mahensis* sp.n., from the Seychelles (Coleoptera: Elmidae, Larinae). *Zeitschrift der Arbe gemeinschaft Österreichischer Entomologen* **45** 15-18.

SOUTH AMERICAN SPHA RIDIINE STUDIES The following papers have been received from Miguel Archangelsky, their titles being largely self-explanatory.

ARCHANGELSKY, M. 1989. A new species of the genus *Phaenonotum* Sharp, 1882 (Coleoptera, Hydrophilidae, Sphaeridiinae) from Venezuela. *Aquatic Insects* **11** 217-220.

ARCHANGELSKY, M. 1991. El genero *Phaenonotum* Sharp en la Argentina. I. Redescripcion de *Phaenonotum regimbarti* Bruch, 1915, y *Ph. argentinense* Bruch, 1915 (Coleoptera, Hydrophilidae, Sphaeridiinae). *Rev. Soc. Entomol. Argent.* **49** 157-164.

ARCHANGELSKY, M. 1992. El genero *Phaenonotum* Sharp en la Argentina (Coleoptera: Hydrophilidae). II. Reubicacion de *Hydroglobus puncticollis* Bruch, 1915, dentro del genero *Phaenonotum*. *Rev. Soc. Entomol. Argent.* **51** 47-51.

ARCHANGELSKY, M. 1994. Description of the preimaginal stages of *Dactylosternum cacti* (Coleoptera: Hydrophilidae, Sphaeridiinae). *Entomologica scandinavica* **25** 121-128.

ARCHANGELSKY, M. & DURAND, M.E. 1992c. Description of the immature stages and biology of *Phaenonotum exstriatum* (Say 1835) (Coleoptera: Hydrophilidae: Sphaeridiinae). *The Coleopterists Bulletin* **46** 209-215.

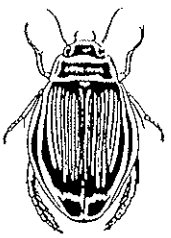
ARCHANGELSKY, M. & FERNANDEZ, Liliana A. 1994. Description of the preimaginal stages and biology of *Phaenonotum* (*Hydroglobus*) *puncticolle* Bruch (Coleoptera: Hydrophilidae). *Aquatic Insects* **16** 55-63.

LESSAY 2-5 JUNE 1995

The Club meeting th year is in Normandy. Contact Dr **ROBERT CONSTANTIN**, 103 impasse de la Roquette, F-50000 SAINT-LÔ to obtain information.

The E-mail file

As a result of Anders Nilsson's request in ***Latissimus* 4**, the following numbers have accumulated. This type of listing will be repeated in future editions so make sure that you are included next time Some members may be reluctant to reveal their E-mail numbers because of the fear of junk mail; it would still be useful to know their numbers in confidence and to list their names (without numbers) so that useful contacts can be set up. Corrections and additions to the present list can be sent by E-mail to Anders or by the old-fashioned method to the editor. This service is open to anyone with an interest in water beetles, irrespective of whether or not they are paid-up members of the Club.



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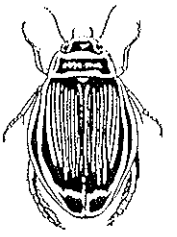
Correspondence should be addressed to the Club Secretary:-
Dr G N Foster, 3 Eglinton Terrace, Ayr KA7 1JJ, Scotland, UK.



ADDRESSES

Pedro Aguilera, Del Pou 21 23 Atc. 2, Barcelona 08016, Spain
Dr Robert Angus, Royal Holloway, University of London, Department of Biology, Egham Hill, Englefield Green, Surrey TW20 OEX, UK
Dr Miguel Archangelsky, The Ohio State University, Museum of Biological Diversity, 1315 Kinnear Road, Columbus, Ohio, USA 43212
Prof. Paolo Audisio, Dipartimento de Biologia Animale e dell'Uomo (Zoologia), viale dell'Universita 32, I-00185 Rome, Italy
Gill Baldwin, GB Nets, 45 Burnley Road, Todmorden, Lancs. OL14 7BU, UK
Dr Michael Balke, AG Evolutionsbiologie, Institut für Zoologie, Freie Universität Berlin, Königin Luise Straße 1-3, D-14195 Berlin, Germany
Dr Franck Bameul, 45 rue Eugène Olibet, F 33400 Talence, France
Dr Hauke Behr, Zoologisches Institut und Museum der Universität Hamburg, Martin-Luther-King-Platz 3, D-20146 Hamburg, Germany
Ronald Bellstedt, Museum der Natur, Parkallee 15, PSF 217, O-5800 Gotha, Germany
Dr Rolf Beutel, Friedrich-Schiller Universität, Inst. f. Spezielle Zoologie und Evolutionsbiologie, Eberstr. 1, D-07743 Jena, Germany
Dr M Brancucci, Natural History Museum, Augustinergasse 2, CH-4001 Basel, Switzerland
John Bratton, 51 Stone Lane, Peterborough PE1 3BN, UK
Prof. Dr K Dettner, Tierökologie II, Universität Bayreuth, Postfach b101251, D-W-8580 Bayreuth, Germany
Dr Hans Fery, Räuschstraße 73, D 13509 Berlin, Germany
Mr R F Grayson, c/o Lancashire Wildlife Trust, Cuerden Park Wildlife Centre, Shady Lane, Bamber Bridge, Preston PR5 6AU, England
Dr Franz Hebauer, Jahnstraße 5, D-94469 Deggendorf, Germany
Lars Hendrich, Lupsteiner Weg 69, 14165 Berlin, Germany
Carles Hernando, Cl Cadi 47 2º2º, 08031 Barcelona, Spain
Monika Hess, Wasserburger Landstraße 151, D-81827 München, Germany
Dr S O Hosseinie, Department of Biology, College of Sciences, Shiraz University, Shiraz 71454, Iran
Dr Manfred A Jäch, Naturhistorisches Museum, Burgring 7, A-1014 Wien, Austria
S M Kett, School of Environmental Science & Engineering, Middlesex University, Trent Park, London N14 4XS, UK
Nina Khmeleva, Byelorussian Academy of Sciences, Institute of Zoology, Laboratory of Comparative Hydroecology, Skoryny 27, Minsk, Byelorussia
Prof. David Larson, Department of Biology, Memorial University of Newfoundland, St. John's, Canada A18 3X9
Dr Dewnand Makhan, Giessenplein 81, NL-3522, KG Utrecht, The Netherlands
Dr Mikhail D Moroz, Institut of Zoology, Academy of Sciences of Belarus, Laboratory of Comparative Hydroecology, ul. F. Skoriny 27, 220072 Minsk, Belarus
Dr Mike Morris, Furzebrook Research Station, Institute of Terrestrial Ecology, Wareham, Dorset BH20 5AS, England, UK
Dr Anders Nilsson, Department of Animal Ecology, University of Umeå, S-901 87 Umeå, Sweden
Dr Adriana Oliva, División Entomología, Museo Argentino de Ciencias Naturales "Bernardino Rivadavia", Avda. A Gallardo 470, 1405 Buenos Aires, Argentina
Duncan Painter, University of Cambridge, Department of Zoology, Downing Street, Cambridge, England
Dr Philippe Ponel, Laboratoire de Botanique historique et Palynologie, Boîte 451, 13397 Marseille Cedex 20, France
Dr Ignacio Ribera, Dr. Massana 14-2º, 08760 Martorell, Barcelona, Spain
Dr P. Richoux, Université Claude Bernard Lyon I, 43 boulevard du 11 novembre 1918, F-69622 Villeurbanne Cedex, France
Prof. R E Roughley, University of Manitoba, Department of Entomology, Winnipeg, Manitoba, Canada R3T 2N2
Dr Jürgen Schmidl, Lettenstraße 8, 90562 Kalchreuth, Germany
Dr Stefan Schödl, Naturhistorisches Museum, Burgring 7, A-1014 Wien, Austria
Dr Heinz Schulte, Orgelmachergasse 3, 84036 Landschut, Germany
Jaroslav Šťastný, Kosmonautu 359, 460 05 Liberec, Czech Republic
Günter Stöckel, Rudower Straße 22, Neustrelitz, 17235 Germany
Mario Toledo, Via Tosoni 20, 25123 Brescia, Italy
Dr Luis Felipe Valladares, Departamento de Ciencias Agroforestales (Biología Animal), Universidad de Valladolid, 34004 Palencia, Spain
Magdalena Wichtowska, The University of Szczecin, Department of Invertebrate Zoology, ul. Wielkopolska 15, 70-451 Szczecin, Poland
Dr Mark R Young, Culterty Field Station, University of Aberdeen, Newburgh, Ellon, Aberdeen AB41 0AA, Scotland.

CONTENTS