Het News

Newsletter of the UK Heteroptera Recording Schemes

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2nd Series

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Editorial:

We are pleased to announce that Richard Dickson has bravely volunteered to prepare a cumulative index for *Het News*, not only that but he has already made a start!

This issue could be termed a special invasion edition! With articles following-up the recent arrival in Britain of *Arocatus 'somethingorother'* closely followed by *Leptoglossus occidentalis*. A related thought that occurs to us, is that het people really ought to train moth trappers to recognise & record significant het species!

Incidentally, for best results when printing *Het News* use high quality paper!

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Contents

Impact of rainfall on Heteroptera in 2007-2008

Bernard Nau

In southern Britain in 2007 and 2008, from early summer through the autumn, the weather was exceptionally unfavorable for those of our southern het species that require warm dry open habitat - such as various of the coreids, pentatomids and lygaeids.

I do not have quantitative data but it seems to me that several effects of the unusual rainfall patterns we had at that time are likely to have had adverse effects on populations of these bugs.

1. There were periods of exceptionally severe rainfall in 2007 at a time when nymph populations would have been at a peak. The torrential rain itself could have caused direct damage or death to these vulnerable immature stages.
2. The wet seasons in 2007 & 2008 were accompanied by lack of sunshine and generally rather low temperatures.
3. In a number of areas landscape-scale flooding occurred, and no doubt even more on a micro-scale. Thus, normally dry bare ground was flooded or saturated and this too could have caused damage or death to vulnerable immature stages.
4. Later, a more subtle factor became apparent, the rains and humidity promoted growth of tall grasses and other vegetation. Consequently, especially by 2008, many areas of normally dry open sunny ground became over-grown by grasses and coarse herbaceous vegetation;. Also, open-structured herb-rich grassland closed-up, suppressing plant species such as Caryophyllaceae, *Erodium*, *Myosotis*, *Viola*, et al., favoured by these hets. These effects on habitat structure both adversely affected the microclimate and reduced the availability of food plants.

The net effect of the above was that these xerophile/ thermophile bug species were very hard to find in southern England in both autumns, and also in the spring of 2008. It will be interesting to see what ensues in the next year or two. Over the past decade or so, populations, and ranges of these species had expanded remarkably. Will they bounce back as soon as the weather improves or will they take another decade or so to recover?

I hope that anyone doing fieldwork in areas thus affected will make a particular effort to record the status of these bugs - making special note of absence or rarity.

RECENT PUBLICATIONS

Book review: Advances in Heteroptera research.

Festschrift in honour of 80th Anniversary of Michail Josifov.

Ed. S. Grozeva & N. Simov

Book published by *Pensoft Publishers*, Sofia*, 2008. Hard cover, 417pp., ISBN 978-954-642-311-5.
[* e-mail: info@pensoft.net , web: www.pensoft.net]

This nicely produced, 417 page book is a collection of 30 papers devoted to Heteroptera (see text box , below). These papers were specially brought together for the 80th birthday of the noted Bulgarian taxonomist Michail Josifov. The authors and geographical scope of these papers are global, the papers are in English, and the Contents are in both English and Russian.

The volume begins with a personal appreciation, by P. Beron, of Michail Josifov as teacher, friend and scientist. This acount is nicely supplemented by a dozen or so photographs of MJ, and colleagues, in the field and at work in the Institute of Zoology in Sofia. The geographical spread of these is impressively wide - ranging across Austria, Bulgaria, Kyrgyzstan, Mozambique, Norway, North Korea, Tajikistan, and Vietnam.

Two nice anecdotes are related herein, about potential turning points in his career.

One morning in the winter of 1943/44, as World War II reached its climax, he was a teenaged would-be entomologist and was to be seen making his way among the bombed ruins of Sofia. He was, on his way to the post office to collect a parcel which would contain his very first Heteroptera book, Stichel's "*Illustrierte Bestimmungstabellen der Deutschen Wanzen*". We feel for him when he sees the smouldering ruins of the post office! However, a postman emerges, takes the delivery note and goes back into the ruins to emerge later with the precious parcel intact!

Ten years later, 1954 was another turning point. It was the year he survived being trapped in an avalanche in the Rila mountains, on the very day that he was officially appointed to the staff of the Institute of Zoology in Sofia. As it happens, it was also the year of publication of his first work devoted to the Heteroptera.

The book has one more preliminary chapter. This lists MJ's 126 published works and the 150+ new taxa of Heteroptera which he has described during his long career. A useful statistical summary is given in a table, breaking down the taxa by family - most notably indicating that 97 taxa of Miridae came from his pen.

The book is rounded off with a 1-page appendix listing the 21 new Heteroptera taxa described in the papers contained in this volume - many of which are named after him. A fine birthday tribute.

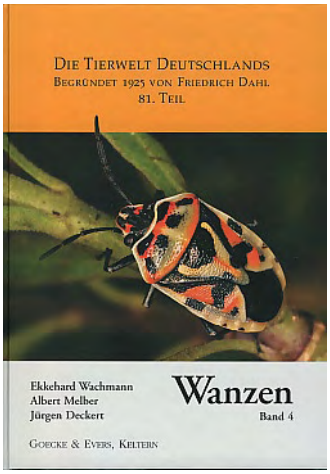
BSN

Contents of *Advances in Heteroptera research*.

Book review: Die Tierwelt Deutschland 81. Wanzen Band 4. Pentatomomorpha II . E. Wachmann, A. Melber, J. Deckert

Published by *Goecke & Evers**, **230pp., 239 colour photos, Keltern, 2008. (In German)**

Hard cover. ISBN 978-3-937783-36-9. 245x175, Price £47.00.
[* e-mail: books@insecta.de , web: www.goeckeevers.de]



Volume 4 is the last of four main volumes presenting species accounts and colour photographs of Heteroptera occurring in Germany and Austria. The previous volume published was Volume 3 and was reviewed in *Het News*, **11**, Spring 2008. The language is German.

Many but not all of these species are illustrated. The high standard of photography and printing of earlier volumes is well maintained, or even bettered.

Volumes 1-4 deal with successive families of the Heteroptera, essentially in the sequence used in the Palaearctic Catalogue - the nomenclature too, follows the Palaearctic Catalogue. The final volume is now in preparation and it is promised that this will provide such information as details of structure, biology and taxonomic relationships.

The present volume covers the six families of shieldbugs listed in Table 1 - which also shows the number of species illustrated for each family. The present work follows the format established in earlier volumes, each species having a text account which typically comprises three paragraphs. The first gives the length, a summary of the Palaearctic distribution, and status in Germany & Austria; the next gives details of habitat & food; and the last gives information on season and overwintering. There are no identification keys or species descriptions.

The colour photos are taken from life in a natural-looking setting. They show the adult, and often one or more nymphal forms as well - a total of 13 images for *Palomena prasina*!. An appendix gives dates and localities for all the bugs photographed, and there is a species index which covers all four of the published volumes.

Table 1 Families covered.

	spp illustrated
Cydnidae	11
Thyreocoridae	2
Plataspidae	1
Acanthosomatidae	7
Scutelleridae	10
Pentatomidae	52

For the reader in the British Isles, this volume is particularly useful for the excellent images not only of those species which are established in the British Isles, but also those which are only vagrants here, or are recent or potential future colonists.

One error caught the reviewer's eye. This concerns the distribution of *Canthophorus dubius/C. impressus*. Various recent publications have demonstrated that the species established in Britain and adjacent regions is *Canthophorus impressus* not *C. dubius*,.

BSN

Book review: Hémiptères Aradidae, Piesmatidae, et Dipsocoromorphes Euro-Méditerranéens. Faune de France 91, Ernst Heiss & Jean Péricart

Published by Fédération Française des Sociétés de Sciences Naturelles***, Paris, 2007**

ISBN 978-2-9030-5229-4, 240x160mm, 509, 8 colour plates, 28 electron micrographs,34 maps, 174 figs, soft cover, **€78**
[* web: www.faunedefrance.org]

This 12th (excellent as usual) Heteroptera volume in the *Faune de France* series deals with three unrelated groups 'left over' from the other volumes. It deals with two families and an infra-order,: Aradidae ('barkbugs' of which we have 7 spp in the British Isles- split into two families in S&L), Piesmatidae ('beetbugs', of which we have 2½ spp), and Dipsocoromorpha ('thirstybugs'*, of which we have 3 spp).

There is one other group of Heteroptera not covered in the FdF series and that is the Anthocoridae, Cimicidae & Microphysidae These are covered by Péricart's 1972 work, published in a different series - *Faune de l'Europe et du Bassin Méditerranéen*, by Masson et cie.

For completeness, one might add that there are still several scheduled volumes pending: one for Reduviidae and three for outstanding families of shieldbugs.

Notwithstanding the insignificant size of some of the species treated in the present work, this is no lightweight book, it has 500+ pages, including 200+ figures, maps and electron micrograph images.

Two general points can be made here. Firstly that the series has evolved from geographical coverage of France alone, to coverage of the entire Euro-Mediteerranean zoogeographical region. Secondly that in the most recent volumes the keys are bi-lingual, with couplets in both French and English - a big help for native English language readers.

Apart from the shared preamble, indexes & colour plates, this volume is effectively three books in one - Aradidae (ca 300 pp), Piesmatidae (ca 105pp), and Dipsocoromorpha (ca 70pp). Each has its own extensive bibliography and, both valuable and extensive, treatment of the morphology of adults and early stages; ecology & biology; taxonomic issues; collection & conservation.

It seems unlikely that heteropterists in the British Isles will ever be favoured with 16 large volumes devoted to our Heteroptera!

[* 'dipso' : Greek for thirsty, as in dipsomaniac!]

BSN

On Plane trees, not only *Arocatus longiceps* (Lygaeidae) but also *Arocatus roeselii*?

Hans-Jürgen Hoffmann

Three species of *Arocatus* are known in Europe: *A. melanocephalus, A. roeselii* and *A. longiceps*.

A. melanocephalus (Fabricius, 1798) lives on elms (*Ulmus* sp.) and is conspicuously marked with red and black. It cannot be confused with the other species.

Arocatus roeselii (Schilling, 1829) normally lives on alders (*Alnus glutinosa*) which usually grow on river banks, beside lakes, and in wetlands, but not normally in inner cities. *A. roeselii* has lived in Germany for many years now, but is rare there - e.g. a single recent specimen in North Rhine-Westphalia (Kott 2004) and few in museum collections. This species is bright red with sharp black markings. In southern Germany it is a little more widespread.

A. longiceps Stål, 1872 originally had an eastern Mediterranean distribution, where the host was plane (*Platanus orientalis*). It has been expanding since 1995, reaching Germany (Rieger 1997) via Austria (Adlbaur & Friess 1996) and Switzerland. Plane has frequently been planted in inner cities since the beginning of the 18th Century, being very resistant to pollution and pests, especially *Platanus hybridus* (hybrids of *P. occidentalis* & *P. orientalis*). The history of its arrival in Austria, Switzerland, and Germany, has been decribed by several authors (Rabitsch & Fries 1996, Hoffmann 1998, Rietschel 1998, Hoffmann 2008 etc.) and will not be repeated here (for details see Hoffmann 2008). Figure 2 shows the present distribution. This species is typically yellowish with blackish markings.

Stichel (1957) presented the first key for determination of these three species of *Arocatus* (with illustrations) and this key is similar to that of Péricart (1998):

Head length > eye separation, almost as long as wide; exocorium yellow-brown or reddish. Rostrum reaches at least base of 1st visible sternite. L= 5.5-6.6 mm. Pontomediterranean. ..... *Arocatus longiceps*

Head not longer than eye separation; exocorium basally red; middle & posterior usually black. Rostrum just reaches the hind coxae. L = 6,.0-7.2 mm. European. ..... *A. roeselii*

Both authors mention, for both species, colour varieties or subspecies such as form *sanguinea* with blood-red abdomen for *A. longiceps*.

Arocatus in Germany

By 2004 *A. longiceps* had reached as far NW as Cologne and Düsseldorf, in North Rhine-Westphalia. Its spread coincided more or less with that of the 'plane lacebug' *Corythucha ciliata*. This was an immigrant from the United States to Padova in northern Italy, and has now spread nearly all over Europe (Hoffmann 2003b). Both species hibernate in the adult stage, typically under peeling bark flakes of the host tree. The success of both species in our cities seems to be based on the fact that both can develop totally on the trees, without contact with the ground.

In spring (end of March), overwintering *A. longiceps* leaves its hibernation site and climbs up into the inaccessible tree canopy with its opening buds. Mating pairs are not seen on trunks or on the ground. Eggs are deposited in the seed balls of the previous year. Larval instars 1-5 develop synchronously in these balls. The first adults leave the seeds in mid-June. It is assumed that there is a second generation, since larvae are found until hibernation in November. Under the loose bark there are often large aggregations of hibernating bugs and when disturbed these very rapidly disperse, even at low temperatures.

In the inner city of Cologne, during winters 2005-2006 and 2006-2007 *C. ciliata* overwintered in dozens under any suitable loose bark flake on plane trees, but during winter 2007-2008 they were almost totally absent! Only isolated bugs could be found. On the other hand *A. longiceps* has been observed regularly since 2004, but only in very small numbers until winter 2007-2008, when it was present in huge quantities. Under bark on one tree I collected nearly 780 *A. longiceps* from 750 cm^2 of bark (21st January 2008). Of course the bugs are not evenly distributed but concentrate under suitable pieces of bark flakes (Fig. 1), these should be of sufficient size and neither too tight nor too loose (Hoffmann 2008). I checked the correlation between bug numbers and size of bark flake fragments by sweeping bugs from individual pieces into plastic bags, measuring the bark area and counting the bugs, in fact there was no correlation but the average concentration was more than 1 bug/cm^2 .

Fig. 1 - Bark flakes of *Platanus*.

Fig.2 - Present European distribution of *A. longiceps*

Flake size cm²	No. of *Arocatus*	Density cm^{-2}
18	17	9
24	26	11
29	19	7
29	53	18
32	25	8
33	27	8
34	30	9
37	10	3
37	56	15
38	59	15
38	16	4
44	99	23
51	59	12
55	84	15
55	75	14
57	40	7
57	22	4
73	62	9
	Total 779	Mean 11cm

Table 1 - Flake size preference of *A. longiceps*.

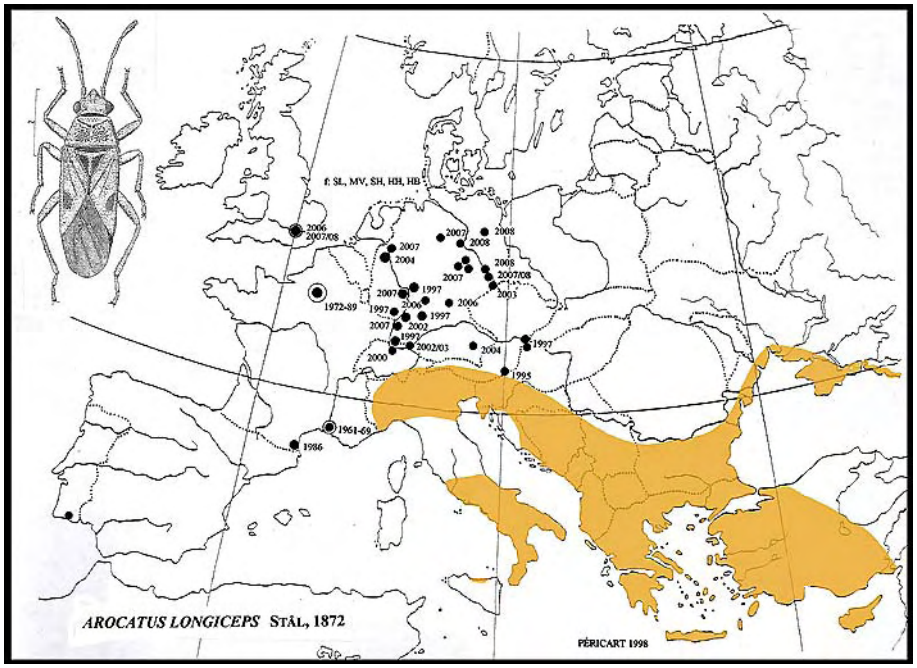


Fig.4 - Colour variation of *A. longiceps, Cologne*

Bugs from a sample of seven plane trees, at two sites in the inner city of Cologne (14th January 2008), were sorted by coloration: "red", "orange" & "yellowish" (Fig. 3). Nearly 1.800 bugs were collected in half an hour, working at head-height. Smel animals fell outside the bag or otherwise escaped; even in cold weather they are extremely active and readily fly. Because of the large number of specimens they were not sorted by length of rostrum or head width, but all variations of these diagnostic characters of *A. longiceps* and *A. roeselii*, were found, as well as various colour forms (Fig.4): 10% were red (like *A. roeselii*), 76% yellowish (like *A. longiceps*) and 14% intermediate.

Fig.3 - Colour variation of *A. longiceps, Cologne*

Arocatus elsewhere

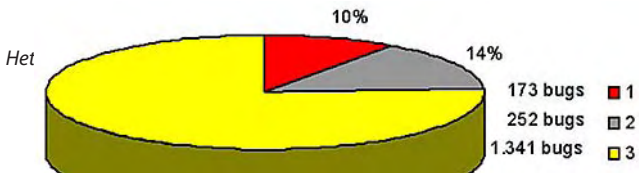
In Austria, Rabitsch (1998) observed that among the numerous *A. longiceps* on *Platanus* some *Arocatus* could be determined as *A. roeselii*, and others as hybrids. This was also the conclusion for bugs from Basel & SW Germany (Rietschel (1998) & Hoffmann (2003)) . Earlier, in 1972-1986, Carayon (1989) described large aggregations of *A. roeselii* on *Platanus* in Paris and in the south of France in 1966-69.

In Frankfurt in 1998 I collected *Arocatus* under bark flakes of *Platanus*, in front of the famous Museum Senckenberg (Hoffmann 1998). These keyed out to *A. roeselii* but with strong reservations - there were no alders (*Alnus*) in sight! Of course it is always possible that some individuals living on *Alnus* hibernate under the bark of *Platanus*, where accessible. In 1986, in Paris and in the south of France at Perpignan, I collected several *Arocatus* under the bark flakes of *Platanus*, they resembled *A. longiceps*, with which I was not familiar at the time.

In England, in central London, there were mass occurrences of a species of *Arocatus* on and around plane trees in 2006-2007 (Nau & Straw 2007, Barclay 2007). Doubts similar to those of heteropterists in continental Europe arose here too. Barclay referred to these as A. "*roeselii*" and discussed various possibilities, such as new species or a hybrid of A. *roeselii* and *A. longiceps*. He noted that there were significant differences from specimens labelled *A. roeselii* in the British Museum and museum material in Prague, but they resembled a specimen from Nice in France. He drew attention to the example of a staphylinid beetle now established in Western Europe, which proved to be a new adventive species but was initially confused with a European species thought to have changed its range.

I think that now, after 10 years of *Arocatus* in Germany, the status of the *Arocatus* on plane trees needs to be be clarified once for all!

Site	Red	Yellowish red	Yellow
Kardinal-Höffner-Platz	71	161	685
Neumarkt	102	91	656
Proportions	**10%**	**14%**	**7%**



Probabilities

The likelihood of a long-time resident, usually rare species, *A. roeselii*, switching host from alder to plane trees, is vanishingly small, especially as these trees are not closely related. It is even more unlikely that this would happen just as a newcomer, *A. longiceps*, appears. Also vanishingly small is the probability of an *A. roeselii* flying from alders a considerable distance to hibernate on plane trees in an inner city area, alongside a newcomer sister species. Also, the probability that populations of the rare *A. roeselii* suddenly undergo mass expansion just when the sister species appears, is vanishingly small. Why did this not happen in places the newcomer had not reached? Even a hybrid between the two species is very unlikely because they are, at least initially, living on unrelated plant species growing in different habitats. Because all these probabilities have to be multiplied together, not added, the theoretical probability of (permanent) presence of *A. roeselii* on plane trees seems to be virtually zero!

Laboratory evidence

Logic is one thing, scientific experiment is another. If the bugs could be reared under controlled conditions and hybridisation investigated, this might answer our questions. However, in spite of the great numbers of bugs available at the beginning of the 2008 season, I could not get mating or eggs in the laboratory.

Molecular genetic studies should be able to resolve the problem, therefore in recent months we have used molecular analysis to compare red bugs, off *Platanus* in Cologne, with yellowish bugs. Initial results show no difference between these forms, the full results will be published in due course.

Finally we may speculate on colour variation in *Arocatus*, especially *A. longiceps*. Some insight may be gained from laboratory studies of *Perillus bioculatus*, a pentatomid that feeds on larvae of the potato beetle *Leptinotarsa decemlineata*. Knight (1924) reared this bug under different controlled temperatures. He found that different colour forms resulted: black & white, red & black, black & red. Also, he found that at higher temperatures red carotinoids of the prey were oxidised to form yellow or white pigments, and reduced storage of melanin in the bug. No humidity effect was found. In *Arocatus* yellowish colours are probably formed by flavones (see Palmer & Knight, 1924a, b) but there may be an analogous temperature effect, in *A. longiceps* for example. Therefore it could be that during development at lower temperatures in the north of its range (e.g. Paris, Frankfurt or London), or due to the micro-climate on individual trees, resulting adults might be more or less red and black or yellowish-brown (subsequent acclimatisation not excluded). Rieger told me last year that he no longer finds red specimens among the yellowish ones; I have the impression that the red bugs have diminished in Cologne too.

Conclusions

I am convinced that all west european *Arocatus* on *Platanus* are *A. longiceps*, including those from Frankfurt and those referred to by Carayon (1989), and that they are the result of a westward invasion by the eastern Mediterranean species. Initially nobody expected *A. longiceps*, so red and black bugs resembling *A. roeselii* were determined as *A. roeselii,* and subsequent authors treated them as a *Platanus* form of the *Alnus* spp. But in light of our findings, the morphological criteria for determination of the two species should be revised and *Arocatus* from Paris should be reconsidered in line with the new criteria, and London *Arocatus* too.

Accidental transportation of bugs to London - from Paris, Cologne, or elsewhere - by train, plane or truck, or on trees moved in the horticultural trade, is a trivial matter! In western Germany at least we know the origin, the chronological, and regional order of arrival of the bugs.

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Influx of *Leptoglossus occidentalis* Heidemann (Coreidae) in England

Chris Malumphy, Joseph Botting, Tristan Bantock & Sharon Reid

INTRODUCTION

Leptoglossus occidentalis Heidemann (Coreidae) is a Nearctic pest of conifer seed nurseries with a first European record in Italy in 1999. It is a relatively large and conspicuous insect and its recent rapid geographical range expansion in southern & central Europe has been well documented. *L. occidentalis* was first detected in Britain by Bob Ford at Weymouth College, Dorset in January 2007 (Malumphy & Reid, 2007). No further specimens were found until late summer 2008 when numerous adults were observed at light traps along the south coast of England, clearly indicating a large migration across the English Channel. Subsequently it has been found at several inland locations in England, and as far north as Cumbria.

This communication reports the invasion of *L. occidentalis* in the UK during 2008 and review its host range, biology, geographical distribution and economic importance.

DETECTION AND IDENTIFICATION

In countries where it is established, adults and nymphs *L. occidentalis* are found feeding on conifers. The adults are active in late summer & autumn, and are attracted to lights. They frequently enter buildings in search of overwintering sites during late autumn, occasionally in large numbers.

Adult *L. occidentalis* are relatively large and conspicuous, attaining a length of 20 mm and width of 7 mm. The species is easily distinguished from all other coreids found in Britain by its reddish-brown body, transverse white zigzag line across the centre of its wings (although this is sometimes faint or even absent), and characteristic expansions on the hind tibiae. McPherson et al. (1990) provide a key to the identification of the 11 Nearctic species of *Leptoglossus*. *L. occidentalis* is similar in appearance to the leaf-footed pine seed bug (*Leptoglossus corculus* Say), from which it may be distinguished by the somewhat shorter outer tibial dilation. The more distinct dorsal abdominal colouration in *L. occidentalis* is also used as a distinguishing character. There are more than 40 species in the genus, with all but one restricted to the Western Hemisphere. Ten species are considered to be economically damaging agricultural and forestry pests and are discussed in detail by Schaefer & Panizzi (2000).

GEOGRAPHICAL DISTRIBUTION

The native range of *L. occidentalis* is thought to be west of the Rocky Mountains in North America, and from Mexico to Canada (Rabitsch, 2008). Its eastward spread during the second half of the last century, reaching the east coast in the 1990s, has been well documented.

It was accidentally introduced into Europe, being first recorded near Vicenza in northern Italy in 1999. It spread rapidly and has since been recorded from Switzerland (2002), Slovenia (2003), Croatia (2004), Spain (2004), Austria (2005), Germany (2006), Hungary (2006), France (2006), Belgium (2007), Czech Republic (2007), Slovak Republic (2007), United Kingdom (2007), Montenegro (2008), Poland (2008) and Serbia (2008). The remarkably rapid spread of *L. occidentalis* across Europe has been discussed by several authors including Dusoulier et al. (2007), Kment & Baňař (2008), Lis et al. (2008) and Rabitsch (2008). Dusoulier et al. (2007) also provided excellent maps showing the geographical spread of the insect.

HOST PLANTS & BIOLOGY

L. occidentalis feeds on the flowers, developing cones and seeds of approximately 40 species of conifer trees, with a preference for Pinaceae, including white pine (*Pinus strobus*), red pine (*Pinus resinosa*), Scots pine (*Pinus sylvestris*), ponderosa pine (*Pinus ponderosa*), Austrian pine (*Pinus nigra*), mountain or mugo pine (*Pinus mugo*), lodgepole pine (*Pinus contorta*) and Douglas-fir (*Pseudotsuga menziesii*). It has also been observed on *Abies*, *Cedrus*, *Picea* & *Juniperus* and non-coniferous plants including citrus (*Citrus* sp.) and pistachio (*Pistacia vera*) (Kment & Baňař, 2008; Koerber, 1963; Krugman & Koerber, 1969; Villa et al., 2001).

In the USA and Canada it is univoltine but in Mexico it is reported to be multivoltine. The females lay small barrel-shaped eggs on foliage in mid to late spring that hatch after approximately 10 days. The nymphs feed on the tender cone scales and occasionally the needles. There are five nymphal stages before the adults appear in late August. The adults feed on the ripening seeds until early autumn when they hibernate. Adults usually aggregate under peeled bark and in bird and rodent nests to over-winter.

ECONOMIC IMPORTANCE

L. occidentalis is a relatively serious pest of conifer seed nurseires, particularly Douglas fir, in southern Canada and the USA. It can seriously reduce the yield and quality of the conifer seed crop, damaging up to 80% of conifer seeds by feeding on the endosperm and inducing a high incidence of conelet abortion (Bates, 2000; Connely & Schowalter, 1991; Strong et al., 2001). It can form aggregations of thousands of adults and in parts of North America they become a household nuisance when entering buildings to overwinter (Blatt, 1994; Gall, 1992; Wheeler, 1992). They have also been known to damage polythene pipes in plumbing and heating systems in the USA - piercing pipes with their rostrum.

RECORDS OF *L. occidentalis* IN BRITAIN

Table 1 details the 35 confirmed British records known to us, all of which refer to adults. These are mapped in Figure 1. The majority of records are from the south coast of England, with scattered occurrences inland, as far north as Kendal, Cumbria. The records cover 15 vice-counties. All but one of the records were of single individuals, but it appears that there was a significant arrival on a broad front over the south coast of England during the second week of October 2008.

L. occidentalis was frequently taken in moth traps, indicating that the species may come strongly to light. A large number were associated with houses, including several which had entered buildings and were probably in search of hibernation sites. A single specimen was found in a timber shipment from the USA.

DISCUSSION

Although *L. occidentalis* is known to be a strong flier, much of the eastward range expansion in North America has been attributed to human-assisted dispersal following commercial pine plantings and landscaping, and via transcontinental shipping (Gall, 1992; Schaefer & Panizzi, 2000). All developmental stages may be translocated with its host plants.

The pattern of recent records from the south coast of England, however, is unlikely to reflect repeated introductions,

Table 1 - All British Isles records of *Leptoglossus occidentalis*, in date and vice-county sequence.

2007

January

5th - Weymouth College, vc 9, **Dorset**, SY681804;
5th; Bob Ford

2008

30th August

Hastings, vc14, **E Sussex**;
MV light; Andy Philips
Dungeness, vc 16, **W Kent**, TR0817;
2 at MV light; Andy Phillips
Dungeness, vc 16, **W Kent**, TR0619;
Boulderwall, MV light; David Walker

12th September

Guernsey, vc113, **Channel Is**., WV319756;
St Martin's, in house

4th October

Holborn, vc21, **Middlesex**, TQ313819;
terrace on 8th floor; Mrs. O. Beasley
Liverpool, vc 59, **S Lancs**, SJ3297;
Seaforth, in imported white oak timber from USA;
Forestry Commission Plant Health Service.

6th October

Portsmouth, vc 11, **S Hants**;
MV light; Ian Thirlwell

10th October

Guernsey, vc113, **Ch. Is.**, WV336794;
St John's, MV light

11th October

Portland, vc 9, **Dorset**, SY685726;
Cheyne Wear, MV light; Clarke, Hammond & Tailby

12th October

Bonchurch, vc 10, Isle of Wight, SZ5777;
MV light; James Halsey
Fareham, vc 11, **S Hants**, SU5706;
Keith Wheeler
Rye, vc 13, **W Sussex**, TQ9220;
Lime Kiln Cottage, house wall; Chris Bentley
Newhaven, vc 14, **E Sussex**, TQ4401;
MV light; Steven Teale
Quorn, vc 55, **Leics**, SK558162;
MV light P. Gamble

13th October

Portland, vc 9, **Dorset**, SY678687;
Bird Observatory, observation patio
Rye, vc14, **E Sussex**, TQ9220;
MV light: Patrick Bonham
Dungeness, vc 16, **W Kent**, TR0723;
Greatstone, MV light; Barry Banson
Southport, vc 59, **S Lanc**s;
in house; Joan Stringfellow

14th October

Lancing, vc 13, **W Sussex**, TQ1804;
on house window; Gary Lane
Dungeness, vc 16, **W Kent**, TR0817;
Southview Cottage
Redditch, vc 37, **Worcestershire**;
in house; Malcolm Barlow
Kendal, vc 69, **Westmorland**; SD5192;
in house; Rob Petley-Jones

16th October

Portland vc 9, **Dorset**, SY678687;
Bird Observatory, MV light
Southwark, vc17, **Surrey**, TQ328790;
Bartholemew St., Lily Denis

17th October

Langton Matravers, Dorset, SZ0078;
in flight in garden, Chris Spilling

18th October

Newhaven, East Sussex, TQ4401;
18th; MV light; Steven Teale
Portland, vc 9, **Dorset**, SY678687; 18th; Bird Observatory,
observation garden

19th October

Portland, vc 9, **Dorset**, SY678687;
Bird Observatory, observation garden
Folkestone, vc 15, **E Ken**t, TR198371;
on car; Yvonne Mwaiwa
Caterham, vc 17, **Surrey**, TQ332561;
in house; Mr. V. Massimo

[23rd October]

Charlesworth, vc 57, **Derbyshire**, SK007931;
in greenhouse

25th October

Brighton, vc 14, **E Sussex**;
in house, Neil Topley
Bonchurch, Isle of Wight, SZ5777;
in house; James Halsey

7th November

Arundel, vc 13, **W Sussex**, TQ008065;
on window; Alexander Henderson

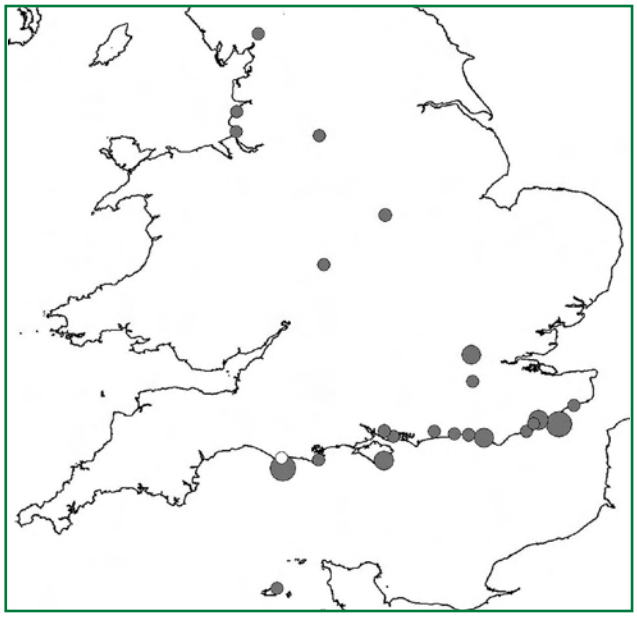

Figure1 - Records of *L. occidentalis* in Britain during 2007 (unfilled circles), 2008 (filled circles).

and is better explained by natural immigration of adults across the English Channel. Although there are a cluster of records from Portland and Dungeness, both of which are well known as landfall sites for migrating birds & insects, the wide spread of records from Kent to Dorset indicates arrival on a broad front. Interestingly, warm southerly airflows typically associated with insect migration were not a significant feature of the autumn during 2008 and the year has been a poor one for immigrant Lepidoptera. These considerations certainly testify to the powerful flight of *L. occidentalis*, one can only wonder at the possible scale of the arrival had weather conditions been more favourable for insect dispersal. Since both Portland & Dungeness have a history of regular light trapping, it is likely that these records refer to the species' first significant attempt to colonize the UK

The inland and particularly the northern occurrences of *L. occidentalis* are more likely to be of introduced origin;

indeed one record from Merseyside relates directly to timber shipments from the USA. It is pertinent that the Kendal specimen was taken near a school that was undergoing major construction work, with regular arrivals of large amounts of timber (R. Petley-Jones, pers. comm.). It is however possible that the records from Surrey and London reflect the natural inland dispersal of coastal immigrants.

As yet, there have been no records on a live host plant in the UK and breeding populations have not been detected. However, given the large size and spectacular appearance of *L. occidentalis*, as well as its propensity for entering buildings, it should soon become apparent whether it has managed to gain a foothold here. Within a decade this species has conquered 16 countries in Europe due to its efficient reproductive & dispersal capabilities. There seem no obvious reasons why it should not continue to spread and become established in the UK, if it has not done so already.

Lis et al. (2008) emphasised the need for more detailed research on the population biology of *L. occidentalis* in Europe and mentioned the possible effects of this invasive species on coniferous forest ecosystems. They also suggested that national plant protection organisations should cooperate in conducting a survey of the distribution & population characteristics of this bug.

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First interception of *Natalicola pallidus* (Westwood) (Tessaratomidae) in the UK

Chris Malumphy & Sharon Reid

A live adult *Natalicola pallidus* (Westwood) (Tessaratomidae) was found at Heathrow Airport by the Plant Health and Seeds Inspectorate on a Fairy Crassula (*Crassula multicava*) plant imported from South Africa in May 2008. This is the first time that a tessaratomid has been intercepted in the UK. Despite it's large size (L=24 mm, w=17.5 mm) the bug was inconspicuous on the succulent plant as it matched the size and shape of the leaves. *N. pallidus* occurs widely in sub-Saharan Africa but its biology does not appear to have been studied in detail. It is recorded feeding on aubergine (*Solanum melongena*). It was observed feeding (or at least probing with its mouthparts) on the fairy crassula, an important landscape and garden plant in southern Africa.

The bug is related to and very similar in appearance to the edible stinkbug, *Encosternum delegorguei* Spinola, a traditional cultural delicacy in southern African countries. The bugs are generally harvested in winter when there is little other food available. The live bugs are washed repeatedly in buckets of warm water to remove their defensive secretions, boiled and sun dried. They can also be fried with salt and a little water, until the water evaporates and then served with pap (mealie meal). Unfortunately, as we only had a single tessaratomid specimen, we weren't able to try any of the recipes.

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Figure1 - *Natalicola pallidus*.

The eastern invasion of *Leptoglossus occidentalis* (Coreidae) in France, 2007.

François Dusoulier, Roland Lupoli, Henri-Pierre Aberlenc & Jean-Claude Streito
Shortened English version translated & ed.ited by: Sheila Brooke & Bernard Nau
French original: *L'Entomologiste*, **63**, 6, 303-308,(2007) , PDF from: www1.montpellier.inra.fr/CBGP/2008-65-Leptoglosus.pdf

Leptoglossus occidentalis Heidemann, 1910 (Figure 1) is an American bug (Western Conifer Seed Bug) originally from the western USA. It originally ranged from British Columbia to northern Mexico, and west Texas. Its range was limited by the Rocky Mountains to the east, the cold to the north and desert to the south. It was not found beyond the Rockies until 1956, in Iowa, probably transported there accidentally.

Its eastward expansion began in the 1970s when it became established in Wisconsin & Illinois; then in the mid-1980s it was found in Kansas, Alabama, Minnesota, Michigan and in in Ontario, Canada. In 1990 it reach New York, and in 1992 Pennsylvania (Figure 2). The adults congregate under cover in large numbers to hibernate. Multitudes have amassed on windows of buildings, such that they have sometimes become a nuisance.

L. occidentalis began its invasion across the Atlantic, by sea or air, arriving in Europe in northern Italy, probably Venice. The first were noticed in October 1999 near Vicenza, and by 2001 it had been recorded near Milan, Frioul, Rome, the Abruzzes, Naples and finally Sicily. In July 2006 it was recorded in Liguria only 40km from the French frontier. Presumably it was from this introduction that the bug spread to countries encircling the Alps - Switzerland 2002, Slovenia 2003, Croatia 2004, Hungary 2004, Austria 2005, and Czech Republic 2007 (Figure 3).

Since arriving in Italy, there have been reports of at least 4 new accidental introductions in Europe: Spain, near Barcelona 26 September 2003; France, Le Havre in 2006; Great Britain, Weymouth in 2007; and Belgium, Ostend in October 2007.

In France, the presence of this bug was first published in 2006, but without an exact locality - one was found drowned in a swimming pool in the Mediterranean region. Then, on 15 May 2006, it was reported by the French plant protection agency in Le Havre where several were found while inspecting a container of oak from the USA. The consignment was treated and until now there have been no further reports of the insect from Seine-Maritime.

It is most likely that new introductions have been by ship, as timber is frequently transported by sea and five recent European introductions were near container ports: Venice, Barcelona, Le Havre, Weymouth & Ostend.

Figure 1 - *Leptoglossus occidentalis*

Ecology

L. occidentalis feeds on seeds and young flowers of several species of conifer. It has been found on *Pinus*, *Pseudotsuga* and *Cedrus*, but also on *Pistacia* and on an odd occasion on *Citrus*. Its presence might have passed unnoticed but adults cover considerable distances to find hibernation sites, often in houses, where they aggregate between September and November; this behaviour is readily noticed by non-entomologists. Males produce an aggregation pheromone enabling many individuals to group together.

In France, three species of bug overwinter in buildings (although not necessarily in aggregations). They are the Pentatomids *Palomena prasina*, *Raphigaster nebulosa* and *Nezara viridula*. *L. occidentalis* is the first coreid in France to show this behaviour.

Spread in France

Due to communication between entomologists via the internet, collection of specimens, information sharing, and numerous photographs from naturalists' groups, the spread of this species in France can be mapped by départment (Figs. 4 & 5). This incidentally demonstrates the value of entomologists networking using new technology such as digital photography & internet).

The first specimen to be seen in the wild in France was one photographed in a garden in Haute-Corse on 9th September 2005. From 2006 sightings became more numerous, 19 were reported that year and 72 in 2007. The species is now present in the whole Mediterranean region east of Montpellier. It has spread west along the valleys of the Agout and Garonne, and to the north it has followed the Rhone valley, the Durance to Ebrun and the Isere to Grenoble. It is now found in 20 French departments.

The bug has been captured on two occasions above 1000m: Saint-André-d'Ebrun (Hautes-Alpes) at 1020m and on conifers at the Ferrier Pass (Alpes-Maritime) at 1050m.

In France the spread of *L. occidentalis* is concentrated in the south east, clearly suggesting that the population originated in Italy. The absence of sightings in the Pyrenees-Orientales and Aude suggests that the Spanish population has not spread from north of the Pyrenees.

The isolated occurrence of *L.*

occidentalis in Paris in 2007 remains unexplained. Considering distances, there is little chance that the bug reached Paris without human intervention. The nearest known site was Le Havre but the population did not seem to have established itself there at the time. The bug could have taken advantage of either accidental transportation from a European 'hotbed', by road or rail, or even by air traffic.

Details of all records from France are listed in Table 1.

[Editorial note: In a recent e-mail to us (14th Oct.2008), François Dusoullier says: "… the species has now spread across the N of France. We have found many locations in Normandy and the central region. In one year, the species jumped nearly 500 km north." Furthermore entomologists in Britain have found it arriving on a broad front across the S coast of England in autumn 2008.]

Conclusions

L. occidentalis has progressed rapidly across Europe and is now part of our fauna. In its journey north and west round the Alps, it would not have been limited by climatic factors as it tolerates the similar climate of British Columbia in Canada. It is, therefore, possible that this invasive species will colonise all of Europe where there are conifers, from the warmer regions of Italy and Spain, even N. Africa, to the colder regions of Poland, Scandinavia & Russia.

Its impact on the reproduction of conifers is important. Foresters must be vigilant for its impact on natural regeneration. Surveillance by a network of entomologists will allow the biogeographical spread, and any accompanying damage, to be followed, year by year, in the same way as the Colorado Beetle, *Leptinotarsa decemlineata* or the Asian ladybird *Harmonia axyridis*.

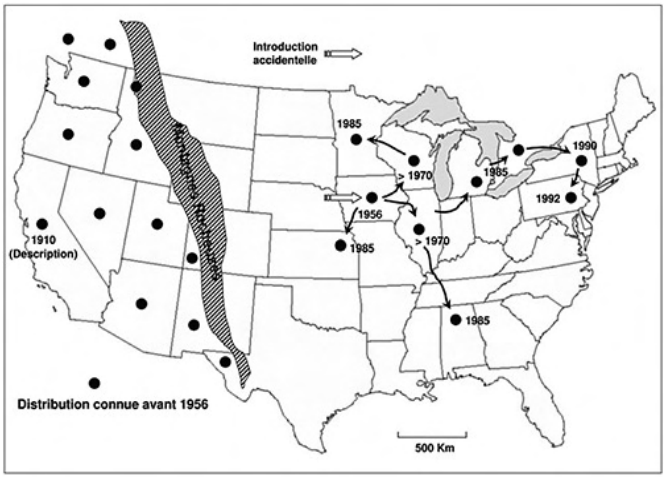

Figure 2 - Range of *L. occidentalis* in N America.

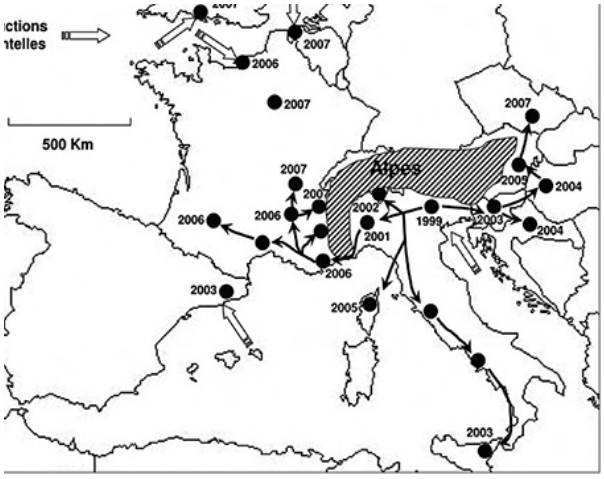

Figure 3 - Range of *L. occidentalis* in Europe.

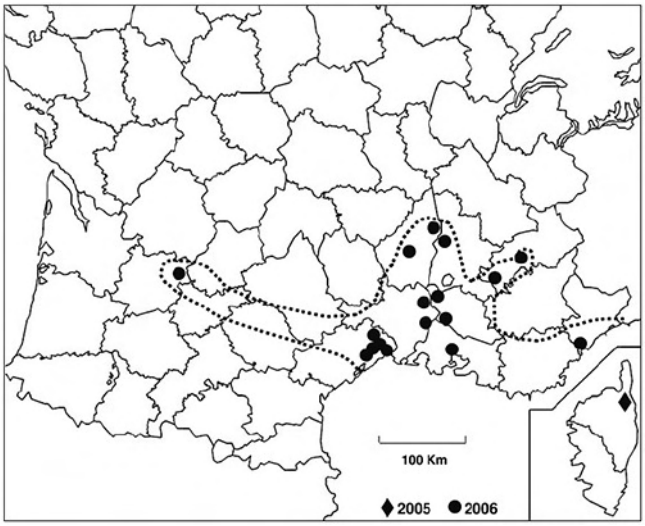

Figure 4 - *L. occidentalis* in France, 2005-2006.

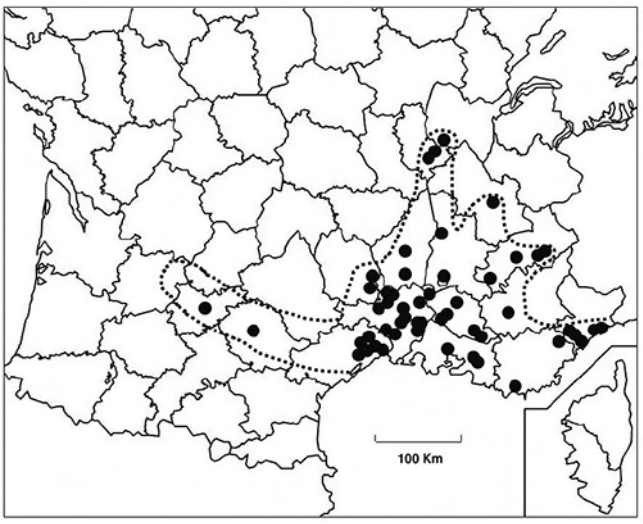

Figure 5 - *L. occidentalis* in France, 2007.

Table 1 - Details of records of *L. occidentalis* in France, 2005-2007

Ain – Miribel 20-X- 2007 !! .
Alpes-de-Haute-Provence – Entrevennes 13-X-2007 !! .
Hautes-Alpes – Embrun début X-2007 !, 17-XI-2007 ! ; Gap 26-X- 2006 !!, 27-X-2006 !!, 2-II-2007 !!, 2-X-2007 !!, 29-XI-2007 !! ; Saint-André-d'Embrun 30-VII-2007 !! ; Trescléoux 18-XI-2006 et 24-X- 2007 !! .
Alpes-Maritimes – Grasse 22-X-2007 !! ; Mougins 25-IX-2006 !; 26-IX-2006, LNPV !! ; Nice, suburbs, on the hills 8-X- 2007 UV trap & 20-X- 2007 !! ; Saint- Vallier-de-Thiey, Col du Ferrier 1-X-2007 !! , Villefranche-sur-Mer 10-X- 2007 !! ; Vallauris 20-XI-2007 ! .
Ardèche – Saint-Julien-du-Serre autumn 2006 & 2007 !; 5-IX-2007 & 14-X-2007 ! ; Soyons 21-X-2006, LNPV !! ; Vallon-Pont-d'Arc 14-X-2007 !! .
Bouches-du-Rhône – AiX- en-Provence, town centre 25-IX-2007 , AiX- en-Provence, l'Arbois 17-X-2007 !; 31-X-2007 !! , AiX- en-Provence, les Milles 18-X-2007 !! ; Cornillon-Confoux 10- X- 2006 !, X-2007 & XI-2007 !! ; Saint-Chamas 16-X-2007!! .
Haute-Corse – Lucciana 9-IX-2005 ! .
Drôme – Bourg-lès-Valence 27-III-2007 !; Livron-sur-Drôme, Les Cercols 30-IX-2006 !! .
Gard – Aramon 1-VIII-2006 !!, larval instars V & II respectively 18- VIII-2007 & 20-VIII-2007 !!, adults 27-VIII-2007 to 27-XI-2007 !!; Beaucaire 28-X-2007; Chusclan summer & autumn 2007 !! ; Foissac 26-X- 2007; Mialet 24-X-2007 ; Montfrin 17-X- 2007 ; Nîmes 14-X- 2007 ! ; Orsan 26-IX-2006 et 28-IX-2006 !! ; Peyremale X- 2007 ; Portes 27-X- 2007 ; Poulx 18-X- 2007 ! ; Saint-Ambroix 13-X- 2007 ; Sommières X- 2007 ; Vergèze 17-X- 2007.
Hérault – Fabrègues 21-X- 2006 ! ; Grabels end IX-2007!!; 29-X- 2007 !! ; La Grande-Motte early X-2006 & 2007 !!, 19-IX-2007 !! ; Montaud 30-X- 2006, LNPV !! ; Montferrier- sur-Lez campus de Lavalette IX-2007 !! , Montferrier-sur-Lez, campus de Baillarguet 10-X- 2007t !! ; Montpellier 24-X- 2007 !!; X- 2007 !! ; Saint- Clément-la-Rivière 25-IX-2007 !! ; Saint-Gély-du-Fesc X-2007 !! ; Sainte-CroiX- de-Quintillargues X-2007 et XI- 2007!! ; Vendargues 27-X- 2006, LNPV !!.
Isère – Grenoble 18-X- 2007, Sophie Quémerais !.**Lot-et-Garonne** – Monségur 13-XI-2006, Dimitri Geystor !!.
Lozère – Saint-André-Capcèze 19-X- 2007; Vialas XI-2007.
Paris – Paris, porte de Champerret 8-X- 2007 !!
Rhône – Brignais 13-X- 2007 ! ; Lyon 25-X- 2007.
Seine-Maritime – Le Havre; interception 15-V- 2006, LNPV !.
Tarn – Cadalen 19-X- 2007 ! .
Tarn-et-Garonne – L'Honor-de-Cos 22-X- 2007, Denis Pommier !.
Var – Montauroux end iX- 2007, LNPV !! , Toulon 15-X- 2007!! .
Vaucluse – Avignon 2007 !, 3-X-2007!!., early XI-2007!! ; Avignon, île de la Barthelasse 2-X-2007, LNPV !! ; Cabrières-d'Aigues 2-X-2007 !! ; Mormoiron 19-X-2007 !! ; Mornas 26-IX-2007 & 28-IX-2007 !! ; La Roque-sur-Pernes 14-X-2007 ! ; La Tour-d'Aigues 15-XI-2007, !! ; Uchaux XII-2006 !! ; Valréas, Les Saffres fin X-2007 !! .

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Please send contributions for the next issue by 30th April 2009

Identification & habitat of *Velia* spp (water-crickets).

Bernard Nau

Water-crickets are a familiar sight on water bodies ranging from small streams and ditches, to the margins of rivers and lakes. In 1951 E.S.Brown found that two species are present in the British Isles, following Tamanini's revision of the genus. Previously, all our *Velia* had been recorded as *V. currens*, a species which, it turned out, does not actually occur here at all! Of our two species one is ubiquitous and the other is of more restricted distribution - and under-recorded - the species are *V. caprai* and *V. saulii* respectively.

Identification of our *Velia* is not always straightforward, especially in males, so these notes are presented to supplement published keys. Useful diagnostic characters are scattered through several published papers, as follows.

The 1956 & 1965 editions of Macan's water-bug keys and Savage's 1988 version thereof, give external structural characters for distinguishing certain forms of the two species. They use details of the abdomen for idenfication of wingless females, and the form of the genital spicules for males - a dissection job.

Brown's 1951 paper offers useful advice. He points out that in *V. saulii* the pronotum & sternum are black or blackish, rather than paler or rufous; and the puncturation on the pronotum is less dense. Also, in male *caprai* the hind femur is somewhat inflated, but not in *saulii*.

A short 1956 paper by J. H. Flint adds useful insight on habitat differences, and describes differences in the black markings of the connexivum for separating wingless males.

A 1959 paper by R. O. Brinkhurst endorses Flint's use of the connexivum markings as a useful field character.

The characters & habitats referred to in the above are summarised in the accompanying text box and figures.

V. caprai

Wingless male

Connexivum black markings smaller & always triangular.

Wingless female

- Connexivum folded flat against upperside of abdomen; in side view apical point is angled upwards or horizontally.
- Pronotum shorter, hind edge slightly concave, metanotum exposed.

Winged male & female

- Pronotum & sternum: paler, often brownish .
- Wing markings: whitish; basal streak ends before basal spot; central spot ovate, longer than the round apical spot. cross vein near base of wing.
- Connexivum terminal segments converging.

Habitat - open water of sheltered streams & ditches, sometimes margins of pools. Normally water margins vegetated, e.g. overhanging grasses, or emergent vegetation such as watercress (*Rorippa*) or brooklime (*Veronica becca-bunga*). Gregarious, often in large aggregations.

V. saulii

Wingless male

- Connexivum: black markings larger, more or less rectangular.

Wingless female

- Connexivum: directed vertically upwards; in side view pointed apex is downcurved.
- Pronotum: longer, hind edge convex, covers metanotum.

Winged male & female

- Pronotum & sternum: darker, black or blackish.
- Wing markings: whitish; basal streak 'overlaps' basal spot; central spot circular, about same size as apical spot. No cross vein (at most a dark line).
- Connexivum: terminal segments virtually parallel.

Habitat- still or flowing water bodies, margins unvegetated stony shores; on stony shores often under edge of large stones. Less gregarious, not usually in large aggregations.

B.S.Nau

Figure captions:-

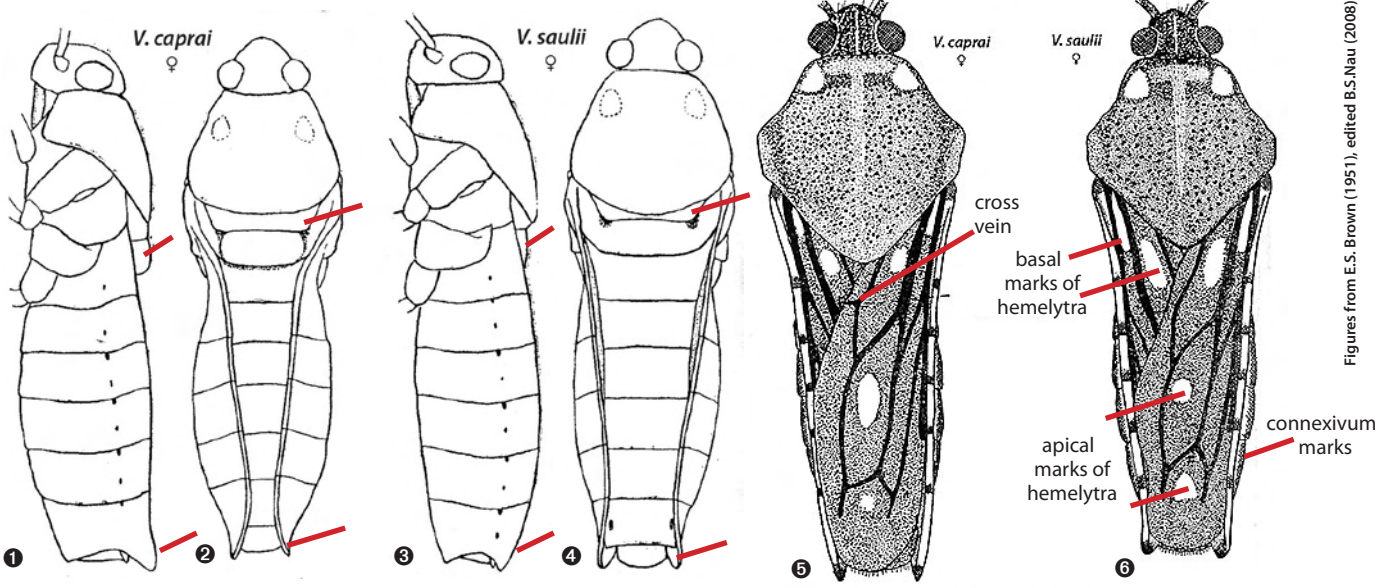
Wingless females

1&3 - Profile showing expanded base of abdomen & orientation of connexivum apex.

2&4 - View from above showing pronotum length & exposure of metanotum; details of apex of inwardly folded connexivum.

Winged females

5&6 - White marks on hemelytra, 2 basal & 2 apical; black marks on edge of pale connexivum; cross vein of *V. caprai*.



Figures from E.S. Brown (1951), edited B.S.Nau (2008)

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Ilustrations of British species of *Phytocoris* of subgenus *Phytocoris* (Miridae).

Stuart Foster
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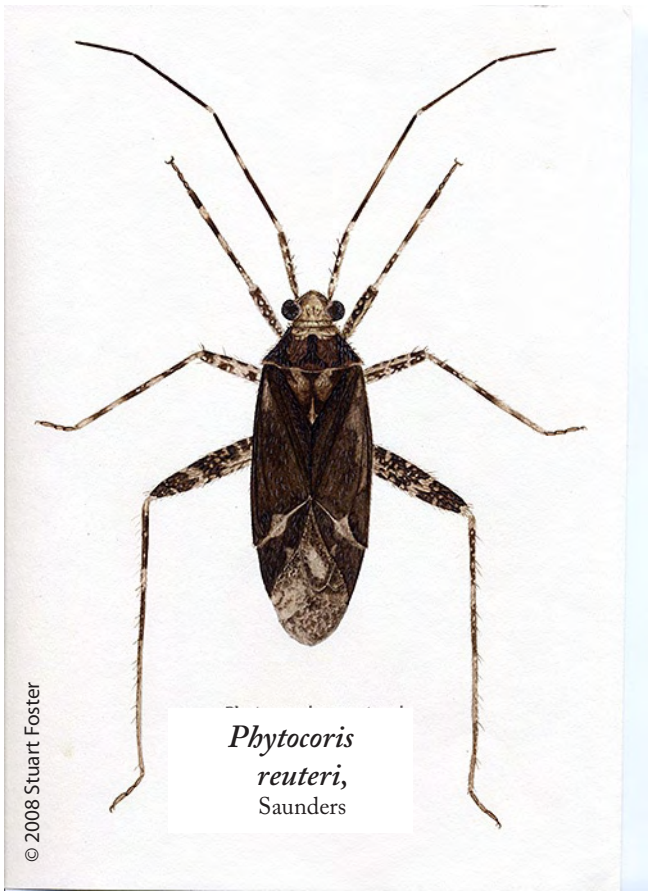
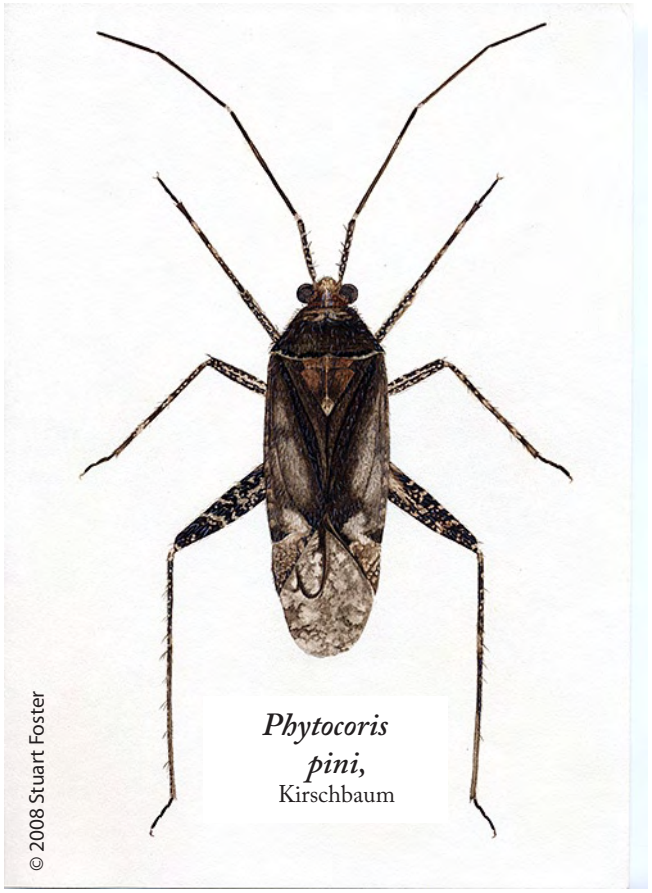
These beautiful watercolours of the British species of Phytocoris (subgenus Phytocoris) were painted by Stuart Foster in 1984 for the Heteropterists' Newsletter (1st Series), but at that time could not be reproduced. They were painted from actual specimens and Stuart has kindly offered them to Het News. We think they will be a very useful supplement to your Phytocoris key, as well as delightful to look at.

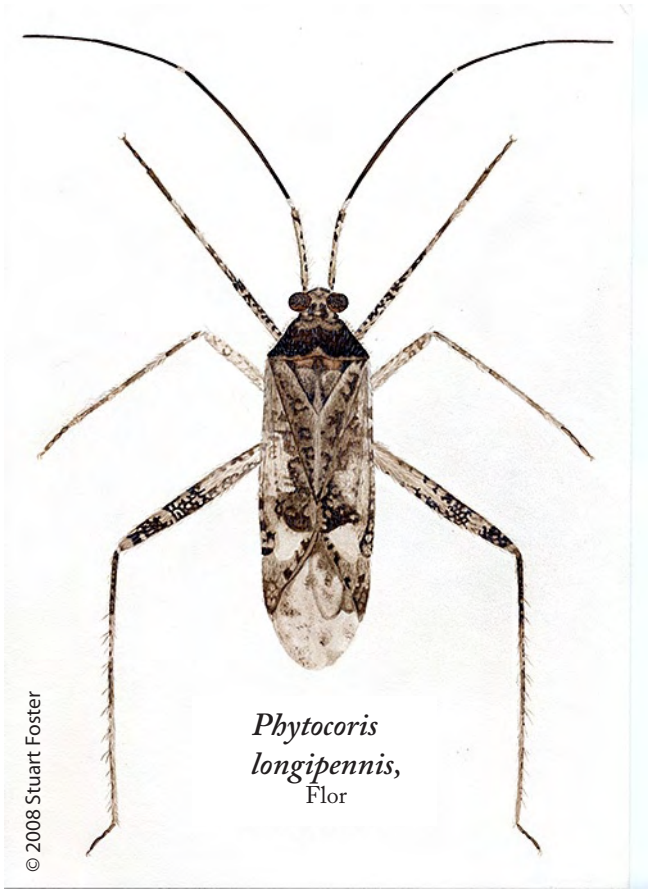
Eds.



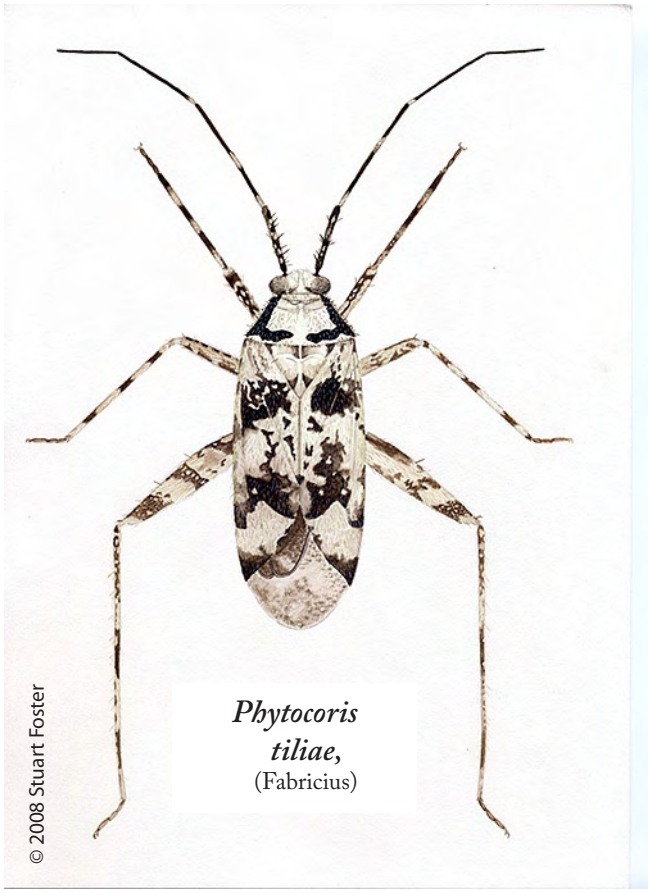


Phytocoris pini, Kirschbaum

Phytocoris populi, (Linnaeus)



Phytocoris longipennis, Flor



Phytocoris tiliae, (Fabricius)

SURREY vc17

Peter Hodge

A second British site forthe mirid *Orthotylus caprai*

At the November 2008 BENHS Annual Exhibition, Peter Hodge exhibited two *Orthotylus caprai* collected from Cypress (*Chamaecyparis*) in a cemetery at Kingston, Surrey.

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S & N ESSEX .....vc 18&19

Peter Harvey

***Gonocerus, Nezara* & *Metapoplax* in Essex in 2008**

On 24th August 2008 Peter was pleased to find an adult Box Bug ***Gonocerus acuteangulatus*** perched on a *Mahonia* bush immediately adjacent to an old bush of Box (*Buxus*) in his garden in Grays (**vc18**). Just three days later at Walthamstow (**vc18**), he beat a number of nymphs from rose scrub supporting a good quantity of rose hips. Suspecting they too might be *Gonocerus*, he reared one. Obligingly it moulted and matured on 2nd September, providing confirmation. Then examination of the Box in his Grays garden on 15th September produced a second adult. Finally, on 12th September he beat an adult ***G. acuteangulatus*** from hip bearing rose scrub at Cheshunt Marsh (TL 3715 0093, **vc 19** N Essex), just NW of Waltham Abbey and probably a first for this vice-county. This site is only 200m or so from the boundary between N Essex (vc19) & Herts (vc20).

On 21 Oct 2003 Peter collected a 5th instar nymph of ***Nezara viridula*** (Fig.1) at a brownfield site in Stratford (TQ377841, **vc18**), which has now probably been destroyed as part of developments in preparation for the 2012 Olympics. He noticed its striking appearance at the time, but did not record whether it was swept from herbage or beaten from scrub at the site. Peter Kirby subsequently identified the shield bug along with other bug and plant hopper material. Then on 12th August 2008 he swept a 5th instar nymph from herbage beside an old track at a post industrial site near Stanford le Hope in South Essex (**vc18**) near the Thames. Although it was kept alive in captivity in the hope of rearing it through, it died after a couple of weeks. However on 23rd August, in exactly the same area of the same site, he swept two more 5th instar nymphs, one of which he kept alive in captivity. This one moulted and matured into an adult on 27th August. On 8th September, again from the same small area, a further 5th instar nymph was swept. Clearly this shield bug is likely to turn up elsewhere in the Thames Gateway region.

The bug genus *Metopoplax* seems well established at several sites near the Thames in south Essex. Peter Kirby has identified ***Metopoplax fuscinervis*** from material PH collected at West Thurrock Marshes (**vc18**) in 2005, commenting that it has the same ecology as ***Metopoplax ditomoides***, seems always to occur with it and specimens turn up which are intermediate between the two – none of which inspires confidence!

PH collected ***M. ditomoides*** (also identified by Peter Kirby) from three sites in south Essex:

(i) An old landfill site at Vange (S Essex, **vc18**) in 2006.

(ii) A brownfield site (now destroyed) in the London borough of Newham (**vc18**) in 2007.

(iii) On four occasions in 2008 on the same post-industrial site near Stanford le Hope (**vc18)** mentioned above, where he had found the ***Nezara viridula***. Interestingly, on each occasion the ***M. ditomoides*** were on the same part of the site as the *Nezara*, although he could see no plant species or vegetation structure that would explain why both species seemed to be confined to this one small area.

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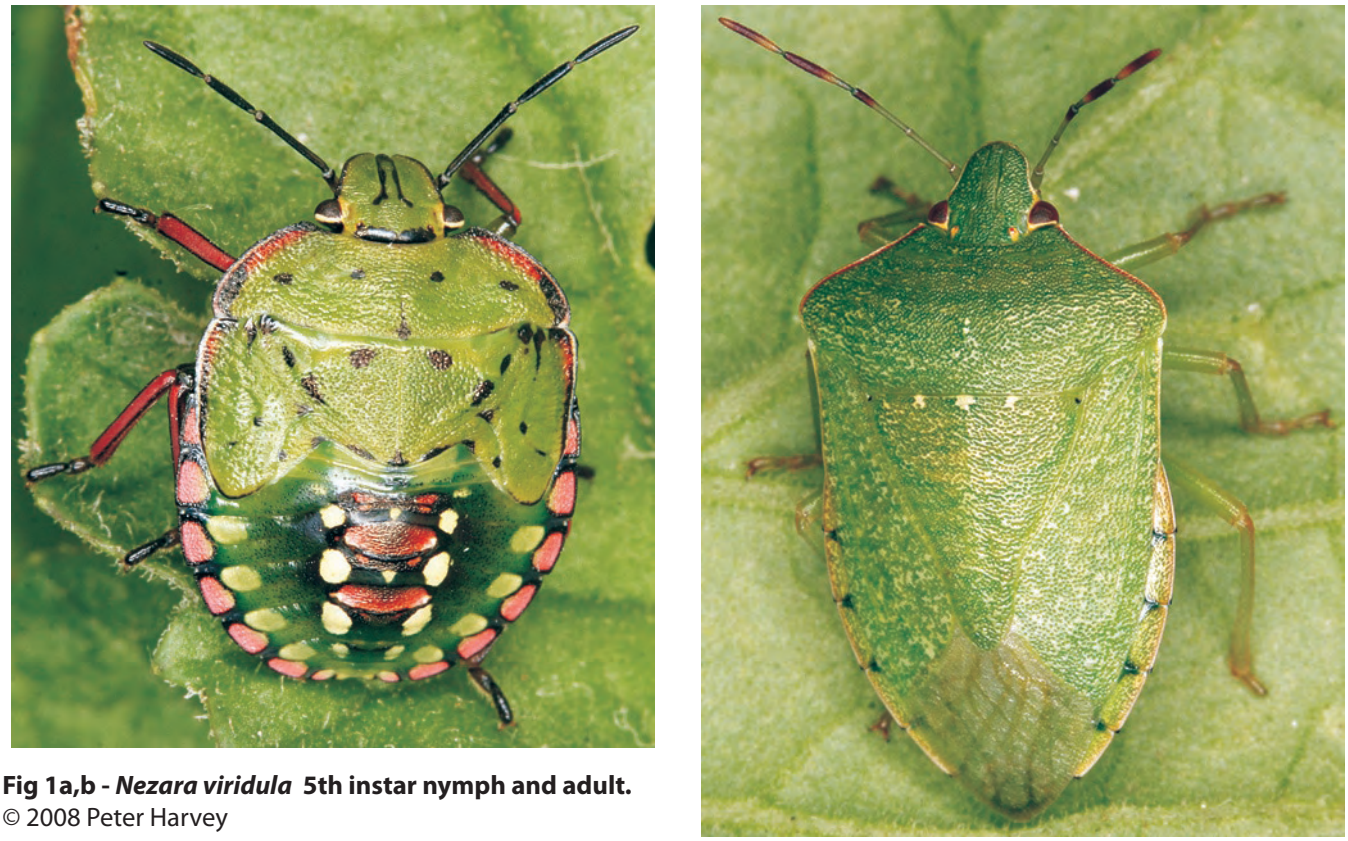

Fig 1a,b - *Nezara viridula* 5th instar nymph and adult.

MIDDLESEX vc21

Alan Diver

***Nezara viridula* in a Staines garden, 2006-2008**

The following observations are collated from Alan's e-mail 'diaries' over the last three seasons:

2006: I first saw the Southern Green Shield Bugs in my Staines (Middlesex) garden on August 2006, when picking runner beans. There appeared to be two adults and at least 30 nymphs. I glimpsed them each time I picked beans. They seem to be quite happy feeding on the bean stems and leaves. Finally it got to late September, when I needed to dismantle the frame and get the bean plants into my compost heap. By this time the insects had dispersed somewhat. I took a couple of adults on their bean stem with leaves and put them on a plastic bucket outside my kitchen door. They stayed there for several weeks and then disappeared, hopefully to return in 2007.

2007: Southern Green Shield Bugs again found on my runner beans but not in the same numbers as last year, which appeared to be a 'brood'. This year I saw two on the 25th August and one the following week, 1st September. All three were about 3mm in length. Last year there were two which were about 9mm in length.

2008: Again this year I have a 'litter' of Southern Green Shield Bugs on my runner beans. They do not seem to do any damage. I first saw them on the 25th July and they are still with me. On 8th Sept, after a weeks holiday, I picked the latest crop of beans and found a nursery of nymphs about 1 to 2 mm in length, about a dozen in number. Occasionally one will arrive in the kitchen - probably from the runner beans collected from the garden.

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Fig 1 - *Nezara viridula* nymphs on runner beans.
© 2008 Alan Diver

E SUFFOLK vc25

Jerry Bowdrey

The coreid *Spathocera dalmanii* new to Suffolk

Whilst searching for insects on the south-facing sea wall at Seafield Bay, Stutton, Suffolk (TM1233, vc25) some small hemipterans were noticed on thin, bare soil which had accumulated between patches of low vegetation on the surface of the concrete blocks forming the outer face of the sea wall. These proved to on closer examination be the coreid *Spathocera dalmanii* (Notable A), both adults and final instar nymphs.

Nigel Cuming, the Suffolk Naturalists' Society's Terrestrial Heteroptera Recorder, kindly confirmed that he has no other records of this species from the county. Also, neither Suffolk Biological Records Centre nor Bernard Nau have Suffolk records. The species is represented in the Morley collection at Ipswich Museum, but his specimens were not collected in Suffolk.

Seafield Bay lies on the north bank of the River Stour and the sea wall faces due south; the bugs appeared to be sunning themselves on the bare soil and there is plenty of sheep's sorrel (*Rumex acetosella*), the usual foodplant (Hawkins, 2003), present.

The species has also been found nearby in **N Essex (vc19)** on a previously burnt area of acid grassland, and at a disused gravel pit (Bowdrey 2000, Forsyth 2005).

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E NORFOLK vc27

Doreen Wells

Gonocerus acuteangulatus (Box bug) new to Norfolk

On 30th May 2008 at 1610 I saw a specimen of this bug on a cherry tree (*Prunus* sp.) in the gardens of Norwich Castle (Grid Ref: TG 233 085) . The tree was growing next to Hazel (*Corylus avellana*). It very kindly posed for photographs (Fig.1) and then flew off, not to be seen again. I was quite excited about this sighting, but contained myself until Ken Durrant (County Recorder for Norfolk & Norwich Naturalist Society) confirmed my identification! Ken also said that he did not know of a recorded sighting in Norfolk before.

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Fig 1 - *Gonocerus acuteangulatus* at Norwich Castle.
© 2008 Doreen Wells

E & W NORFOLK .....vc 27&28

Tony Cook

Water bugs of the North Norfolk Coast

Samples of water bugs taken along the North Norfolk Coast in 2007 & 2008 contained a number of local species, some of which were first records for the area. At Titchwell (vc28) in April 08 the following species were taken from freshwater sites, mainly ponds fringed with *Phragmites*, and ditches south (landward) of the main freshwater lagoon:

Ranatra linearis	*Ilyocoris cimicoides*
Cymatia bonsdorffii	*Notonecta glauca*
C. coleoptrata	*Plea minutissima*
Corixa panzeri	*Microvelia buenoi*
Hesperocorixa linnaei	*M. pygmaea*
Paracorixa concinna	*M. reticulata*
Sigara dorsalis	*Gerris odontogaster*
S. fossarum	
S. lateralis	

At Titchwell salinity, measured by conductivity, jumps from <2 ppm (660 – 760 µS) in the freshwater pools to 22 ppt (26500 µS) in the brackish lagoon and practically seawater in the tidal lagoon – both too saline for water bugs. At Holme & Cley there is a greater range of salinities in the tolerable range for bugs between the landward & seaward sides of the reserves. Species at Holme (vc8) during 2007-2008 were:

Micronecta sholtzi	*Sigara dorsalis*
Callicorixa praeusta	*S. iactans*
Corixa affinis	*S. lateralis*
C. panzeri	*Ilyocoris cimicoides*
C. punctata	*Notonecta glauca*
Hesperocorixa linnaei	*Microvelia reticulata*
H. sahlbergi	*Gerris odontogaster*

S. lateralis was uncommon at Titchwell but abundant in small dune ponds at Holme (dug for Natterjack Toads) with a conductivity of ~1400 µS (salinity <2ppt). *S. stagnalis* and *Corixa affinis* occured in a saline ditch (7750 µS, salinity 4.7ppt), with the crustacean *Palaemonetes varians*.

Species found at Cley (vc27) in August 2008 were:

The most saline site sampled was 'New Cut', a channel draining the Cley and Salthouse marshes into the R. Glaven, (9100 µS, salinity 6.34 ppt). Here only *S. stagnalis* and *G. odontogaster* were found. A single specimen of the uncommon macropterous form of *Mesovelia furcata* was found in a freshwater ditch close to the coast road on the southern side of the reserve.

Nepa cinerea	*Notonecta glauca*
Callicorixa praeusta	*N. viridis*
Hesperocorixa linnaei	*Mesovelia furcata*
Paracorixa concinna	*Hydrometra stagnorum*
Sigara distincta	*Microvelia reticulata*
S. dorsalis	*Gerris odontogaster*
S. lateralis	
S. stagnalis	

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W NORFOLK..... vc 28

Bernard Nau

Two spreading species in Norfolk

On 28th September 2008 I visited Swanton Novers Wood NNR (TG015 3136) and beat *Buchananiella continua* from dead leaves on a fallen bough, the first I had checked for this species! I also swept one *Stictopleurus punctatonervosus* from a ride verge. Both were a few metres inside vc28.

BEDFORDSHIRE..... vc 30

Bernard Nau

High flying *Kleidocerys*

Jason Chapman (Rothamsted Reasearch) sent me two male *Kleidocerys resedae* netted from a balloon 'high above Cardington airfield' on 20th May and 24th July 2007.

SHROPSHIRE ..... vc 40

Andy Hamer

Aphelocheirus aestivalis in the Shropshire Union Canal

On 8th November 2008 I visited the Shropshire Union Canal (SJ5646, vc 40); I try to sample a selection of habitats on each visit and this may include the canal wall, lock gates, silt, any vegetated area within the canal, any unusual site such as a breach of the canal wall, any inlet drains etc. One such feature I sampled was a water bypass for the locks; the water leaving the canal via a concrete drain on the western side of the locks and re-entering on the eastern side of the locks after around a 3 metre drop over 25 metres. The re-entry point consisted of a concrete lip that was spread over around 5 metres giving it a weir-like appearance, probably there to calm and spread the turbulent water as it comes crashing down the drain. Where the delta effect occurs, there is an accumulation of small stones and shell remnants creating a small area that resembles a gravel bed of a stream.

On the first dip I noticed the shrimp *Gammarus tigrinus,* in itself unusual but I couldn't believe my eyes on the second dip when I looked into my net and saw *Aphelocheirus aestivalis* - the river bug. To my knowledge, there is only one other record for Cheshire (from a stream in Northwich made by Jonathan Guest nearly a decade ago) and none northwards west of the Pennines until Cumbria. It is incredible that this animal found its way to this tiny site. Winged individuals are very rare and it's unlikely that the canal is suitable for the bug as it is a plastron breather requiring high levels of oxygen. An early nymph was also netted proving breeding.

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[There are a few Environment Agency records from Cheshire on the *NBN Gateway*, from the 1990s and early 2000s but they clearly did not reach the Cheshire Record Centre. There are no further records in that NW area S of Cumbria. It is amazing how some bugs find small patches of suitable habitat. The most unlikely places are always worth a look. BSN recalls netting *Aphelocheirus* in a sluggish side channel of the River Great Ouse in Bedford, so they might be in the Shropshire Union Canal too! SEB]

S LINCOLNSHIRE vc53

Richard Chadd (Environment Agency)

Notonecta obliqua Thunberg was found on 22/09/08 at River West Glen at B1176 (Burton-le-Coggles gauging station): SK987260 (swept from fringing Phalaris arundinacea beside shallow riffle/glide). This is one of very few records for Lincolnshire and probably a first for VC53.

On the same day, a *N.maculata* from the same river (this time at SK997233 - Swayfield Road) - not new to Lincs, but still something of a rarity. Again, it was in fringing Phalaris, but this time by a pool in the river, where it regularly dries-up.

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NOTTINGHAMSHIRE & DERBYSHIRE .....vc 56&57

David Budworth

First county records for *Deraeocoris flavilinea* & *Tupiocoris rhododendri*, & notes on *Heterogaster urticae*.

I found ***D. flavilinea*** and ***T. rhododendri*** in the 3rd week of July 2008 at Alfreton Park (**vc 57**), both are firsts for

Derbyshire. *D. flavilinea* was represented by a single male but *T. rhododendri* was in good numbers of both sexes.

In July 2008 I also had *D. flavilinea* from Nottinghamshire, in Treswell Wood (**vc56**) near Retford . This was a first for that county, and within a week of the Derbyshire record.

Another species change I have noticed concerns the lygaeid ***Heterogaster urticae***. This was essentially nonexistent in my area until the 1990s. My first find of numbers was in a park in north Birmingham and I later found the species on many nettle patches along the banks of the Rivers Trent and Derwent (even in the middle of Burton on Trent). It now seems to have declined again and records are back to zero. It would be interesting to see if these changes have been noticed elsewhere in the country.

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SE, NE, & NW YORKSHIRE ..... vc 61, 62, 65

Martin Hammond

Some Yorkshire water bugs in 2008

In South-east Yorkshire (**vc 61**), a clay-bedded pond near Skeffling in South Holderness (TA 32) produced two *Corixa affinis*. Although no great distance inland, this was clearly a freshwater pond with no brackish influence (electrical conductivity was around 550 µS/cm). This reminded me of the comments in the Provisional Atlas (Huxley, 2003) regarding the inland occurrence of *C. affinis* in Sussex.

Lake Gormire near Thirsk in North-east Yorkshire (SE58, **vc62**) is a natural mesotrophic lowland lake. An aquatic invertebrate survey in September showed that corixids were very sparse, probably due to heavy predation by Pike and Perch in the littoral zone. *Notonecta maculata* was locally-abundant and greatly outnumbered *N. glauca* but was, unusually, restricted to well-vegetated areas of marginal fen. A single immature *Ranatra linearis* provided evidence of continued northwards expansion by this species.

A survey of 66 ponds on the Ministry of Defence's Catterick Training Area in North-west Yorkshire (**vc 65**) produced 28 water bug species. Although most of the ponds are on the moorland edge at intermediate elevations, they are also well-buffered and have circumneutral pH. Corixids were abundant in larger water bodies with open vegetation. In contrast to eutrophic lowland ponds in North Yorkshire, *Sigara dorsalis* and *Hesperocorixa linnaei* were rare though *Sigara distincta* was almost ubiquitous. The less common small corixids such as *Cymatia bonsdorffii*, *Sigara limitata*, *S. semistriata* and *S. venusta* seemed to occur in clustered populations rather than being obviously influenced by environmental variables.

Two urban-fringe sites in the city of York, with clayey ponds of recent origin, yielded *Sigara limitata* this autumn.

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LAKE DISTRICT vc 69, 70

Water bug course at Windermere

Melanie Fletcher (Freshwater Biological Association)

Windermere is a striking location to observe a plethora of aquatic, and water bugs are no exception! Mitchell Wyke is a sheltered bay which curls behind the Freshwater Biological Association (FBA) headquarters, library & lab, which are sited right on the shore of the lake. It provides a protected habitat and supports an abundance of macroinvertebrates including corixids and notonectids, as well as the occasional *Nepa*. This was the location for a course in May 2008 run by the FBA and tutored by Sheila Brooke (Aquatic Heteroptera Recording Scheme) with support from Bernard Nau.

Sheila (on right in photo) gave an excellent introduction to this diverse and fascinating group. It was particularly interesting for someone like me who is more used to the fauna of fast flowing upland streams!

Although we didn't find a huge range of species on site, we got experience there of sampling techniques and how to look for different species. We had previously collected some beautifully slender hydrometrids and sturdy gerrids from local tarns. We sampled additional material from Windermere itself, which really demonstrated how different members of the water bugs exploit different niches. Under Sheila and Bernard's expert tutelage we even found some *Microvelia* secreted under the concrete slipway which enters the lake beside FBA.

As well as viewing live specimens, which allowed us to observe their behaviour and habitat preferences, there was preserved material which we used for comparison

of morphology and getting to grips with identification techniques. There was also a pinned collection for reference - a veritable mini, mobile museum!

The participants had a range of experience, from absolute beginners to those with some previous knowledge of water bugs, but everyone enjoyed the day and went away with new skills and increased familiarity with this interesting group.

Sheila is tutoring a similar course next year (Saturday 25th April 2009) as part of the FBA's regular programme of training courses. If you would like further details, please go to the FBA website www.fba.org.uk or phone 01539 442468.

BBC TELEVISION WANTS TO KNOW IF HAVE WHAT IT TAKES TO MAKE THE NEXT *PLANET EARTH*!

BBC One is looking for nine people to take part in the experience of a lifetime. Encountering extraordinary animals in amazing locations & testing yourself to the limit, this will culminate in one exceptional individual securing a year's placement at the BBC's world famous ***Natural History Unit***. If you are over 18 years old and can illustrate a passion for the natural world the BBC wants to hear from you. For an application form email your name to:

endsoftheearth@bbc.co.uk

LITERATURE RELATING TO BRITISH HETEROPTERA

Continued from *Het News* **10**, Autumn 2007

INTERNATIONAL

Albrecht, A., Mattila, K., Rinne, V., Söderman, G., 2006
Check-list of Finnish *Hem.*
[unpublished document, 26-page printed A4 doc dated 1.6.2006; compiled by Finnish *Hem.* Group]
[Simple list follows Pal.Cat., not annotated.]

Aglyamzyanov, R., 2006
Revision der paläarktischen Arten der Gattung *Lygus* Hahn (Heteroptera, Miridae).
Dissertation zur Erlangung des Grades Doktor de Naturwissenschaften, Fachbereich Biologie, Johannes Gutenberg-Universität Mainz, 70pp, 224 figs & colour photos.

Aukema,B.,Bos, F., Hermes, D., & Zeinstra, P., 2005
Nieuwe en interessante Nederlandse wantsen II, met een geactualiseerde naamlijst (Hemiptera: Heteroptera).
Nederlandse Faunistische Meddeelingen, **23**, pp63-76, (2005)
[Checklist of Heteroptera of NL]

Bütner, R., 2007
Arocatus longiceps Stal, 1872, in der Innenstadt von Erlangen (Bayern, Mittelfranken).
Heteropteron (Köln, ISSN 1432-3761) , 25,p15, (2007)
[On 10-15 yr-old Platanus sp., Aug 2007, photo(b&w), 4 refs.]

Constant, J., 2007
Note on coprophily and necrophily in the Hemiptera-Heteroptera.
Bull. de la Soc.royale belge d'Entomologie, **77**, pp107-112
[In English]

Damken, C., 2008
Habitatmodelle für wanzen (Insecta: Heteroptera) städtischer brachflächen.
Heteropteron (Köln, ISSN 1432-3761), **26**, pp7-11, (2008)
[Het fauna of brownfield sites in Berlin & Bremen listed; statistical analysis of habitat preferences of Trigonotylus ruficornis.]

DuSoulier,F., 2007
L'invasion orientale de *Leptoglossus occidentalis* en France: bilan de son extension biogéographique en 2007 (Hemiptera Coreidae).
L'Entomologiste, **63**, pp303-308, (2007)
[Photo, maps of spread in N America, Europe & France; ecology; detailed French records]

.. , 2007
Clé de détermination des Acanthosomatidae Signoret, 1864 du Massif armoricain (Hemiptera, Heteroptera).
Invertébrés Armoricains, **1**, pp7-13, (2007)
[Incl. *Elasmostethus minor, Elasmucha ferrugata, E fieberi*]

Eickert, C., Ridley, R., Werner, D.J., 2007
Gonocerus acuteangulatus (Goeze, 1778) nun schon in Hamburg.
Heteropteron, **25**, p29, (2007).

Hoffmann, H-J, 2008
Auf Platanen: nur *Arocatus longiceps* oder doch auch A. roeselii?
Heteropteron, **26**., pp24-29, (2008)
[Identity of *Arocatus* on plane trees in UK & Germany.]

Kenis, M., Rabitsch, W., et al., 2007
How can alien species inventories and interception data help us prevent insect invasions?
Bulletin of Entomological Research, **97**, 489-502.

Kofler, A., 2007
Neu fundmeldungen von Wanzen aus Osttirol und Kärtnen (Insecta:Hteroptera).
Beiträge zur Entomofaunistik, **8**, pp27-54, (2007).
[Records of ca 185 spp: Ceratocombidae to Saldidae, Lygaeidae, Piesmidae to Pentatomidae. Colour photos of *Arocatus longiceps, Bathysolen nubilus, Liorhyssus hyalinus, Rhaphogaster nebulosa*.

Kott, P., 2007
Emblethis denticollis Hv. (Hemiptera Heteroptera) neu für NRW.
Heteropteron (Köln, ISSN 1432-3761), 25, p16, (2007)

Polhemus, J.T., Polhemus, D.A., 2007
Global trends in the description of aquatic and semi-aquatic Heteroptera specis, 1758-2004.
Tijdschrift voor entomologie, **150**, 2, pp271-288, (2007)
[4782 species known globally (Gerromorpha + Nepomorpha + Leptopodomorpha); 51 spp/yr described currently; estimated 100 spp still undescribed.]

Rabitsch, W., 2007
Die wanzenfauna (insecta, Heteroptera) der Heisslanden im Nationalpark Donau-Auen (Wien, Österreich).
Beiträge zur Entomofaunistik, **8**, pp109-131, (2007)
[Colour photos of *Polymerus asperula, Sciocoris sulcatus, Atractotomus rhodani*.]

.. , 2008
Alien true bugs of Europe (Insecta: Hemiptera: Heteroptera).
Zootaxa, **1827**, 1-44, (2008)

.. , 2008
The times they are a-changin': driving forces of recent additions to the Heteroptera fauna of Austria.
In: Grozeva, S. & Simov, N. (eds), *Advances in Heteroptera Research.* Pensoft Publ., Sofia, 309-326, (2008)

Reichholf, J.H., 2008
Einblicke in die biologie der Rotrückigen Irrwischwanze *Alydus calcaratus*.
Heteropteron, **26**, pp12-14, (2008)
[Worm (*Mermis*) 70mm long from body.]

Ribes, J., Pagola-Carte, S., 2008
Arocatus longiceps Stal, 1872, primera cita para la Peninsula Ibérica (Hemiptera: Heteroptera: Lygaeidae).
Ent.Mon.Mag., **42**, pp353-354.
[1st Iberian record, Barcelona, 9th Aug 2007, in a house.]

Saulich, A.H., 2007
Four seasons: Diversity of seasonal adaptations and ecological mechanisms controlling seasonal development in true bugs (Heteroptera).
Proc. Biol. Inst.of St Petersburg State University, **53**, 25-106, (2007)
[4-page extended summary, English. Colour changes, diapause, temperature tolerance, spring activity, overwintering stage, wing morphs, seasonal adaptations.]

Smit, J.T., Reemer, M., Aukema, B., 2007
Een invasie van de Nieuw-Zeelandsee tarwewants *Nysius huttoni* in Nederland (Heteroptera: Lygaeidae).
Nederlandse Faunistische Mededelingen,**27**, 51-70, (2007)
[English summary, detailed study of distribution & ecology in NL. Colour photo.Teneral adults June-July & September-October 11th.]

Stemmer, M., Günther, H., 2007
Eurydema ventralis (Kolenati, 1846) in Rheinland-Pfalz (Hemiptera:Pentatomidae).
Heteropteron, (Köln, ISSN 1432-3761), 25, 11-14, (2007)
[Photos(b&w) of dorsum, ventrum & upperside; 8 refs.]

Vera, F. P., Hoffmann, H-J, 2007
Leptoglossus occidentalis Heidemann, 1910 (Hemiptera,Heteroptera) nun auch in Köln.
Heteropteron, **25**, p17-18, (2007)
[Coreidae; photo(b&w), 7 refs]

Werner, D.J., 2007
Die verbreitung der braunen randwanze *Gonocerus acuteangulatus* (Goeze, 1778) (Heteroptera:Coreidae) in Deutschland mit angaben zu ihrer biologie.
Mainzer naturwiss. Archiv/Beiheft, **31**, pp153-180.
[Map of German distribution, 11pp of detailed records, ca150 refs.]

BRITISH ISLES

Albertini, M., 2007
[BENHS Annual Exhibition 2006, Exhibit]
Brit.J.Ent.Nat.Hist., **20**, pp191, (2007)
[Corizus]

Bratton, J.H., Howe, M.A., Howe, E., 2006
The spurge bug *Dicranocephalus agilis* (Scopoli) (Hemiptera: Stenocephalidae) reaches Anglesey.
Jnl. of Lancashire & Cheshire Ent. Soci., **130**, pp39-41, (2006)
[Distribution maps for Wales.]

Alexander, K., 2008
The land and freshwater bugs (Hemiptera) of Cornwall & the Isles of Scilly.
Cornwall & Isles of Scilly Federation of Biological Recorders publn., No. 2, 155pp, (2008), ISBN 0 9534613 2 7
[Heteroptera (303spp) & Homoptera (159spp); all records listed, giving: 10km square, locality, habitat, date, & recorder.]

Denton, J. S., 2007a
Water bugs and water beetles of Surrey.
Surrey Wildlife Trust publn., A5 hardback book, 191pp, 31pp of colour photos,ISBN 978-0-9556188-0-2.
[Waterbugs plus Dipsocoridae & Saldidae; text & Surrey distribution map for most of 58 spp.; colour photo of one species for each genus.]

Drake, C.M., 2008
Invertebrates of acidic seepages on Dartmoor, England.
Brit.J.Ent.Nat.Hist, 21, pp1-15
[7spp from 3 sites: incl. *Sigara venusta, Hebrus pusillus, Heb. ruficeps, Charto. cocksi*]

Howe, M.A., Whitehouse, A.T., Knight, G.T. , 2008
Life on the edge — key coastal soft cliffs for invertebrates in England and Wales.
British Wildlife, **19**(3),172-181.
[*Saldula arenicola* 'Grade 1' soft cliff species; Isle of Wight & West Dorset. Enoplops scapha.]

Hunnisett, J., 2007
Dorset Hemiptera-Heteroptera (true bugs) Part 1: Aradidae(bark bugs) - Stenocephalidae (spurge bugs).
Recording Dorset, publn of Dorset Environmental Records Centre, **9**, pp2-15.
[For each sp. a distribution map for Dorset, local status, habitat. Old nomenclature & sequence.]

Malumphy, C.P., Reid, S., Eyre, D., 2007
The Platanus lace bug *Corythuca ciliata* (Say)(Hemiptera: Tingidae), a Nearctic pest of plane trees , new to Britain.
Brit.J.Ent.Nat.Hist, **20**(4), 233-240 (2007).
[Adult & nymph photos, leaf damage & frass; many refs.]

Morris, M.G., Kathirithamby, J., Smith, K.G.V., 2007
Obituary: Professor Sir Richard Southwood DSc, FRS,DL (1931-2005)
Ent.Mon.Mag., 143.241-254
[Three contributions plus 10pp of Bibliography]

Ryan, R.P., 2008
Orthotylus caprai Wagner (Hem., Miridae) new to Britain.
Ent.Mon.Mag., **144**, 129-130,(2008)
[University Parks, Oxford 3rd Aug 2006]

Whitehead, P. F., 2008
Observations on the ecology of Corizus hyoscyami (Linnaeus, 1758) (Hemiptera, Rhopalidae) and the British influx of 2006.
Ent.Mon.Mag., **144**, 163-176, (2008)
[Maps of spread, season chart, hosts, record details.]

REGIONAL

Alexander, K., 2008a
Globiceps fulvicollis cruciatus Jakovlev (Hemiptera: Miridae) new to Cornwall and other records.
Brit.J.Ent.Nat.Hist, 21. pp15-16
[Mulgram Hill, SW of St Agnes (SW6949, vc1), 1 on 22Aug2007]

.. , 2008b
[BENHS Annual Exhibition 2007, exhibit]
Brit.J.Ent.Nat.Hist, **21**,3, p184, (2008)
[*Physatocheia smreczynskii* (vc3); W Cornwall:*Glob. fulv. cruciatus* (vc1), *Strongylocoris luridus*(vc1)]

Anderson, N., 2007
Dragonflies and other insects.
London Naturalist, **86**, pp 133-134 (2007)
[*Miris, Metatropis, Piezodorus*]

Barnett, R.J., 2007
Bristol and district invertebrate report, 2006.
Nature in Avon, Jnl of Bristol Naturalists' Soc., **66**, 47-54, (2007)
[8 Het spp including: *Eurgaster test., Sciocoris curs., Gonocerus acut., Corizus hyo.*]

Bowdrey, J.P., 2008
[BENHS Annual Exhibition 2007, exhibit]
Brit.J.Ent.Nat.Hist, **21**,3, p184, (2008)
[vc19:*Aphanus rolandri, Mag.prae.*]

Brooke, S.E., 2008
[BENHS Annual Exhibition 2007, exhibit]
Brit.J.Ent.Nat.Hist, **21**,3, p184, (2008)
[4 waterbug species spreading N]

Denton, J. S., 2007
Holcostethus vernalis (Wolff)(Hem.:Pentatomidae) and *Bathysolen nubilis* (Fallén)(Hem.:Coreidae) in Hampshire.
Brit.J.Ent.Nat.Hist, **20**(4), 269 (2007)
[*H. vernalis*: Lock's Heath (VC11, SU5006); Hastings (VC14), TQ8210. *B. nubilus*: Farnborough (VC12, SU8654).]

Foster, G.N., Huxley, T., 2007
New records of wetland Coleoptera and Heteroptera on the Isle of Man.
Ent.Mon.Mag., **143**, 207-212, (2007)
[7 additional spp of aquatic hets incl: *Microvelia.retic., Nepa, Plea, Corix punctata* sen. str.]

Halstead, A.J., 2008
[BENHS Annual Exhibition 2007, exhibit]
Brit.J.Ent.Nat.Hist, **21**,3,p184 (2007)
[vc17: *Alydus cal., Coranus sub.*]

Judd, S., 2006
Lancashire & Cheshire true bug (Het.) report for 2006.
Jnl. of Lancashire & Cheshire Ent. Soc., **130**, pp58-59.

Nau, B.S., 2007a
Hidden jewels
Wildlife Action, **41**, Summer 2007.
[Introduction to shieldbugs, colour photos of 10 spp.]

.. , 2008
[BENHS Annual Exhibition 2007, exhibit]
Brit.J.Ent.Nat.Hist, **21**,3, 184-185,(2008)
[4 red & black spp spreading in Britain: *Corhyo, Aroroe, Pyrapt, Eurorn*]

Notton, D.G., 2008
Insects of Mortimer Forest on the Shraopshire/ Herefordshire border.
Brit.J.Ent.Nat.Hist, **21**,3, pp187-192, (2008)
[vc36: *Elagri, Palpra, Ziccae*]

USEFUL WEBSITES

- Checklist of the Heteroptera of France: http://hemiptera.free.fr/liste.html
- Entomological atlas of the Nantes region (France): http://aer.nantes.free.fr/
- Heteroptera photo gallery 'European bugs': www.heteroptera.eu
  [was: www.koleopterologie.de/heteroptera/]
- Find vice-county for a GB grid.ref, or lat&long: http://herbariaunited.org/gridrefVC

BRC RECORDING SCHEMES

Vice County #	Vice County name	Contact	Contact address
VC 1 & 2	W (inc. Scilly) & ECornwall	Keith Alexander	keith.alexander@waitrose.com
VC 3 & 4	S & N Devon	Keith Alexander	keith.alexander@waitrose.com
VC 9	Dorset	Ian Cross	I.Cross@dorsetcc.gov.uk
VC 10	Isle of Wight	David Biggs	Plum Tree Cottage, 76 Albert Rd,Gurnard, Cowes, Isle of Wight PO31 8JU
VC 11 & 12	S & N Hampshire	Jonty Denton	JontyDenton@aol.com
VC 13 & 14	W & E Sussex	Peter Hodge	peter.j.hodge@tesco.net
VC 15 & 16	E & W Kent	Eric Philp	eric.philp2@virgin.net
VC 17	Surrey	Jonty Denton	JontyDenton@aol.com
VC 18 & 19	S & N Essex	Peter Kirby	peter.kirby7@ntlworld.com
VC 20	Hertfordshire	John Widgery	johnwidgery@waitrose.com
VC 23 (& 22pt)	Oxfordshire**	John Campbell	campbell397@btinternet.com
VC 25 & 26	E & W Suffolk (water bugs)	Adrian Chalkley	adrian@boxvalley.co.uk
„	E & W Suffolk (land bugs)	Nigel Cuming	marionnigel@onetel.com
VC 30	Bedfordshire*	Bernard Nau	nauhet@btinternet.com
VC 32	Northamptonshire	Tony Cook	tony.cook@newtonfieldcentre.org.uk
VC 33 & 34	E & W Gloucestershire	John Widgery	johnwidgery@waitrose.com
VC 37	Worcestershire*	John Partridge	records@wbrc.org.uk
VC 53 & 54	S & N Lincolnshire* (shieldbugs & allies)	Annette Binding	allan.binding@ntlworld.com (also spiders)
..	.. (other land bugs)	Colin Smith	Csmith@countrywidefarmers.co.uk
..	.. (water bugs)	Richard Chadd	richard.chadd@environment-agency.gov.uk
VC 55	Leics & Rutland	David Budworth	dbud01@aol.com
VC 56	Nottinghamshire	David Budworth	dbud01@aol.com
VC 57	Derbyshire	David Budworth	dbud01@aol.com
VC 58	Cheshire	Steve Judd	Steve.Judd@liverpoolmuseums.org.uk
VC 59 & 60	S & W Lancashire	Steve Judd	Steve.Judd@liverpoolmuseums.org.uk
VC 61 & 62	SE & NE Yorkshire	Stuart Foster	stuart@blackdan6.plus.com
VC 63	SW Yorkshire	Jim Flanagan	jimflanagan@btopenworld.com
VS 64	Mid-W Yorkshire	Stuart Foster	stuart@blackdan6.plus.com
VC 65	NW Yorkshire	Steve Hewitt	SteveH@carlisle-city.gov.uk
(—)	Cumbria*	Steve Hewitt	SteveH@carlisle-city.gov.uk
VC 69	Westmorland	Steve Hewitt	SteveH@carlisle-city.gov.uk
VC 70	Cumberland	Steve Hewitt	SteveH@carlisle-city.gov.uk
(—)	Ireland (all)	Brian Nelson	brian.nelson@magni.org.uk

* records from administrative county too. **not Berks admin. county
Recorders listed are either a designated County Recorder, or are willing to accept records on behalf of the county listed here.

FIFE RECORD CENTRE – REQUEST FOR RECORDS

I am responsible for Fife's biological records centre, *Fife Nature*. We have recently reorganised & now concentrate solely on collecting & supplying biological records, particularly for the planning system in Fife. We hope to incorporate as much data as possible into our own database & make this available to our many users. In particular we hope that *Fife Nature* can increase the value of this data by making it more visible to developers & conservationists etc.

We already have a significant number of Heteroptera records for Fife but I am sure that there are many more out there. I would therefore be very grateful to receive any digital Heteroptera records you may have.

Simon Scott, Information Officer, Fife Nature Records Centre,
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