

The Coleopterist

Volume 8 Part 3 ♦ November 1999

- 97 *Xanthogaleruca luteola* (Müller) (Chrysomelidae) in Britain
P. C. Buckland & P. Skidmore
- 101 The history, identification, distribution and ecology of *Polydrusus pilosus* Gredler in the British Isles, with comparative notes on *P. cervinus* (Linnaeus) (Curculionidae) *M. G. Morris & J. A. Owen*
- 113 *Sulcacis bicornis* (Mellié) (Ciidae) new to Wales, with notes on the species in Britain *G. M. Orledge & P. A. Smith*
- 117 *Datonychus arquatus* (Herbst, 1795) (Curculionidae) in the British Isles
A. P. Fowles & M. G. Morris
- 121 The Saproxylic Quality Index: evaluating wooded habitats for the conservation of dead-wood Coleoptera *A. P. Fowles, K. N. A. Alexander & R. S. Key*

Notes

- 100 *Cassida nobilis* Linnaeus (Chrysomelidae) in Cumbria *R. W. J. Read*
- 100 *Psylliodes laticollis* Kutschera (Chrysomelidae) from Aberdeenshire *A. W. Ewing*
- 111 *Oulema melanopus* (Linnaeus, 1758) (Chrysomelidae) in Yorkshire *R. J. Marsh*
- 112 Recent records of *Emus hirtus* (Linnaeus) (Staphylinidae) on the Isle of Sheppey, Kent
S. A. Williams
- 116 *Cyphon phragmiteticola* Nyholm (Scirtidae) new to Ireland *J. P. O'Connor*
- 116 *Liliocercis lili* (Scopoli) (Chrysomelidae), new to the Bristol region *S. Preddy*
- 120 *Saprosites mendax* Blackburn (Scarabaeidae) under sycamore logs in Battersea Park, London *R. A. Jones*
- 141 *Carpelimus zealandicus* (Sharp, 1900) (Staphylinidae) behaving synanthropically
P. F. Whitehead
- 142 Subscribers' Notices
- 143 Literature Notices

Cover: Lily Beetle *Liliocercis lili* (Scopoli) (Chrysomelidae) *R. S. Key*

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Xanthogaleruca luteola (Müller) (Chrysomelidae) in Britain

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In June 1978, during a visit to assess progress on excavation work at the archaeological site near Shirley Pool, S.E. of Askern, near Doncaster, PCB had occasion to visit Shirley Pool itself to collect samples of the sediments from the "jungle" on the western side of the mere for palaeoecological assay. Although he cannot now recall the precise location within the carlands there, he picked up a beetle resembling a species of *Galerucella* Crotch, which he duly mounted and placed in the collection of the Department of Archaeology and Prehistory at Sheffield University. For some years it stood over the name *G. nymphaeae* (Linnaeus), but when in 1997 PS was checking the identifications in the collection, he realised that it did not belong to that species. Referring to Mohr (1966) he found that it agreed perfectly with *G. (Xanthogaleruca) luteola* (Müller), a species not previously recorded in the wild from Britain, although once found in London as an accidental importation in camping equipment (Smith, 1990). Thanks to Colin Johnson, the identification of the specimen as *luteola* was confirmed when he very kindly loaned PS a continental specimen of this species.

Although the identification of members of the genus *Galerucella* poses some problems with regard to certain species, this is not the case with *luteola* as it is probably the most distinctive one occurring in Central Europe; so much so, that the subgenus to which it is assigned, *Xanthogaleruca* Laboissière, has now been raised to the level of genus (Kippenberg, 1994). Mohr (*loc. cit.*) distinguishes *luteola* from other members of *Galerucella* as follows:

1. Frontal tubercles over the antennal bases black. Antennal segments 3 and 4 of almost equal length. Elytra densely, finely and regularly punctured. Colour orange-yellow with a dark triangular spot or three flecks on the pronotum and a long humeral stripe on each elytron (Fig. 1). Antennae blackish dorsally. L. 5.5-7.0 mm. *luteola* (Müller)
- Frons, including the tubercles over antennal bases, unicolorous yellowish or orange. Antennal segment 3 longer than segment 4. Elytra usually with finer punctures between coarser ones. (other species)

Mohr (*loc. cit.*) states that *luteola* occurs on *Ulmus campestris*, whilst Reitter (1912) says "on young elms, more rarely on willows in spring". Although it has not been possible to ascertain whether *luteola* was a casual importation or a native species at the site where the specimen was taken, the latter possibility cannot be ruled out. Shirley "Jungle" is

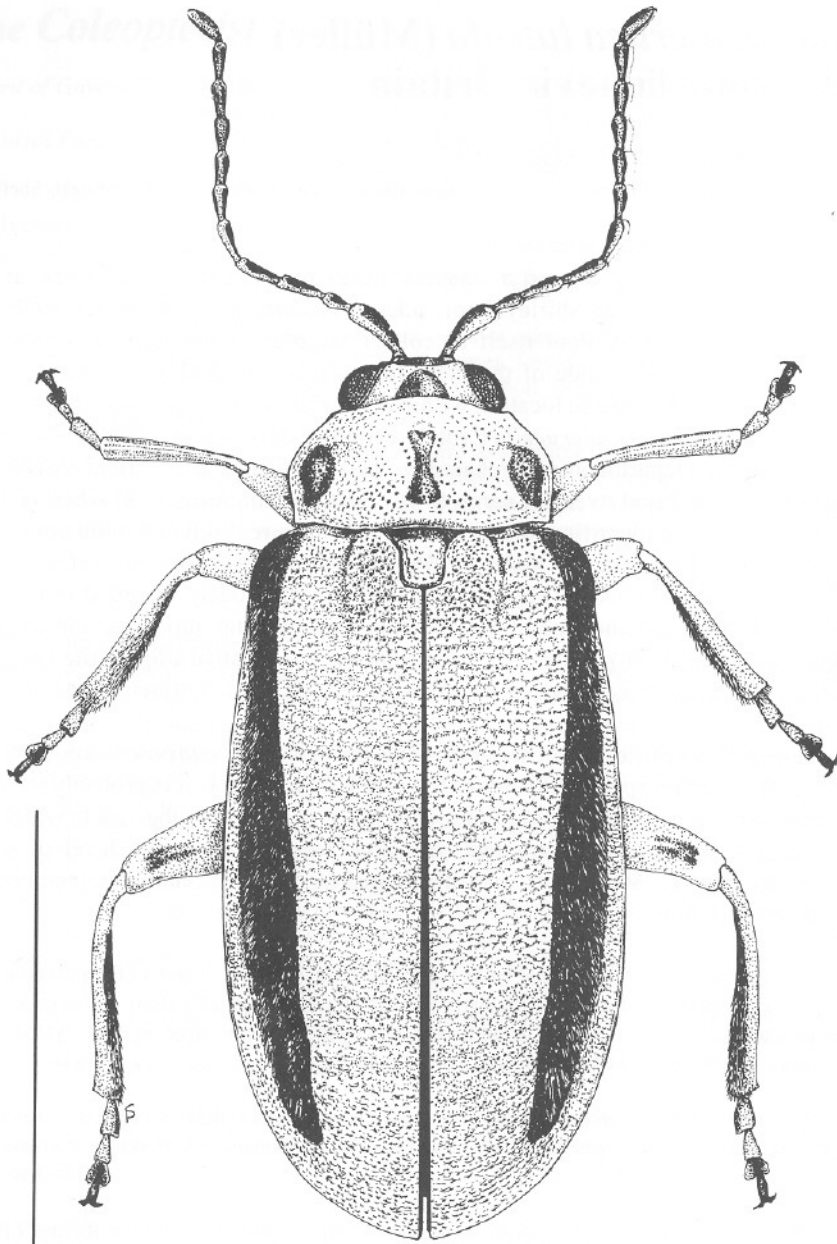


Fig. 1: *Xanthogaleruca luteola* (Müller) (Chrysomelidae) (scale = 5.0 mm) P. Skidmore

primarily a willow *Salix* and alder *Alnus* carr but with many other trees including oak *Quercus*, ash *Fraxinus* and, at least prior to the ravages of Dutch elm disease, abundant elms *Ulmus*. As in other areas where the disease has passed through, young growth of elms persists until the shrubs are attacked by the scolytids. It may be added for the benefit of those unfamiliar with the area that Shirley Pool lies on the eastern edge of the Permian magnesian limestone belt which cuts northwards through South Yorkshire, immediately to the west of Doncaster. Most of the woodlands in this area, both on the limestone and its eastern flanks, were formerly extensively dominated by elm. The ecological richness of Shirley Pool and adjoining Rushy Moor has been well-known in Yorkshire since the mid-17th Century when it was visited by Richard Heaton, a correspondent of John Ray.

Unfortunately, the Shirley Pool specimen did not 'surface' until after PS had left Yorkshire, so he was unable to search for further specimens at the locality. Perhaps coleopterists currently resident in Yorkshire could make a special effort in this connection. The landowner, Mrs J. Steadman of Doncaster, is very interested in wildlife and consequently the site is managed sympathetically. Anyone wishing to visit the locality should contact her, through the Wakefield office of English Nature, or through the Natural Sciences Department of Doncaster Museum and Art Gallery where the specimen has been deposited.

Acknowledgement

Thanks are offered to Mrs J. Steadman for granting PCB permission to visit the site.

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***Cassida nobilis* Linnaeus (Chrysomelidae) in Cumbria**

R. W. J. Read

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On 23rd May 1997, while carrying out an invertebrate survey of Grune Point, Skinburness, Cumbria, I discovered a specimen of this distinctive and brightly coloured chrysomelid. The beetle was found crawling on sand by the upper shore strand-line just north of Grune House (NY 1356). This appears to be a new record for Cumbria and vice-county 70 (Cumberland) as it is not listed by Day (1923) and there are no local specimens in the Coleoptera collections of F.H. Day, James Murray and G.B. Routledge in the Tullie House Museum at Carlisle.

C. nobilis is graded Notable B by Hyman (1992) and is widespread but local in England. It has also been recorded from Wales and southwest and northwest Scotland. In Britain the beetle is associated with Corn Spurrey *Spergularia arvensis*, but on the continent it has been found on various Chenopodiaceae and Sea Sandwort *Honkenya peploides*.

Acknowledgements

I wish to thank Dr Michael Cox for identifying my specimen of *C. nobilis*. I also thank Stephen Hewitt, Keeper of Natural Sciences, Carlisle Museum, for allowing me access to the Coleoptera collections.

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***Psylliodes laticollis* Kutschera (Chrysomelidae) from Aberdeenshire**

Arthur W. Ewing

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In January 1999 I collected some dead stems of Great Reedmace *Typha latifolia* from the edge of a small pond at the above location. Examination of the beetles extracted with a Berlese funnel revealed about 12 specimens of a *Psylliodes* species. These ran down to *P. laticollis* in the key by Michael Cox (Cox, 1998) and were subsequently confirmed as such by him. *P. laticollis*, while widespread south of the border, has only previously been recorded in Scotland from vice-counties 82 and 83, south of the Firth of Forth. The present record in north Aberdeenshire (VC 93), some 150 km further north, thus represents a considerable extension of its range.

The larval foodplant is Watercress *Nasturtium officinale* which is found around the edges of the pond and also extensively in the surrounding drainage ditches.

Acknowledgement

My thanks are due to Dr Michael Cox for confirming the identification of *P. laticollis*.

Reference

- COX, M.L. 1998. The genus *Psylliodes* Latreille (Chrysomelidae: Alticinae) in the U.K.: with keys to the adults of all species and to the larvae of those species feeding on Brassicaceae. *Coleopterist* **7**(2): 33-65.

The history, identification, distribution and ecology of *Polydrusus pilosus* Gredler in the British Isles, with comparative notes on *P. cervinus* (Linnaeus) (Curculionidae)M. G. Morris¹ & J. A. Owen²¹ Orchard House, 7 Clarence Road, Dorchester, Dorset DT1 2HF² 8 Kingsdown Road, Epsom, Surrey KT17 3PU**Introduction**

Polydrusus pilosus Gredler is a common, but poorly-known, species in the British Isles. The purpose of the notes given here is to amplify, and to some extent modify, the recent short account of the species in Morris (1997a). Some notes on *P. cervinus* are included.

History

P. pilosus was described by Gredler (1866) as a form of *P. cervinus* (Linnaeus). It is widely distributed throughout central Europe (Lucht, 1987) but, somewhat surprisingly, has not been reported from Denmark (Silfverberg, 1992; Hansen, 1996). A subspecies, *P. p. italicus* Schilsky, has been recorded in southern Italy, the nominate form occurring in the north (Abbazzi & Osella, 1992).

P. pilosus was first recorded in the British Isles by Donisthorpe (1935) on specimens 'taken freely' by J. Hignett at Oswestry, Shropshire, in 1934. Hignett appears to have been generous in distributing specimens from this source, and MGM has one, taken 29 April 1935, which was given to him by A.M. Masee. There are also 16 examples from Oswestry, taken on various dates in the 1930s, in the National Collection at the Natural History Museum (NHM).

However, *P. pilosus* was taken some 70 years earlier than this by David Sharp, his specimens being now in the National Collection (NHM), though standing under the name *P. cervinus* (Table 1). These insects were taken roughly contemporaneously with Gredler's description of *P. pilosus* (as a form of *P. cervinus*), so it is hardly surprising that they were not recognised as a good species at the time.

Another record which antedates that of Hignett/Donisthorpe is Walsh's (1935) from Cotherston, Yorkshire, in 1913 (Table 2). The Waterhouse collection, now in the National Museums of Scotland (NMS), includes a specimen of *P. pilosus* with the data 'Ripon, EAW[aterhouse]' and two others labelled 'Rothes N.B., May '07, RSM' (Table 3); although undated the Ripon specimen was clearly collected no later than in the early years of this century. It is quite possible that specimens of *P. pilosus* will be found in other old collections.

Since Donisthorpe's discovery records of *P. pilosus* have been published for much of northern England (S. Lancs., most of the Yorkshire vice-counties, and Cumberland) and from a very few areas of the Highlands of Scotland (Easternness and Main Argyll; VCs 96 and 98). It has also been reported from Ireland, from Kildare (O'Mahony, 1935) and, more recently, Down (Anderson, 1998). These records are summarised as Table 2.

Table 1: Specimens of *Polydrusus pilosus*, coll. D. Sharp, in the National Collection (NHM)

No.	Ref.	Locality	Date	VC
1	936	Almond, nr Broxburn	23 May 1865	84
1	1043	'Inverness-shire**	from 4 July 1866	-
1	1127	nr Morton Mains	24 April 1868	72
1	1137	near Bellvue	16 May 1868	72
1	1152	near Bellvue**	10 June 1868	72
6	1220	Braemar	30 May-5 June 1873	92

Key: * 'with GRC' [G.R. Crotch, *vide* R.G. Booth, *pers. comm.*] ** card mount with a blue basal line, indicating a Scottish locality [Sharp's diary]; spelling of locality as in Sharp's diary.

Table 2: Published records of *Polydrusus pilosus*

VC	Locality	Tree hosts	Date	Source/coll.	Ref.
ENGLAND					
40	Oswestry	spruce	1934	Hignett/NHM	Donisthorpe (1935)
59	Freshfield	-	31.v.1936	Britten	Hincks (1959)
61	Buttercrambe Woods	-	-	Walsh?	Walsh (1935)
62	Hayburn Wyke	-	-	Walsh?	Walsh (1935)
62	Helmsley	Sitka Spruce	-	Walsh?	Walsh (1935)
62	Newton Bank	larch	-	Walsh	Walsh (1937)
62	Silpho Moor	sallow, hawthorn, larch	-	Walsh?	Walsh (1935)
62	Staintondale	-	-	Walsh?	Walsh (1935)
64	Grassington	-	19-21.v.1945	?	Hincks (1945)
65	Cotherston(e)	-	26.vi.1913	Walsh?	Walsh (1935)
70	Near Gumblesby	Sitka Spruce	22.iv.1987	Wallace	Wallace (1987)
70	Setmurthy Common	spruce	13.v.1989	Atty	Atty (1996)
SCOTLAND					
96	Nethy Bridge	(gen. beating)	vii, various years	Ashe	Ashe (1952)
96	Loch Garten	birch	-vi.1986	Owen	Owen (1988)
98	Taynult	birch	-iv.1971	Owen	Owen (1988)
IRELAND					
H19	Prosperous	(swept)	-vi.1935	O'Mahony?	O'Mahony (1935)
H38	Stormont, Belfast	beech	28.v.1994	Anderson	Anderson (1998)

Table 3: New records of *Polydrusus pilosus* in Great Britain.

Locality	VC	Grid Ref.	Date	Source
WALES				
Dolwyddelan	49	SH 75	1987	leg. J. Parry, coll. JAO.
Clocaenog Forest	50	SH 9950	19.vi.1987	on Spruce, leg. & coll. A.P. Fowles
ENGLAND				
Freckenham	26	-	1935	leg. C.E. Tottenham coll. NHM (\$)
Ripon	64	-	-	ex E.A. W[aterhouse], coll. NMS (\$)
Byrness	67	NT 7701	19.viii.1972	b. <i>S. aucuparia</i> , leg. & coll. MGM (\$)
Church Wood	67	NZ 1978	1991	mixed woodland, esp. conifer, p/t M.L. Luff
Nether Wood	67	NY 8296	1990	conifer plantation, p/t M.L. Luff
Short Wd, Bywell	67	NZ 0562	1990	conifer plantation, p/t M.L. Luff
Ned's Whin	67	NZ 2296	1993-96	woodland, esp. deciduous, p/t M.L. Luff
Linnheads	67	NT 8906	1996	conifer woodland, p/t M.L. Luff
Great Newham Fen	68	-	13.v.1978	leg. & coll. M. Sinclair (\$)
Moorthwaite Moss	70	NY 5151	7.vii.1965	b. <i>Betula</i> , leg. & coll. MGM (\$)
SCOTLAND				
Moffat	72	-	vi.1923	ex A.H. May, coll. NMS (\$).
Castle O'er Forest	72	-	20.vi.1981	swept, leg. & coll. M. Sinclair (\$).
Tinnisburn Forestry	72	-	18.v.1983	leg. & coll. M. Sinclair (\$).
Shieldhill	72	NY 035857	29.iv.1979	b. <i>S. purpurea</i> , leg. & coll. MGM (\$)
Littlemerk Hill	72	NS 818070	1997	p/t, M.L. Luff
Spango Bridge	72	NS 826181	1997	p/t, M.L. Luff
House of Water	75	NS 557126	1997	p/t, M.L. Luff
Bridge of Weir	76	-	-vii.1917	ex A.H. May, coll. NMS (\$)
Lanark	77	-	2.v.1925	ex J.W. Bowhill, coll. NMS (\$)
Stobo	78	-	vi.1949 & v.1951	leg. JAO, coll. NMS (\$)
Peebles	78	-	v.1949	leg. JAO, coll. NMS (\$).
Rankle Burn	79	NT 315166	1997	p/t, M.L. Luff
Hartwoodburn	79	-	25.v.1974	b. <i>Betula</i> , leg. & coll. M. Sinclair (\$)
Glenkinnon Wood	79	-	-	b. <i>Betula</i> , leg. & coll. M. Sinclair (\$)
North House Burn	80	NT 441070	1997	p/t, M.L. Luff
Currie	83	-	18.v.1936	ex A.R. Waterston, coll. NMS (\$)
Edinburgh	83	-	vi.1949	leg. JAO, coll. NMS (\$)
Tentsmuir NNR	85	NO 5025	21.vi.1966	b. <i>Betula</i> , leg. & coll. MGM (\$)
Mugdock	86	-	1.v.1920	ex A.H. May, coll. NMS (\$)
Bridge of Allan	86	NS 788986	15.iv.1973	on conifer trunks, R. Lyszkowski
Loch Rannoch	88	-	14.vi.1925	ex Bowhill, coll. NMS (\$)
Rannoch	88	-	-	leg. P. Harwood, coll. JAO (\$)
Nr Coupar Angus	88	NO 141364	13.vi.1978	b. <i>Betula</i> , leg. & coll. MGM (\$).
Nr Glamis	90	NO 376467	12.vi.1978	b. <i>Ulmus</i> , leg. & coll. MGM (\$)
Oathlaw	90	NO 491565	12.vi.1978	swept, leg. & coll. MGM (\$)
Breda Hill	92	NJ 528155	30.vii.1994	leg. & coll. A.P. Fowles
Tillyfourie Wood	92	NJ 6412	30.vii.1994	leg. & coll. A.P. Fowles
Bridge of Avon	94	NJ 151208	1997	p/t, M.L. Luff
Rothes	95	-	-v.1907	leg. RSM [?], coll. NMS (\$)
Aviemore	95	-	-iv.1954	leg. JAO, coll. NMS (\$)
Inverlaidnan	95	NH 864208	1997	p/t, M.L. Luff
Loch an Eilein	96	NH 9007	26.vii.1972	b. <i>A. glutinosa</i> leg. & coll. MGM (\$)

Garten Wood	96 -	5.vi.1987	leg. & coll. JAO
Garten Wood	96 -	27.v.1989	on pine branch, leg. & coll. JAO *
Ben Nevis	97 -	-	ex Bruce, coll. NMS (\$)
Glen Elg	97 -	-vii.1989	2 exx. leg. & coll. JAO
Taynuilt	98 -	-iv.1972	2 exx. leg. & coll. JAO
Glasdrum NNR	98 NN 005459	7.vii.1974	b. <i>Betula</i> , leg. & coll. MGM (\$)
Tarbet or Arrochar	99 -	-v.1917	ex A.H. May, coll. NMS) (\$)
Arnish, Raasay	104 NG 5948	-vi.1996	leg. & coll. R. Moore (\$)
Cromasaig	105 NH 024609	1997	p/t, M.L. Luff
Strathnaver	108 NC 7250	29.vii.1972	b. <i>Betula</i> , leg. & coll. MGM (\$)

Key: (\$) = specimens seen by MGM; p/t = in pitfall trap; b. = beaten from; * = also records from Abernethy Estate by D. Shirt (1985) and P. Hodge (1991) in RSPB archive.

Taxonomic position

P. pilosus is placed in the subgenus *Eustolus* Thomson, 1859, by all those Continental authors consulted who use subgenera, and there is general agreement as to the limits of this subgenus and the species included in it.

Identification

P. pilosus may be distinguished from *P. cervinus* by a large number of characters; however, many of these are very comparative and the two species are quite frequently confused. The characters most usually mentioned are:

Size

P. pilosus is distinctly larger than *P. cervinus*, on average, but the size difference is seldom stated to be absolute. An exception is Angelov (1978), who gives 4.1-4.8 mm for *cervinus* but 5.1-6.3 mm for *pilosus*. Hoffmann (1950) gives the length of *pilosus* as 5.5-7.5 mm, with that of *cervinus* 4-5.5 mm. The sizes given by Smreczynski (1981) are 5-6.5 mm and 3.9-5.7 mm, respectively, and those by Morris (1997a) 5.0-6.5 mm and 3.9-5.7 mm. None of these authors distinguishes the sexes in stating sizes.

Coloration

P. pilosus is generally darker than *P. cervinus*, and this difference can be distinctive when series of the two species are placed side by side. However, coloration is variable, and both species get abraded, so that the difference is not always reliable. Brown and green forms of both species can be found.

Rostral ridge at antennal insertion

This appears to be a good diagnostic character for *P. pilosus*, but care must be given to see the ridge in a good light. The surface of the rostrum is somewhat rugose in both species and, as is often the case, if only one species is available for examination, this rugosity in *P. cervinus* can be mistaken for the ridge characteristic of *P. pilosus*.

Characters of the antennae

The broader segments 6 and 7, compared with segment 3, of the antennae of *P. pilosus* is quite a good character distinguishing the species from *P. cervinus*. But once again, the character is a comparative one, best appreciated when specimens of both species are examined side by side.

Vestiture of elytra, rostrum and femora

These characters were not included in Morris (1997a), but Owen (1988) mentions that *pilosus* has 'hairs on the femora whereas *cervinus* has elongated scales'. This may be amplified to state that *pilosus* has only these 'hairs' (recumbent setae) but that *cervinus* has scales as well as the long setae. The character is a good one, though it is safest to use it as one of the diagnostic characters, particularly if only one species is available for study. It is also referred to by Smreczynski (1981).

Also distinctive and reliable is the difference in elytral vestiture mentioned particularly by Hoffmann (1950). The hair-like setae of the bare areas between patches of scales in *cervinus* are very fine and sparse, those in *pilosus* coarser, more abundant and much more conspicuous. It is this character which gives *pilosus* its species-group name (Gredler, 1866). In fresh, unabraded specimens this is a good diagnostic character, though also a comparative one.

Smreczynski (1981) states that the scales of the rostrum are evenly distributed in *cervinus*, but denser at the sides than in the middle in *pilosus*. This character may be regarded as, at best, a confirmatory rather than a diagnostic one.

Eyes

The eyes of *P. pilosus* are clearly smaller and more protuberant than those of *P. cervinus* when the two species are examined together. But the character is less useful when attempting the identification of one species without having the other for comparison.

Male genitalia

Palm (1996) figures the median lobe of all the northern European *Polydrusus* species. Although the shape of the aedeagus is generally similar in the two species the apex is broader in *pilosus* and the shaft more abruptly constricted subapically.

Female genitalia

The spermathecae of the species of *Polydrusus* inhabiting northern Europe are remarkably diverse in shape (Palm, 1996). The spermathecae of *P. cervinus* and *P. pilosus* conform to a pattern general for *Eustolus* spp., but are sufficiently different to distinguish the species. In *P. pilosus* the whole structure is broader, the 'arm' of the spermatheca particularly so, when compared to that of *P. cervinus*.

Coloration of fore-tibiae

Smreczynski (1981) states that the base of the fore-tibia of *cervinus* is yellowish, that of *pilosus* black. This appears to be so if the 'base' is correctly taken to mean the extreme end of the tibia near the articulation with the femur. However, it is an easy character to miss or mistake.

Shape and proportions of rostrum

Although the rostra of both species can be somewhat variable, that of *pilosus* is usually elongate and more nearly parallel-sided. The rostrum of *cervinus* is, on average, shorter, quadrate and somewhat narrowed distally. This apical narrowing is often more noticeable in females, many males having rostra which are parallel-sided, or nearly so.

Pronotal transverse impression

This character is mentioned only by Hoffmann (1950), for whom it is the 'leading' difference between *cervinus* (with a feeble impression) and *pilosus* (together with the non-British *P. griseomaculatus* Desbrochers) (with a strong one). However, we are unable to make out any consistent difference between the pronotal impressions (where, indeed, they are present at all) in the two British species.

Femoral teeth

The teeth of *P. cervinus* are slightly smaller and weaker than those of *P. pilosus*, and this is one of the distinguishing characters given by Smreczynski (1981). But the difference is a minor one and hardly sufficient for reliable determination without considering other features.

Curvature of male fore-tibia

The tibia is bent inwards subapically, i.e. nearer the apex, in *P. pilosus* than is the case with *P. cervinus*, in which the tibia is bent inwards at about one-quarter from the apex.

Sexual dimorphism

The sexes of *P. pilosus* are readily distinguished by the fore-tibiae, which are conspicuously curved inwards in the male, but almost straight in the female (see above). As in many weevils, entimines in particular, females are often broader than males.

Hosts

Most species of *Polydrusus* are polyphagous as adults and many are arboreal. Both *P. pilosus* and *P. cervinus* occur as adults on a variety of tree species. It is frequently stated that *pilosus* is associated with conifers, whereas *cervinus* is found on deciduous trees (e.g. Morris, 1997a). This distinction seems to have originated with Donisthorpe (1935), who stated: 'Moreover, *pilosus* occurs on fir trees, spruce, etc., and *cervinus* on birch'. Hoffmann (1950) also states that *pilosus* occurs on species of *Abies* and *Pinus* (though

also on *Sorbus aucuparia*). It has to be made clear that the association of *P. pilosus* with conifers is not the experience in Central Europe. Smreczynski (1981) refers only to deciduous (broad-leaved) trees and does not mention conifers. Koch (1992) is even more specific, listing seven genera of broad-leaved trees and omitting any reference to conifers.

The records of *P. pilosus* of Walsh (1935, 1937) are mostly from conifers, as would be expected following the publication of Donisthorpe's paper (1935). However, the weevil was also recorded (at Silpho Moor, Yorkshire) from willow *Salix* and hawthorn *Crataegus* as well as from larch *Larix* (Walsh, 1935; Table 2).

Owen (1988) also threw doubt on the association of *P. pilosus* in the literature with conifers, stating '...the nature of this association [is] so far unexplained'. He recorded the weevil from Loch Garten and Taynult, in both localities on birch *Betula* (Table 2). In June 1996 *P. pilosus* was plentiful in the Abernethy area of the Scottish Highlands (VC 96, Easternness). Of 43 specimens collected and retained by MGM, all but five occurred by beating deciduous trees, predominantly *Betula pendula* and *Alnus glutinosa*, but including *Populus tremula*. Four specimens were beaten from *Pinus sylvestris* and one from *Cytisus scoparius* (leading to the momentary and erroneous surmise that *Polydrusus confluens* Stephens had greatly extended its range!).

Moreover, *P. pilosus* occurred mainly in areas where deciduous trees were abundant. Where only *Pinus sylvestris*, or other conifers, grew the weevils were absent or occurred in only small numbers. On earlier occasions MGM had beaten *P. pilosus* from *Salix purpurea*, *Sorbus aucuparia* and *Ulmus procera* as well as *Alnus* and *Betula*, which, despite Donisthorpe's statement, seems to be a very usual host of adults of *pilosus* as well as *cervinus*.

While there can be no doubt that adults of *P. pilosus* do occur on conifers, it is equally certain that they are often found on deciduous trees. However, there appears to be no direct evidence in the literature of what foliage is actually eaten and no studies on feeding preferences in the species. The larva of *P. pilosus* is apparently undescribed, although that of *P. cervinus* is (van Emden, 1952; Scherf, 1964); according to the latter author the larvae of *P. cervinus* feed on the roots of grasses.

Habitat

Like *P. cervinus*, *P. pilosus* occurs in woods, particularly at their edges, and almost anywhere where there are trees. It is not known whether it is absent from woodland dominated by trees which are less common in the north of Britain, such as oak (on which *P. cervinus* is often abundant in the south), but it seems unlikely.

Phenology

Adult *P. pilosus* have been recorded from April to August, with most occurrences in June and July. The weevil apparently appears, not surprisingly, rather later than *P. cervinus* does in southern England, on average.

Distribution of *P. pilosus* in the British Isles

Despite the paucity of published records, *P. pilosus* is widely distributed in Northern Britain. Dr Mark Shaw has kindly sent MGM a long series of the weevil which is in the collection of the National Museums of Scotland (NMS). Most of these specimens were originally identified as *P. cervinus* but were correctly re-determined by D.K. Kevan. However, Kevan was more interested in taxonomy and identification than distribution and records of these specimens have not been published. In the summary given here (Table 3) occurrences are listed by vice-counties, and the names of collectors or collections are included. The records designated MGM or JAO, which have also been included, all being from birch and, unless otherwise stated, are from the authors' own collections. Also included are records of other entomologists, who are named; the collections in which these specimens now are, are also indicated, if known.

England

Records from Oswestry, Shropshire, and from northern England have already been referred to. However, some of the latter may need to be checked, as two specimens in the National Collection standing under the name *P. pilosus* and with the data: 'Allerthorpe C[ommo]n, 26.v.1935, G.B. W[alsh]' are *P. cervinus*. Ironically, Walsh (1935), finding that most of his Yorkshire '*cervinus*' were *pilosus*, wrote that all Yorkshire records of the former species were suspect and suggested that that species must be recorded anew. However, Allerthorpe Common is not listed among the Yorkshire localities for *P. pilosus* given by Walsh (1935, 1937).

An interesting series of eight examples standing under the name of *P. pilosus*, also in the National Collection, bear the data 'W. Suffolk, Freckenham, C.E. Tottenham, 1935' and are ex Tottenham Collection. They are clearly correctly determined, but no published record of the species in Suffolk has been found by the current authors. MGM was unable to trace any record of the species in Tottenham's files (also in NHM). Freckenham is at a latitude only about 55 km south of Oswestry, though of course very much further east, but nevertheless is the most southerly occurrence known in Britain at the present time. The Breckland, on the western edge of which Freckenham lies, was subject to considerable conifer planting in the 1920s and 1930s. It could be speculated that *P. pilosus* was introduced into the area with this afforestation, but broad-leaved trees also occur commonly in the area.

Wales

With Oswestry lying close to its eastern boundary it is likely that *P. pilosus* will be found commonly in North Wales. However, at present there exist only single records from Caernarvon and Denbigh (VCs 49 and 50) (Table 3).

Scotland

P. pilosus is clearly very widely distributed in Scotland and probably occurs wherever there is adequate and suitable tree cover (Table 3).

Ireland

Until recently the only Irish record of *P. pilosus* was from Prosperous, Kildare (O'Mahony, 1935). The specimens (or specimen) were not found in the National Collection (National Museum of Ireland) (Morris, 1992), which is not to say that they do not exist. However, the weevil has now also been reported from woodland near the Stormont Parliament Building, Belfast, Down (Table 3). It was swept from young Beech *Fagus sylvatica* on 28 May 1994 (Anderson, 1998).

Conservation status

P. pilosus was designated Nationally Notable A by Hyman (1986), but this was revised to unclassified in Hyman (1992), presumably on the basis of more recent evidence of its abundance and wide distribution in northern Britain. It is clear that the information given in the current paper supports this revised status.

P. cervinus f. *melanotus* Stephens

This taxon was described as a species by Stephens (1831), but its status was revised to a 'var.' of *P. cervinus* in Stephens (1839). The remote possibility that it could have been conspecific with *P. pilosus* can be discounted from Stephens's descriptions and from a series of 12 examples (none with data, of course) standing under the name in the Stephens Collection (NHM). The distinguishing features of the taxon are the greenish colour of its scales and the absence, or reduction, of the unscaled patches on the elytra. The taxonomic value of the form is slight, and its exponents are variable in respects other than those which distinguish it, as are those distinguishing features themselves.

Distribution of *P. cervinus* in the British Isles

This is a very common species in England, Wales and Ireland, and it would be impossible to list all the published records here. The following records, all by MGM, appear to be new for their respective vice-counties: Gweek, nr Helston, W. Cornwall (VC 1; SW 709261), 22.v.63, swept under *Quercus* sp.; Fleet, nr Aldershot, N. Hants. (VC 12; SU 826553), 19.v.64, beaten from *Populus tremula*; Tickencote, Rutland (VC 55; SK 982097), 15.v.65, beaten from *Fagus sylvatica* and *Crataegus* sp.). We have not seen records, published or unpublished, for S. Devon (VC 3), Middlesex (VC 21), West Lancaster (VC 60) or Northumberland South (VC 67). *P. cervinus* has been recorded from all the Welsh vice-counties (A.P. Fowles, partly unpublished information). It has not been reported from the Isle of Man.

In Ireland *P. cervinus* is locally common (Morris, 1992). It has been recorded from 18 vice-counties (Morris, 1992; 1997b), a number which gives some indication of its status as common, since much less recording has been done in Ireland than in England.

Does *P. cervinus* occur in Scotland?

However, we have been surprised at our inability to locate any examples of *P. cervinus* from Scotland. There are none in the collections of NHM or NMS, all the Scottish specimens standing under the name in both museums being *P. pilosus*. Published records exist for 10 Scottish vice-counties, mainly in the south and east. However, most of these were made before the common and widespread nature of *P. pilosus* in Scotland became apparent. There are also recent survey records of *P. cervinus* from the Rannoch area (VC 88, A.P. Fowles): Coille Mhor (NN 546558) and the Black Wood (NN 562560). However, no specimens were retained as vouchers. We believe that the occurrence of *P. cervinus* in Scotland needs to be confirmed, and we hope that any evidence to this effect will be forthcoming as a result of these notes.

P. cervinus cannot be regarded as a species with a southern distribution in Europe, as it is recorded from all the Nordic and Baltic countries except (the province of) Karelia (Silfverberg, 1992).

Acknowledgements

Dr Mark Shaw is thanked for sending all the material of *P. pilosus* and *P. cervinus* in the collections of NMS for examination. For assistance in examining the specimens and documentation in NHM we are indebted to Dr Roger Booth, Peter Hammond and Howard Mendel. We also thank Adrian Fowles, Martin Luff, Richard Lyszkowski, Richard Moore and Magnus Sinclair for permission to include their records in this paper.

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Oulema melanopus (Linnaeus, 1758) (Chrysomelidae) in Yorkshire

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Since Dr M.L. Cox (1994) clarified the status of and identities within the *Oulema* "melanopus" group of species, I found that all Yorkshire specimens (i.e. from vice-counties 61-65) that I have taken or have been given to me for identification (a total of about 100 specimens) have proved upon dissection to be *Oulema rufocyanea* (Suffrian, 1847).

Whilst sweeping a roadside verge containing a mixture of hawthorn *Crataegus*, various grasses and a dead-nettle *Lamium* sp., probably *L. album*, at Pollington (SE 6119) on 14.v.1998, I took several specimens of the "melanopus" group. On dissection, one of these, fortunately a male, proved to be the true *O. melanopus*, the form of the endophallus agreeing perfectly with the figures in Cox's paper. It is also of interest to note that both species, *O. melanopus* and *O. rufocyanea*, occurred at the same location on the same day. Since the Pollington capture another authenticated Yorkshire specimen of *melanopus* was taken by sweeping at Bishop Monkton Ings nature reserve (SE 3465) on 5.ix.1998.

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Recent records of *Emus hirtus* (Linnaeus) (Staphylinidae) on the Isle of Sheppey, Kent

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Viewers to the Meridian Television News in the South East of England during October 1997, would have been treated to the showing of a live *Emus hirtus* in the hands of Bob Gomes, the warden at the Royal Society for the Protection of Birds (RSPB) Elmley reserve on the Isle of Sheppey. The insect was found on 19th October in the ladies' toilet at the reserve (TQ 9367) (not "about the beginning of November" as stated by Allen (1998), although still rather late for a summer species). A few years earlier a single specimen was seen by a local naturalist, Richard White, living at Leysdown on Sea on the east coast of the island (TR 0568) when he emptied out his earth toilet. It was carrying a fly in its jaws (from the description almost certainly *Scathophaga stercoraria* Linnaeus according to my friend Eric Philp) and is to my knowledge the first record of *Emus* being attracted to human dung.

I was invited to visit Elmley reserve by Dr Malcolm Ausden, Reserves Ecologist of the RSPB and made six visits during 1998. I chose the hottest days, worked the freshest dung following the herds of cattle throughout the day but never saw a single *Emus*. In 1998 only one sighting of *Emus* was recorded on Sheppey and this was again at the Elmley reserve when a single specimen flew under the shirt of Adam Rowland, an assistant warden, whilst he was riding a motorbike (TQ 9467), on 25th August. Malcolm Ausden has also informed me of a sighting of *Emus* by an assistant warden at the Rye Street reserve (TQ 742773) on the Hoo Peninsula to the west of Sheppey, on 30th September 1998. However, during 1999 there have again been several sightings of *Emus* on the Elmley reserve (Bob Gomes, *pers. comm.*).

Up to about 1950 it was taken regularly on the Isle of Sheppey with collectors taking as many as 10 in a few hours, and according to the late Dr A.M. Massee seems to have been restricted to certain fields whilst being absent from others that appeared identical. It may be optimistic to hope to see such numbers again but perhaps it is possible that a large population occurs somewhere on the island.

Acknowledgements

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Sulcaxis bicornis (Mellié) (Ciidae) new to Wales, with notes on the species in Britain

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On 30th January 1999 we collected 10 specimens of the small black ciid *Sulcaxis bicornis* (Mellié) from Whitewall Common, Monmouthshire (VC 35; ST 48). The following week, on 5th February 1999, PAS collected a further 14 specimens of this Notable species near Llandegfedd Reservoir, Monmouthshire (VC 35; ST 39). We are not aware of any previous record of *S. bicornis* from Wales; there are no records of the species on the Countryside Council for Wales database. The specimens from Whitewall Common were taken from an old fruiting body of the bracket fungus *Trametes suaveolens* (Fr.) Fr. on a pollarded roadside willow *Salix* (*Salix*) sp. at the edge of rough, and fairly open, marshy ground. The specimens from ST 39 were extracted from two samples of the bracket fungus *Coriolus versicolor* (L. ex Fr.) Quél. (= *Trametes versicolor* (L. ex Fr.)). The first of these was taken from a large Hazel *Corylus avellana* in open deciduous woodland on a steep east-facing slope. The second came from a tree of *Prunus* sp., approximately 60 m upslope of the first.

The generous response to GMO's call for ciid records, both through *The Coleopterist* and by personal request, has yielded only nine recent (post-1970) records of *S. bicornis*. Since January 1997 we have added a further four localities and two vice-counties (North Wiltshire and North Somerset, the latter from specimens collected by R. Guevara and determined by GMO) to these, as well as the Welsh records detailed above. In company with E.E. Green, we have also found the beetle in Windsor Forest where it was recorded by A.A. Allen in 1934. Duff (1993) does not list *S. bicornis* for Somerset, and it seems likely that both North Somerset and North Wiltshire, as well as Monmouthshire, are new vice-counties for the species. Recent records, together with older records which we have been able to assign to hectads (10 km squares) with reasonable confidence, are summarised in Fig. 1. Some of the unpublished records used for this map are listed on the Invertebrate Site Register, the Lincolnshire Naturalists' Union database, or Hertfordshire record cards, or are taken from details of ciid specimens held at Manchester Museum which have recently been recurated and identified by C. Johnson. Others have been contributed in person by the recorders. Pre-1890 records from Claygate and Cowley (Fowler, 1890), also a 1909 record of J.J. Walker from Oxford (Manchester Museum records) could not be assigned to hectads with reasonable confidence, and are omitted. Our collated and personal records show *S. bicornis* recorded from a total of 20 vice-counties, with post-1970 records coming from 11 of these.

Formerly placed in the genus *Rhopalodontus* Dohrn in Strübling, and referred to as *R. fronticornis* by some British authors, *S. bicornis* (Mellié) is, in fact, distinct from *S. fronticornis* (Panzer) (Kevan, 1967) and listed as such by Pope (1977) and Hyman

(1992). Both species are recorded from continental Europe (Lohse, 1967) but the latter is 'doubtfully British' (Kevan, 1967) and excluded from Pope's British list (Pope, 1977). Both sexes of *S. bicornis* are distinguishable from the other small black British ciids, *S. affinis* (Gyllenhal) and *Octotemnus glabriculus* (Gyllenhal), by their possession of ten antennal segments, covering of uniformly short bristles on pronotum and elytra, and dull appearance. Adults of all three species may sometimes be found together in the same fungus.



Fig. 1: Provisional distribution map for *Sulcaxis bicornis* (Mellié). Each symbol covers a hectad (10 km square): ○ = pre-1970 records only; ● = post-1970 records; ▲ = post-1970 records of GMO & PAS. This map has been compiled from records detailed in Fowler (1890), Pool (1917) and Paviour-Smith (1960), and from the unpublished records of A.A. Allen, R.G. Booth, J. Collins, A.B. Drane, R.D. Dumbrell, T.H. Edmonds, E.M. Eustace, A.R. Godfrey & R.S. Key, N.F. Heal, P.J. Hodge, T.J. James, R.W. Lloyd and GMO & PAS. See text for further details of record sources.

Fowler (1890) observes that *S. bicornis* is 'very local, and, as a rule, rare'. Joy (1932) describes it as 'very local'. Hyman (1992) assigns Notable B status to the species, and notes that it is widespread, but local, in the southern half of England. The distribution and relative paucity of records (Fig. 1) certainly support Hyman's view. These records suggest, moreover, that the distribution of *S. bicornis* may have a more southerly restriction than that of any other British ciid. The extent to which *S. bicornis* is under-recorded is unclear, but its small size, and occurrence within fungal fruiting bodies, undoubtedly cause it to be easily overlooked.

In addition to the fungi *T. suaveolens* and *C. versicolor*, we have found *S. bicornis* in fruiting bodies of *Pseudotremetes gibbosa* (Pers. ex Pers.) Bond. & Sing. (= *Trametetes gibbosa* (Pers. ex Pers.) Fr.). The specimens collected by R. Guevara from North Somerset came from brackets of *Bjerkandera adusta* (Willd. ex Fr.) Karst. The beetle has been collected from *Piptoporus betulinus* (Bull. ex Fr.) Karst. by T.J. James (*pers. comm.*) and from *Laetiporus sulphureus* (Bull. ex Fr.) Murr. by A.A. Allen (*pers. comm.*). Donisthorpe (1935) has also recorded *S. bicornis* from *C. versicolor*, *P. gibbosa*, *P. betulinus* and *L. sulphureus*, and Paviour-Smith (1960) has recorded the species breeding in *C. versicolor*. Adults have been recorded in every month of the year.

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***Cyphon phragmiticola* Nyholm (Scirtidae) new to Ireland**

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On 30 August 1980, I swept an unusual-looking scirtid from vegetation beside Lady's Island Lake, Co. Wexford (T 104071) in southeast Ireland. The specimen was identified as a male of *Cyphon phragmiticola* Nyholm by R. Moore in 1981 and put into the collections of the National Museum of Ireland. While rehousing the scirtid collection, I again came across the specimen and confirmed its identity using Kevan (1962). *C. phragmiticola* has not been previously recorded from Ireland (Anderson *et al.*, 1997). In Britain, the species is widespread but local (Hodge & Jones, 1995).

It is interesting that a new Irish scirtid has been discovered at Lady's Island Lake. The lake is a large, natural, sedimentary, percolating lagoon in an agricultural landscape, with a dune barrier of sand and gravel. Several notable insects have been found in it. Indeed, the scientific value of the site is considered to be exceptional, for its rich fauna and flora (Healy & Oliver, 1998).

Acknowledgement

I am very grateful to Ms R. Moore for her help.

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***Lilioceris lili* (Scopoli) (Chrysomelidae), new to the Bristol region**

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On 30 April 1999, whilst searching for hoverflies in landscaped gardens in Somerset Street, Redcliffe, Bristol (VC 34; ST 593722), I noticed a bright red beetle with which I was not familiar, sitting in an ornamental bush. I captured it and with the aid of Harde (1984) tentatively identified it as the Lily Beetle *Lilioceris lili*. I showed the beetle to Ray Barnett (Bristol Museum) who confirmed its identity as this species. This species is not listed in Atty (1983) or Duff (1993) and it appears to be a new record for the Bristol region.

The specimen is now deposited at the City of Bristol Museum.

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[Editor's note added in proof: *L. lili* was added to the Gloucestershire list in 1997 when two were found by R. Homan on a lily in a garden on the outskirts of Cheltenham (SO 92) - *KNAA*.]

***Datonychus arquatus* (Herbst, 1795) (Curculionidae) in the British Isles**A. P. Fowles¹ & M. G. Morris²¹ Countryside Council for Wales, Plas Penrhos, Fford Penrhos, Bangor, Gwynedd LL57 2LQ² Orchard House, 7 Clarence Road, Dorchester, Dorset DT1 2HF

Datonychus (= *Ceutorhynchus*) *arquatus* is one of the least well-known of all British weevils. It was introduced to the British list by Rye (1869) on the basis of specimens collected sometime earlier by J. Kidson Taylor and J. Chappell. Subsequently, Capron (1886) recorded it from Surrey, whilst Fowler (1891), commenting that it was 'very rare', was able to report it from several localities in four English vice-counties. Two specimens from this period, labelled Chat Moss, Lancs., are in the Manchester Museum (MM) (C. Johnson, *pers. comm.*) and there is a single specimen, originating from the Sidebotham Collection, labelled 'Manchester district' (which possibly also relates to Chat Moss) in the Natural History Museum, London (NHM). Also in NHM is a specimen which is labelled, without further data, as having been taken by J. Hardy in 1871 and presumably this represents Hardy's record from Manchester reported in Fowler (*loc. cit.*). A specimen collected by Chappell at Chat Moss is also in the J.R. LeB. Tomlin Collection in the National Museums and Galleries of Wales, Cardiff (NMGW) (B. Levey, *pers. comm.*).

In Ireland, Halbert (1910a, 1910b), along with C.W. Buckle, discovered *D. arquatus* on the shore of Lough Neagh (Co. Antrim) in June 1902 by sweeping on the banks of an inflow stream at Shane's Castle. There are single L. Neagh specimens collected by Halbert on 14 August 1902 and one without data in the Kidson Taylor Collection and the J.R. Hardy Collection, respectively, in MM (C. Johnson, *pers. comm.*). In NHM there are two specimens from Shane's Castle, L. Neagh, taken on 31 August 1902 (presumably by Buckle), whilst the Tomlin Collection in NMGW has two specimens from L. Neagh collected on 7 September 1902 (B. Levey, *pers. comm.*). The weevil is also represented in the collections of the National Museum of Ireland (Morris, 1993). The final confirmed record of this species in the British Isles is by O.E. Janson (1924), who collected two specimens at Shane's Castle in June 1923; both (labelled with the date 16 June 1923) are in NHM. More recently, two unconfirmed reports of *D. arquatus* were included by Hyman (1992): the species is included in F.D. Buck's notebooks (held in the Colchester and Essex Museum) in a list of beetles collected from the 'Norwich district' of East Norfolk between 5 and 12 May 1940 (Martin Collier, *pers. comm.*); and A.M. Masee apparently collected specimens on the banks of the River Chelmer at Writtle, North Essex, about the same time (Peter Hammond, *pers. comm.*). It has not been possible to verify the authenticity of either of these reports.

Very little is known of the ecology of these British and Irish populations, other than that Capron, Halbert and Janson (*loc. cit.*) all state that their specimens were taken by casual sweeping. However, Fowler (1891) mentions that the species is associated with

Gipsywort *Lycopus europaeus* and possibly Mint *Mentha* spp. Those Continental authors consulted (Angelov, 1979; Burakowski *et al.*, 1997; Dieckmann, 1972; Hoffmann, 1954; Lohse, 1983; and Scherf, 1964) all indicate that it is confined to Gipsywort, the larvae developing within the stems of the foodplant. However, MGM collected three specimens off Water Mint *Mentha aquatica* in the Danube Delta Nature Reserve, Romania, on 6 May 1995, although Gipsywort was also present at the site.

During a survey of Tywyn Burrows, Carmarthenshire, by Entotax Consultants (UK) on 14 June 1997, Glen Moate collected a single specimen of an unfamiliar ceutorhynchine weevil in a dune hollow (SN 3605) near one of the main dune slacks. The specimen was passed on to Dave Hemingway and its identity was subsequently confirmed by Mike Denton and Colin Johnson as *D. arquatus*. The site was revisited on 28 August 1998 by APF and MGM, accompanied by I.K. Morgan, in an attempt to locate a breeding population of the species. The slack near to the original discovery was searched initially but there was no evidence of any Gipsywort, very little Water Mint was present, and no *D. arquatus* were found. Tywyn Burrows is suffering badly from Sea Buckthorn encroachment and several of the slacks are now completely choked or inaccessible, but an old slack (SN 3604) was found with an abundance of Gipsywort. In approximately two man-hours of searching eleven specimens of *D. arquatus* were taken by tapping stands of Gipsywort over sweep-nets. It is of interest to note that all but two of these specimens were taken off tall clumps of Gipsywort growing amongst scrub (mainly willow *Salix*) around the margins of the slack, even though the foodplant is an abundant component of the open slack vegetation. In this regard, Hoffmann's comment (*loc. cit.*) that it occurs in 'Terrains marécageux ... mares des forêts froids' (Swampy places ... pools in cool forests) is perhaps of relevance.

Records of *Datonychus arquatus* in Britain and Ireland

Manchester, Lancs.	J. Kidson Taylor (Rye, 1869); Hardy (Fowler, 1891); Sidebotham (Fowler, 1891)
Cleethorpes, Lincs.	J. Chappell (Rye, 1869)
Lancashire Coast	J. Chappell (Rye, 1869)
Shire, Surrey, 1885	(Capron, 1886)
Chat Moss, Lancs.	Reston (Fowler, 1891)
Southport, Lancs.	J. Chappell (Fowler, 1891)
Sherwood Forest, Notts.	Gorham (Fowler, 1891)
Mickleham, Surrey	Power (Fowler, 1891)
Lough Neagh, Co. Antrim, 1902	Halbert/Buckle (Halbert, 1910a, b)
Lough Neagh, Co. Antrim, 1923	(Janson, 1924)
Tywyn Burrows, Carms., 14/6/1997	G. Moate (Entotax UK, 1997)
Tywyn Burrows, Carms., 28/8/1998	A.P. Fowles & M.G. Morris

Unconfirmed records

R. Chelmer, Writtle, N. Essex	A.M. Massee (P.M. Hammond, <i>pers. comm.</i> / Hyman, 1992)
Norwich district, E. Norfolk, 5/1940	F.D. Buck (M.J. Collier, <i>pers. comm.</i> / Hyman, 1992)

The apparent rarity of this species in the British Isles is curious given the widespread nature of its historic records and the frequency of its foodplant in a range of wetland habitats. It can perhaps be expected that it will now be found in additional localities, possibly by concentrating on stands of Gipsywort growing in partially shaded and sheltered conditions.

Acknowledgements

In addition to the assistance of the entomologists mentioned above, we would like to thank Flt. Lt. James Tayler (RAF, Pembrey Sands) for permission to visit Tywyn Burrows (it should be noted that RAF Pembrey Sands is an active bombing range and hence access is extremely restricted). Roger Key (English Nature) and Mark Telfer (Biological Records Centre, Monks Wood) assisted with requests for information on historical records.

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Saprosites mendax Blackburn (Scarabaeidae) under sycamore logs in Battersea Park, London

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On 1st July 1998, whilst engaged on an invertebrate survey of three 'nature areas' in London's Battersea Park (Jones, 1998), I came across several specimens of the tiny scarabaeid *Saprosites mendax*. One was under cut logs of a fallen tree, very decayed, but possibly ash *Fraxinus*; two further specimens were found on the same day under cut sycamore *Acer* logs about 20 cm in diameter. The ash logs also produced other very interesting creatures, including several specimens each of *Langelandia anophthalma* Aubé (Colydiidae) and *Anommatus duodecimstriatus* (Müller) (Cerylonidae), together with many specimens of the terrestrial amphipod *Arcitalitrus dorrieni* (Hunt) (Jones, 1999).

Saprosites is a very local, naturalized species, a native of Australia, accidentally introduced into England, and first discovered here in Arundel Park, W. Sussex, in 1930, reputedly in the borings of the Lesser Stag Beetle *Dorcus parallelipipedus* (Linnaeus) and the Least Stag Beetle *Sinodendron cylindricum* (Linnaeus). For some years it was confined to this small area of the country, where it has been found regularly ever since (Hodge, 1991). On many visits to Arundel Park and neighbouring Rewel Wood, I found this beetle fairly regularly during the late 1970s. After half a century of very limited distribution in Britain, it has now started to spread and has been found in Richmond Park and "West London" (Jessop, 1986). Following the recent discovery of *Saprosites* at Queen's and Highgate Woods in Haringey from 1994 onwards (Hackett, 1999), Battersea Park is now the fifth recorded British locality for this beetle.

The occurrence of *Saprosites* in the frass-filled burrows of wood-boring beetles is not often cited nowadays, and in my experience it is more often found simply "associated" with logs, especially the flat cut surfaces of horizontal large logs stacked on top of each other like coins. This was where I inevitably found it in Arundel Park. Finding *Saprosites* under a sycamore log is very surprising, especially as both specimens appeared to have chewed a small cavity into the bark where it was resting on the soil. What does *Saprosites* feed on? Intuition might suggest that if it occurs in the frass of true wood-boring beetles then it is, at least in some loose sense, a dung beetle. But having found *Trox scaber* (Linnaeus), *Aphodius sphaelatus* (Panzer) and *A. granarius* (Linnaeus) under fungoid bark (Jones, 1997), leads me to wonder whether there is some flexibility in these beetles' taste and nutritive requirements. Another aphodiine species, *Oxyomus sylvestris* (Scopoli), regularly occurs in grass cuttings and vegetable refuse and at least one Australian species of *Aphodius* is entirely phytophagous (Lawrence & Britton, 1994). Has any coleopterist found *Saprosites* feeding in frass-filled burrows recently?

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The Saproxylic Quality Index: evaluating wooded habitats for the conservation of dead-wood Coleoptera

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The protocols for identifying sites of nature conservation importance in Great Britain have been steadily refined over the past fifty years or so, culminating in the Nature Conservation Review (Ratcliffe, 1977) and the SSSI Guidelines (Nature Conservancy Council, 1989). For most terrestrial habitats this has led to the recognition at national and local scales of the most significant examples and they have accordingly been given nature reserve and/or Site of Special Scientific Interest status. However, with regard to the conservation of invertebrates, it is apparent that a few highly important habitat types have been neglected (Nature Conservancy Council, 1989) and that sites for the fauna of old trees with decaying wood feature prominently amongst these. Identification, protection and appropriate management of such habitats are thus a priority for invertebrate conservation.

There is a welcome and increasing appreciation of the significance of dead-wood habitats and this necessitates that a reliable system should be developed in order to rank priorities for allocation of limited resources. This is particularly pertinent to organisations, such as the Countryside Council for Wales, English Nature and the National Trust, that either own, manage or legally designate the most important parklands and woodlands for nature conservation in England and Wales. It is also of relevance with regard to the allocation of agri-environment grant-aid through schemes such as Countryside Stewardship in England and Tir Gofal in Wales, both of which offer support for sympathetic management of dead-wood habitats. However, it is anticipated that greater focus on such habitats will arise following publication of the U.K. Biodiversity Action Plan for Lowland Wood-Pastures and Parklands (UK Biodiversity Group, 1998). Local authorities and other organisations, many of them with inexperienced staff, will be expected to incorporate targets for the restoration and management of wood-pastures into the delivery of their own Local Biodiversity Action Plans. Without a workable system for ranking the importance of sites, there is strong potential for resources to be inappropriately allocated, for sites of lesser importance to be the subject of undeserved attention, and for designations to be subjective and based on inadequate data.

In an earlier paper, Fowles (1997) discussed the rationale behind establishing a proportional system of evaluation and proposed using an index based on 'rarity' scores to evaluate dead-wood habitats in Great Britain. The Saproxylic Quality Index (SQI) is calculated by totalling rarity scores for the saproxylic Coleoptera recorded from a site and

dividing the total by the number of saproxylic species recorded. This proportional index reduces the bias derived from unequal recording effort and hence allows sites to be evaluated on limited site inventories. The development of the index has been dependent upon two key elements: defining a standard list of saproxylic Coleoptera for Great Britain, and the assignment of rarity scores to those species.

Saproxylic Coleoptera for site evaluation

Many Coleoptera species that occur within dead-wood habitats are by no means restricted to them. Such facultative species may be present on a particular site without any requirement for dead wood and hence their role in the evaluation of the importance of dead wood is limited. A primary aim, therefore, is to define a list of species in which there can be a high degree of confidence that their occurrence at a site relies solely on the presence of dead-wood habitats.

The term *saproxylic* has been coined to embrace the dead-wood fauna, defined by Speight (1989) as "species of invertebrate that are dependent, during some part of their life cycle, upon the dead or dying wood of moribund or dead trees (standing or fallen), or upon wood-inhabiting fungi, or upon the presence of other saproxylics". As such 'saproxylic' has gained familiar usage in the ecological literature and the concept is widely understood. However, the definition itself is (deliberately) generalised and raises a number of problems in its application. In relation to the establishment of a list of species for site evaluation, how 'dependent' should a species be? Should we include, for instance, species that develop within the dead or dying wood of branches (such as scolytids), even though the tree itself is still healthy? Indeed, many of our oldest and most valued living trees support important dead-wood invertebrates within their hollow trunks and will continue to do so for perhaps a hundred years or more. Are these trees moribund?

Hammond & Owen (in press) have expanded and refined the definition of saproxylic as follows: "species that are dependent, during at least some part of their life cycle, upon dead or dying wood of usually over-mature, damaged or dead trees (standing or fallen), upon wood-inhabiting fungi, or upon other species associated with this habitat". We have used a modification of this definition, embracing a list of species that are dependent upon microhabitats associated largely with the processes of damage and decay in the bark and wood of trees and larger woody shrubs and climbers. This includes sap runs, fungal hyphae or fruiting bodies, rot holes, etc. The species used in evaluation should be obligate saproxylics and hence facultative species that are not primarily associated with such habitats (such as generalist birds' nest inhabitants or fungus feeders) are excluded. Some further clarification is necessary. Saproxylic species utilising appropriate habitats on woody scrub or climbers (e.g. willow *Salix*, hawthorn *Crataegus*, ivy *Hedera* etc.) are included, but species confined to shrubs, such as gorse *Ulex* or broom *Cytisus*, are excluded. Species occurring widely in woodland fungi (several staphylinids, for instance) are excluded and only those believed to occur primarily in bracket or other dead-wood fungi are listed. Species which inhabit the nests of tree-hole nesting birds (owls, woodpeckers, jackdaws, etc.) are included but those which also inhabit nests in the canopy

(e.g. rooks, buzzards, squirrel dreys, etc.) are excluded. Similarly, beetle species associated with tree-nesting ants are included but those beetle species occurring more widely with ground-nesting ants are not. An exception to this approach is the inclusion of a few native species that are characteristic of dry, dead-wood habitats but which are also found in some synanthropic habitats, such as hay barns, stored products and treated timber, (examples include *Xestobium rufovillosum* (De Geer) (Anobiidae), *Mycetaea subterranea* (Linnaeus) (Endomychidae) and *Cryptolestes ferrugineus* (Stephens) (Cucujidae)) as their occurrence in wooded habitats will most likely be as a result of their developing within dead wood. Alien species which are believed to be naturalised are also excluded.

One of the major problems in defining a list of saproxylic Coleoptera is the paucity of ecological information that exists for many species, particularly regarding their immature stages. For some families there is no ambiguity but for others there is debate. How dependent upon dead wood habitats are species of *Anisotoma*, *Gyrophaena*, *Anaspis* or *Mordellistena*, for example? There is no easy solution to this and decisions on the inclusion or exclusion of such species necessarily have had to be based on available knowledge. Periodically the list should be reviewed to accommodate new information on the ecological affinities of saproxylic species and calculation of the index by computer will make re-evaluation relatively simple.

Assigning rarity scores

The original proposal for the Saproxylic Quality Index utilised the conservation statuses given to species by the statutory conservation agencies, as published in Hyman (1992, 1994) and included on the 'Recorder' biological recording software package (Ball, 1995). However, there has been a considerable accumulation of information on the distribution of saproxylic Coleoptera since those statuses were allocated and it is clear that amendments are necessary. Ideally, systematic and comprehensive surveys should take place in dead-wood habitats across Great Britain, and the information collated centrally, in order to provide an accurate assessment of the conservation value of individual species. This is the responsibility of the Joint Nature Conservation Committee (JNCC) and is currently not feasible. Instead, the list of species was examined by the authors against published and unpublished distribution maps and other sources of collated data to identify those species that had probably been correctly classified, those that were obviously in need of reassessment, and those that required further consideration. A list of the latter group was circulated to several relevant coleopterists in order to collate further information or to seek expert opinion. This has been incorporated in the scores allocated to each species in the accompanying list, representing 94 changes, and a further 25 species not covered by Hyman (1992, 1994) or Ball (1995) have also been assigned conservation statuses and rarity scores.

A refinement of the current list of statuses used is the split of the status 'Local', with 43 species being allocated 'Very Local' status to give a higher score to those species that do not qualify as Nationally Scarce (believed to occur in less than 100 10-km squares) but which are nonetheless highly restricted nationally. Nationally Scarce (formerly termed

Notable) and Red Data Book categories are explained in Hyman (1992). The distinction between the statuses 'Common' and 'Local' is less clear cut: "The term local is not rigidly defined, but loosely means species confined to a particular habitat type (usually associated with better quality examples of that habitat), a particular geographic area, or species that are too widespread to warrant Nationally Scarce (Notable) status but are nevertheless infrequently encountered" (Key, 1994). The category 'Uncertain' is used for four species (*Cyphea curtula* (Erichson), *Caenoscelis sibirica* Reitter, *Stephostethus alternans* (Mannerheim) and *Pentaphyllus testaceus* (Hellwig)) that have been recently discovered in Great Britain and whose status is not known. It should be noted that the "official" conservation statuses can be amended only by the JNCC and hence the changes presented here are not currently adopted officially by the statutory conservation agencies.

The allocation of scores and the calculation of the index have also been modified slightly from that proposed by Fowles (1997), as follows:

SCORE	STATUS
1	Common
2	Local
4	Very Local / Uncertain
8	Nationally Scarce B
16	Nationally Scarce A / Red Data Book RDBK, Insufficiently Known
24	Red Data Book RDBI, Indeterminate / Red Data Book RDB3, Rare
32	Red Data Book RDB1, Endangered / Red Data Book RDB2, Vulnerable / Red Data Book RDBAppendix, Extinct

Table 1: Rarity scores and their equivalent statuses

SQI is calculated by totalling the scores for all qualifying species, dividing by the total number of qualifying species, and multiplying by 100.

Application of the Saproxylic Quality Index

In order to test the reliability of the index, 126 lists of saproxylic Coleoptera from sites across Great Britain were collated from the literature and received from colleagues. The majority of lists were from England and Wales but a few Scottish site lists were also included. One potential source of error was immediately noticeable: where sites in England and Wales contained mature conifers, either as isolated trees or as small plantations within their boundaries, the inclusion of conifer saproxylics in the species list had the effect of lowering the SQI. This is because a high proportion of the native saproxylics associated with conifers outside Scotland are of Common or Local status. To avoid this, 62 species associated more or less exclusively with conifers have been identified (of the 599 species included on the total list - Appendix 1) and they should be excluded from the site evaluation process where the objective is to evaluate broad-leaved woodlands or parklands. However, these species can be incorporated in the index for evaluation of Caledonian pinewoods in Scotland. It would also be possible to incorporate

these species for comparisons to be made of the conservation value of conifer plantations throughout Great Britain.

As discussed in Fowles (1997), it is important to identify a threshold for the number of qualifying saproxylic species recorded, below which evaluation is unreliable. Examination of the lists evaluated so far (which represent a wide range of sites both ecologically and geographically) suggests that a threshold of 40 species is appropriate. It is important to note that these lists must be complete, i.e. they should consist of all qualifying species recorded during surveys, including Common and Local saproxylics, where the same attention has been applied to recording common species as well as rare ones. Collations which consist solely of the scarcer species recorded from sites are not suitable for evaluation by SQI. Most sites should produce suitable lists as a result of one to three visits. With 50 or more qualifying species recorded, reliability of the evaluation appears to be very high. Of the lists evaluated so far, 80 contain 40 or more qualifying species.

On the basis of limited data, it does seem that some specialist collecting techniques (particularly subterranean traps (Owen 1999)) may produce SQIs that may be unduly high. This is probably because lists generated by such methods are likely to contain species whose status is imperfectly known and hence overrated. This should be borne in mind during site evaluation but it also seems likely that sites with high SQIs from such lists will probably be of considerable significance for their saproxylics anyway and lists generated by other survey techniques may be available to corroborate the assessment.

Finally, there is the question of which date period to use for comparative purposes. Ideally, if resources are going to be committed to dead-wood habitats then recent data should be gathered before decisions are made. However, it is possible to utilise older species lists (in conjunction with at least a superficial knowledge of the extent of the dead-wood habitats still present) in order to indicate the likely quality of the particular site. Thus, if a site list from the 1960s produces a high SQI for a particular geographical area and there is little evidence that there has been significant change to the habitat, then it would be worthwhile undertaking new surveys for saproxylic Coleoptera to confirm current priorities. However, if the 1960s list gave a low SQI and the site was currently found to have relatively little dead wood then it is probably worth considering other priorities within the geographic area.

Using SQI to prioritise dead-wood habitats

Since the publication of the list of indicators of ecological continuity (Harding & Rose, 1986) and the subsequent development of an Index of Ecological Continuity (Alexander, 1988), tables of the most important British sites for saproxylic Coleoptera have been maintained by KNAA and published at intervals (e.g. Harding & Alexander, 1993, 1994). However, much data on saproxylic species is still unavailable, remaining in the notebooks and collections of coleopterists, and it is unlikely that there will be any major development of a national saproxylic database in the near future.

The purpose of SQI is to provide a standard against which individual site surveys can be compared and to enable evaluation to be made on the basis of samples rather than exhaustive cumulative species lists. Speight (1989) identified five UK sites as being of potential international importance for their fauna of saproxylic invertebrates: Abernethy Forest, Epping Forest, Moccas Park, the New Forest and Windsor Forest and Great Park. SQI has been calculated for each of these areas except the New Forest (data unavailable) and all are above 590 so this may be taken as the threshold for a site of international importance. Richmond Park and Croome Park are also above this threshold and should, therefore, also be considered as being of potential international importance. It is likely that Bredon Hill in Worcestershire will also rank amongst the sites of potential international importance but suitable data to calculate SQI for this area are not currently available. More data are probably required before a threshold for national importance can be defined, but, based on the 80 qualifying lists currently assessed, it appears that an SQI of 500 is probably an appropriate threshold. In addition to the internationally important sites listed above, Parham Park and Arundel Park (West Sussex), Black Wood of Rannoch (Grampian), Box Hill (Surrey), Dunham Park (Cheshire), Forest of Bere (Hants.) and Sherwood Forest (Notts.) score above 500. It should be noted that the data used to calculate SQI for Arundel, Box Hill and Dunham are compilations of all historical records and further evaluations should be undertaken on recent site lists to determine whether they still support nationally important saproxylic Coleoptera faunas.

With the evaluation of sufficient regional lists, it will eventually be possible to identify what constitutes, for example, an important Welsh, northern English, or Caledonian site. Subsequently, it will be possible to put surveys undertaken anywhere in Great Britain into this context without needing to know their exact ranking. SQI scores for a selection of evaluated sites are presented in Appendix 2, which includes data collated from a wide range of sources and from different date classes.

SQI should be regarded as a predictive index that gives an assessment of how significant a site may be. Anyone responsible for collating relevant information or surveying woodlands or parklands should be able to immediately evaluate their sites in a national framework without having to refer to a list of rankings. Beyond that, priorities should be defined at a smaller scale - district, vice-county or region, for instance - in comparison with other available data from that geographical area. However, it is preferable to be able to consult published tables for an immediate indication of the significance of a site's score and, to that end, we will be maintaining a national SQI table against which suitable site lists can be compared and into which such lists can be incorporated to develop the process further. Please send appropriate lists of saproxylics to any of the authors. A QuattroPro spreadsheet application which automatically calculates SQI can also be sent free (preferably by e-mail) to anyone interested in undertaking the evaluation for themselves - contact Adrian Fowles at CCW (address above or by e-mail: a.fowles@ccw.gov.uk).

This approach is a further development towards a greater understanding of the significance of habitats for saproxylic invertebrates but it should not be seen as the final

word. The subject should be developed further to embrace a more valid ecological characterisation of species' affinities and should be thoroughly debated amongst relevant specialists to aim for a fully informed synthesis. This will be a slow process, requiring much ecological investigation and collaboration. The SQI, as presented here, should serve as a useful tool for allocating resources and delivering a wider appreciation of the significance of dead wood for nature conservation and has considerable potential for further refinement.

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Appendix 1: Saproxyllic Quality Index: list of qualifying Coleoptera

Note: underlined species are associated more-or-less exclusively with conifers. For broad-leaved woodlands/parklands, they should not be included in the site evaluation process. However, where the objective is to evaluate Caledonian pinewoods in Scotland (or to compare conifer plantations throughout Great Britain) these species can be incorporated.

	Published Status	Proposed Status	Rarity Score
CARABIDAE			
<i>Carabus intricatus</i> Linnaeus	RDB1	RDB2	32
HISTERIDAE			
<i>Teretrius fabricii</i> Mazur	RDB1		32
<i>Plegaderus dissectus</i> Erichson	Notable B		8
<i>Abraeus globosus</i> (Hoffmann)	Local	Very Local	4
<i>Abraeus granulum</i> Erichson	Notable A	Notable B	8
<i>Aeletes atomarius</i> (Aubé)	RDB3	Notable A	16
<i>Acritus homoeopathicus</i> Wollaston	RDB3		24
<i>Paromalus flavicornis</i> (Herbst)	Local		2
<i>Paromalus parallelepipedus</i> (Herbst)	RDB1		32
<i>Epiurus comptus</i> Erichson	RDBK		16
PTILIIDAE			
<i>Nossidium pilosellum</i> (Marshall)	Notable B		8
<i>Ptenidium gressneri</i> Erichson	Notable B		8
<i>Ptenidium turgidum</i> Thomson	RDBK		16
<i>Micridium halidai</i> (Matthews)	RDBK		16
<i>Ptiliolum caledonicum</i> (Sharp)	RDBK		16
<i>Ptinella aptera</i> (Guerin-Meneville)	Local		2
<i>Ptinella denticollis</i> (Fairmaire)	Notable B		8
<i>Ptinella limbata</i> (Heer)	RDBK		16
<i>Pteryx suturalis</i> (Heer)	Local		2
LEIODIDAE			
<i>Anisotoma castanea</i> (Herbst)	Local		2
<i>Anisotoma glabra</i> (Kugelann)	Local		2
<i>Anisotoma humeralis</i> (Fabricius)	Local		2
<i>Anisotoma orbicularis</i> (Herbst)	Local		2
<i>Agathidium arcticum</i> Thomson	RDBK		16
<i>Agathidium badium</i> Erichson	RDBK		16
<i>Agathidium confusum</i> Brisout	RDB1		24
<i>Agathidium nigrinum</i> Sturm	Local		2

<i>Agathidium nigripenne</i> (Fabricius)	Local		2
<i>Agathidium rotundatum</i> Gyllenhal	Local		2
<i>Agathidium seminulum</i> (Linnaeus)	Local		2
<i>Agathidium varians</i> Beck	Local		2
<i>Nemadus colonoides</i> (Kraatz)	Local		2
SCYDMAENIDAE			
<i>Eutheia formicetorum</i> Reitter	RDB1		32
<i>Eutheia linearis</i> Mulsant	RDB1		32
<i>Neuraphes plicicollis</i> Reitter	Notable B		8
<i>Stenichnus bicolor</i> (Denny)	Local	Very Local	4
<i>Stenichnus godarti</i> (Latreille)	RDB3		24
<i>Microscydmus minimus</i> (Chaudoir)	RDB3		24
<i>Euconus pragensis</i> (Machulka)	RDB1		32
<i>Scydmaenus rufus</i> Müller & Kunze	RDB2	RDB3	24
SCAPHIDIIDAE			
<i>Scaphidium quadrimaculatum</i> Olivier	Local		2
<i>Scaphisoma agaricinum</i> (Linnaeus)	Local		2
<i>Scaphisoma assimile</i> Erichson	RDB1		24
<i>Scaphisoma boleti</i> (Panzer)	Notable B		8
STAPHYLINIDAE			
<i>Megarthus hemipterus</i> (Illiger)	Notable A	RDBK	16
<i>Phylloprepoidea crenata</i> (Gravenhorst)	Notable B		8
<i>Acrulia inflata</i> (Gyllenhal)	Local		2
<i>Phylloprepa nigra</i> (Gravenhorst)	RDB1		24
<i>Dropephylla devillei</i> (Luzé)	Local		2
<i>Dropephylla heeri</i> (Heer)	Notable B		8
<i>Dropephylla ioptera</i> (Stephens)	Common		1
<i>Dropephylla vitis</i> (Erichson)	Common		1
<i>Hapalaraea pygmaea</i> (Paykull)	Local		2
<i>Phloeonomus punctipennis</i> Thomson	Local		2
<i>Phloeonomus pusillus</i> (Gravenhorst)	Local		2
<i>Phloeostiba lapponica</i> (Zetterstedt)	Local		2
<i>Phloeostiba plana</i> (Paykull)	Local		2
<i>Xylostiba monilicornis</i> (Gyllenhal)	Notable B		8
<i>Xylostiba testaceus</i> (Erichson)	RDB1		32
<i>Coryphium angusticolle</i> Stephens	Local		2
<i>Siagonium quadricorne</i> Kirby	Local		2
<i>Phloeocharis subtilissima</i> Mannerheim	Local		2
<i>Atreus affinis</i> (Paykull)	Common		1
<i>Nudobius lentus</i> (Gravenhorst)	Local		2
<i>Xantholinus angularis</i> Ganglbauer	Notable A		16
<i>Philonthus subuliformis</i> (Gravenhorst)	Local		2
<i>Gabrius splendidulus</i> (Gravenhorst)	Common		1
<i>Velleius dilatatus</i> (Fabricius)	RDB1		32
<i>Quedius aetolicus</i> Kraatz	Notable A		16
<i>Quedius brevicornis</i> (Thomson)	Notable B		8
<i>Quedius maurus</i> (Sahlberg)	Local	Very Local	4
<i>Quedius microps</i> Gravenhorst	Notable B		8
<i>Quedius plagiatus</i> Mannerheim	Local		2
<i>Quedius scitus</i> (Gravenhorst)	Notable B		8
<i>Quedius ventralis</i> (Aragona)	Notable B		8
<i>Quedius xanthopus</i> Erichson	Notable B	Very Local	4
<i>Sepedophilus bipunctatus</i> (Gravenhorst)	Notable B		8
<i>Sepedophilus littoreus</i> (Linnaeus)	Unknown	Local	2
<i>Sepedophilus lusitanicus</i> Hammond	Local		2
<i>Sepedophilus testaceus</i> (Fabricius)	Notable B		8

<i>Tachinus bipustulatus</i> (Fabricius)	RDB1		32
<i>Gyrophana angustata</i> (Stephens)	Notable B		8
<i>Gyrophana bihamata</i> Thomson	Unknown	Local	2
<i>Gyrophana congrua</i> Erichson	Notable B		8
<i>Gyrophana joyi</i> Wendeler	Notable B		8
<i>Gyrophana latissima</i> (Stephens)	Local		2
<i>Gyrophana lucidula</i> Erichson	Notable B		8
<i>Gyrophana minima</i> Erichson	Unknown	Local	2
<i>Gyrophana munsteri</i> Strand	RDBK		16
<i>Gyrophana poweri</i> Crotch	RDBK		16
<i>Gyrophana pseudonana</i> Strand	RDB1		24
<i>Gyrophana pulchella</i> Heer	RDBK		16
<i>Gyrophana strictula</i> Erichson	Notable B		8
<i>Cyphea curtula</i> (Erichson)	---	Uncertain	4
<i>Placusa depressa</i> Maeklin	Notable B		8
<i>Placusa pumilio</i> (Gravenhorst)	Local		2
<i>Placusa tachyporoides</i> (Waltl)	Notable B		8
<i>Homalota plana</i> (Gyllenhal)	Unknown	Local	2
<i>Anomognathus cuspidatus</i> (Erichson)	Common	Local	2
<i>Silusa rubiginosa</i> Erichson	Notable B		8
<i>Leptusa fumida</i> Kraatz	Common		1
<i>Leptusa norvegica</i> Strand	Notable B		8
<i>Leptusa pulchella</i> (Mannerheim)	Local		2
<i>Leptusa ruficollis</i> (Erichson)	Common		1
<i>Euryusa optabilis</i> Heer	RDB1		24
<i>Euryusa sinuata</i> Erichson	RDB1		24
<i>Tachysida gracilis</i> (Erichson)	RDB1		32
<i>Bolitochara lucida</i> (Gravenhorst)	Local		2
<i>Bolitochara mulsanti</i> Sharp	Notable B		8
<i>Bolitochara pulchra</i> (Gravenhorst)	Notable B		8
<i>Bolitochara reyi</i> Sharp	RDB1		24
<i>Dinaraea aequata</i> (Erichson)	Common		1
<i>Dinaraea linearis</i> (Gravenhorst)	Unknown	Local	2
<i>Paranopleta inhabilis</i> (Kraatz)	RDBK		16
<i>Dadobia immersa</i> (Erichson)	Local		2
<i>Atheta liturata</i> (Stephens)	Local		2
<i>Atheta hansseni</i> Strand	RDBK		16
<i>Atheta subglabra</i> (Sharp)	Local		2
<i>Atheta autumnalis</i> (Erichson)	RDBK		16
<i>Atheta boletophila</i> (Thomson)	RDBK		16
<i>Thamaraea cinnamomea</i> (Gravenhorst)	Local		2
<i>Thamaraea hospita</i> (Maerkel)	Notable B		8
<i>Phloeodroma concolor</i> Kraatz	RDB1		24
<i>Phloeopora corticalis</i> (Gravenhorst)	Notable B		8
<i>Phloeopora bernhaueri</i> Lohse	Local		2
<i>Phloeopora testacea</i> (Mannerheim)	Common		1
<i>Amarochara bonnairei</i> (Fauvel)	RDB1		24
<i>Stichoglossa semirufa</i> (Erichson)	RDB1		24
<i>Ischnoglossa prolixa</i> (Gravenhorst)	Unknown	Local	2
<i>Ischnoglossa obscura</i> Wunderle	---	RDBK	16
<i>Ischnoglossa turcica</i> Wunderle	---	Local	2
<i>Dexiogyia corticina</i> (Erichson)	Notable B		8
<i>Haploglossa gentilis</i> (Maerkel)	Local		2
<i>Haploglossa marginalis</i> (Gravenhorst)	Notable B		8
PSELAPHIDAE			
<i>Bibloporus bicolor</i> (Denny)	Local		2
<i>Bibloporus minutus</i> Raffray	Notable B		8

<i>Euplectus bescidicus</i> Reitter	RDBK		16
<i>Euplectus bonvouloiri</i> Raffray	Notable B		8
<i>Euplectus brunneus</i> (Grimmer)	RDB1		32
<i>Euplectus fauveli</i> Guillebeau	Notable B		8
<i>Euplectus infirmus</i> Raffray	Local		2
<i>Euplectus karsteni</i> (Reichenbach)	Local		2
<i>Euplectus kirbyi</i> Denny	Notable B		8
<i>Euplectus nanus</i> (Reichenbach)	RDB1		24
<i>Euplectus piceus</i> Motschulsky	Common	Local	2
<i>Euplectus punctatus</i> Mulsant	RDB3		24
<i>Plectophloeus nitidus</i> (Fairmaire)	RDB2		32
<i>Trichonyx sulcicollis</i> (Reichenbach)	RDB2		32
<i>Batrissodes buqueti</i> Aubé	RDB1		32
<i>Batrissodes delaportii</i> (Aubé)	RDB1		32
<i>Batrissodes venustus</i> (Reichenbach)	Notable A	Notable B	8
LUCANIDAE			
<i>Lucanus cervus</i> (Linnaeus)	Notable B		8
<i>Dorcus parallelipipedus</i> (Linnaeus)	Local		2
<i>Sinodendron cylindricum</i> (Linnaeus)	Common	Local	2
SCARABAEIDAE			
<i>Gnorimus nobilis</i> (Linnaeus)	RDB2		32
<i>Gnorimus variabilis</i> (Linnaeus)	RDB1		32
<i>Trichius fasciatus</i> (Linnaeus)	Local		2
SCIRTIDAE			
<i>Prionocyphon serricornis</i> (Müller)	Notable B		8
BUPRESTIDAE			
<i>Melanophila acuminata</i> (De Geer)	Unknown	Local	2
<i>Anthaxia nitidula</i> (Linnaeus)	RDB1		32
<i>Agrilus angustulus</i> (Illiger)	Notable B		8
<i>Agrilus laeticornis</i> (Illiger)	Notable B		8
<i>Agrilus pannonicus</i> (Pill. & Mitt.)	Notable B		8
<i>Agrilus sinuatus</i> (Olivier)	Notable A	Very Local	4
<i>Agrilus viridis</i> (Linnaeus)	Notable A	RDB3	24
ELATERIDAE			
<i>Lacon querceus</i> (Herbst)	RDB1		32
<i>Calambus bipustulatus</i> (Linnaeus)	Notable B		8
<i>Denticollis linearis</i> (Linnaeus)	Common		1
<i>Limonicus violaceus</i> (Müller)	RDB1		32
<i>Diacanthous undulatus</i> (DeGeer)	Notable B		8
<i>Stenagostus rhombeus</i> (Olivier)	Local	Very Local	4
<i>Ampedus balteatus</i> (Linnaeus)	Local		2
<i>Ampedus cardinalis</i> (Schioedte)	RDB2		32
<i>Ampedus cinnabarinus</i> (Eschscholtz)	RDB3	Notable A	16
<i>Ampedus elongatulus</i> (Fabricius)	Notable A	Notable B	8
<i>Ampedus nigerrimus</i> (Bois. & Lac.)	RDB1		32
<i>Ampedus nigrinus</i> (Herbst)	Notable B		8
<i>Ampedus pomorum</i> (Herbst)	Notable B		8
<i>Ampedus quercicola</i> (du Buysson)	Notable B		8
<i>Ampedus rufipennis</i> (Stephens)	RDB2	RDB3	24
<i>Ampedus sanguineus</i> (Linnaeus)	Extinct		32
<i>Ampedus sanguinolentus</i> (Schrank)	Notable A		16
<i>Ampedus tristis</i> (Linnaeus)	RDB2		32
<i>Brachygonus ruficeps</i> (Mul. & Guill.)	RDB1		32
<i>Ischnodes sanguinicollis</i> (Panzer)	Notable A		16
<i>Megapenthes lugens</i> (Redtenbacher)	RDB1		32
<i>Procaerus tibialis</i> (Bois. & Lac.)	RDB3	Notable A	16

<i>Elater ferrugineus</i> Linnaeus	RDB1		32
<i>Melanotus villosus</i> (Fourcroy)	Common		1
<i>Cardiophorus gramineus</i> (Scopoli)	Extinct		32
<i>Cardiophorus ruficollis</i> (Linnaeus)	Extinct		32
THROSCIDAE			
<i>Aulonoithroscus brevicollis</i> (de Bonv.)	RDB3		24
EUCNEMIDAE			
<i>Eucnemis capucina</i> Ahrens	RDB1		32
<i>Microrhagus pygmaeus</i> (Fabricius)	RDB3	Notable B	8
<i>Melasis buprestoides</i> (Linnaeus)	Notable B	Very Local	4
<i>Epiphaniis cornutus</i> Eschscholtz	Local	Notable B	8
<i>Hylis cariniceps</i> (Reitter)	RDB1		32
<i>Hylis olexai</i> (Palm)	RDB3		24
CANTHARIDAE			
<i>Malthinus balteatus</i> Suffrian	Notable B		8
<i>Malthinus flaveolus</i> (Herbst)	Common		1
<i>Malthinus frontalis</i> (Marsham)	Notable B		8
<i>Malthinus seriepunctatus</i> Kiesenwetter	Local		2
<i>Malthodes crassicornis</i> (Maeklin)	RDB3		24
<i>Malthodes dispar</i> (Germar)	Local		2
<i>Malthodes fibulatus</i> Kiesenwetter	Notable B		8
<i>Malthodes flavoguttatus</i> Kiesenwetter	Local		2
<i>Malthodes fuscus</i> (Waltl)	Local		2
<i>Malthodes guttifer</i> Kiesenwetter	Notable B		8
<i>Malthodes marginatus</i> (Latreille)	Common		1
<i>Malthodes maurus</i> (Castelnau)	Notable B	Notable A	16
<i>Malthodes minimus</i> (Linnaeus)	Common		1
<i>Malthodes mysticus</i> Kiesenwetter	Local		2
<i>Malthodes pumilus</i> (Brebisson)	Local		2
LYCIDAE			
<i>Dictyoptera aurora</i> (Herbst)	Notable B	Notable A	16
<i>Pyropterus nigroruber</i> (De Geer)	Notable A		16
<i>Platycis cosnardi</i> (Chevrolat)	RDB1		24
<i>Platycis minuta</i> (Fabricius)	Notable B		8
DERMESTIDAE			
<i>Globicornis nigripes</i> (Fabricius)	RDB1		32
<i>Megatoma undata</i> (Linnaeus)	Notable B		8
<i>Ctesias serra</i> (Fabricius)	Notable B	Very Local	4
<i>Trinodes hirtus</i> (Fabricius)	RDB3		24
ANOBIIDAE			
<i>Ptinomorphus imperialis</i> (Linnaeus)	Notable B		8
<i>Grynobius planus</i> (Fabricius)	Local		2
<i>Dryophilus pusillus</i> (Gyllenhal)	Local		2
<i>Ochina ptinoides</i> (Marsham)	Local		2
<i>Xestobium rufovillosum</i> (De Geer)	Common	Very Local	4
<i>Ernobius mollis</i> (Linnaeus)	Unknown	Local	2
<i>Ernobius nigrinus</i> (Sturm)	Local		2
<i>Gastrallus immarginatus</i> (Müller)	RDB1	RDB2	32
<i>Hemicoelus fulvicornis</i> (Sturm)	Common		1
<i>Hemicoelus nitidus</i> (Herbst)	RDB1		24
<i>Anobium inexpectatum</i> Lohse	Notable B		8
<i>Anobium punctatum</i> (De Geer)	Common		1
<i>Hadrobregmus denticollis</i> (Creutzer)	Notable B		8
<i>Ptilinus pectinicornis</i> (Linnaeus)	Common		1
<i>Xyletinus longitarsis</i> Jansson	RDB2		32

<i>Dorcatoma ambjoerni</i> Baranowski	RDBK		16
<i>Dorcatoma chrysomelina</i> Sturm	Local	Very Local	4
<i>Dorcatoma dresdensis</i> Herbst	Notable A		16
<i>Dorcatoma flavicornis</i> (Fabricius)	Notable B		8
<i>Dorcatoma serra</i> Panzer	Notable A		16
<i>Anitys rubens</i> (Hoffmann)	Notable B		8
PTINIDAE			
<i>Ptinus lichenum</i> Marsham	RDB3		24
<i>Ptinus palliatus</i> Perris	Notable A		16
<i>Ptinus subpilosus</i> Sturm	Notable B		8
BOSTRICHIDAE			
<i>Bostrichus capucinus</i> (Linnaeus)	Extinct		32
LYCTIDAE			
<i>Lyctus brunneus</i> (Stephens)	Local	Very Local	4
<i>Lyctus linearis</i> (Goeze)	Notable B		8
PHLOIOPHILIDAE			
<i>Phloiophilus edwardsi</i> Stephens	Notable B		8
TROGOSSITIDAE			
<i>Nemozoma elongatum</i> (Linnaeus)	RDB3		24
PELTIDAE			
<i>Ostoma ferrugineum</i> (Linnaeus)	RDB1		32
<i>Thymalus limbatus</i> (Fabricius)	Notable B		8
CLERIDAE			
<i>Tillus elongatus</i> (Linnaeus)	Notable B		8
<i>Tilloidea unifasciatus</i> (Fabricius)	Extinct		32
<i>Opilo mollis</i> (Linnaeus)	Notable B		8
<i>Thanasimus formicarius</i> (Linnaeus)	Local	Very Local	4
<i>Thanasimus rufipes</i> (Brahm)	RDB3		24
<i>Tarsostenus univittatus</i> (Rossi)	Extinct		32
<i>Korynetes caeruleus</i> (De Geer)	Notable B		8
MELYRIDAE			
<i>Aplocnemus nigricornis</i> (Fabricius)	Notable A		16
<i>Aplocnemus pini</i> (Redtenbacher)	Notable B		8
<i>Dasytes aeratus</i> Stephens	Local		2
<i>Dasytes niger</i> (Linnaeus)	Notable A		16
<i>Dasytes plumbeus</i> (Müller)	Notable B		8
<i>Hypebaeus flavipes</i> (Fabricius)	RDB1		32
<i>Axinotarsus ruficollis</i> (Olivier)	Local	Very Local	4
<i>Malachius bipustulatus</i> (Linnaeus)	Common		1
<i>Sphinginus lobatus</i> (Olivier)	RDBK		16
<i>Anthocomus fasciatus</i> (Linnaeus)	Local	Very Local	4
LYMEXYLIDAE			
<i>Hylecoetus dermestoides</i> (Linnaeus)	Notable B	Very Local	4
<i>Lymexylon navale</i> (Linnaeus)	RDB2		32
NITIDULIDAE			
<i>Carpophilus sexpustulatus</i> (Fabricius)	Local	Notable B	8
<i>Epuraea angustula</i> Sturm	Notable B		8
<i>Epuraea biguttata</i> (Thunberg)	Local		2
<i>Epuraea distincta</i> (Grimmer)	Notable A	Notable B	8
<i>Epuraea fuscicollis</i> (Stephens)	Notable B		8
<i>Epuraea guttata</i> (Olivier)	Notable B		8
<i>Epuraea limbata</i> (Fabricius)	Unknown	Local	2
<i>Epuraea longula</i> Erichson	Notable B		8
<i>Epuraea marseuli</i> Reitter	Common		1

<i>Epuraea neglecta</i> (Heer)	RDBI		24
<i>Epuraea pallescens</i> (Stephens)	Unknown	Local	2
<i>Epuraea rufomarginata</i> (Stephens)	Local		2
<i>Epuraea silacea</i> (Herbst)	Common		1
<i>Epuraea terminalis</i> (Mannerheim)	Notable B		8
<i>Epuraea thoracica</i> Tournier	Notable B		8
<i>Epuraea variegata</i> (Herbst)	RDBK		16
<i>Soronia grisea</i> (Linnaeus)	Local		2
<i>Soronia punctatissima</i> (Illiger)	Local		2
<i>Cryptarcha strigata</i> (Fabricius)	Notable B		8
<i>Cryptarcha undata</i> (Olivier)	Notable B		8
<i>Pityophagus ferrugineus</i> (Linnaeus)	Local		2
<i>Glischrochilus quadriguttatus</i> (Fabricius)	Local		2
<i>Glischrochilus quadripunctatus</i> (Linnaeus)	Local		2
RHIZOPHAGIDAE			
<i>Rhizophagus bipustulatus</i> (Fabricius)	Common		1
<i>Rhizophagus cribratus</i> Gyllenhal	Local		2
<i>Rhizophagus depressus</i> (Fabricius)	Local		2
<i>Rhizophagus dispar</i> (Paykull)	Common		1
<i>Rhizophagus ferrugineus</i> (Paykull)	Local		2
<i>Rhizophagus nitidulus</i> (Fabricius)	Notable B	Very Local	4
<i>Rhizophagus oblongicollis</i> Bl. & Horner	RDB1	RDB3	24
<i>Rhizophagus parallellocollis</i> Gyllenhal	Local		2
<i>Rhizophagus parvulus</i> (Paykull)	RDB3		24
<i>Rhizophagus perforatus</i> Erichson	Local		2
<i>Rhizophagus picipes</i> (Olivier)	Notable A		16
<i>Cyanostolus aeneus</i> (Richter)	Notable A		16
SPHINDIDAE			
<i>Sphindus dubius</i> (Gyllenhal)	Notable B		8
<i>Aspidiphorus orbiculatus</i> (Gyllenhal)	Local		2
CUCUJIDAE			
<i>Uleiota planata</i> (Linnaeus)	Notable A		16
<i>Dendrophagus crenatus</i> (Paykull)	Notable B		8
<i>Pediacus depressus</i> (Herbst)	Notable A		16
<i>Pediacus dermestoides</i> (Fabricius)	Local	Very Local	4
<i>Laemophloeus monilis</i> (Fabricius)	RDB1		32
<i>Cryptolestes duplicatus</i> (Waltl)	Local		2
<i>Cryptolestes ferrugineus</i> (Stephens)	Common	Local	2
<i>Notolaemus unifasciatus</i> (Latreille)	Notable A		16
SILVANIDAE			
<i>Silvanus bidentatus</i> (Fabricius)	Notable B		8
<i>Silvanus unidentatus</i> (Olivier)	Local	Very Local	4
<i>Silvanoprus fagi</i> (Guerin-Meneville)	RDB1		32
CRYPTOPHAGIDAE			
<i>Henoticus serratus</i> (Gyllenhal)	Local		2
<i>Cryptophagus acuminatus</i> Coombs & Woodr.	Unknown	Notable B	8
<i>Cryptophagus angustus</i> Ganglbauer	Notable B		8
<i>Cryptophagus confusus</i> Bruce	RDBK		16
<i>Cryptophagus corticinus</i> Thomson	RDB1		24
<i>Cryptophagus dentatus</i> (Herbst)	Unknown	Common	1
<i>Cryptophagus falcozi</i> Roubal	RDB1		24
<i>Cryptophagus intermedius</i> Bruce	RDBK		16
<i>Cryptophagus labilis</i> Erichson	Notable B		8
<i>Cryptophagus micaceus</i> Rey	RDBK	Notable A	16
<i>Cryptophagus ruficornis</i> Stephens	Notable B		8
<i>Micrambe bimaculatus</i> (Panzer)	RDBK		16

<i>Caenoscelis sibirica</i> Reitter	---	Uncertain	4
<i>Atomaria morio</i> Kolenati	RDBK		16
<i>Atomaria lohsei</i> Johnson & Strand	RDBK		16
<i>Atomaria procerula</i> Erichson	RDBK		16
<i>Atomaria pulchra</i> Erichson	Local		2
<i>Atomaria puncticollis</i> Thomson	RDBK		16
<i>Atomaria badia</i> Erichson	RDB1		24
BIPHYLIDAE			
<i>Biphyllus lunatus</i> (Fabricius)	Local	Very Local	4
<i>Diplocoelus fagi</i> Guerin-Meneville	Notable B		8
EROTYLIDAE			
<i>Triplax aenea</i> (Schaller)	Local		2
<i>Triplax lacordairii</i> Crotch	RDB3		24
<i>Triplax russica</i> (Linnaeus)	Local	Very Local	4
<i>Triplax scutellaris</i> Charpentier	RDB3	RDB2	32
<i>Tritoma bipustulata</i> Fabricius	Notable A		16
<i>Dacne bipustulata</i> (Thunberg)	Local		2
<i>Dacne rufifrons</i> (Fabricius)	Local		2
CERYLONIDAE			
<i>Cerylon fagi</i> Brisout	Notable B		8
<i>Cerylon ferrugineum</i> Stephens	Local		2
<i>Cerylon histeroides</i> (Fabricius)	Local	Very Local	4
CORYLOPHIDAE			
<i>Orthoperus aequalis</i> Sharp	RDBK		16
<i>Orthoperus mundus</i> Matthews	Local	Very Local	4
ENDOMYCHIDAE			
<i>Mycetaea subterranea</i> (Linnaeus)	Local		2
<i>Symbiotes latus</i> Redtenbacher	Notable B		8
<i>Endomychus coccineus</i> (Linnaeus)	Local		2
LATRIDIIDAE			
<i>Stephostethus alternans</i> (Mannerheim)	Unknown	Uncertain	4
<i>Cartodere constricta</i> (Gyllenhal)	Local	Very Local	4
<i>Lathridius consimilis</i> Mannerheim	Notable B		8
<i>Enicmus brevicornis</i> (Mannerheim)	Notable B		8
<i>Enicmus fungicola</i> Thomson	Notable B		8
<i>Enicmus rugosus</i> (Herbst)	Notable B		8
<i>Enicmus testaceus</i> (Stephens)	Local		2
<i>Corticaria alleni</i> Johnson	Notable B		8
<i>Corticaria fagi</i> Wollaston	RDB1		24
<i>Corticaria linearis</i> (Paykull)	Notable B		8
<i>Corticaria longicollis</i> (Zetterstedt)	RDBK		16
<i>Corticaria polypori</i> Sahlberg	---	RDBK	16
CIIDAE			
<i>Octotemnus glabriculus</i> (Gyllenhal)	Common		1
<i>Rhopalodontus perforatus</i> (Gyllenhal)	RDB3		24
<i>Sulcacis affinis</i> (Gyllenhal)	Local		2
<i>Sulcacis bicornis</i> (Mellié)	Notable B		8
<i>Cis alni</i> Gyllenhal	Local		2
<i>Cis coluber</i> Abeille	RDB3		24
<i>Cis festivus</i> (Panzer)	Notable B	Local	2
<i>Cis pygmaeus</i> (Marsham)	Local		2
<i>Cis vestitus</i> Mellié	Local		2
<i>Cis bidentatus</i> (Olivier)	Local		2
<i>Cis boleti</i> (Scopoli)	Common		1
<i>Cis dentatus</i> Mellié	RDB3		24

<i>Cis fagi</i> Waltl	Local		2
<i>Cis hispidus</i> (Paykull)	Unknown	Very Local	4
<i>Cis jacquemarti</i> Mellié	Notable B		8
<i>Cis lineatocribratus</i> Mellié	Notable B		8
<i>Cis micans</i> (Fabricius)	Unknown	Very Local	4
<i>Cis nitidus</i> (Fabricius)	Local		2
<i>Cis punctulatus</i> Gyllenhal	Local	Very Local	4
<i>Cis setiger</i> Mellié	Local		2
<i>Ennearthron cornutum</i> (Gyllenhal)	Local		2
MYCETOPHAGIDAE			
<i>Pseudotriphyllus suturalis</i> (Fabricius)	Local	Very Local	4
<i>Triphyllus bicolor</i> (Fabricius)	Local	Very Local	4
<i>Litargus connexus</i> (Fourcroy)	Local		2
<i>Mycetophagus atomarius</i> (Fabricius)	Local		2
<i>Mycetophagus fulvicollis</i> Fabricius	Extinct		32
<i>Mycetophagus multipunctatus</i> Fabricius	Local		2
<i>Mycetophagus piceus</i> (Fabricius)	Notable B	Very Local	4
<i>Mycetophagus populi</i> Fabricius	Notable A		16
<i>Mycetophagus quadriguttatus</i> Müller	Notable A		16
<i>Mycetophagus quadripustulatus</i> (Linnaeus)	Local		2
COLYDIIDAE			
<i>Synchita humeralis</i> (Fabricius)	Notable B		8
<i>Synchita separanda</i> (Reitter)	RDB3		24
<i>Cicones variegatus</i> (Hellwig)	Notable A	Notable B	8
<i>Bitoma crenata</i> (Fabricius)	Local	Very Local	4
<i>Endophloeus markovichianus</i> (Pill. & Mitt.)	RDB1		32
<i>Colydium elongatum</i> (Fabricius)	RDB3	Notable A	16
<i>Aulonium trisulcum</i> (Fourcroy)	Notable A		16
<i>Teredus cylindricus</i> (Olivier)	RDB1		32
<i>Oxylaemus cylindricus</i> (Panzer)	Extinct		32
<i>Oxylaemus variolosus</i> (Dufour)	RDB3		24
TENEBRIONIDAE			
<i>Bolitophagus reticulatus</i> (Linnaeus)	RDB3	Notable A	16
<i>Eledona agricola</i> (Herbst)	Notable B	Very Local	4
<i>Diaperis boleti</i> (Linnaeus)	RDB2	RDB3	24
<i>Platydemia violaceum</i> (Fabricius)	RDB1		32
<i>Pentaphyllus testaceus</i> (Hellwig)	---	Uncertain	4
<i>Corticeus bicolor</i> (Olivier)	Local	Notable B	8
<i>Corticeus unicolor</i> Pill. & Mitt.	RDB3		24
<i>Helops caeruleus</i> (Linnaeus)	Notable B		8
<i>Prionychus ater</i> (Fabricius)	Notable B		8
<i>Prionychus melanarius</i> (Germer)	RDB2		32
<i>Gonodera luperus</i> (Herbst)	Local		2
<i>Pseudocisteia ceramboides</i> (Linnaeus)	Notable B		8
<i>Mycetochara humeralis</i> (Fabricius)	Notable A		16
TETRATOMIDAE			
<i>Tetratoma ancora</i> Fabricius	Notable B		8
<i>Tetratoma desmaresti</i> Latreille	Notable A		16
<i>Tetratoma fungorum</i> Fabricius	Local		2
SALPINGIDAE			
<i>Lissodema cursor</i> (Gyllenhal)	Notable A		16
<i>Lissodema quadripustulata</i> (Marsham)	Notable B		8
<i>Rabocerus foveolatus</i> (Ljungh)	Notable A		16
<i>Rabocerus gabrieli</i> Gerhardt	Notable B		8
<i>Salpingus castaneus</i> (Panzer)	Local		2
<i>Salpingus ater</i> (Paykull)	Local		2

<i>Salpingus reyi</i> (Abeille)	Local		2
<i>Vincenzellus ruficollis</i> (Panzer)	Local		2
<i>Rhinosimus planirostris</i> (Fabricius)	Common		1
<i>Rhinosimus ruficollis</i> (Linnaeus)	Common		1
PYTHIDAE			
<i>Pytho depressus</i> (Linnaeus)	Notable A		16
PYROCHROIDAE			
<i>Pyrochroa coccinea</i> (Linnaeus)	Notable B	Very Local	4
<i>Pyrochroa serraticornis</i> (Scopoli)	Common		1
<i>Schizotus pectinicornis</i> (Linnaeus)	Notable A		16
MELANDRYIDAE			
<i>Hallomenus binotatus</i> (Quensel)	Notable B		8
<i>Orchesia micans</i> (Panzer)	Notable B	Very Local	4
<i>Orchesia minor</i> Walker	Notable B		8
<i>Orchesia undulata</i> Kraatz	Local	Very Local	4
<i>Anisoxya fuscata</i> (Illiger)	Notable A		16
<i>Abdera affinis</i> (Paykull)	RDB1		32
<i>Abdera biflexuosa</i> (Curtis)	Notable B		8
<i>Abdera flexuosa</i> (Paykull)	Notable B		8
<i>Abdera quadrefasciata</i> (Curtis)	Notable A		16
<i>Abdera triguttata</i> (Gyllenhal)	Notable A		16
<i>Phloiotrya vaudoueri</i> Mulsant	Notable B		8
<i>Xylita laevigata</i> (Hellenius)	Notable A		16
<i>Hypulus quercinus</i> (Quensel)	RDB2	Notable A	16
<i>Zilora ferruginea</i> (Paykull)	Notable B		8
<i>Melandrya barbata</i> (Fabricius)	RDB1		32
<i>Melandrya caraboides</i> (Linnaeus)	Notable B	Very Local	4
<i>Conopalpus testaceus</i> (Olivier)	Notable B		8
<i>Osphya bipunctata</i> (Fabricius)	RDB3	Notable A	16
SCRAPTIIDAE			
<i>Scraptia dubia</i> (Olivier)	Extinct		32
<i>Scraptia fuscula</i> Müller	RDB1		32
<i>Scraptia testacea</i> Allen	RDB3	Notable A	16
<i>Anaspis bohémica</i> Schilsky	RDBK		16
<i>Anaspis costai</i> Emery	Common	Local	2
<i>Anaspis frontalis</i> (Linnaeus)	Common		1
<i>Anaspis humeralis</i> (Fabricius)	Local		2
<i>Anaspis lurida</i> Stephens	Local		2
<i>Anaspis melanostoma</i> Costa	RDBK		16
<i>Anaspis pulicaria</i> Costa	Common		1
<i>Anaspis rufilabris</i> (Gyllenhal)	Common		1
<i>Anaspis septentrionalis</i> Champion	RDB1		24
<i>Anaspis thoracica</i> (Linnaeus)	Notable A	Notable B	8
MORDELLIDAE			
<i>Tomoxia bucephala</i> Costa	Notable A		16
<i>Mordellistena neuwaldeggiana</i> (Panzer)	RDBK	Notable A	16
<i>Mordellistena variegata</i> (Fabricius)	Local	Notable B	8
<i>Mordellochroa abdominalis</i> (Fabricius)	Local	Very Local	4
OEDEMERIDAE			
<i>Chrysanthia nigricornis</i> (Westhoff)	RDB1		32
<i>Ischnomera cyanea</i> (Fabricius)	Notable B	Very Local	4
<i>Ischnomera cinerascens</i> (Pandelle)	RDB2		32
<i>Ischnomera caerulea</i> (Linnaeus)	RDB3		24
<i>Ischnomera sanguinicollis</i> (Fabricius)	Notable B		8
<i>Oncomera femorata</i> (Fabricius)	Notable B		8

<i>Oedemera virescens</i> (Linnaeus)	RDB2	RDB3	24
ADERIDAE			
<i>Aderus brevicornis</i> (Perris)	RDB2		32
<i>Aderus oculatus</i> (Paykull)	Notable B		8
<i>Aderus populneus</i> (Creutzer)	Notable B		8
CERAMBYCIDAE			
<i>Prionus coriarius</i> (Linnaeus)	Notable A		16
<i>Arhopalus rusticus</i> (Linnaeus)	Local		2
<i>Asemum striatum</i> (Linnaeus)	Local		2
<i>Rhagium bifasciatum</i> Fabricius	Common		1
<i>Rhagium inquisitor</i> (Linnaeus)	Notable B		8
<i>Rhagium mordax</i> (De Geer)	Common		1
<i>Stenocorus meridianus</i> (Linnaeus)	Local		2
<i>Dinoptera collaris</i> (Linnaeus)	RDB1		32
<i>Grammoptera ruficornis</i> (Fabricius)	Common		1
<i>Grammoptera ustulata</i> (Schaller)	RDB3		24
<i>Grammoptera variegata</i> (Germar)	Notable A	RDB3	24
<i>Alosterna tabacicolor</i> (De Geer)	Local		2
<i>Anoploclera livida</i> (Fabricius)	Local	Notable B	8
<i>Anoploclera fulva</i> De Geer	RDB3		24
<i>Anoploclera sanguinolenta</i> Linnaeus	RDB3		24
<i>Anoploclera scutellata</i> Fabricius	Notable A		16
<i>Anoploclera sexguttata</i> Fabricius	RDB3		24
<i>Anoploclera virens</i> Linnaeus	Extinct		32
<i>Judolia cerambyciformis</i> (Schränk)	Local		2
<i>Judolia sexmaculata</i> (Linnaeus)	Notable A	RDB3	24
<i>Leptura aurulenta</i> (Fabricius)	Notable A		16
<i>Leptura maculata</i> (Poda)	Common		1
<i>Leptura melanura</i> (Linnaeus)	Local		2
<i>Leptura nigra</i> (Linnaeus)	Notable A	RDB3	24
<i>Leptura quadrfasciata</i> (Linnaeus)	Local		2
<i>Leptura revestita</i> (Linnaeus)	RDB1		32
<i>Obrium cantharinum</i> (Linnaeus)	Extinct		32
<i>Molorchus umbellatarum</i> (von Schreber)	Notable A		16
<i>Aromia moschata</i> (Linnaeus)	Notable B		8
<i>Pyrhridium sanguineum</i> (Linnaeus)	RDB2	RDB3	24
<i>Phymatodes alni</i> (Linnaeus)	Notable A		16
<i>Phymatodes testaceus</i> (Linnaeus)	Local	Very Local	4
<i>Chytus arietis</i> (Linnaeus)	Common		1
<i>Plagionotus arcuatus</i> (Linnaeus)	Extinct		32
<i>Anaglyptus mysticus</i> (Linnaeus)	Notable B	Very Local	4
<i>Lamia textor</i> (Linnaeus)	RDB1		32
<i>Mesosa nebulosa</i> (Fabricius)	RDB3		24
<i>Pogonocherus fasciculatus</i> (De Geer)	Notable B	Notable A	16
<i>Pogonocherus hispidulus</i> (Pill. & Mitt.)	Local		2
<i>Pogonocherus hispidus</i> (Linnaeus)	Local		2
<i>Leiopus nebulosus</i> (Linnaeus)	Local		2
<i>Acanthocinus aedilis</i> (Linnaeus)	Notable B		8
<i>Saperda carcharias</i> (Linnaeus)	Notable A		16
<i>Saperda scalaris</i> (Linnaeus)	Notable A	Notable B	8
<i>Stenostola dubia</i> (Laicharting)	Notable B		8
<i>Tetrops praeustus</i> (Linnaeus)	Local		2
<i>Tetrops starkii</i> Chevrolat	RDBK		16
ANTHRIBIDAE			
<i>Platyrhinus resinosus</i> (Scopoli)	Notable B	Very Local	4
<i>Tropideres sepicola</i> (Fabricius)	RDB2		32

<i>Tropideres niveirostris</i> (Fabricius)	RDB2		32
<i>Platystomos albinus</i> (Linnaeus)	Notable B		8
<i>Choragus sheppardi</i> Kirby, W.	Notable A		16
CURCULIONIDAE			
<i>Hylobius abietis</i> (Linnaeus)	Common		1
<i>Pissodes castaneus</i> (De Geer)	Local		2
<i>Pissodes pini</i> (Linnaeus)	Common	Local	2
<i>Magdalis armigera</i> (Fourcroy)	Local		2
<i>Magdalis barbicornis</i> (Latreille)	Notable A	Notable B	8
<i>Magdalis carbonaria</i> (Linnaeus)	Notable B	Very Local	4
<i>Magdalis cerasi</i> (Linnaeus)	Notable B	Very Local	4
<i>Magdalis duplicata</i> Germar	Notable A		16
<i>Magdalis phlegmatica</i> (Herbst)	Notable A	Notable B	8
<i>Magdalis ruficornis</i> (Linnaeus)	Local		2
<i>Mesites tardii</i> (Curtis)	Notable B		8
<i>Cossonus linearis</i> (Fabricius)	Notable A		16
<i>Cossonus parallelepipedus</i> (Herbst)	Notable B		8
<i>Rhyncolus chloropus</i> (Linnaeus)	Unknown	Notable B	8
<i>Phloeophagus gracilis</i> Rosenhauer	Extinct		32
<i>Phloeophagus lignarius</i> (Marshall)	Local		2
<i>Stereocorynes truncorum</i> (Germar)	Notable A		16
<i>Caulotrufodes aeneopiceus</i> (Boheman)	Local		2
<i>Dryophthorus corticalis</i> (Paykull)	RDB1		32
<i>Trachodes hispidus</i> (Linnaeus)	Notable B		8
<i>Acalles misellus</i> Boheman	Local		2
<i>Acalles roboris</i> Curtis	Notable B		8
SCOLYTIDAE			
<i>Scolytus intricatus</i> (Ratzeburg)	Local		2
<i>Scolytus mali</i> (Bechstein)	Notable B		8
<i>Scolytus multistriatus</i> (Marshall)	Common		1
<i>Scolytus ratzeburgi</i> Janson	Notable B		8
<i>Scolytus rugulosus</i> (Müller)	Local		2
<i>Scolytus scolytus</i> (Fabricius)	Common	Local	2
<i>Hylesinus crenatus</i> (Fabricius)	Local		2
<i>Hylesinus oleiperda</i> (Fabricius)	Local		2
<i>Hylesinus varius</i> (Fabricius)	Common		1
<i>Hylesinus orni</i> (Fuchs)	Notable B		8
<i>Pteleobius vittatus</i> (Fabricius)	Local		2
<i>Kissophagus hederæ</i> (Schmitt)	Notable B		8
<i>Hylurgops palliatus</i> (Gyllenhal)	Common		1
<i>Hylastes ater</i> (Paykull)	Common		1
<i>Hylastes brunneus</i> Erichson	Local		2
<i>Hylastes opacus</i> Erichson	Unknown	Local	2
<i>Tomicus minor</i> (Hartig)	RDB3		24
<i>Tomicus piniperda</i> (Linnaeus)	Common		1
<i>Dryocoetinus alni</i> (Georg)	Notable A		16
<i>Dryocoetinus villosus</i> (Fabricius)	Local		2
<i>Dryocoetes autographus</i> (Ratzeburg)	Local		2
<i>Lymantora coryli</i> (Perris)	RDB1		32
<i>Taphrorychus bicolor</i> (Herbst)	Notable A	Notable B	8
<i>Trypodendron domesticum</i> (Linnaeus)	Local		2
<i>Trypodendron lineatum</i> (Olivier)	Local		2
<i>Trypodendron signatum</i> (Fabricius)	Notable B		8
<i>Ernoporus caucasicus</i> Lindemann	RDB1	Notable A	16
<i>Ernoporus fagi</i> (Fabricius)	Notable A	Notable B	8
<i>Ernoporus tiliae</i> (Panzer)	RDB1		32
<i>Trypophloeus binodulus</i> (Ratzeburg)	Notable A		16

<i>Trypophloeus granulatus</i> (Ratzeburg)	Extinct		32
<i>Xyleborus dispar</i> (Fabricius)	Notable B		8
<i>Xyleborus dryographus</i> (Ratzeburg)	Notable B		8
<i>Xyleborinus saxesini</i> (Ratzeburg)	Local	Very Local	4
<i>Pityophthorus lichtensteini</i> (Ratzeburg)	RDB3		24
<i>Pityophthorus pubescens</i> (Marsham)	Local		2
<i>Pityogenes bidentatus</i> (Herbst)	Local		2
<i>Pityogenes quadridens</i> (Hartig)	Notable A		16
<i>Pityogenes trepanatus</i> (Nordlinger)	Notable A	Notable B	8
<i>Ips acuminatus</i> (Gyllenhal)	Unknown	Local	2
<i>Orthotomicus suturalis</i> (Gyllenhal)	Unknown	Local	2
PLATYPODIDAE			
<i>Platypus cylindrus</i> (Fabricius)	Notable B		8

Appendix 2: SQI scores for selected sites

SITE	SPP.	SQS	SQI
Windsor, Berks.	365	3092	847.1
Richmond Park, Surrey	235	1510	642.6
Moccas Park, Herefs.	241	1545	638.4
Croome Park, Worcs.	107	665	621.5
Epping Forest, Essex	256	1531	598.0
Abernethy Forest, E. Inverness	144	852	591.7
Ashted Common, Surrey	222	1300	585.6
Parham Park, W. Sussex	65	378	581.5
Arundel Park, W. Sussex	131	710	542.0
Box Hill, Surrey	226	1193	527.9
Dunham Park, Chesh.	151	781	513.8
Black Wood of Rannoch, Mid Perth	75	385	513.3
Forest of Bere, Hants.	109	551	505.5
Sherwood Forest, Notts.	82	412	502.4
Mersham Hatch Estate, Kent	115	562	488.7
Lullingstone Park, Kent	105	511	486.7
Camborne Woods, Cambs.	40	191	477.5
Staverton Park, Suffolk	106	502	473.6
Monks Wood NNR, Hunts.	157	730	462.0
Donington Park, Leics.	80	358	447.5
Buddon Wood, Leics.	125	556	444.8
Buxted Park, E. Sussex	136	572	420.6
Stanford PTA, Norfolk	136	567	416.9
Cobham Park, Kent	90	369	410.0
Calke Park, Derbys.	117	469	400.9
Oyster Wood, Surrey	115	458	398.3
Gibside, Northumberland	84	331	394.0
Clumber Park, Notts.	117	459	392.3
Grimsthorpe Park, Lincs.	99	384	387.9
Powis Castle, Monts.	170	657	386.5
Chirk Castle, Denbighs.	170	656	385.9
Central Lincs. Limewoods	123	473	384.6
Dinefwr Estate, Carm.	157	590	378.2
Attingham Park, Salop	88	320	363.6
River Soar, Leics.	67	242	361.2
Bradgate Park, Leics.	85	306	360.0
Chetwynd Park, Salop	48	171	356.3
Short Wood, N'hants.	94	326	346.8
Kedleston Park, Derbys.	116	398	343.1

Llanover Park, Monms.	119	407	342.0
Dunster Deer Park, Som.	43	144	334.9
Harewood Forest, Hants.	64	213	332.8
Carn Gafallt, Radnor	42	138	328.6
Nettlecombe Park, Som.	43	141	327.9
Scadbury Park, West Kent	71	230	323.9
Hardwick Park, Derbys./Notts.	93	299	321.5
Erddig, Denbighs.	65	207	318.5
Thorne Moors, Yorks./Lincs.	86	256	297.7
Bentley Park Wood, Warwks.	44	131	297.7
Coed Gwaenydd Bach, Glam.	41	120	292.7
Croft Castle, Herefs.	62	178	287.1
Burley Wood, Leics.	73	209	286.3
Croxton Park, Leics.	52	144	276.9
Old Cilgwyn, Cards.	63	164	266.3
Parc Nanteos, Cards.	46	115	250.0
Gregynog, Monts.	71	168	236.6

Key:

SPP. = Number of qualifying species recorded

SQS = Total Saproxylic Quality Score

SQI = Saproxylic Quality Index ((SQS/SPP.) x 100)

Carpelimus zealandicus (Sharp, 1900) (Staphylinidae) behaving synanthropically

P. F. Whitehead

Moor Leys, Little Comberton, Pershore, Worcestershire WR10 3EH

Carpelimus zealandicus (Sharp) is somewhat unusual amongst British *Carpelimus* in its ability to tolerate open exposed situations on purely minerogenic sediments. This matter was referred to by Steel (1969) and Whitehead (1989) observed substantial populations in Worcestershire (SO 93) in and on sediment settling-beds associated with sand and gravel extraction. In this latter case, larvae and imagines were also found in rabbit droppings.

On 17th March 1999, nine examples were found on a flagged area in a built environment at Barton, Warwickshire (VC 38; SP 15). The limestone flagstones form part of an extensive area of contiguous hard surfacing as part of the infrastructure of a housing development. One of the limestone flagstones is unbedded and forms a drain inspection cover resting on a brick surround. Over the course of a year, dust and organic litter had lodged in the small spaces surrounding this flagstone, in which a number of Sycamore *Acer pseudoplatanus* seedlings had germinated. The nine *C. zealandicus* were found (new to VC 38) in this sediment, and one suspects that they were the progeny of a single gravid female, rather than multiple chance arrivals. *C. zealandicus* is not a native of the British Isles, and ecological breadth is typical of a number of successful animal colonists.

References

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Subscribers' Notices

This section is for subscribers to advertise requests for information, specimens wanted for loan, or entomological items wanted or for sale. **Notices of specimens for sale or exchange will not be accepted.** Notices will be repeated with each issue while space is available (or until withdrawn), newer ones appearing first, and may be edited for brevity.

Identifying aleocharine Staphylinidae workshop: On Saturday 29 January 2000 Derek Lott will lead this workshop at the British Entomological & Natural History Society (BENHS) premises at Dinton Pastures Country Park near Reading, Berkshire. To book a place please write to *Dr Ian McLean*, 109 Miller Way, Brampton, Huntingdon PE18 8TZ; advance booking is required as the number of places is limited.

Biographical Dictionary of British Coleopterists: Many apologies to all my subscribers for the long delay in letting you have news about the future of this publication. Various problems have occurred since the *Dictionary* first started appearing some 17 years ago: many of the sheets are very out-of-date and the publication of updates after each letter is no longer practicable because of the amount of material involved; numerous inconsistencies exist in the format of the entries and in the literary and other references; publication of many completed entries later in the alphabet is consistently held up by the need to maintain the alphabetical sequence; and there are practical difficulties in the photocopying and mailing.

To overcome these problems I have been exploring the possibility of putting the *Dictionary* onto a web site. There are various problems, e.g. with copyright and the publication of personal material, but I believe, from the advice I have already received, it will not only prove possible to overcome these but that I may be eligible for a grant to help set it up. A web site will not only permit rationalisation, and speed up production, but it will also permit me to expand the *Dictionary* to include entries not specifically related to individuals. Additionally, of course, it opens up the information to a wider audience. I fully appreciate that there must be some subscribers who do not have easy access to the Internet. I apologise in advance to them for this change, and hope they will understand the reasons for my decision to make it.

I continue to be immensely grateful to everyone who has sent me information in the past, and will publish details of the web site and its address in a future edition of *The Coleopterist*. *Michael Darby* The Old Malthouse, Sutton Mandeville, Salisbury, Wiltshire SP3 5ND.

Records of *Hylotrupes bajulus* wanted: I am looking for indoors and out-of-doors records of the house longhorn beetle (*H. bajulus* L.) in the UK. I would be grateful for records of this species from 1900 onwards. Please send records to: *P. Oevinger*, Forest Products Research Centre, BCUC, High Wycombe, HP11 2JZ. E-mail: eve.oevinger@bcuc.ac.uk.

Lily Beetle records wanted: For a forthcoming review of its status and distribution, I would like to receive all records of *Lilioceris lili*. *Mike Cox*, CABI Bioscience, c/o Dept of Entomology, The Natural History Museum, London SW7 5BD.

Sussex Coleoptera records: Since 1971 I have been actively recording Coleoptera in Sussex and a substantial amount of unpublished data has been accumulated. Because I would like a new county list to be as complete as possible, I am releasing a current list of species recorded from VCs 13 and 14 now, in the hope that it will stimulate further work. The list will be sent free of charge as a MS Word 7.0 (.DOC) file on receipt of an unused IBM-formatted diskette and stamped self-addressed envelope. *Peter Hodge*, 8 Harvard Road, Ringmer, Lewes, East Sussex BN8 5HJ. Tel.: 01273 812047.

Malachius aeneus records wanted: As part of English Nature's Species Recovery Programme, I am researching the distribution and ecology of this formerly widespread, but now apparently very scarce species. Any information, modern or historical, will be gratefully received and all records will be acknowledged in official reports. *Peter Hodge*, 8 Harvard Road, Ringmer, Lewes, East Sussex BN8 5HJ. Tel.: 01273 812047.

Wanted: Glass bull's-eye in a suitable free-standing adjustable mount for use with standard design stereo microscope. Also *Entomologist's Mon. Mag.* for the years 1930-1940 and 1942-1946. *R.J. Marsh*, 11 Crusader Drive, Doncaster DNS 7RX. Tel.: 01302 788411. E-mail: bob.marsh@virgin.net.

Beetle photos wanted: Good-quality prints or transparencies (including SEMs) of British beetles are always wanted to illustrate *The Coleopterist*. We can't pay you, but you will get to see your work in print and the photographer is always acknowledged. Please write to the Editor.

Copy of 'Fowler' wanted: Fowler's *Coleoptera of the British Islands* (the unillustrated brown-cover version) is sought in order to obtain the set originally owned by my mentor, the late T.R. Eagles, which is of great sentimental value to me. The present owner has kindly agreed to let me have Eagles' volumes provided I replace them with an identical set. *John Rudge*, Wayfarers, Haglands Lane, West Chiltington, West Sussex RH20 2QS Tel.: 01798 812476.

New Scirtidae recording scheme: A recording scheme for British and Irish Scirtidae is to be run in conjunction with the current aquatic Coleoptera scheme. Please send records and problem specimens to me, or add records to water beetle record cards sent to Prof. Garth Foster, 3 Eglinton Terrace, Ayr KA7 1JJ. *Dr Jonty Denton*, 26 Bow Street, Alton, Hants. GU34 1NY.

Woodland beetle lists wanted: In *The Coleopterist* 6: 61-66 a new system for assessing the importance of wooded habitats for conservation was proposed. Since then attempts have been made to develop the necessary evaluation index and significant progress has been made. The system now needs testing against a wide range of woodlands and parklands and I would be grateful if any coleopterists with beetle lists (either from single visits or collations of records) from such habitats would kindly send me copies. *Adrian Fowles* Countryside Council for Wales, Plas Penrhos, Bangor, Gwynedd LL57 2LQ.

Literature Notices

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