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Cover photograph: *Stephanitis takeyai* (Hemiptera: Tingidae), new to Britain, resting on its host plant *Pieris japonica*. Photo: Chris Malumphy & Andrew Halstead.

NOTE: The Editor invites submission of photographs for black and white reproduction on the front covers of the journal. The subject matter is open, with an emphasis on aesthetic value rather than scientific novelty. Submissions can be in the form of colour or black and white prints or colour transparencies.

EDITORIAL

Taking over the Editorship of the Society's journal from Dr Michael Wilson who has been at the helm for the past five years is a great honour. During his time as editor our understanding of the British fauna has increased steadily with important papers published in the Society's Journal on the current status of many species. The euphoria (or otherwise) of discovering a species new to the British Isles has to be balanced by the apparent losses to our fauna. It has been estimated that 1260 invertebrate species have become extinct in Britain over the past 100 years, and the current rate of loss might be as high as 36 species per year (Invertebrate Conservation Trust estimates). Much effort has been channelled into studying Endangered or Rare species to support conservation measures and it is to be hoped that some of this knowledge is published in future issues of the Society's Journal. Some of the information comes in the form of observations made on our field meetings and so it is important that these are published as a record of our proceedings. This is one reason why this issue contains a large number of BENHS field meeting reports.

As a premier national society interested in insects that form 70% of our fauna we might expect members of the public to be aware of our activities. Sadly, even today in the 21st century this is clearly not the case. Take national TV. The BBC continues to show films entitled *Life of the Lion XXV*, or *Tales of the Tiger XVII*, focusing on a mere 10% of wildlife and almost entirely avoiding films on insects, the dominant form of life on this planet. There has probably never been a single film on British wildlife devoted exclusively to insects. Sadly we do not come high on royal lists either. In his Presidential Address to the London Natural History Society, David McClintock recounts (sadly, posthumously) his involvement in the survey of Buckingham Palace Garden. To quote "We were not allowed to publicise our activities. If I wanted to send anything out I first obtained the permission of the Press Office. It was the same with publication of our results. They wanted some obscure journal, and finally agreed to the *Proceedings and Transactions of the South London Entomological and Natural History Society*. When it did appear there, nothing was said in public" (McClintock, 2002). Need I say more? Incidentally, I should say that David was a most enthusiastic person who really did appreciate insects and entomologists. He once identified 8 cultivars of *Calluna* and *Erica* from sprigs collected from a South Kensington flowerbed where a population of the local leafhopper *Zygina rubrovittata* (Lethierry) occurred, at its then most northerly site in the country. One cultivar was appropriately named "David McClintock".

To end on a lighter note, I will take this opportunity of announcing the winners of a competition held at last year's Annual Exhibition. Members were invited to put names to the faces of famous lepidopterists who were to be included in a forthcoming book entitled *The Aurelian's Fireside Companion—An Entomological Anthology* written by Michael Salmon and Peter Edwards. Mr Grahame Hawker and Mr Mark Calway managed the same number of correct answers and will each receive a free copy of the book when it is published in a few months time.

JOHN BADMIN

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- McClintock, D. 2002. The surveys of Buckingham Palace Garden. Presidential Address read at the Annual General Meeting on 12 December 2001. *The London Naturalist* 81: 15–18.

ADVERSE COMMENT ON THE SUPPOSED BRITISH STATUS OF THE WEB-SPINNING SAWFLY *CEPHALCIA ARVENSIS* PANZER (HYMENOPTERA: PAMPHILIIDAE)

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Abstract. The policy adopted by compilers of the most recent check list of British Hymenoptera has been to disregard the records of L.A. Carr. In accordance with this sensible policy, *Cephalcia arvensis* Panzer should not be added to the British list even in the cautious way advocated recently by Shinohara (2002).

In this journal Shinohara (2002) has recently recorded *Cephalcia arvensis* Panzer, 1805, from Britain on the strength of a specimen in that part of the L.A. Carr collection that is now in the Oxford University Museum of Zoology, on the supposition that specimens in the Carr collection that bear the label "Lichfield, L.A. Carr" are reasonably reliably of British origin.

In fact, this supposition has been tested and shown to be incorrect in respect of ichneumonine Ichneumonidae, many specimens of which were found to be of continental origin despite being labelled Lichfield (Perkins, 1953). The general view has been that what is true of Ichneumoninae is likely to be true of other groups that Carr collected (i.e. and probably also received from correspondents abroad), and therefore the policy adopted by the compilers of the most recent check list of British Hymenoptera was to disregard L.A. Carr records (and by implication any new record based solely on his collection) such that species recorded by Carr and/or vouchered by his collection would not be included in the check list unless other British records or specimens were known (Fitton *et al.*, 1978: v–vi).

In accordance with that sensible policy, which has been widely adopted by others, *Cephalcia arvensis* Panzer should not be accepted as having been collected in Britain on the strength of the specimen labelled "Lichfield, L.A. Carr" recently determined by Shinohara, and this species should not be added to the British list even in the cautious way advocated by Shinohara (2002).

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Shinohara, A. 2002. A spruce web-spinning sawfly, *Cephalcia arvensis* (Hymenoptera: Pamphiliidae) from Britain. *British Journal of Entomology and Natural History* 15: 134.

OUTBREAK IN BRITAIN OF *STEPHANITIS TAKEYAI* DRAKE & MAO (HEMIPTERA: TINGIDAE), A PEST OF *PIERIS JAPONICA*

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Abstract. An outbreak of *Stephanitis takeyai* Drake & Mao is reported causing serious damage to *Pieris japonica* plants in Berkshire, England. Statutory action is ongoing to eradicate the pest.

Stephanitis takeyai Drake & Mao is a sap feeding pest that was first detected in Britain when infested foliage of *Pieris japonica* (Thunb.) D. Don (Ericaceae) was sent for diagnosis to the Royal Horticultural Society (RHS) Garden, Wisley from the Savill Garden, near Windsor, Berkshire in January 1998 (Malumphy *et al.*, 1998). The foliage was heavily marked with a coarse yellowish mottling and bronzing of the upper surface (Fig. 1). The underside of the leaves had a dirty appearance with numerous nymphal cast skins and spots of brown dried liquid frass. Both adult insects and eggs were present; the latter were inserted into the leaf lamina, usually near the central vein on the lower leaf surface. The staff of the Savill Garden had first noticed that some of their *Pieris* shrubs were affected during the summer of 1997. The plants were part of a consignment of 40–70 plants imported from The Netherlands during 1995. The occurrence of this pest was notified to the Department for Environment, Food and Rural Affairs, Plant Health and Seeds Inspectorate (PHSI), and a survey with staff from the Central Science Laboratory was done to find the extent of the outbreak.

Numerous *Pieris japonica* plants were infested and several exhibited severe feeding damage and leaf loss. The initial survey revealed that *S. takeyai* had spread a few miles from where infested plants were first noticed, to Valley Gardens. They were feeding on the following ericaceous hosts: *Pieris japonica*, including *P. japonica* 'Mousehole' and *P. japonica* var. *yakushimensis*, *Pieris formosa* var. *forrestii*, *Rhododendron* 'Alice Street', *R. Cilpinense* Group, *R. 'Hawk'* × *'Griffithianum'*, *R. 'Loderi Pink Topaz'* and *Agarista populifolia*. Action was taken to de-leaf *Pieris* plants in heavily infested areas and plants with live insects were sprayed with an insecticide before de-leaving. A similar exercise was repeated in 1999. Although the outbreak appears to have been largely controlled by this action, some feeding damage was discovered in subsequent years and efforts are continuing to achieve eradication.

Specimens of *S. takeyai* collected from the outbreak in Berkshire have been deposited at the Central Science Laboratory, RHS Garden, Wisley and The Natural History Museum, London.

The pest has subsequently been intercepted by the PHSI on several occasions at commercial plant nurseries on *P. japonica* plants imported from The Netherlands. The Dutch phytosanitary service reported the occurrence of *S. takeyai* from a single bush of *P. japonica* in a private garden in Boskoop, province of Zuid-Holland in 1994. The infested plant was destroyed (Aukema, 1999). Statutory action continues to be taken by the PHSI to contain and eradicate this damaging alien pest whenever



Fig. 1.

it is found. In September 2002 samples of infested *P. japonica* were sent to Wisley Garden from a private garden in West Byfleet, Surrey. The plant was at least 15 years old but the feeding damage had only been noticed in the current summer, suggesting that a new outbreak area has occurred. West Byfleet is about 8 miles from the Savill Garden.

Stephanitis takeyai is native to Japan, but has spread to the northeastern USA, India, The Netherlands and Poland (CABI/EPPO, 2000).

This tingid bug has been given the common name of the Andromeda Lacebug as in North America, *P. japonica* is commonly known as the Japanese andromeda (in the past *Pieris* spp. were classified as *Audromeda* spp.) In Britain, *P. japonica* does not have a generally accepted common name and so a better name for this pest would be the Pieris Lacebug. In addition to the aforementioned ericaceous plants it has also been recorded feeding on (but not necessarily breeding on) plants belonging to the families, Ebenaceae, Illiciaceae, Lauraceae, Pinaceae, Salicaceae and Styracacaeae; although the specific plants recorded in these non-ericaceous families are mostly not widely grown in Britain.

The ability of *S. takeyai* to attack *Rhododendron* is likely to cause confusion with the Rhododendron Lacebug, *Stephanitis rhododendri* Horvath, as the symptoms of leaf damage are similar. *Stephanitis rhododendri* is another introduced species in Britain, being first recorded in the London area at the beginning of the 20th century. Today it is not common but occasionally causes damage to rhododendrons in parks and gardens in southern England. Both species have adults that are 3–4 mm long when measured from head to wing tips. The adults of the two species are relatively



Fig. 2.

easily separated morphologically. The pronotum of *S. takeyai* bears short setae and the central area is developed into a large globular netted structure (Figs 2 & 3). The pronotum of *S. rhododendri* is covered in long setae and the central area is less well developed. The wings of *S. takeyai* have mostly black veins, as are the reticulate veins on the lateral margins of the pronotum and the hood over the head; in *S. rhododendri*



Fig. 3.

these veins are yellowish brown. The wings of *S. rhododendri* have a single brownish band running across the basal third of the wing; in *S. takeyai* there are black bands running across the basal and apical thirds of the wing and these bands are broadly joined along the hind wing margin. The central area of the pronotum is black in *S. takeyai* but brown in *S. rhododendri*. Adults of *S. rhododendri* occur in midsummer and it is unusual to find any adults alive beyond the autumn. Both species are recorded as overwintering as eggs in the mid-rib of the leaves. However, adults and nymphs of *S. takeyai* have been found at Savill Garden during the winter months of December and January and the biology of this pest in Britain is unclear.

In conclusion, *S. takeyai* is recorded as the most serious pest of *P. japonica* in the USA and it also attacks other common and commercially valuable ericaceous ornamental plants, such as *Lyonia* and *Rhododendron*, which are widely grown in Britain. Susceptible plants can suffer leaf loss and the yellowing of the foliage lowers the aesthetic appearance of ornamental plants, thereby reducing their quality and value. Any suspected cases of non-indigenous lace bugs on imported plants should be notified to the local PHSI office or the PHSI HQ, York (Telephone: 01904 455174).

ACKNOWLEDGEMENTS

The authors would like to thank Lynn Randall and the garden staff at the Savill Garden for bringing this bug to our attention and their subsequent actions aimed at eradicating this damaging pest; and to the PHSI for the survey and recommending control measures.

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SHORT COMMUNICATION

***Scythris inspersella* (Hübner) (Lepidoptera: Scythrididae): a new species in Yorkshire.** A single specimen of this species was found at Allerthorpe Wood (SE 760 480) in East Yorkshire on 31 July 2001. It has since been verified by H. E. Beaumont, Yorkshire Naturalists' Union microlepidoptera recorder. According to (Emmet & Langmaid, 2002) *S. inspersella* has been found in Britain to date only from North West Norfolk, more than 140 miles away. Allerthorpe Wood, owned by the Forestry Commission, is characterised by coniferous plantation with wide dry rides and the moth's food plant rosebay willowherb *Chamerion angustifolium* (L.) Holub (Onagraceae) is plentiful. Given that the moth feeds on a widespread plant, it is surprising that no other records exist.—Dr David Chesmore, 39 Hawthorn Drive, Holme on Spalding Moor, York, YO43 4HX

REFERENCE

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***ATRICHOPOGON (MELOEHELEA) WINNERTZI GOETGHEBUER
(DIPTERA: CERATOPOGONIDAE) FEEDING ON MELOE
VIOLACEUS MARSHAM (COLEOPTERA: MELOIDAE)***

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Members of the biting midge genus *Atrichopogon* Kieffer, subgenus *Meloehalea* Wirth (Diptera: Ceratopogonidae) are well known to feed on adult meloid and oedemerid beetles (Coleoptera: Meloidae & Oedemeridae). The subgenus was erected by Wirth (1956) to include four species, which are characterised by their beetle-feeding behaviour and their unusually adapted proboscis, which is up-curved, presumably developed for their peculiar feeding habit. The subgenus currently contains seven species (Wirth, 1980), of which three are known to occur in Britain (Chandler, 1998) viz.: *lucoruui* (Meigen); *oedeueraruui* Storå, *winnertzi* Goetghebuer, (= *meloesugans* Kieffer, of earlier workers e.g. Cooter & Irwin, 1979; Wirth, 1956, 1980. See Szadziewski *et al.*, 1995 for synonymy). All of the species of this subgenus so far known have been recorded to feed on the haemolymph of adult beetles in the families Meloidae and Oedemeridae.

The flies are attracted by the cantharidin produced by these beetles as part of their defence system (e.g. Abdulla, 1964; Bologna & Havelka, 1984; Frenzel *et al.*, 1992; Frenzel & Dettner, 1994). In experiments Abdulla (*op. cit.*) found that *A. oedeueraruui* (in Berkshire, England) and *A. lucoruui* (in Scotland) (*teste* Wirth, 1980) were attracted to cantharidin powder placed in Petri dishes. The attractiveness of cantharidin to these flies in the absence of the beetle hosts has also been noted by others (e.g. Frenzel *et al.*, 1992). The list of ceratopogonids attracted to cantharidin is in the region of 20 species, of which all but two are in the genus *Atrichopogon* (Hemp & Dettner, 2001). However the sub-generic placement for the majority of species in this large genus (391 spp. *teste* Borkent & Wirth, 1997) has yet to be resolved, and in the World catalogue species are not separated by subgenera (Borkent & Wirth, 1997). However, it is unlikely that all of these eighteen *Atrichopogon* species recorded as being attracted to cantharidin will be in the subgenus *Meloehalea*. The function of the attraction to and the feeding on cantharidin by these flies is still not fully understood (Frenzel & Dettner, 1994). However, it is possible that the cantharidin may be used in some function of mate attraction, since males are often attracted to cantharidin-baited traps although they generally feed on nectar. It is also possible that the cantharidin may serve as a chemical defence to deter predators such as empid flies (Empididae), as was shown by Frenzel & Dettner (1994).

A large number of insect species have been recorded as being attracted to cantharidin; these so-called canthariphilous insects are listed in Hemp & Dettner (*op. cit.*). The ant beetles (Anthicidae) are by far the largest group in terms of number of species with some 182 species being recorded as canthariphilous. Other families of canthariphilous Coleoptera include: Endomychidae, Pyrochroidae and Tomoderidae. In the Hemiptera; Lygaeidae and Miridae and in the Diptera, besides the Ceratopogonidae mentioned above, some Anthomyiidae, Cecidomyiidae and Sciaridae are canthariphilous.

The first observation of ceratopogonid flies feeding on meloid beetles was made by de Peyerimhoff (1917), who discovered a female fly feeding on *Meloe mejalis* L. in Algeria. This species was later described by Kieffer (1922) as *meloesngans* (= *winnertzii*). However, since then, little has been published on this behaviour (see Wirth, 1956, 1980; Hemp & Dettner, 2001 and references therein). The first account of this behaviour in Britain was published by Blair (1937, 1938), who reported *A. meloesngans* feeding on both *M. proscarabaens* L. and *M. violaceus* Marsham in south Devon. Wirth (1980) has since examined some of Blair's material of *meloesngans* and re-determined it as *A. licornis*. To date there are only a few accounts of this behaviour in Britain (e.g. Blair, 1937, 1938; Cooter & Irwin, 1979). A summary of the published records of *Atrichopogon* species feeding on *Meloe* beetles in Britain is given below.

<i>Atrichopogon (Melochelea)</i> spp.	<i>Meloe</i> spp. attacked	Source
<i>A. (M) winnertzii</i> Goegthebuer	<i>M. violaceus</i> Marsham	Cooter & Irwin, 1979; Mann & Turner, this paper

In south Devon, in recent years, *M. violaceus* has been encountered relatively frequently, usually on roadsides and along typical "Devon walls". Characteristically for *Meloe*, adults were only observed on bright sunny days in early summer, frequently on shaded woodland paths and roadsides. On one occasion a female *violaceus* was observed on a footpath in a ca. 2.5 m wide track between two "Devon walls" at Brent Tor, Dartmoor (SX480806; VC 03; 26.iv.1997. coll. C.R. Turner & D. Bilton). It was not the observation of the beetle that caused surprise but rather the small cloud of minute black flies above the beetle. On closer inspection some of these flies were observed to aggregate around the beetle, flying in a small group and occasionally alighting on or flying from the abdominal segments. The cloud of flies followed in a close plume behind the beetle as it moved. A small number of these flies remained stationary on the upper surface of the abdomen, despite the jerking movement caused by the characteristic clumsy gait of the *Meloe*. Closer inspection of the flies on the abdomen left little doubt that they were feeding on the beetle, mostly around the marginal joints of the tergites, where they appeared to be manipulating their heads against the softer cuticle around the inter-segmental membranes.

The *Meloe* was placed in a tube, along with three of the feeding flies that were later identified as female *Atrichopogon winnertzii* Goeghebuer (Diptera: Ceratopogonidae) by John Boorman. Voucher specimens of these flies are now housed in the Hope Entomological Collections (HEC).

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SHORT COMMUNICATION

An observation of the prey species of the solitary wasp, *Ectemnius cavifrons* (Hymenoptera: Sphecidae)—In August 2002 a colony of *Ectemnius cavifrons* (Thomson) was found to be established in timbers infested with *Exidia glandulosa* (St. Amans) Fries, Witches' Butter Fungus, on the roof of a central Edinburgh building (O.S. Grid NT2573; v.c. 83). When the wasps were manoeuvring their prey into the entrance of their prepared tunnel they occasionally dropped it. They seemed unable to retrieve the dropped prey, possibly due to its absence of movement. Some individual wasps were more prone to dropping their prey than others. As a result a substantial sample of prey items of *E. cavifrons* was able to be collected and identified without interfering with the colony. Of the 58 prey items retrieved from below the tunnel entrances, approximately 83% consisted of hoverflies (Syrphidae) (namely 13 *Episyrphus balteatus* (De Geer), 12 *Syrphus ribesii* (L.), 6 *S. vitripennis* Meigen, 6 *S. torvus* Osten Sacken, 5 *Eupeodes corollae* (Fabricius), 4 *E. latifasciatus* (Macquart) and 2 *E. luniger* (Meigen)), 16% consisted of calliphorid flies (namely 5 *Pollenia rudis* (Fabricius) 4 *Calliphora vicina* Robineau-Desvoidy) and a single cicadellid homopteran, *Iassus lauio* (L.). I am grateful to David Robertson for identifying the calliphorid flies.—K. P. BLAND, National Museums of Scotland, Chambers Street, Edinburgh, EH1 1JF

PHERBELLIA STYLIFERA ROZKOŠNÝ, A MEMBER OF THE SNAIL-KILLING FAMILY SCIOMYZIDAE (DIPTERA) NEW TO BRITAIN FROM CAMBRIDGESHIRE

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Abstract: A female sciomyzid identified as *Pherbellia stylifera* Rozkošný, 1982 is reported from Britain after unsuccessful efforts to find a male. A brief description is given to distinguish it from similar species and some other scarce sciomyzids are noted from the capture site.

INTRODUCTION

A single female *Pherbellia* of unfamiliar and distinctive appearance was found on 18 viii 1998 at the Osier Lake private nature reserve, Godmanchester, Cambridgeshire at grid reference TL2672. It has a distinctly shining brown thorax and prominently black fore legs. Reference to Rozkošný (1984 and 1991) indicated *stylifera* Rozkošný 1982 as the best fit with some doubts which were mostly resolved by Rozkošný (1982) which has a more detailed description including differences between the sexes, while the later works, which were consulted first, refer principally to males. *Pherbellia stylifera* is apparently known only from the holotype male from Finland and the paratype female from Sweden, both in provinces bordering the Baltic Sea.

DESCRIPTION AND COMPARISON WITH SIMILAR SPECIES

Salient features of the Cambridgeshire female are given here, with differences from the paratype female (Rozkošný 1982) in parentheses: head unusually broad, frons distinctly wider than long and hardly narrowing anteriorly, depth of jowls about one-quarter eye height. Face and jowls pale yellow, frons and occiput darker with a large supra-cervical greyish white patch. Orbital plates brown, shining through thin pale pollinosity, mid frontal stripe indistinct and not reaching level of anterior orbital setae. Basal segments of antennae yellow, third segment narrowing sharply beyond insertion of arista then parallel sided to the rounded apex, brownish-yellow (but not darkened in the antero-apical half). Arista brown, long pubescent, hairs on upper side distinctly longer than width of arista at base (not hardly longer). Mesonotum, scutellum and pleurae brown, distinctly shining through thin yellowish pollinosity. Mesopleuron bare, pteropleuron with 5 quite strong setae (6–9 in male, female not specified). Notopleuron without hairs round the anterior seta. Abdomen shining brown. Mid and hind legs yellow, fore legs strongly contrasting deep black except yellow coxae, trochanters, basal fifth and extreme tip of femora and basal fifth of tibiae. Hind femora with 3 anterodorsal setae in the apical half. Wings with lightly infuscated cross veins, and rather narrow. Body length 4.7 mm (4.4 mm), wing length 4.0 mm.

Among females of *Pherbellia* species with the mesopleura bare and a short mid frontal stripe, *stylifera* most resembles *scutellaris* (von Roser), *rozkosnyi* Verbeke and *sordida* (Hendel). *Pherbellia scutellaris* has a variable mesonotum from yellowish to dark brown but always more thickly pollinose than *stylifera* and the pleurae are also matt pollinose. The frons is narrower (slightly longer than wide), the occiput, mid

frontal stripe and orbital plates are grey pollinose, the fore femora are yellow brown and the hind femora usually have brown spots on either side of the apex. *Pherbellia rozkošnýi* closely resembles *scutellaris*, but the mesonotum is always dark and densely grey pollinose, while *sordida* is similar but has brown fore legs and, like *stylifera*, lacks the apical brown spots on the hind femora. Rozkošný (1984) notes that *stylifera* has some affinity with *pallidiventris* Fallén, but does not specify what the affinities are. The mesonotum of *pallidiventris* is dark and the whole thorax is heavily grey pollinose, also the lower front margin of the eye is almost right angled in contrast to the very obtuse margin in *stylifera*. The author considers therefore that this specimen represents *Pherbellia stylifera*, but in the absence of a male the possibility exists that it is a closely related but undescribed species.

PROBABLE BIOLOGY

Almost all sciomyzids are known to have malacophagous larvae which feed by various strategies mainly on several families of land and aquatic snails. *Pherbellia* is a large genus with over forty Palaearctic species, and in those whose life histories are known the larvae feed in terrestrial and aquatic pulmonate snails as parasitoids, that is they start as parasites in the living snail, but eventually kill the host and consume the remains, and may then complete their development as predators on other snails. Few *Pherbellia* species appear to be host specific and some will use hosts from more than one snail family. The life history of *P. stylifera* is unknown but will probably prove to conform to the general *Pherbellia* strategy.

CAPTURE SITE

The author first visited the Osier Lake reserve on a British Entomological & Natural History Society field meeting held jointly with the Huntingdonshire Fauna and Flora Society in June 1997 at which he found several fly species new to VC31, so permission was obtained to continue recording and the *Pherbellia* was found in the following year. During the next two years a number of visits were made in the hope of finding a male to confirm the identification, but without success. One visit in August 2000 was with Dr Ian McLean, organizer of the sciomyzid recording scheme, but following heavy rain, collecting conditions were less than ideal. The Osier Lake reserve is part of a large complex of worked-out sand and gravel pits now being restored and landscaped as a nature reserve, but is sheltered and secluded by a belt of *Salix* carr on three sides and was itself restored about 15 years ago. The *Pherbellia* was swept from round a pond with a rich emergent and marginal flora in an open area of marsh with osiers (*Salix viminalis*) and lush vegetation. Within the area of less than a hectare the author has recorded 23 sciomyzid species with another 5 by the adjacent lake shore and a small area of drier grassland. Noteworthy species include *Colobaea bifasciella* (Fallén), *C. distincta* (Meigen), *C. pectoralis* (Zetterstedt), *Pherbellia uana* (Fallén), *Pteromicra pectorosa* (Hendel), *Scionyza dryomyzina* Zetterstedt and *S. simplex* Fallén.

ACKNOWLEDGEMENTS

The author is very grateful to Mr R. Foster, Divisional Restoration Manager of Lafarge Redland Aggregates Ltd, who own the pit complex including the Osier Lake reserve, for permission to record Diptera there, also to Ian McLean for helpful comments on the draft of this paper.

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SHORT COMMUNICATION

Calocoris alpestris (Meyer-Dür), *Lygus wagneri* Remane and *Dicyphus constrictus* (Boheman), species with boreo-montane or boreo-alpine distributions expanding in Gloucestershire.—The heteropteran fauna of Gloucestershire has recently been described in detail (Alexander, 1995 & 1996), making it possible to analyse the fauna and identify trends. One of the more noticeable recent trends has been the expansion of species that are largely of a northern and western distribution in Britain and either boreo-montane (the first two species) or boreo-alpine (the last) in Europe (Southwood, 1957). These might have been expected to be contracting in range in line with human-induced climate change. Prior to the start of the project only *Calocoris alpestris* had been reported from the county (Ackland, 1958) while both *Lygus wagneri* and *Dicyphus constrictus* were yet to be noticed locally. These are all largely species of damp woodlands, associated with tall ground vegetation.

Calocoris alpestris

Calocoris alpestris lives on nettle in or at the margins of damp woods. It is a large and obvious bug and so a surprising omission from the earlier lists; it has presumably increased in abundance locally, conceivably being a recent colonist. It was first noticed in the county in 1957 at Tockington (ST68) and subsequently at Waterley Bottom (ST79) in 1958 (Ackland, 1958). Since then the present author has found it in twelve further woodland sites, throughout the Cotswold dip slope:

- SO80 Watledge Hill, 3.vi.1985; Rabbit Warren Wood, Selsley, 25.v.1998.
- SO90 Hailcy Wood, 5.vi.1993; Francombe Wood & Pinbury Park, 21.vi.1998.
- SO92 Dowdeswell Wood, 29.v.1995.
- SP00 Perrott's Brook, 4.vi.1995; Ampney Riding, 14.vi.1998.
- SP01 Chedworth Woods, 31.v.1993.
- SP02 Guiting Wood, 31.v.1993.
- ST78 Lower Woods, 31.v.1997.
- ST79 Alderley Wood, plentiful, 23.v.1998.

J. P. Widgery (pers.comm.) has also subsequently found it in some of these as well as additional sites, and A. P. Foster in one further site. The first record from the Wye Valley was made in 2000 by P. Kirby.

Lygus wagneri

Lygus wagneri was only discovered in the county in 1988. It feeds on a wide variety of herbs in woodland clearings and margins, and hedgerows: dock, nettle, St John's wort, etc. The present author has found it in a total of six woods across the Cotswolds, while J. P. Widgery has recently added a seventh.

- SO90 Siccaridge Wood, 1.v.1989; Sapperton Valley, 29.v.1993.
 SO91 Hilcot Wood, 16.v.1999.
 SP01 Colesbourne, 29.viii.1988.
 SP02 Guiting Wood, 31.v.1993.
 SP11 Chedworth, 31.v.1993.

Dicyphus constrictus

Dicyphus constrictus is the most recent discovery, found in the county in 1989, and remains the least widespread of the three. It has mainly been found on hedge woundwort. Three of the sites are Cotswold while the fourth lies on a Severn River cliff at Fretherne.

- SO70 Hock Cliff, Fretherne, 28.viii.1995.
 SO80 Rabbit Warren Wood, Selsley, 25.v.1998
 SO90 Oakley Wood, 30.ix.1989.
 ST79 Alderley Wood, 23.v.1998.

It is not possible to say whether any of the three species are long-term residents in Gloucestershire or recent colonists. It is feasible that they could have escaped attention through being present in very low numbers and in a small number of poorly worked sites. It is clear, however, that their local abundance has dramatically increased in recent decades. The relatively recent discovery of one boreal species in the county and its subsequent expansion would be interesting enough, but for the pattern to be repeated across three species is remarkable.

P. Kirby (pers. comm.) has suggested that *D. constrictus* and *L. wagneri*—and possibly also *C. alpestris*—are perhaps tolerant of (but not dependent on) cold, but intolerant of drought, and so a positive response to a warming climate might be less surprising than might at first appear. Climate change could therefore explain the changes. He also suggests that changing woodland management practices might also explain the expansion of these three damp-loving species. The woods concerned are certainly mainly closed-canopy stands. Some are neglected coppices but others are of high forest or old wood-pasture structure. It is difficult to readily identify any major change in structure through the last 30 years other than increasing shade. So are these expansions a response to changing climate or increasing shade in woodlands?

My thanks to J. P. Widgery and A. P. Foster for access to their records, to the Woodland Trust for access to a contract report by P. Kirby on one of their sites in the Wye Valley, and to P. Kirby for his comments on an earlier version of this note.
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BOOK REVIEW

The Moths of Devon. R. McCormick. (2001). 328 pp., 15 colour plates. Hard cover, price not stated [c.£25.00]. ISBN 09540256-1-X.

The subtitle of this work is *An account of the Pyralid, Plume and Macromoths of Devon*, which is rather more accurate than the title as the work in fact covers less than half of the moths of Devon. It is very nearly fifty years since Stidston's work covered this ground and a modern list is very much to be welcomed.

The early chapters comprise an introduction and sections on: Geology and Landscape; Climate and weather; Conservation; Land Use; History of recorders; Species no longer seen; Migration; and History of Devon Publications. This is followed by the bulk of the work, the systematic list, and concluded by a gazetteer, list of references and sources and a section of colour plates showing habitats and individual species. There are three maps showing geology, the locations of sites which have habitat photographs, and a coverage map. The latter shows the 1km squares from which [one or more] records have been received and clearly illustrates the imbalance between good coverage in the south and poor coverage in the north. None of the maps shows the vice-county boundaries or the locations of the major towns. The body of the book is liberally illustrated with paintings by John Walters which were undoubtedly excellent in their original form but which have lost a lot of their charm in the conversion to grey-tone.

The systematic list which comprises the main body of the book consists of a mention of which of the two vice-counties the species occur or have occurred in, comments taken from the *Victoria County History* and from Stidston's list and either a brief statement of the current distribution or a more detailed analysis of older and more recent records. The definition of the latter appears to be 'records after the mid to late 1970s'. The nomenclature used is totally up-to-date, but would have benefited from the inclusion of synonymy where names have changed from Skinner (1984, *Colour identification guide to moths of the British Isles*). The information given is almost entirely distributional. There is rarely any mention of the foodplants used in Devon or the flight periods or habitat preferences. Such information, while to be found in the more general moth books, does vary locally and is often what makes local lists interesting. There is also no information on local forms or melanism; for example, the account for the Peppered Moth is 'very common throughout the county' with no indication of the frequency of forms or whether melanism is increasing or decreasing. Perhaps the melanic form doesn't occur at all—we should be told! Perhaps the most important omission is the lack of distribution maps. These would show at a glance the nature of individual species distribution; instead, we are often given just a list of sites with no further information as, for example, under recent sightings of Small Argent and Sable for VC3—to the non-native entomologist this means almost nothing.

The proof-reading is not up to the standard one might expect. It is rather alarming to open a new book and find inserted a double page list of closely-typed errata discovered between printing and publication; and these are just the "more significant" ones. I also found the use of an unjustified right margin rather irksome.

A long list of recorders is given (although not all who have contributed are acknowledged) and it is clear that a considerable amount of work has gone into setting up the recording scheme, encouraging people to record accurately and scientifically, and in compiling and analysing the records. Despite the many criticisms, this is a valuable book which should be of interest to anyone concerned with the local distribution of British macrolepidoptera. It is well bound and reasonably priced.

THE 1999 BENHS PRESIDENTIAL ADDRESS—PART 2 A CONSERVATION AGENDA FOR ENTOMOLOGISTS FOR THE NEXT 100 YEARS—AN AMATEUR VIEWPOINT?

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INTRODUCTION

Some of the subjects considered in this address are: butterflies—losses, declines and isolation; changes to the British fauna; moths—declines, recording, conservation and collecting; wildlife legislation and species protection; organisations—Butterfly Conservation, BENHS and an Invertebrate Conservation Trust; human population pressure and wildlife habitat fragmentation; localities, dot maps and Red Data book statuses; knowledge, solutions, the choice and the future.

Some issues are: What opportunities are there for the BENHS and its membership to continue to develop our long-established interests and concerns for the conservation of all invertebrates but particularly the Lepidoptera?

As we volunteer information to others can we trust them to allow us to carry on collecting moths etc., when they are indulging in programmes to aid population recovery of the very same species? In other words when they know what we know will they exclude our involvement?

Can plain collecting, without providing added value in ecological or biological information, continue indefinitely? Other than Butterfly Conservation, is the disaggregated model of local records centres and wildlife trusts holding information on the species in their areas the right approach, with no other central independent invertebrate organisation?

A number of entomologists have been working on the possibility of forming an invertebrate conservation trust. This could provide the strong conservation voice that the BENHS and RES have historically backed away from providing.

In the next 20 years the entomological community could perhaps start to acquire at least a handful of nature reserves, managed exclusively for invertebrates *other than butterflies*.

As we experience the first months of a new century it seems appropriate to review some aspects of invertebrate conservation, in terms of what is necessary for its future effectiveness.

THE LARGE BLUE BUTTERFLY

I suppose a major indictment of British entomological and nature conservation organisations of the past century is that we were not able to agree on what was the management regime needed to enable the survival of the population of the original large blue *Maculinea arion* (L.) butterfly. Furthermore those sites on which it did survive became increasingly isolated through changes in agricultural land use, (Muggleton & Benham, 1975). There are other arguments: it mainly occurred in parts of Cornwall, then relatively difficult of access for study and was a species on the edge of its range. Regarding conservation from a European perspective (Kudrna, 1997), the UK invertebrate population is often seen as unimportant, this last

consideration is still used today as a rationale for prescribing that little action needs to be taken by UK enthusiasts.

Despite the considerable cost of the restoration of the large blue I believe it was worth it for the attention it has drawn to invertebrate conservation over the years.

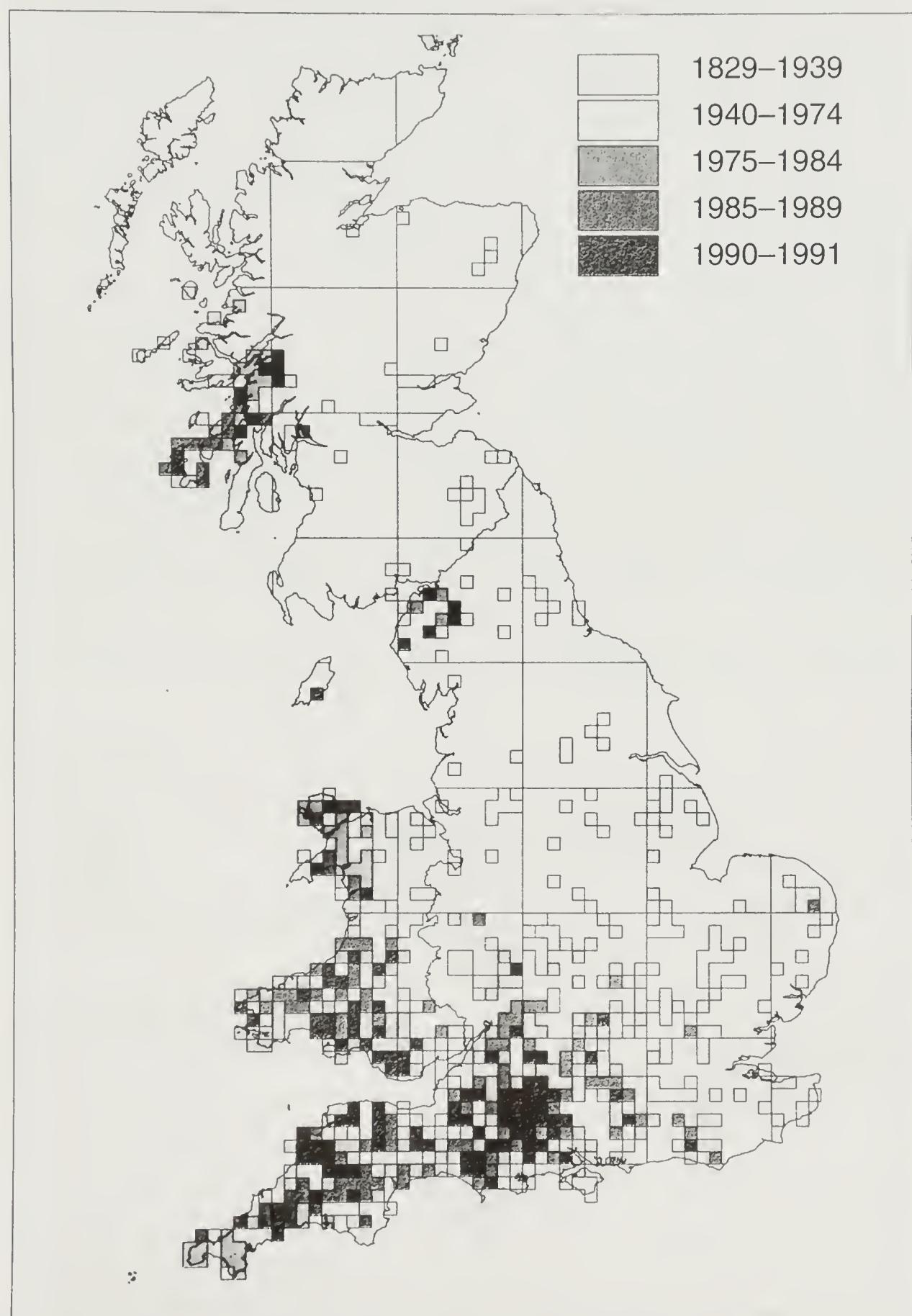
THE DECLINE OF FRITILLARY BUTTERFLIES

Like many other people, serendipity played its part in my introduction to entomology. For instance, I can never resist browsing in bookshops and in about 1962 I came across the "I-Spy" series, especially *I-Spy Butterflies and Moths* (Anon, c. 1954). If my recollection is correct you would score only 40 points for spotting any fritillary butterfly, but 50, for the purple emperor. Today, the scoring system might be reversed in SE England, with the latter much more frequently seen than most fritillaries. Our colleagues in Butterfly Conservation are doing much to address this situation but historically all the national entomological societies have made significant contributions to insect conservation in their own special ways over the past one hundred years. How can we learn from the past to guide our actions for the future? There are many issues I believe facing this Society and entomologists as a whole. Options are suggested for dealing with these issues in order to stimulate debate but not to provide a final answer.

In this context I would first like to explore some aspects of the decline of the smaller fritillary butterflies. The decline in these butterflies during the twentieth century is somewhat enigmatic, for their general retreat to the west and perhaps the north has not really been explained. Luckens (1978) referred to this retreat westwards as having started well before the end of the 19th century.

The marsh fritillary *Euphydryas aurinia* Rott., once had a general distribution all over England but has been in continual decline during my lifetime. In the east of England it was an early 20th century casualty of the removal of water meadows in valley bottoms and of pastures often associated with woodland (Mendel & Piotrowski, 1986), with additional factors being agricultural intensification, drainage of many areas and the scrubbing up of many marshy fields. Nothing has changed and this depressing picture still continues as we experience the beginning of the 21st century.

In the west, in Cornwall we find that the marsh fritillary has declined here also (Frost and Madge, 1991). These authors state that, "Marsh Fritillaries are extremely localised and, according to Emmet & Heath, (1989), they are reluctant to cross even quite small natural obstacles such as low hedges and beds of sedges which restrict the limits of their colonies. In view of this, the occasional appearance of individuals far from known colonies is quite inexplicable". It could be that this statement, where it deals with the species' reluctance to cross obstacles, was just simply wrong, and we did not have enough knowledge in 1989 to be so firm in our convictions about such dispersal limits. Dennis (1977) summarised this type of activity as follows: "basically, movement decreases markedly from the cores of colonies to the periphery where few individuals alone are observed, and beyond that only the occasional strays are noticed". Sadly, I am not convinced that we really know yet why these declines have taken place, despite all the research that has been done by Butterfly Conservation and others recently. Judging from the extracts I have quoted, this decline has been occurring for over a century. Even if we do learn why it has taken place, will the nature conservation community be in a position to do anything about it, especially if large areas of suitable habitat are required to be maintained? Equally if research finds

Marsh Fritillary *Eurodryas aurinia*Fig. 1. 1829–1991 ITE distribution map of marsh fritillary *Eurodryas aurinia* Rott.

that not only are large sites required but also links between them, then the conservation programme for many invertebrates is likely to remain under increasing stress. If re-establishments have been going on, they do not appear to have been very successful as the dots of occurrence on the maps are not only reducing in the east of England but in the west as well. I will even own up to a degree of local guilt in this matter which is perhaps applicable to many of us nationally as we see a similar decline in each newly published local list of species. For many years I resided in North Hampshire near to an area which I now know harboured a metapopulation of the marsh fritillary. Colonies of this species wax and wane depending on local conditions, the growth of the food plant devilsbit scabious, *Succisa pratensis*, in these marshy areas (forgetting the colonies on the chalk for convenience), and the relative success, in some years, of the ichneumons that parasitise the larvae.

As I understand it, metapopulation theory is that, as one colony patch of the butterfly disappears, recolonisation is made possible by exploratory female butterflies from other nearby patches. The tendency for this species to seek out the most luxuriant leaves of the food plants (Luckens, 1978) for oviposition suggests that there is a need for a large amount of the food plant that is unaffected by larval activities in the spring preceding the emergence of the adult. As this author suggests, a dozen *E. aurinia* larvae can consume many large scabious plants completely. Thus it could be said that as larvae they are reducing their later chances as adult females of successful oviposition. However, presumably, the cycle of heavy parasitisation will also aid future colony success by wiping out colonies periodically so that the food plant will never be completely overcome, which is perhaps particularly necessary in dry years.

Why a sense of guilt, you may ask? This was due to my lack of a thorough knowledge of where the species occurred locally and my reluctance to explore private

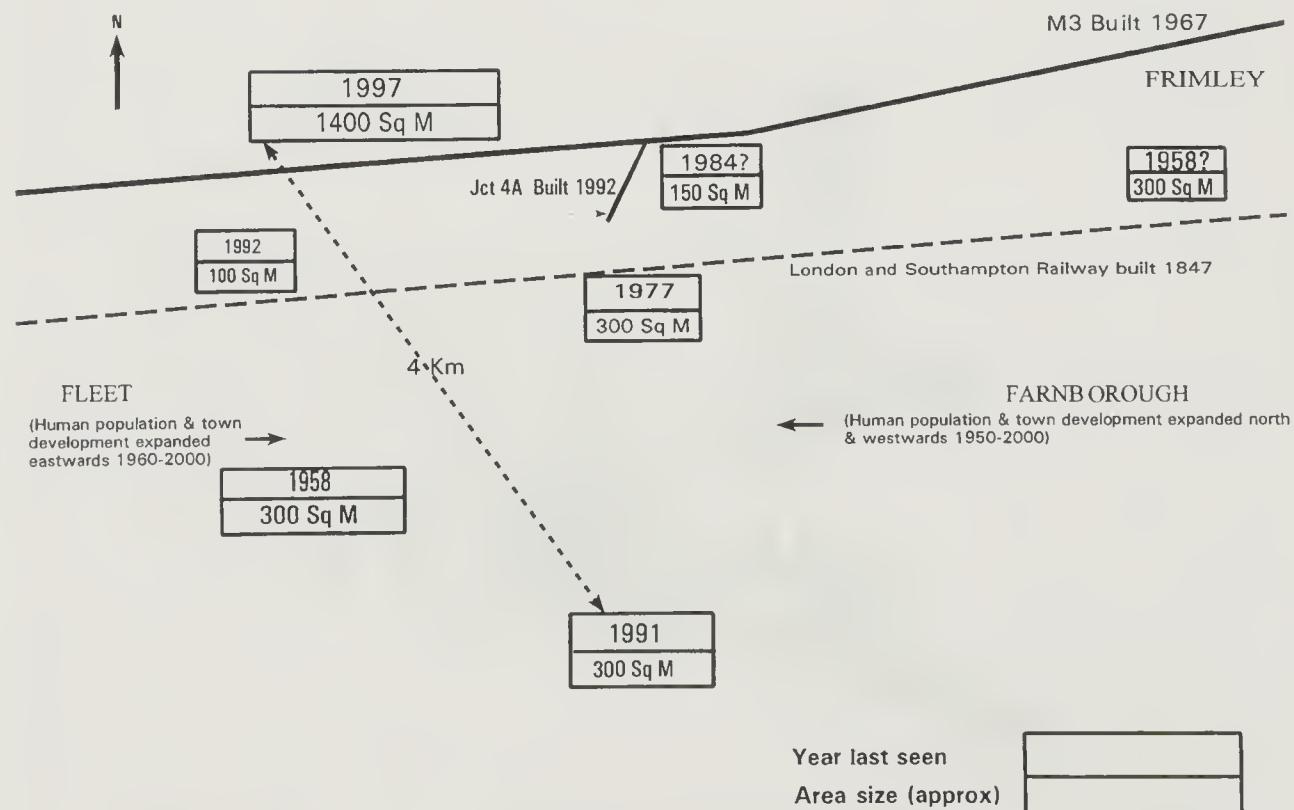


Fig. 2. Marsh fritillary decline in North Hampshire & West Surrey.

ground, it being so much easier to go to publicly owned sites, and perhaps also a failure to network effectively with other entomologists. This is a lesson for us all, for even today there is no substitute for having a thorough local knowledge.

The situation today is that the species appears to have almost disappeared from this area at Farnborough, as can be seen from Fig. 2. If it still occurs, it is a very isolated population. This whole area, had before the 1950s a number of suitable sites, but urbanisation and overspill development occurred in the 1960s–70s. The most remote local site known to me, was two miles away in a river valley in Frimley, Surrey and presumably not part of the metapopulation, this was lost to the development of a polish factory in the 1950s–60s. A change of grazing regime to heavy grazing by horses put paid to another area at Farnborough in the 1970s. When this grazing stopped, recolonisation might still have been possible as the grassland gradually reverted to a resemblance of its former condition. However, the site was subsequently developed for offices of a mobile telephone company. A further area on an airfield at Farnborough could still support the species but it is becoming increasingly isolated, as are all the remaining sites. In 1983 The Hampshire & Isle of Wight Wildlife Trust leased another nearby site of six acres in the middle of the species' range in the area at that time. Subsequently, a larger area to the west has also been leased and is being well managed to support an acid grassland community with large areas of devilsbit scabious, *Succisa pratensis*, and bog myrtle, *Myrica gale*. The last marsh fritillary seen was a single example in 1997, allowing the hope that the species is still surviving but at a very low level. This assumes that no individual person decided to introduce a few specimens to the site without telling others, which is suspected. This would, in this example, serve to indicate how damaging such practices are.

I looked for larval evidence on this latter site in 1999 but did not find any. Butterfly Conservation has in recent years sought more of their members to look for this species here. So, even despite the size of this organization, there are still not enough field observers to go round! This last fact was recently freely admitted by their new Chairman (Jeffcoate, 2000) in implying that only 10% of their membership were actually active in the field. Ford & Ford, (1930) described how they had records of a colony near Carlisle from 1881 which they subsequently monitored up to 1930, but fluctuations were a normal event. During one period from 1912–1920, only single examples of the species were seen, but by the mid 1920s it was common once again. Thus hope remains that the marsh fritillary could survive in North Hampshire and become abundant once again.

I will now proceed to delve into some subjects that may impact on our interests very soon. In the future what will happen to land areas that formerly held interesting species of conservation concern which are no longer present? Will we be able to stop them from being developed in perpetuity, in the hope that a species may naturally return, or to allow them to be re-established. The answer is almost certainly not, unless these sites are valuable for other reasons, and they qualify under the national Sites of Special Scientific Interest (SSSI) series or local Sites of Nature Conservation Importance (SNCI) or similar designations.

Should the marsh fritillary be physically returned to those areas in North Hampshire where it was originally recorded from, for re-establishment when we know that the metapopulation recolonisation structure no longer exists and further development is planned for the area? At what point can re-establishment be promoted if we don't ever know conclusively whether an invertebrate has become extinct on a site? Does it matter since we are supplying new genes when we put down some new stock?

Critical decisions were made in early March 2000 about future house building on home counties' sites, the results in the next sixteen years may be that many areas of the South-East are expendable in natural history terms! There are still many colonies of the marsh and other fritillary butterflies in Dorset, provided climatically that this species is not in more serious trouble, efforts to retain it may be concentrated there and also in Devon where it still remains. This is the intention of the [Biodiversity] Species Action Plan: marsh fritillary *Enrodryas aurinia* (Barnett & Warren, 1995a), but this will mean an important flagship species is not represented on many of its former sites and the present range will not be maintained. In his address in February 1999 our previous president, Brian Eversham remarked on the former opinion of many conservationists that if you protected the vegetation on any particular site then everything else would be conserved as well. He commented that this idea is now rightly in disfavour, but it is ironic that we may need to protect the vegetation on some sites in the south and south-east if we want to allow eventual recovery of some butterfly populations. Recently I have become aware of the presumed loss of the marsh fritillary from an English Nature site in Somerset. It was also distressing to learn from our recent speaker, Adrian Fowles, of its decline in Wales. Thus, the picture is not all rosy even within its core range.

ISOLATION AND THE WOODLAND FRITILLARIES

Continuing this theme of decline, I will mention the woodland fritillaries in a south-east England context, since in more northern and western regions, Butterfly Conservation research (Barnett and Warren, 1995b) appears to suggest that some of these species are more frequently found in more open landscapes than in woodland coppice. For example, the high brown & silver-washed fritillaries were last seen in the Stowmarket and Belstead areas of Suffolk in the late 1950s, and the small pearl-bordered and pearl-bordered fritillaries were both lost by 1959 (Mendel & Piotrowski, 1986). I am sure you are all familiar with the sad but explicable declines in these species, due to changes in woodland management, such as the discontinuation of coppicing. Apart perhaps from the dark green and silver-washed fritillaries, these declines still seem to be continuing today in southern and eastern England, despite efforts to redress the problems by Butterfly Conservation. It is possible that isolation as well as lack of management may have played a part in the process, for the network of former sites of occurrence has been irrevocably destroyed from the 1950s onward. We can hope that some Wildlife Trusts' efforts to restore coppicing in their reserves might redress these species' declines. Within the general area of Pamber Forest area on the Hampshire/Berkshire border there were up to the 1950s several sites where the smaller fritillaries could move from one site to another. The last pearl-bordered fritillary, *Boloria euphydryas* (L.), seen at Pamber was in 1979 so it seems that the butterfly has probably now gone from this site, although it is one of our most well-managed.

Parts of Pamber may be under-recorded, as also are other local habitats, but local entomologists assure me that they would expect to see vagrants more frequently if this species still occurred anywhere in the area. (M. Harvey *pers. comm.*). But the small pearl-bordered fritillary, *Boloria selene* (D. & S.), is hanging on though it is thought by the site manager (G. Dennis, *pers. comm.*) that extra stock may need to be brought in to boost the genes of this population. The silver-washed fritillary, *Argynnis paphia* (L.), is seemingly doing as well as ever, no doubt because of its greater tolerance of shade. A number of nearby localities also lost their fritillary populations between the 1940s and the 1960s. Apparently the last Berkshire record for

the pearl bordered fritillary was at Fence Wood in 1978 (Baker, 1994). However, a few singletons were found nearby, along the Hampshire and Berkshire border, between 1987 and 1992, (M Harvey, *pers. comm.*). Pamber Forest, although a large site, is becoming increasingly isolated. The nearest big woods where *some* of these species may still occur are Butter Wood near Hook (16 km SE), Alice Holt Forest (32 km S) and Hartwood Forest (40 km SW). What would induce any of these fritillary butterflies to fly such distances to or from Pamber? (Morris & Thomas, 1989) suggested that the sedentary species were unlikely to colonise new habitat if it was between 400 metres and 10 km away from existing colonies. Almost certainly they considered that some suitable areas would never be reached under modern conditions.

In south-east England the woods are still there but increasingly without the smaller fritillaries. Perhaps the remaining fritillary butterflies are inbreeding with little genetic mixing occurring. If so, this is an effect of modern "landscape fragmentation which decreases patch areas and increases distances between habitats and can convert 'core' landscapes into 'marginal' ones, and 'marginal' landscapes into 'uninhabitable' ones", (Thomas *et al.* 1998).

In this scenario of isolation the future role of the entomologist interested in conservation could be to research and secure small areas that provide the link between larger sites in public ownership and other nature reserves. As intervening spaces get larger and emptier, it is likely to become more important to learn how all uncommon species spread between habitats. Here is an opportunity for members of this Society to design their fieldwork to find out this information.

However, the other major conservation organisations do not seem to be succeeding in keeping these populations on their land either. The RSPB (Cadbury, & Shardlow, 1998) reported that the best recent year for the pearl-bordered fritillary in their transects at Blean Woods, Kent had been 1987. Despite continuing appropriate management, none had been seen in 1994–96 and just one in 1997. Similar results were reported from their properties in Devon with the last good year in 1987. However, recent Butterfly Conservation maps appear to show the situation for this species in the Blean area is somewhat better, this being an area where economic coppicing still continues today.

Both pearl-bordered fritillaries have been lost from Bernwood Forest. One possible reason cited is that only rides were managed for the species, while coppicing had not been increased. The general increase in deer numbers is another possible cause, with the non-native muntjac deer consuming ride-side flowers (M. Harvey, *pers. comm.*). If the latter is a cause of the decline, it might also be affecting the moths. This last consideration brings to mind a possible dilemma for the Wildlife Trusts, if there was ever definitive evidence against deer, could they cut back deer numbers on reserves without upsetting their members? It was reassuring to hear from a talk given by Matthew Oates to the Third International Conference of Butterfly Conservation in 1999 that the pearl-bordered fritillary was doing well in an 800 hectare woodland in Gloucestershire and was being maintained, by the activity of fallow deer (*Dama dama*).

Some scientists have begun to suggest that the general decline is some sort of climatic effect, so the fact that there are important Scottish populations of this butterfly surviving in woodland canopy gaps, where violets grow amongst light bracken cover at the woodland edge, is a relief all round.

Whether we like it or not, in the future smaller habitat patches will be the rule, particularly in the south. The reasons behind this are the continued need or promotion by the market for more housing and employment developments, driven by population pressure and the consequent demand for an even better standard of

living. Perhaps an unfortunate by-product of any political system is that society is driven by what is popular and not necessarily by what is desirable, as seen by minorities such as naturalists. Have these isolation effects that are manifest in the butterflies become apparent in some moth and other invertebrate distributions? Will we see a similar shift north and westwards in them? Some lepidopterists have ventured to say yes. For instance, the double-line moth, *Mythimna turca* (L.), is now sparsely recorded outside western districts and yet before 1980 was more frequent in its occurrence in Hampshire and Essex.

OPPORTUNITIES FOR BENHS MEMBERS

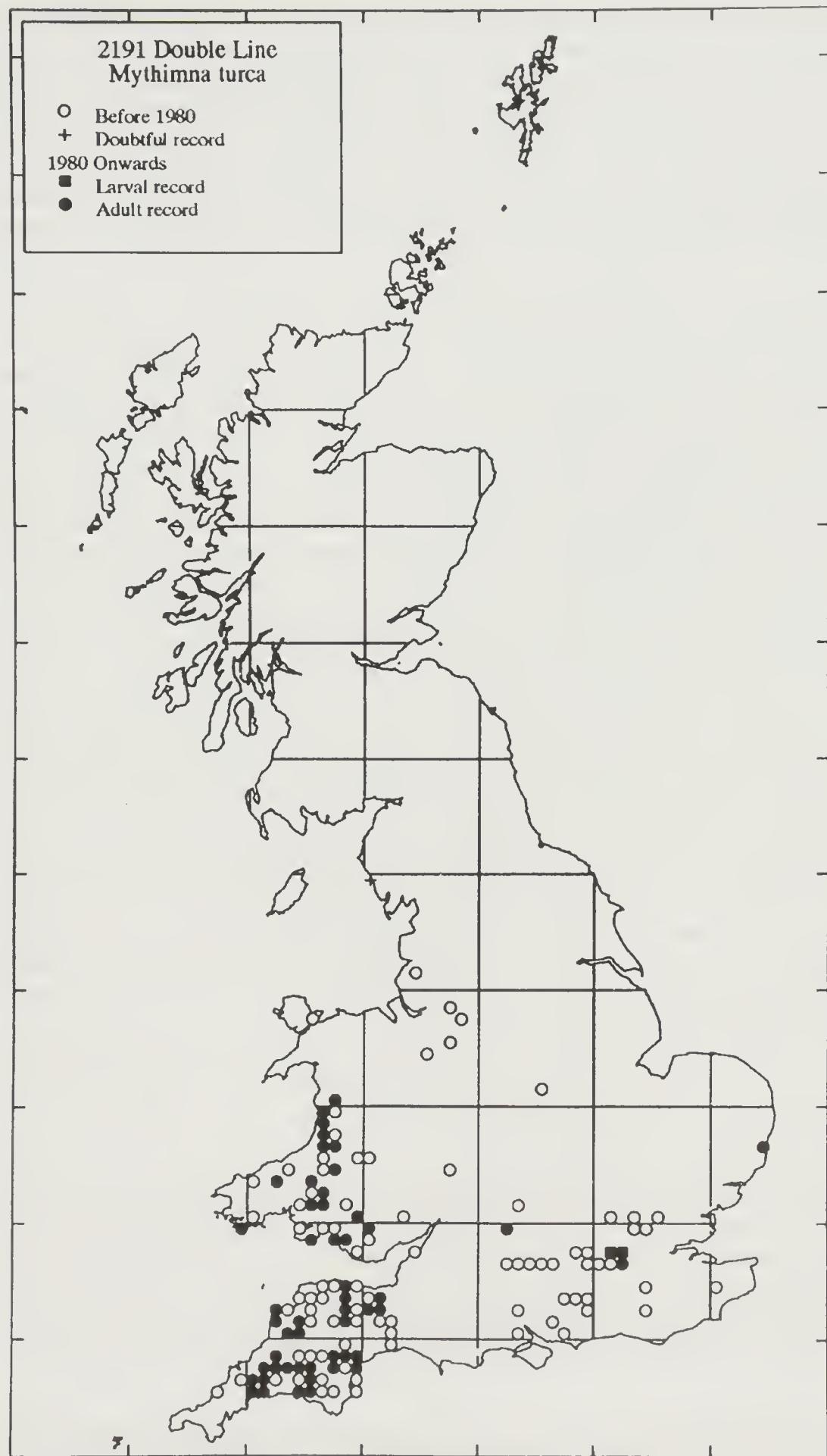
I am sure that BENHS has an advantage in field entomology over other societies in having a higher percentage of its members active in the field. We must capitalise on the opportunities presented by this advantage. As a Society we seem to have a declining interest in butterflies, traditionally in favour of moths but increasingly in other orders. It is understandable that we should want to avoid duplication of effort but I really wonder if it is the right decision to leave nearly all UK butterfly study in the hands of one organisation. Should BENHS be that detached from butterflies to leave all activity to Butterfly Conservation? Yes, perhaps we can be that detached for butterflies, since after all many of us are members of both organisations, even I am a recent convert. Butterfly Conservation will need much money to reverse the trends outlined above, and it may be an impossible task. The best option for BENHS members is co-operation in what are fundamentally shared ideals.

BUT WE SHOULD NOT BE SO COMPLACENT ABOUT THE MOTHS

The losses among the butterflies typified by the examples quoted above may be matched correspondingly for moths if we do not continue to monitor their populations. The arguments for limiting the collecting of butterflies are already proven in the UK. But many moths still need to be taken to be identified. I believe this latter argument is won within Butterfly Conservation, in the main. There remain pockets of their membership who seem to suggest that all lepidopterists should be happy to refer to collections in central institutions and not to make their own collections. This remains a very misguided viewpoint when we consider the number of invertebrate species that have been split into two or more species in the last 50 years. By volunteering information on moth distribution to others can we trust them to allow us to carry on collecting moths when they are indulging in programmes to aid population recovery of the very same species? Does the caution in providing information to others, such as the Wildlife Trusts, still prevail? Allan (1943) wrote that those who knew of localities outside the New Forest for the light crimson underwing, *Catocala promissa* (D. & S.) were wise to keep them a secret, but this was probably from other collectors at that time. If such secrets are still being kept it might explain the current absences of many species from some localities on distribution maps (e.g. Fig. 5b.)

LEGISLATION ISSUES AND THE FUTURE OF COLLECTING

Can plain collecting, without providing added value in ecological or biological information, continue? The answer is that of course it must, otherwise recruitment of future entomologists will be much reduced. It does seem to be continually under threat as the next example should serve to illustrate.

Fig. 3. Double line *Mythimna turca* (L.) distribution map.

Wildlife and Countryside Link is the liaison body for voluntary organisations in the UK concerned with the conservation and protection of wildlife and countryside. In 1997 this organisation published a leaflet "Wildlife Law: time for reform", a charter supported by 22 other organisations from The Wildlife Trusts to Greenpeace, including Butterfly Conservation. This leaflet suggested, amongst desirable issues such as greater protection for SSSIs, that "more species should be protected by bringing the current schedules (of wildlife laws) up to date with the UK Biodiversity Action Plan". Had we been active and full members of Wildlife and Countryside Link in 1997 we might have been able to influence them positively against this direction when they published this leaflet.

Subsequently the Government's Joint Nature Conservation Committee and Wildlife and Countryside Link considered this subject further, at which this Society amongst many others was invited to contribute its views. The results were published as a synthesis of the views of those interviewed and attending the focus groups in *A Review of the Operation of Species Legislation in Great Britain* (King, 1999).

I consider that more laws to protect increased numbers of species will be unenforceable. At the same time they would have a negative effect on entomology and the public's perception of entomologists. I consider that any action that makes it more difficult to collect and monitor all but the most endangered species will lead to a reduction in enthusiasts, who are the compilers of all the reliable information to recording schemes. If the motivation of collecting is removed, I believe that there will be many less people to go out at night to monitor moth populations, for instance, despite the growth of moth-watching groups. But this is what the rest of the natural history community seemed, perversely, to want to limit. The addition of all the Biodiversity Action Plan invertebrates (*c.* 160 species), including at least 46 more moths, would have been a step too far! It would have made it extremely difficult for us to work on many of these more local moths if they had all been placed under the schedules of the Wildlife and Countryside Act, 1981. As a Society we need to monitor this type of inappropriate proposal very carefully indeed. From what I have seen of the recently proposed Countryside and Rights of Way Bill (March 2000), it does not provide this species protection but seeks to restrict wider land entry to those carrying nets for hunting animals. This clause, though having another target group of people in mind, could require all entomologists to have permission for their activities before entering what is to be called access land (or "Right-to-roam land") if the Bill is approved by Parliament.*

At the 1999 Annual Exhibition of the Society many of you will have seen the BENHS Conservation Working Group's joint proposals for working with Butterfly Conservation on many of the Biodiversity Action Plan species, which would be put in jeopardy with more legislation.

However, my information is that other organisations represented on Wildlife and Countryside Link, such as Friends of the Earth, are still pushing for increased species protection to be included in the Countryside and Rights of Way Bill. Their magazine called for greater protection for rare species occurring outside SSSIs (Friends of the Earth, Spring 2000). One practical step we could take straight away would be to join Wildlife and Countryside Link as full members. The previous route to representation, which we had jointly with the Amateur Entomologists' Society through the

*As of late March 2000 this issue has been raised at the Joint Committee for the Conservation of British Invertebrates (JCCBI) and is being pursued through Parliament and the House of Lords.

Joint Committee for the Conservation of British Invertebrates, weakened our scope for activity. It is my view that we should be represented despite the considerable cost. If we do not sit at the same table, our views will never be understood and taken into account when misguided legislation is suggested. But who in this Society is able to attend the mainly midweek meetings of this organisation, should they choose to admit us? The skills needed are great knowledge of all aspects of invertebrates, natural history issues and government legislation mechanisms, a feeling for politics and articulate persuasion. In other words, we need a new type of entomologist! My perception is that most entomologists would rather be studying their insects or working out in the field!

As a prominent natural history organisation we must find individuals to argue from the entomologist's perspective and to commit personal time to combating some of the anti-collecting attitudes that arise in non-entomologists. Otherwise we should not be surprised if our views are quashed by the overwhelmingly, and quite naturally for higher animals, must-not-kill attitudes of other naturalists. This current lack of representation, I suggest, is one reason why an invertebrate conservation trust fund is needed to promote entomologists' views independently of Government. A similar problem has been cited in Europe (Kudrna, 1997), where there is a failure on the part of European administrators to appreciate the needs of those wishing to monitor butterfly populations. In Germany and Spain it is made extremely difficult for the entomologist, especially the amateur, to indulge in his interest in collecting insects. I suspect that this is a matter of expediency, for the less the authorities are informed of where special sites are, the less effort they have to spend protecting them and managing them for their invertebrate interest. In this way the majority interests of European agriculture and forestry are satisfied at the expense of a minority.

This contrasts with the European treatment of hunting—from the Natura 2000 and People Conference held at Bath in 1998, I quote: "Hunting is a legitimate activity under the Birds Directive, and is not *a priori* to be excluded from Natura 2000 sites" (Natura 2000 Newsletter—Special Edition, 1998). This network of nature sites results from the European Commission Habitats Directive, of which you may have heard. Europe is another area where the Invertebrate Conservation Trust, if made European, could extend its interest. The British role could be to stimulate invertebrate collection in Europe, especially by amateurs. Campaigning through our MEPs could remove the barriers to collecting by ensuring that European countries are also pursuing biodiversity studies of invertebrate populations and that they have monitoring programmes in existence.

BIODIVERSITY ACTION PLANS

I feel that it would be rewarding if more of the Society's members were to work a little more deeply on the UK Biodiversity Action Plan lists of species. As a Society we could retain this information centrally as well, should we need to use it to obtain or defend sites. I will use tonight to put forward a few contentious ideas for moth studies, although I, not being a lepidopterist, am of course open to criticism. As a caveat, however, we have to remember that amateur entomologists need to enjoy what they are undertaking, so, for some research, it remains the best option for the now very numerous contract entomologists or university-based entomologists to do such work.

Some of the species which I think have somewhat puzzlingly limited distributions, that I have difficulty in believing, are the following: the heart moth *Dicycla oo* (L.), dark crimson underwing *Catocala sponsa* (L.), light crimson underwing *Catocala*

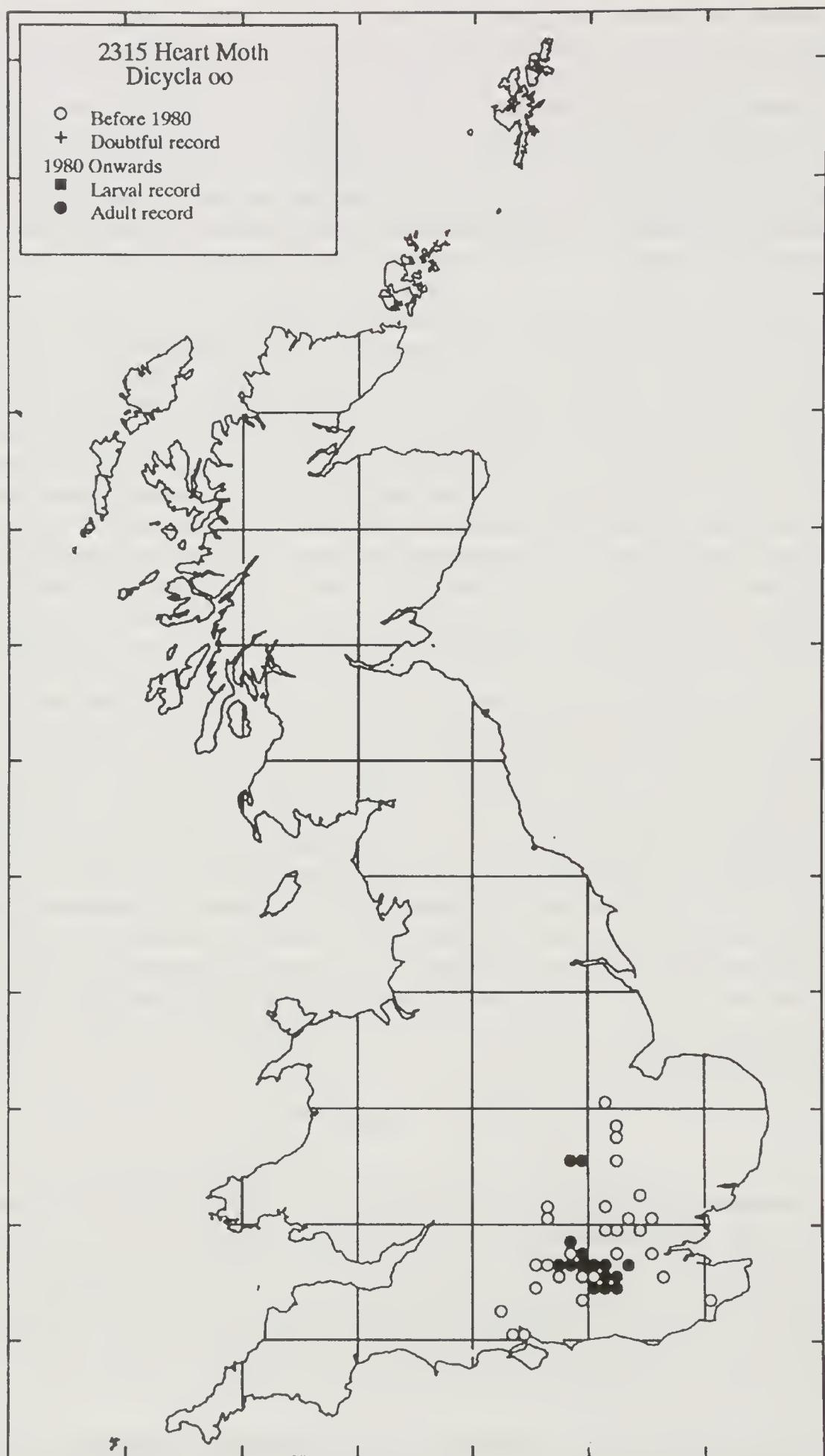


Fig. 4. Heart moth *Dicycla oo* (L.) distribution map.

proutissa (D. & S.), double line *Mythimna turca* (L.), narrow-bordered bee hawk-moth *Hemaris tityus* (L.), bordered gothic *Heliothis reticulata marginosa* (Haworth), sword-grass *Xylophaea exsoleta* (L.), the four-spotted *Tyta luctuosa* (D. & S.). I will deal with the first four only, as examples.

Heart moth *Dicycla oo* (L.)

I find it extremely strange that this species is so limited in occurrence. It is believed to be a canopy feeder on oak, yet the latter are abundant, so why is its distribution so limited? Skinner (1998) says it occurs in open woodland and parkland with mature oaks, but this habitat is of common occurrence throughout the country. And why is it seemingly confined to the east of England, and even lost from the New Forest? In Surrey its main site of occurrence appears to be the adjoining Epsom and Ashtead Commons. The pasture woodland at this latter site has an under-storey of bracken in many areas and is considerably susceptible to fire, of which a number have occurred, afflicting the ancient oaks. A similar habitat occurs in East Berkshire including Windsor Great Park, where the moth still occurred in the 1980s. This site also has a bracken under-storey, which is probably insignificant, but both sites have pollarded oaks. But what could be different about these oak trees or their growing situations and spacing from other trees? The literature does not seem to record what flowers or energy sources this species visits of a night, other than the exceptionally rare treat of the entomologist's sugar! My experience as a dipterist of hunting for dead-wood species in pasture woodlands with bracken is that flower sources are infrequent in June and July. Possible flowers at this time are wild roses, dogwood, elder, blackberry and privet. As this species visits sugar, are natural sap-flows of oak important to it? Or if the sugar solutions in honey-dew are much more necessary, how prevalent are the latter in pasture woodland with few low-growing shrubs? In areas where these sap-runs occur, I have often observed numerous moth wings lying at the foot of such trees, where they have been killed by wasps. Those who use light-traps to attract the moth record that it is only active on warm, still nights. What does it do the rest of the time? If we don't know the answers to these questions, I would suggest that it's about time that we did! Torchlight transects have been suggested as a way of finding out the required information, but I doubt if that would appeal to lepidopterists. Dusking at flowers is another technique but, once the light-trap starts attracting moths, it seems to be forgotten about. If this species comes to light late in the night, it may also visit flowers or honey-dew at similar times. The last Hertfordshire record was in 1971 at a garden trap, but the hope remains that such populations continue to live on unseen by lepidopterists, since in 1999 a specimen was captured in a grid square in Hampshire from which it was previously known but had not been taken for some time.

Dark erimone underwing *Catocala sponsa* (L.) and light erimone underwing *Catocala proutissa* (D. & S.).

Apart from the distribution, much of what I have already said applies also to these two species. Conversely, the centres of distribution for them, especially the latter, seem to have almost totally reverted to the New Forest and nearby. Some believe that the climate has warmed slightly but *C. proutissa* appears to have retreated southwards, the opposite to what you would perhaps expect. They both occur in some of our larger oak woods but there seem to be no clues as to why larger woods should be more important than smaller ones. Young (1997) inferred that this preference was just guesswork, more enthusiasts are needed to rise to the challenge to determine these life-histories? There is also the perception that lepidopterists tend to

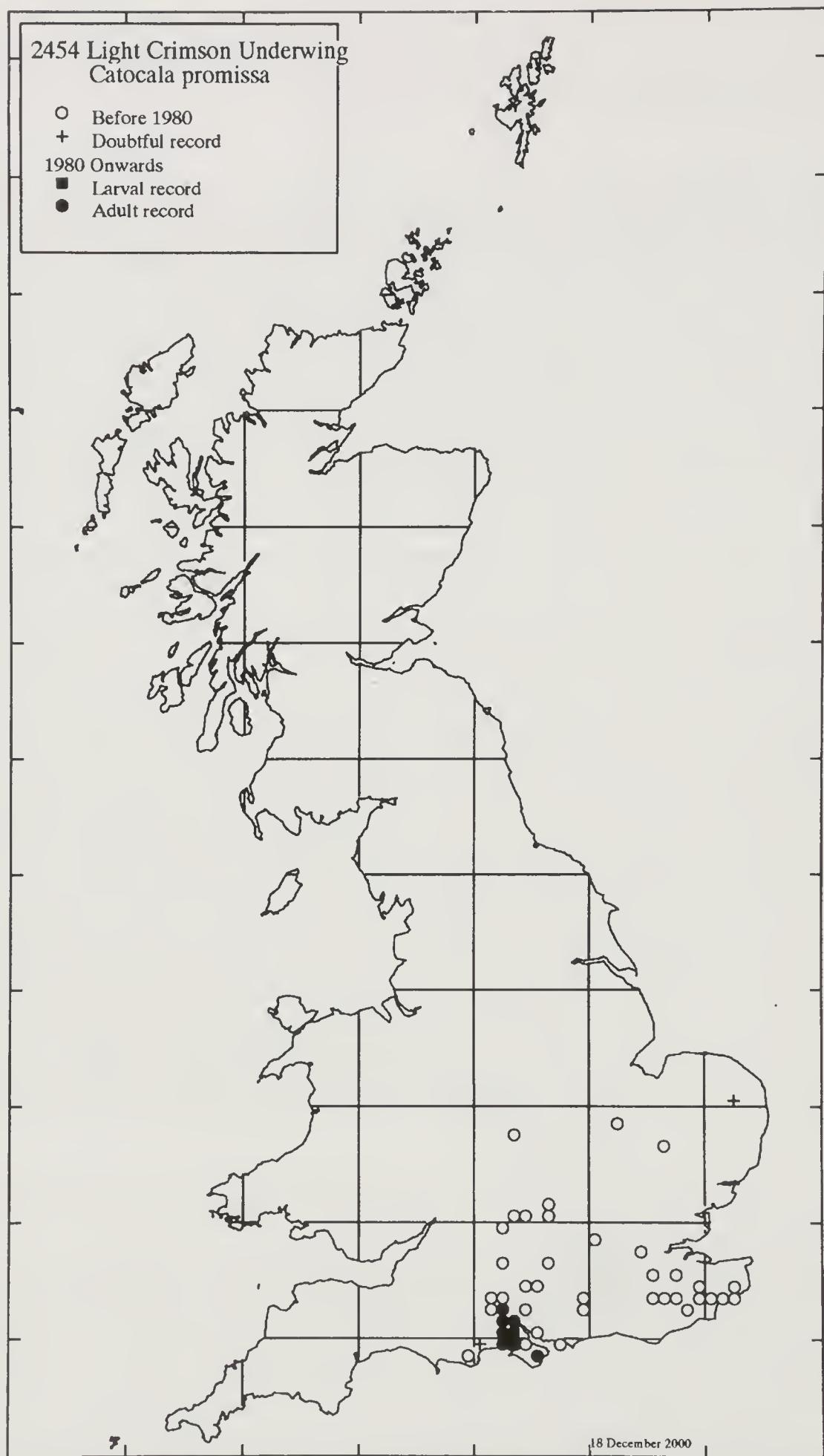


Fig. 5. Light crimson underwing *Catocala promissa* (D. & S.) distribution map.

target sites where they will be successful in procuring these species, but that they do not work systematically by grid square. For instance, there are many pre-1980 records for Kent and East Sussex, but the empty dots do not tell us how many times these localities have been visited since 1980 for zero results.

Double line, *Mythimna turca* (L.)

I find it curious that at only a second major field meeting to Richmond Park many examples of this species turned up, where they had not been recorded for many years (Waring, 1993). Does this indicate lethargy on the part of lepidopterists or are there just too many sites to go to? The other curiosity is that this site is closed in by urban areas and subject to high levels of pollution, and yet the moth is still abundant. There appears to have been a decline of this moth in the wider countryside outside the south-west of England and Wales, probably due to agricultural improvement. It is believed to require rough unimproved pastures but there are still many of these in south-east England. There is obviously a more subtle requirement for a very specific type of grassland, which makes a splendid opportunity for members of this Society to indulge in some practical research.

WHY SHOULD ENTOMOLOGISTS EMBRACE BIODIVERSITY ACTION PLAN RESEARCH?

Better knowledge of invertebrate life-histories will be obtained by the process. Alan Stubbs, writing in his presidential address to this Society eighteen years ago, said "one of the saddest things is that after so many years of the study of butterflies, entomologists have failed to provide the information necessary to manage habitats for these insects" (Stubbs, 1982).

In recent years, arguably, Butterfly Conservation has led on life-history research, but I believe that members of this Society could do more. Until or unless an Invertebrate Conservation Trust is established, it is essential, I believe, that the BENHS is involved in all moth research and especially, because with a greatly increasing UK population, the continued need or promotion by the market for more housing and employment developments will inevitably lead to further losses of the habitats we treasure.

POPULATION PRESSURE AND DEVELOPMENT

Human population pressure, modern changes in family relationship statuses, industrial and transport built infrastructure. These have all changed considerably and are set to change even more, placing more isolation risks on wildlife sites. The Government's Office for National Statistics has indicated that the population of south-east England is expected to rise by 13% in the next 20 years, and Ministers have stated that a further 860,000 homes need to be built in the south-eastern counties over the next twenty years. For England and Wales the latest figures as of March 1999 were 52.2 million people at May 1997, 200,000, up on the figure for mid-1996. (Source Government Computing magazine.) A recent world map published in December 1999 by the Royal Geographical Society gave the UK figures as 59,400,000 on a land area of 244,100 sq. km, whereas for France it is 59,080,000 on more than twice the UK land area of 543,965 sq. km in which to fit everybody in.

These plans are likely to lead to considerable losses of countryside in all these counties. Even if only 50% of the area is eventually developed because the figures are over-estimates, this would still have a significant impact on the current landscape.

	SERPLAN proposals	Public Examination (% increase)	Total area of rural land under threat ¹
Bedfordshire	42,890	64,000 (49%)	27 sq. km
Berkshire	53,261	83,000 (56%)	23 sq. km
Buckinghamshire	54,300	92,000 (43%)	39 sq. km
East Sussex	37,458	64,500 (72%)	27 sq. km
Essex	83,900	150,000 (79%)	62 sq. km
Hampshire	101,900	169,000 (66%)	68 sq. km
Hertfordshire	50,900	88,000 (73%)	28 sq. km
Isle of Wight	9,553	13,000 (36%)	2 sq. km
Kent	99,700	150,000 (50%)	64 sq. km
Oxfordshire	41,500	75,000 (81%)	41 sq. km
Surrey	34,937	77,000 (120%)	22 sq. km
West Sussex	44,900	73,000 (63%)	29 sq. km
South East (outside London)	668,500	1,098,500 (64%)	432 sq. km)

¹Based on estimates of urbanisation for every 1,000 houses calculated in Department of the Environment's Urbanisation in England: Projections 1991-2016 (1995). Differences between counties reflect the varying potential for using urban land and buildings.

Fig. 6. CPRE TABLE—The impact on the shires.

The squeeze will be especially evident where there is pressure *not* to develop flood-plains and high-yielding agricultural land. In all south-eastern counties except Oxfordshire, it is policy that such development will go on "brownfield" sites. I suggest to you it that it is these very brownfield sites that in many areas form links between the remaining semi-natural habitats. In many cases they are refuges for localised species forced out of niche habitats elsewhere by urbanisation and intensive agriculture. Peter Harvey writing in an article on the East Thames corridor (Harvey, 1999) revealed that this area was very valuable for aculeate Hymenoptera, since it contains areas of old mineral workings, post-industrial areas including old silt lagoons, and even some flower-rich unimproved areas. In an area equivalent to one 10 km square, 49% of the British fauna of bees, wasps and ants have been recorded. But again the previous lack of local knowledge has been revealed, as nearly all of this area is under imminent development threat. Despite the immensity of the job, this lack of prior knowledge of the whereabouts of important species assemblages remains a significant weakness in invertebrate conservation. This is because it is *not* in the hands of an invertebrate equivalent of the RSPB. We, in entomology, lack a central organisation holding such information, able to react instantly on the strength of this knowledge, and independent of the policies of Government. Remember that English Nature, the Countryside Council for Wales, and Scottish Natural Heritage have all seen reductions in their entomological staff and consequently in their ability to act quickly. A further implication of development and exponential population increase is what I refer to as the knowledge impediment, that we entomologists, do not yet know the answers to fundamental questions that may guarantee the survival of sensitive species in the years ahead. There is perhaps little time left for us to find

out all the answers we require before these developments or climatic effects occur. This talk looks at the next 100 years, the building developments announced recently could be compounded by four more similar amounts of housing and infrastructure development by the end of this century.

OTHER INVERTEBRATES

In comparison to the butterflies, and perhaps some dragonflies, crickets and grasshoppers, I personally believe that the picture of scarcity of many species in the "other orders" is a lot better than when the NCC's British Red Data Book for Insects (Shirt, 1987) was published. Almost every rare bee, wasp or fly that I have taken in the last twenty years has been taken subsequently by others, even some of you in this room. *Andrena hattorfiana* (F.) is one of our largest solitary bees, frequenting Salisbury Plain and chalk downland slopes. Ten years ago it was thought to have declined substantially but, with increased examination of its old haunts, hymenopterists have re-found it on the chalk hills of East Anglia and southern England. What it must have is an annual supply of flowers of field scabious and greater knapweed, each year without exception. The kind of management you require for this solitary bee would not suit the adonis blue butterfly *Lysandra bellargus* (Rott.). This is likely to be an area where a single-order study group will run into management priority problems as sites are reduced.

DOT MAP DISTRIBUTIONS

Now that we have interactive on-line computer networks, perhaps this technology could be adapted for dot-maps to become much more intuitive and instructive. I am sure it would be a big improvement if we were able to double-click on a grid-square dot to reveal much more sensible and coherent information, password-protected as necessary. Such as how many discrete populations and their locations exist in a 10 km square for any one species? Of course this should only be done for a few species, those of conservation concern or of fast-changing distribution patterns. It would also be most interesting to know how many sites were searched for a scarce species and for how long, without revealing its presence. In other words, how much effort has been applied to each 10 km square.

RED LIST CATEGORIES AND DISTRIBUTION STATUS CHANGES

An equal concern is the maintenance of the modern equivalents of Red Data Book statuses. As I have already shown tonight, our insect fauna is constantly changing. These conservation statuses of the International Union for Conservation of Nature and Natural Resources (IUCN) as applied in Great Britain, should reflect these changes on at least a five-yearly cycle, if not dynamically. (Eyre, 1998) was also critical of the slowness of deciding RDB statuses because research he was associated with in creating species indices could not be set in an RDB context until these statuses had been decided. For instance a few species of hoverfly and wasp, that were categorised as endangered or vulnerable, no longer merit such a high designation e.g. *Callicera rufa* Schummel, and *Philanthus triangulum* (Fab.). The greater targeting and examination of sites of occurrence has indicated that some species are more widespread than previously thought, so these designations should keep pace with such research, if the whole system is not to be scorned. Indeed, *Callicera rufa* was

downgraded in Falk (1991) after searches for larvae revealed that the species was more frequent than had ever been realised through observing adults.

A prime example of invertebrate status change is, of course, the Bee Wolf, *Philanthus triangulum* (Fab.), which was categorised as Vulnerable (RDB2) in 1986, but which I now consider common. From its occurrence at Sandown Bay in the Isle of Wight since 1851 and three other IoW sites, as well as Nacton Heath in Suffolk in 1976 and another heath in south Norfolk in 1983, it has now exploded in distribution, even occurring in the amenity grasslands of local authority housing estates and the imported sandy butts of rifle ranges on Salisbury Plain in the middle of the chalk (S. Miles, personal observations, 1999). I do not believe it could be ranked as even Notable now.

Would politicians understand such issues when compiling wildlife legislation? I suspect that they would not and might accuse all naturalists of over-egging the pudding when it comes to scarcity. During the period that some butterflies have declined, other insects and invertebrates have moved into the southern England or expanded their range. Are these two factors linked? I would suggest that this is something that we will urgently need to discover if we are to make coherent conservation decisions. A common factor noted in many of the current changes to our fauna is that they seem to occur in an east to west direction. As much as there is some depression at the losses of butterfly species, there is room for hope in the expansion of new species of other orders, that we now see around us compared, say, to the 1940s.

An even more striking example of an extension of range is the social wasp *Dolichovespula media* (Retzius).

The first finder of this species in the UK in 1980, Steven Falk remarked that, "there seems no reason why this species should not establish itself in England as it occurs throughout Eurasia" (Falk, 1982). As you can see (Fig. 8.), it certainly has established itself. Roesel's bush-cricket *Metrioptera roeselii* (Hagenbach) and the long-winged cone-head *Conocephalus discolor* (Thunberg) are other examples of steadily expanding species. It is interesting to note that (Marshall & Haes, 1988) listed both of these species as being, within their ranges, typical of trunk-route verges. There are many other insects that could be mentioned in this category.

CLIMATE CHANGE AND SPECIES

A recent Radio 4 Natural History Programme referred to an exotic bird, the little egret, being on the increase in southern England and having now reached Chasewater Country Park, a relict heathland industrial area near Birmingham. This is a most amazing change in such a short period, but of course it is also happening with invertebrates such as the spider *Argiope bruennichi* (Scopoli) that has colonised Dorset and is now reported from Wiltshire.

Contrastingly, in a global warming scenario, will our small wet quaking acid bog areas survive? Could such species as the large marsh grasshopper *Stethophyma grossum* (L.) become even more endangered? It is easy to visualise the scenario in 2025, when warming has continued so much that a malarial mosquito now occurs in New Forest National Park. By this time too many people have a vested interest in attracting tourists to the area, so the water bodies are expendable to favour the large numbers of human visitors. Additionally, there is the continued need for water abstraction for consumption by the UK's now 65,000,000 human population and the consequent lowering of the water-table. The result—wave good-bye to the large marsh

Philanthus triangulum

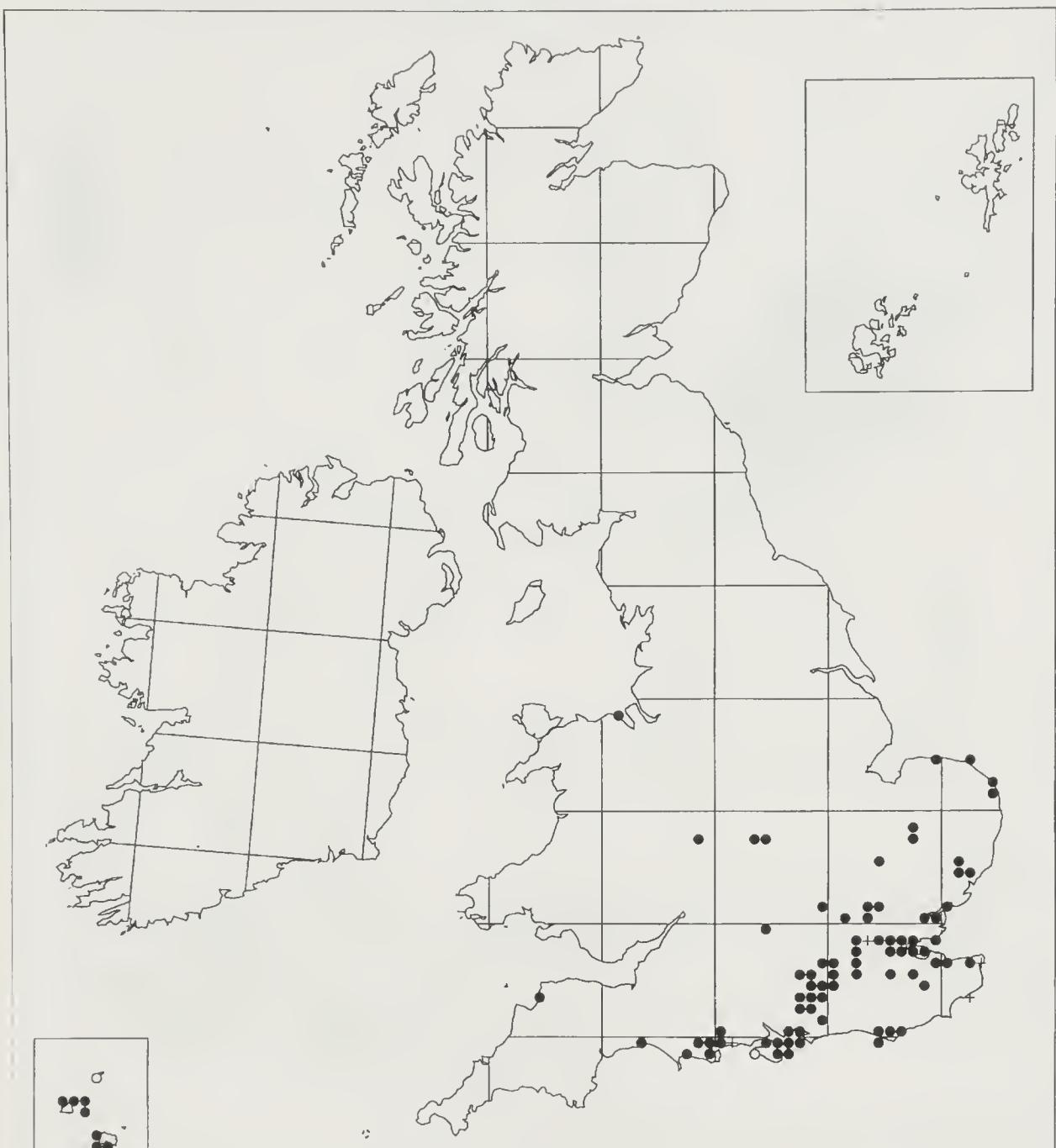


Fig. 7. *Philanthus triangulum* (Fab.) distribution map.

grasshopper. However, with current European weather conditions likely to occur in the UK in the future, will species currently restricted to certain specialised habitats be likely to become less discerning in their future habitat requirements?

(The Bracknell National Weather Centre described 1999 as the warmest year overall since records began in 1659. Their prediction was that the average UK temperature would be 2 degrees C higher by 2050.)

FUTURE REQUIREMENTS IN INVERTEBRATE CONSERVATION SCIENCE

There are still many gaps in our knowledge, some possibilities for future research might be the following, which it will be essential to know thoroughly, if species are to be conserved.

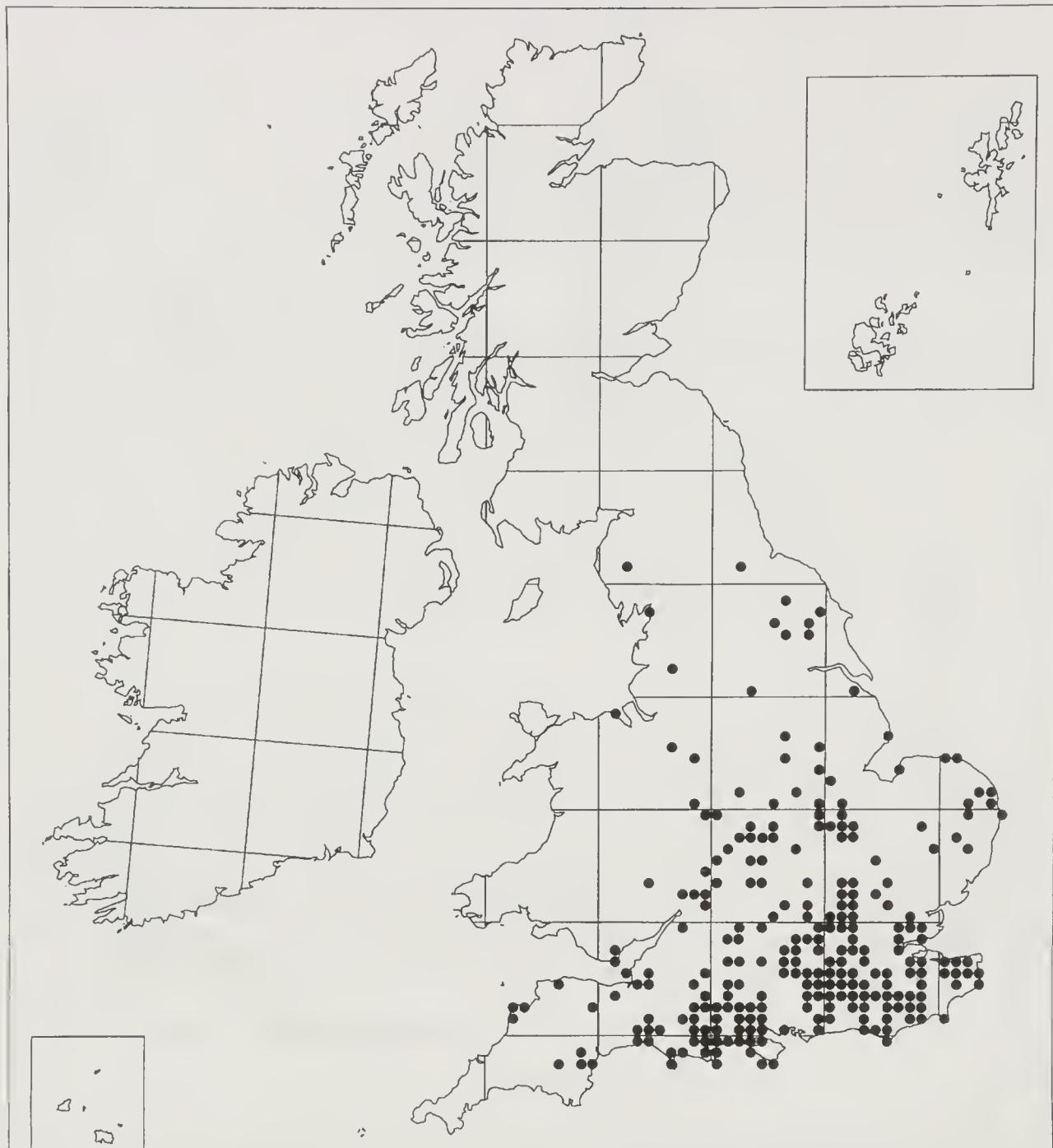
Dolichovespula media

Fig. 8. *Dolichovespula media* (Retzius) distribution map.

1. What is the minimum size of an invertebrate population to enable it to survive in any one habitat annually, although not necessarily to be observed on a year-to-year basis? Is a population a single genetic stock?
Rationale: we frequently hear of specimens being seen once again in localities after several years of absence (Rothschild, 1994). Could it be that they were present all the time though not at a high enough threshold level to be seen?
2. To which species are agricultural fields a barrier to their dispersal to other localities, and if they do form a barrier, what size of field or crop types form such barriers?

Roesel's Bush-cricket *Metrioptera roeselii*



Biological Records Centre

December 1999

Fig. 9. Roesel's bush-cricket *Metrioptera roeselii* (Hagenbach) distribution map.

Rationale: how do invertebrates spread to new areas? Is a network of inter-linked sites desirable and necessary, or just a problem in our own minds?

If a site such as Pamber Forest is genetically isolated, do butterflies travel many miles just to visit it or disperse from it? Many sites containing local species are now surrounded by much larger open fields, where the small networks of hedges that used to link the woodlands dotted about the countryside no longer exist. Is this a limit to other species' dispersal?

3. To which species are built-up areas a barrier to their dispersal to other localities, and if they do form a barrier, what size of urban area forms such barriers?

Rationale: as the remaining countryside becomes more urbanised, with more intrusive infrastructure, roads, street lighting, tidy hedges, neat grass strips and cycle paths where once there were roadside verges, will the species we have now survive in the second half of this new century?

4. Do motorways and other major roads inhibit or encourage dispersal?

Rationale: a study of carabid beetles, (Mader, 1984) revealed that major roads did appear to inhibit the insect dispersal, with very little evidence of species dispersal from island areas separated by a road. In addition there is an inevitable high casualty rate for all insects amid the turbulence caused by busy traffic. However, the wide verges of motorways, have the capacity I believe, to act as linear dispersal mechanisms linking one site to another.

5. The general structure and biology of a great number of invertebrate larvae remain unknown. Rationale: we cannot maintain populations of adults without knowing the requirements of the early stages.

Large Marsh Grasshopper *Stethophyma grossum*

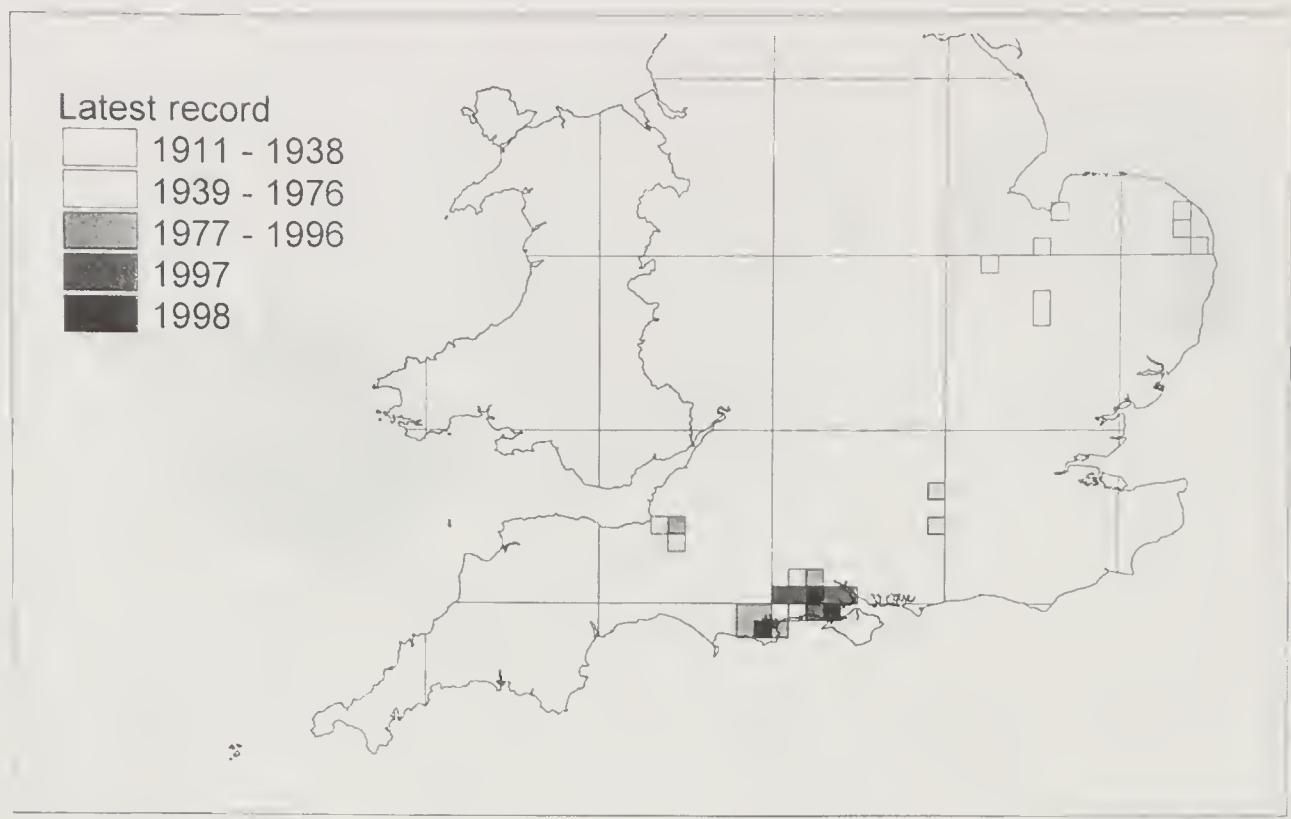


Fig. 10. Large marsh grasshopper *Stethophyma grossum* (L.) distribution map.

6. Which species are the priority for research to be conducted by the entomological community? What are the factors that are likely to cause extinction in British species in the next hundred years? Or in other words, what species should members of this Society and other entomologists study now, in order to enable our successors to continue to study and collect these animals in the 21st and 22nd centuries?

Now in theory this should be easy to decide since the Biodiversity Action Plans should have encapsulated all of the relevant species, if only all entomologists could agree on the methodologies to decide on the critical species.

7. Should we devise a method to produce quantitative data on relative species abundance, of which we appear to have a paucity at present?

Rationale: what are the common features that identify years of abundance and scarcity in different species?

8. Has atmospheric pollution had any effect on invertebrate populations? (Idea from Barbour, 1986). Rationale: if roadsides are a dispersal network for many invertebrates, is this dispersal, especially for non-flying species, inhibited by roadside pollution?

9. If global warming is an actuality, what effect will it have on invertebrate populations in the UK?

Rationale: as temperature increases, it is likely that pest species prevalent in Europe today will be much more active further north. The present sympathy to the plight of the relatively benign species we have today may be much less in evidence in the future perhaps?

But at the same time many of these knowledge aspects are limited to observations and as Sir Richard Southwood in his Presidential speech to the Royal Entomological Society said some years ago, quoting from Sir James Gowans, "the things we would like to know may be unknowable" (Southwood, 1985).

REPRESENTATION

We do not seem to generate so many dynamic ambassadors for natural history, and particularly invertebrates, as perhaps we did in the past. Where are the future Peter Scotts, David Attenboroughs or even Simon Kings? Admittedly there is Roger Key, English Nature's entomological media personality, but there are few others to fill this category. Certainly there seem to be extremely few dynamic entomologists, but perhaps this is an oxymoron.

But we should be seeking more influence, whether it is writing about invertebrates in *Natral World*, attempting to become members of the council of English Nature or the Countryside Commission, or appearing on the media. I believe that more of us should be influencing such bodies at a high level. Another major weakness would appear to be the current lack of a strong body within the Royal Entomological Society concerned with conservation. This is a gap, that we in the BENHS as an amateur society should continue to exploit.

AN INVERTEBRATE CONSERVATION TRUST

A major option is the formation of an Invertebrate Conservation Trust. If supported by the British entomological community, this could tackle those issues that traditional societies like the British Entomological and Natural History Society or the Royal Entomological Society find themselves unable to do.

The following practical issues could then be addressed:

1. *Achievement of an invertebrate conservation trust concerned with all species and their management.* There is need for a unified UK organisation devoted to achieve the conservation of all invertebrate species and their habitats, and [avoiding the single species group trap], taking a balanced view of conservation management (Kirby, 1992).
 2. *Attainment of more popular support for invertebrates by demonstrating them to the public.* The attainment of more popular support for insects and other invertebrates and their sites of maximum diversity is especially necessary as more and more sites will be lost due to human population expansion in this new century.
- A. Entomologists have a particular role here, in organising more events to bring live insects and their habitat requirements to the public's attention, as I and the BENHS Conservation Working Group have attempted to do in the last few years. We have held events for the public at Dinton Pastures Country Park, Swanwick in Hampshire, at the RSPB's Minsmere reserve, with another scheduled for summer 2000 with the Herefordshire Wildlife Trust.
- B. Another issue we can tackle is that of attempting to persuade local residents of the need to remove trees and shrubs from heathland, or encouraging woodland thinning through attempting to win hearts and minds through children's natural enthusiasm for invertebrates, known to them as bugs. We have probably all seen headlines such as "trees chopped by conservationists", or read that the local Wildlife Trust is ruining perfectly good walking country. What the public does

not know or does not care about is that insects in particular require very specific microhabitats, and one of our many roles is to illustrate this practically.

C. The staff of Wildlife Trusts need to be given a better understanding of the needs of invertebrates. The Trusts have a high turnover of staff so such instruction needs to be communicated regularly. This Society does not have the resources to undertake this at present, but it could be a high priority for the proposed Invertebrate Conservation Trust.

3. *Entomologists to develop closer links with county Wildlife Trusts.*

Entomologists need to develop closer links with the county Wildlife Trusts on a reciprocal basis, both individually and through the major organisations already mentioned, but this is difficult when their societies do not have any staff working normal office hours.

4. *More support for invertebrate projects from major groups like the Worldwide Fund for Nature and government agencies.* More support is desirable for invertebrate conservation projects from the likes of the Worldwide Fund for Nature, IUCN and national Government agencies. From my perception this seems to be lacking but more might be forthcoming to a dedicated organisation.

5. *Greater understanding of the need to collect some invertebrates for accurate identification and monitoring.* More understanding is needed across the world of the importance of being able to collect insects for study easily without an excessive need to apply for permits and other red tape—this requirement applies particularly to Germany and Spain but appears to be growing elsewhere. Even among the UK's natural history organisations, there seems to be a prevalence of measures to "protect" insects in these ways that forget the need to monitor populations of species that cannot readily be identified. (Wildlife Link Charter publication, 1997).

6. *Availability of funds to study non-economically important invertebrates before they decline.* If invertebrates are at the other end of the spectrum to mammals when changes affect the environment, ie if they are the first to suffer diminution because of their annual life-cycles, then more study is needed of invertebrates in their habitats, and long before the time when mammals begin to decline.

7. *Acquisition of nature reserves specifically to manage invertebrate populations.* In the next 20 years the rest of the entomological community could perhaps start to acquire at least a handful of nature reserves, to be managed exclusively for invertebrates *other than butterflies*.

The rationale:

- a) the Charities Commission keep on urging the BENHS to spend more of its resources, and it would do the same for an invertebrate conservation trust, if that was formed.
- b) if we developed management expertise specifically for invertebrates, we could provide advice to others based on actual experience.
- c) subject to legal constraints, we could maintain some populations of weedy species that are so essential to pollinating insects but which appear to be unpopular in other organisation's reserves, e.g. ragwort, thistles.

- d) our aim might be to set up reserves that just safeguard a single hedge or line of trees which are known breeding sites for special species, to try to prevent losses such as that of a site of the scarce vapourer moth (*Orgia recens* (Hübn.) in Yorkshire in 1995 (Waring, 1995).
- e) avoidance of clashes of priorities, as are already said to be occurring with losses of other species when management of sites favours butterflies.

NATURE RESERVES AND ENTOMOLOGICAL ORGANISATIONS

Should the BENHS or the proposed Invertebrate Conservation Trust become a nature reserve owner and manager? Why not? If we truly believe that it is not collecting that does damage to invertebrate populations, a demonstration reserve showing the management techniques we believe in, as well as allowing collecting monitored on a long term basis, would be a good test. A reserves fund would also allow the Society or Trust to be a beneficiary in the receipt of bequests for such purposes.

CONCLUDING REMARKS

This Society, entomologists as a whole and naturalists in general face a continuing dilemma. Should we take a back seat and just watch the changes unfold, the normal ebb and flow, losses and gains of species, in other words be complacent in the belief that there is nothing we can really do to retain species? Or, should we be more positive and take a proactive conservation role in the belief that our Society or an Invertebrate Conservation Trust could make a difference, as Butterfly Conservation have perhaps already done? To take the title from the BBC Radio 4 programme, *The Choice*, our options can be tabulated:

Insect conservation: the choice

<i>Decision</i>	<i>Result</i>
Do nothing, observe and collect data, accept the status quo.	Some species decline, others increase, as they have always done. BENHS continues to make a contribution, as it always has done, to our knowledge of species' life-histories. BENHS remains manageable by volunteers. The Society continues to speak from a viewpoint of little site-management experience and has reducing influence over the growing subject of conservation matters.
As a Society stick to fieldwork and taxonomy. Leave politics and conservation to those interested souls and to the new Invertebrate Conservation Trust, if it gets established.	1. We disprove the idea that collecting damages most populations. (Our studies over the next 10–50 years) 2. We gain management experience, if we wish to advise others how to manage their reserves for our interests. 3. We use our sites as demonstrational reserves for the habitat niches we wish to see maintained, e.g. tree rot-holes, <i>not</i> artificial nest-boxes, bare sand areas, <i>not</i> continuous heather, river shingle areas.
BENHS or an Invertebrate Conservation Trust to start to acquire and manage nature reserves or give protection to very small parts of the countryside, e.g. single hedges, containing breeding sites of scarce species.	

Become proactive, even political, fight to save invertebrate habitats.

4. We produce invertebrate management videos and training material as a result of our experience.

5. We safeguard individual breeding sites for populations of invertebrates that would otherwise be lost.

Some species decline others increase. The public, other naturalists and perhaps even a few politicians become aware of invertebrate conservation issues, NOT just the butterfly ones.

I believe we have compromised historically between these two actions. But with the changes I have spoken about tonight, I believe we need to become more prominent as a Society in wildlife conservation issues. This will be especially necessary if for any reason, even apathy, an Invertebrate Conservation Trust is unable to become established. There is still a risk, particularly from those outside entomology, that all invertebrate collecting could be despised as much as butterfly collecting is now. This will be especially the case if entomologists are not providing added value in the form of more ecological knowledge about the species in which they are interested. As I have intimated tonight, there are so many vital questions that need answers for exceptional invertebrates to continue to flourish as well as the currently commonplace species. As was written in the final flourish to *The New Aurelians* (James, 1973) the centenary history of the British Entomological and Natural History Society "Although the future is misty, one fact is certain: the Society's potential is vast".

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RECORDING OF INVERTEBRATES AT DINTON PASTURES—A REQUEST FOR RECORDS

The Society have now been resident at Dinton Pastures Country Park for ten years and during that time there has been a lot of recording of invertebrates in the Park by members. Records have been gathered over that time and a list of what is so far known was recently compiled and has been passed to the Country Park management, who have undertaken to pass the information to the local Biological Records Centre. Comments on the Red Data Book and Nationally Scarce species recorded have also been provided.

The list presently includes 2268 species of invertebrates of which 2170 are insects, most of the remainder being spiders (73 species). Resulting from my frequent recording in the Park there are records of 1208 species of Diptera, more than 20 per cent of the British species excluding chironomids and cecidomyiids which have been poorly studied here. Some families are very well represented e.g. 31 of the 67 British species of snail-killing flies (Sciomyzidae) have been recorded. Other groups well recorded are Heteroptera (97 species) and Symphyta (103 species). Recording of Lepidoptera (312 species) and Coleoptera (259 species) has been less intensive, although some families have been well recorded.

So that knowledge of the Park's fauna can be as complete as possible details of any records made in the Park that have not already been submitted to me, are requested. Could any members who have collected in the Park please collate their records and pass them to me during the coming months so that this information can be incorporated in the list by the early summer.

A similar list has been compiled for California Country Park, also operated by Wokingham District Council. Recording there is at an earlier stage, with 807 species of insects of which 590 are Diptera so far recorded. Any records for this area would also be appreciated.

PETER CHANDLER

SHORT COMMUNICATIONS

The Australian cockroach *Periplaneta australasiae* (Fab.) (Blattodea: Blattidae) breeding in glasshouses in Cambridge.—The ‘Australian cockroach’ *Periplaneta australasiae* (Fab.) is a naturalised pest species which is able to form colonies in Britain under artificially warm conditions (Marshall & Haes, 1988). The species is frequently associated with glasshouses in Northern Europe, with known colonies at Glasnevin Botanical Gardens, Dublin, Ireland (Cotton, 1980) and Göttingen and Jena Botanical Gardens, Germany (Renker & Asshoff, 1999). Examination of the collections at the Natural History Museum supports this observation, providing records from The Royal Horticultural Society Gardens, Wisley, Surrey (13.xii.1975), the Orchid House, Isfield, Sussex (18.iii.1922, J. P. Matthewman) and Kew Gardens, Surrey (2 specimens labelled ‘viii/1920’ and ‘Tropical Fern House, 6/vii/1957, AHG Alston’). Most other specimens in the BMNH British Isles Collection were imported with produce from abroad, although 4 specimens labelled ‘RCS Outstation, Downe, Kent, J. E. Cooper xi-xii/1984’ suggest a colony once existed there.

On 10.vi.1990, on visiting the tropical glasshouses of the Botanical Gardens of Cambridge University (BGCU) (VC29, TL45), I collected two dying adults of *P. australasiae* and was informed by the gardeners that the glasshouses had recently been sprayed with insecticide. They explained that the cockroach was extremely abundant, and was especially apparent at night running on the vegetation. When I returned the following month, the infestation was still present in spite of the spraying, and the species was causing considerable damage to pitcher plants *Nepenthes* spp. (Nepenthaceae). The nymphs were strongly attracted to these insectivorous plants, and the pitchers filled up with dead cockroaches that dried up the plant’s fluid reservoir, allowing subsequently trapped nymphs to survive and damage the pitcher by eating their way out. The pitchers subsequently rotted or dried out.

I returned to BGCU on 14.xii.2001, but no pitcher plants were observed in the tropical house; possibly planting of *Nepenthes* spp. has been discontinued because of the cockroach’s depredations. However, two nymphs were observed feeding in the opened female cone of the cycad *Dioon edule* Lindl. (Cycadaceae). *P. australasiae* has apparently been present at the Botanical Gardens for at least 11 years. It has almost certainly spread to Cambridge with plants from other infested glasshouses.

Marshall & Haes (*loc.cit.*) indicate records of *P. australasiae* from 30 vice-counties of the British Isles, including modern (post-1960) records from nine vice-counties. However, some of these records apparently refer to casual specimens imported from the tropics with produce (e.g. see Fowles, 1986). Probably the number of actual breeding colonies in the UK is very small. Ragge (1965) gives a record for Cambridgeshire, but this vice-county was not indicated in Marshall & Haes (*loc.cit.*). The most recent atlas of British orthopteroids (Haes & Harding, 1997) omits naturalised species.

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The contrasting range expansion of two species of *Deraeocoris* (Hemiptera—Heteroptera: Miridae) in south-east England.—The plant-bug *Deraeocoris flavilinea* (A. Costa) is a recent addition to the British fauna which was first noticed in July 1996 (Miller, 2001). Like others of the genus it is a predatory feeder, but is usually associated with trees of the genus *Acer*. It is a large and distinctive bug which, therefore, would probably have been detected within a few years of arriving in the country—one might guess that it arrived about 1990. Subsequently it appears to have established itself and spread very rapidly, even explosively! Similarly, it was first recorded in The Netherlands in 1985 (Aukema, 1989) and is now well established there (B. Aukema *pers. com.*). The bug's history in Britain to date is as follows:

- The July 1996 site for *D. flavilinea* was Hackney Marsh (HM), in the Lee Valley in east London.
- In 1998 it was seen here again and at three other sites: Blackwall (7 km south of HM), where the River Lee joins the River Thames (Miller *op. cit.*); “many on several occasions” were found a few kilometres up the Thames at Deptford Creek (Jones, 1999); and thirdly it was found at Forty Hall, Enfield (12 km north of HM) (Hodge, 1999).
- In 1999, the authors visited Forty Hall and found the bug numerous there on a lone sycamore tree.
- In 2000 it was found at Woolwich Common (5 km east of the 1998 Blackwall site) (A.A. Allen *pers. com.*). In 2000, too, it had reached Bletchley in north Buckinghamshire (75 km northwest of HM), the authors found it here the same day as B.S. Nau found one in his garden at Toddington in Bedfordshire (45 km northwest of HM). A day or two later Peter Kirby found specimens at two sites in Luton, in the same county (Nau, 2001).
- In 2002 the authors visited Hounslow Heath (28 km southwest of HM) on 3 June. This is a Local Nature Reserve in west London, close to Heathrow Airport and is a site where there was a rich Heteroptera fauna in the mid-1950s (Woodroffe, 1953, 1954). The object of our visit was to see what changes had occurred in the interim. To our surprise we found that *D. flavilinea* was already both common and well distributed about the site. There were nymphs of the fourth and fifth instars on diverse species of shrub in a hedgerow bordering a grassy meadow and even on birch in the visitors' car park! Continuing the story of *D. flavilinea*, in mid-July 2002 the authors found it both widespread and numerous on diverse species of shrub and tree in hedgerows around Toddington in Bedfordshire and bordering a green lane at Swanbourne in Buckinghamshire (65 km northwest of HM). Clearly *D. flavilinea* is flourishing!

Interestingly, on the visit to Hounslow Heath we also found fourth and fifth instar nymphs of another species of *Deraeocoris* which, like *D. flavidinea*, is a relatively recent addition to our fauna; this is *D. olivaceus* (Fab.). However these were much less numerous and restricted to hawthorn, the usual host. The history of *D. olivaceus* in Britain has been quite different:

- In 1951 it was first recorded in Britain, from Ascot in Berkshire (Sands, 1954).
- The second record was in 1954 at Hounslow Heath (20 km northeast of Ascot), where it was found by Woodroffe (*op. cit.*)
- By 1959 the known range extended from 20 km north of Ascot (Burnham Beeches) to 30 km south of Ascot (Witley Common) (Leston & Woodroffe, 1961).
- Subsequently its range seems to have extended only slowly; for instance it was not found in Bedfordshire until 1998, when it was found in the extreme south of the county (40 km northeast of Ascot), and this in a county well-worked for Heteroptera over the last thirty years. It has since been found at several more sites in the south of this county but is nowhere numerous.
- In 1999 it was found at Itchen Stoke near Winchester in Hampshire (40 km southwest of Ascot) (Denton, 2001) and in the same year the authors found it at Enfield Lock (42 km northeast of Ascot) on the Middlesex/Essex border.

In conclusion, *D. olivaceus* is usually neither easy to find nor numerous where it occurs and in both respects differs markedly from *D. flavidinea*. The latter has spread rapidly and widely and may be found in good numbers where it occurs. Its northward spread already exceeds that of *D. olivaceus*.—B.S. NAU and S.E. BROOKE, 15 Park Hill, Toddington, Dunstable, Beds LU5 6AW, 18 Park Hill, Toddington, Dunstable, Beds LU5 6AW

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BENHS FIELD MEETING REPORTS

Bernwood Forest, Bucks/Oxon 14 June 1997

Leader: **Martin Albertini.** This meeting comprised of day-time and night-time sessions, the former being restricted to the Bucks (vc24) and larger part of this woodland complex and also included the adjacent Bernwood Meadows BBONT reserve. The woodlands have a long history of recording, especially for macromoths during the 1980s, and the Society previously held a meeting here on 31 July 1993 when two new species were added to the all time list of 431 (*British Journal of Entomology and Natural History* 6: 183).

Eight people attended the day-time session and recorded various insect groups including Diptera: *Brachypalpoides latus* (Meigen), *Chrysotoxum bicinctum* (L.), *Criorhina berberina* (F.) all in Oakley Wood and *Urophora quadrifasciata* (Meigen) from Bernwood Meadows. Coleoptera included *Agapanthia villosoviridescens* (Degeer), *Phytoecia cylindrica* (L.), *Clytra 4-punctata* (L.), *Agabus chalconatus* (Panzer) and the two Tortoise beetles *Cassida rubiginosa* (Müller) and *C. vibex* L. Lepidoptera included the Forester moth *Adscita statices* (L.) in Bernwood Meadows, Hornet Clearwing *Sesia apiformis* (Clerck) in York's Wood (first recorded for Bernwood in 1993) and in Oakley Wood, the Speckled Yellow *Pseudopanthera macularia* (L.) probably the first record since the 1930s and the micromoths *Commiophila aeneana* (Hb.), *Aphelia paleana* (Hb.), *Olethreutes arcuella* (Clerck) and *Phlyctaenia perlucidalis* (Hb.).

The night time session was attended by 17 people with 20 moth lamps of various types, all seeking the target species, Common Fanfoot *Pechipogo strigilata* (L.), which appears to be a rapidly declining species and is now on the Biodiversity Action Plan list. Most lamps were situated in Oakley Wood where this species had previously been recorded and two lamps were run in Waterperry Wood in the Oxon (vc23) part of the complex. A total of 139 species of macromoths was recorded, 132 from the Bucks part and 60 from the Oxon part. It was pleasing that eight individuals of the target species were found, seven in Oakley Wood in the area of ride 11 and the adjoining compartment 14. One individual was also found at the eastern end of the complex in Shabbington Wood at the west end of ride 54. A first for the wood was Clay Triple-lines *Cyclophora linearia* (Hb.) in Shabbington Wood on ride 43 by intersection 13, adjacent to about the only planting of beech which is the larval food plant. In Oakley Wood a single individual of Pine Hawk-moth *Hyloicus pinastri* (L.) was the first Bucks record for the site, four years after the first Oxon record that was made at the Society's previous meeting here. Other species of note for the Bucks portion of the complex were: Satin Wave *Idaea subsericeata* (Haw.), Small Waved Umber *Horisme vitalbata* (D.&S.), Great Oak Beauty *Hypomecis roboraria* (D.&S.), Bordered White *Bupalus piniaria* (L.), Shark *Cucullia imbratrica* (L.), and Small Clouded Brindle *Apamea unaniinis* (Hb.).

I would like to thank all the people who attended, in particular Paul Waring for his guidance, for helping make this a successful meeting and to Forest Enterprise for permission to hold the field meeting and allowing members to drive onto the site.

Leckhampstead and Wicken Woods, 20 May 2000

Leader: **Roger Kemp.** These woods, each over 40ha, are classed as semi-ancient woodland (originally oak and ash with hazel coppice), although both were clear-felled around the 1940s. Leckhampstead Wood in north Buckinghamshire has been

in private hands since this period and allowed to re-grow, but management has lapsed over the past ten years or so. Wicken Wood in Northamptonshire has been managed by Forest Enterprise for timber, but much of the conifer crop has recently been felled.

Both woods have been well known in the past for their butterflies, with specimens in old collections labelled from Lillingstone Lovell, the nearest village. Even in the 1980s these woods were considered the best of the Whittlewood Forest complex for Wood White and Blaek Hairstreak. The former still thrives, but the latter has not been seen in recent years. This meeting and another in June were planned in conjunction with Butterfly Conservation to investigate whether the Blaek Hairstreak is still resident in the woods complex.

Five members/friends were present and various methods of searching and beating for larvae on blackthorn were used. Larvae of 14 moth species were found, but unfortunately no hairstreak larvae. These were: The Sprawler *Asteropepus sphinx* (Hufn.), Early moth *Theria primaria* (Haw.), Winter moth *Operophtera brumata* (Hbn.), Yellow-tail *Euproctis similis* (Fuessly), Scarce Umber *Agriopsis aurantiaria* (Hbn.), Dotted Border *A. marginaria* (F.), Satellite *Eupsilia transversa* (Hufn.), Green-brindled Crescent *Allophyes oxyacanthae* (L.), Short-cloaked moth *Nola cucullatella* (L.), Dun-bar *Cosmia trapezina* (L.), the Engrailed *Ectropis bistortata* (Goeze), the Magpie *Abraxas grossulariata* (L.), Pale brindled Beauty *Phigalia pilosaria* (D.&S.) and Svensson's Copper Underwing *Amphipyra berbera* Fletcher, not usually found on blackthorn. No other moths of merit were noted.

Records of interest from other Orders included Slender Ground-hopper *Tetrix subulata* (L.), the stonefly *Nemoura cinerea* (Retzius) (widespread), the red and black spittlebug *Cercopis vulnerata* Illiger and our largest leafhopper *Ledra aurita* (L.).

The leader thanks the following for providing records and assistance—Martin Albertini, Ian Dawson, Mike Fox, Peter Hall and Paul Waring.

Lopham and Redgrave Fen NNR, 10 June 2000

Leader: Martin Drake. A cartographic convenience shows the Rivers Little Ouse and Waveney arising at Redgrave and Lopham Fen on the border of Norfolk and Suffolk. Indeed, years ago springs from the underlying chalk did feed this once remarkable fen, where such rarities as the large soldierfly *Stratiomyces chamaeleon* (L.) lived. However, what was good for the fen was also good for drinking—the site was sucked dry by an abstraction borehole until a couple of years ago, when European Life funding paid for its removal and restoration of the fen.

The BENHS party of three dipterists, a lepidopterist and a beetler arrived at an opportune moment to make a record of what was just returning following the completion of the physical part of the fen restoration. After years of drought and desperate lack of water, the site was inordinately wet, impossibly so in places. We still had more than enough to search, with soggy paths, pool margins, some carr, dense fen vegetation (but not the saw-sedge which isn't kind to sweep nets) and the dry heath that fringes the reserve. We clocked up 300 flies in 52 families, 100 beetles, and about 40 species in several other insect orders. These included 18 nationally scarce and seven Red Data Book species. There are just about the same number of existing records for flies from the fen, and I estimate that barely a third of them are in common with our list.

Wetland species dominated, as expected. We had a full set of three *Lipara*, the chloropids that form cigar galls on reed, including *L. similis* Schiner (RDB2) which is only known from other top East Anglian fens. Sixteen species of snail-killing flies

was a good total, and included *Pherbellia griseola* (Fallèn) and the pretty *Colobaea bifasciella* (Fallèn). One of the more spectacular finds was a large shore fly (ephydrid), *Ochthera manicata* (Fabricius) (pRDB3), which is known only from East Anglian fens. There were some local species among the other 28 shore flies but nothing unexpected. It was disappointing that we found no scarce dolichopodids among the 37 species, although some fenland specialists were present, such as *Hercostomus assimilis* (Staeger), *H. blankaateensis* Pollet and *H. chrysotoxum* (Wiedemann). Forty-three species of 'empids' (now split into two large and two tiny families) had the usual mass of *Platypalpus* (17 species, if we got them right!), some of them local or scarce, and some interesting *Hilara* such as *galactoptera* Strobl, *griseifrons* Collin and *lugubris* (Zetterstedt), and the fenland *Bicellaria mera* Collin.

Derek Lott used the opportunity productively to continue his long-term recording of water-margin beetle communities, with what to me appear interesting results. Nearly 50 staphylinids included six nationally scarce or rare wetland and fen specialists, such as *Philonthus funarius* (Gravenhorst) and *Steinus palustris* Erichson. No reedbed worth its salt should be without the scarce and attractively marked reed-climbing ground beetle *Odacantha melanura* (L.), although Lopham is freshwater instead of the coastal habitat most often favoured by this beetle. Among the hygophilous ground beetles was *Acupalpus consputus* (Duftschmid). Rare water beetles always seem ten a penny, but fens do tend to have more than their fair share, in this case *Linnebius aluta* (Bedel), *Dryops anglicanus* Edwards and *Hydrochus elongatus* (Schaller) as well as four scarce species (out of only 15 water beetles!).

There was a fair number of heathland species still hanging on at the narrow fringe of dry grass heath, for instance the cranefly *Tipula livida* Wulp and the sphecid *Crabro scutellatus* (Scheven) which feeds on dolichopodid flies on the adjacent fen. The presence of several saproxyllic and woodland-edge species points to the need to retain some of the woodland and scrub, much of which has been cleared during the restoration work. While none were particularly scarce, they do add another element to this reserve, for example, wasp beetle *Clytus arietis* (L.) and the craneflies *Tipula flavolineata* Meigen and *Achyrolimonia decemmaculata* Loew.

Perhaps it is too early to draw conclusions from this meeting but it does appear that a reasonable if not outstanding fenland fauna is still present. Time will tell whether the invertebrates respond well to the restoration. I would like to thank Nick Collinson of the Suffolk Wildlife Trust for permission to hold the meeting.

Leckhampstead and Wicken Woods, 24 June 2000

Leader: Roger Kemp. This meeting was a follow-on to the joint BENHS-Butterfly Conservation meeting held earlier on 20 May. Eight members/friends attended during the day and five stalwarts attended the evening meeting. Again, unfortunately, there were no sightings of Black Hairstreak and the far from ideal weather conditions meant low recordings all round.

Ten butterfly species were noted, the most important being the Wood White *Leptidea sinapis* (L.) which was seen on at least five separate occasions. Forty macrolepidoptera and 14 microlepidoptera were recorded during the entire visit. Of interest were Blotched Emerald *Coenonympha bajularia* (D. & S.), the Vestal *Rhodometra sacraria* (L.) (an uncommon migrant to Bucks), Scorched Carpet *Ligdia adustata* (D. & S.), Double Dart *Graphiphora angulata* (F.), now noticeably more scarce in Bucks, Rush Veneer *Noumaphila noctuella* (D. & S.) and the *Salix* feeder *Coleophora albidiella*

(D. & S.), a species initially thought to be the first county record for Bucks and Northants, but an older Bucks record has since now been discovered.

Ian Dawson spent a great deal of time searching for spiders and ended the day with a total of 33 species. The most notable were *Philodromus albidus* Kulczynski, a Notable B spider found in dense rose and blackthorn scrub at SP728408, and two rather local species, *Salicenus cingulatus* (Panzer) and *Theridion impressum* Koch.

The leader wishes to thank Martin Albertini, Ian Dawson, Mike Fox, Peter Hall and Paul Waring for providing records and assistance.

Upton Heath Dorset Wildlife Trust Reserve, Poole, 15 July 2000

Leader: Stephen R. Miles. The main objective was to facilitate further recording on the site and to stress the value of the eroded areas for invertebrates to the Dorset Wildlife Trust. The leader was also interested in learning about the Trust's management techniques for this site, because of its importance for one of the species being studied as part of BENHS Heathland Flies Project. We were accompanied all day by the Trust's site warden Mr Andy Fale, who gave us some interesting facts on the conservation issues associated with a semi-urban site, and guided the small party around the best paths.

The daytime meeting commenced at 11 a.m. at the Hill View public car park in Corfe Mullen. Two other members attended besides the leader. The weather was reasonable, cloudy with occasional sunny periods and a steadily reducing breeze and my notes state "exceptionally for July 2000, it stayed dry all day!"

The first insect seen was the brightly coloured and common Wasp-beetle *Clytus arietis* (L.). Also near the car park the solitary bees, *Melitta leporina* (Panzer) and *Colletes fodiens* (Geoffroy in Fourcroy) were busy visiting the flowers of White Clover *Trifolium repens* L., a very typical situation for the first-named species. Walking down the south-facing slopes we came to a path holding a large eroded sandy cliff. On the flat soil by the edge of this eroded cliff, many *Anthophora bimaculata* (Panzer) solitary bees were in evidence around their nest-holes. In my experience this is a typical heathland bee, especially on large sites, however, I understand that it is becoming more scarce than in former times. The erosion gullies and cliff surface here had originally been a much-used ordinary path which gradually became cliff-like due to the strong southward water drainage. The beefly *Bombylius minor* L. has in recent years been seen ovipositing here by the leader so it is a very valuable micro-habitat feature of the site.

Typical inhabitants seen were an Emperor moth larva *Pavonia pavonia* (L.), the solitary wasps *Astata boops* (Schrank) and *Oxybelus miglinus* (L.), also very frequent were *Cerceris arenaria* (L.) and *C. rybyensis* (L.). A single Potter wasp, *Eumenes coarctatus* (L.) was also seen on *Rubus* sp. A Marbled White *Melanargia galathea* (L.), was seen by Mick Parker in surely what was an atypical habitat, but evidence of other types of habitats nearby. Small Copper, Gatekeeper and two Green Hairstreak butterflies were also seen.

It was also nice to observe a Slowworm *Anguis fragilis* L. at close quarters once again, lying in the middle of a path from where, perhaps, it had been unable to escape, due to the presence of motor cycle scramblers. We learned from the warden that one of the management techniques used to deter motorcycle scramblers from creating excessive erosion on the sandy paths was to fill the wonderful water drainage gullies with birch and gorse brashings. If not done too enthusiastically this technique still left some gully sides exposed, allowing solitary bee and wasp species to continue to exploit the bare sandy soil habitat. So this was not a method used to prevent

natural rainwater erosion occurring, which at first it seemed, which is all too common on many managed heathlands, bare soil being seen as an anathema, quite inappropriately.

In the afternoon a *Xanthogramma* sp. of hoverfly was seen, the usual heathland denizens of *Chrysotoxum bicinctum* (L.) and *Sericomyia silentis* (Harris) were also observed. As is usual in my experience of Dorset heathlands, the sphecid wasps *Anomophila* sp. were infrequent, only being seen during the whole day on six occasions, with never more than one specimen at one time. This compares poorly with heathland sites in Surrey. Neither of the two beeflies, *Bombylius minor* L. or *Thyridanthrax fenestratus* (Fallen), that the BENHS Heathland Flies Project is studying were seen at all. Great thanks are due to the warden, Andy Fale, for making the day most enjoyable by accompanying the small party and enlightening us to the problems of a small (c. 550 acres) semi-urban heathland site.

This evening meeting was conducted in the southern part of the site, west of Creekmoor. Those accompanying the leader were Bob and Beryl Heape, and most fortunately, Peter Davey and Mark Parsons accompanied by Nigel Bourn who turned up with three m.v. lights.

Some dusk searches commenced before the main m.v. work, Peter and Mark mentioned that they hoped they might find evidence of the Speckled Footman *Coscinia cribaria brivittata* South, a scarce species that used to occur on several Dorset heathlands, but as far as is known, none was seen. It was most pleasant that, observation of moth visitors to the lights was conducted to the sound of Nightjars churring in the background of the surrounding boggy heathland.

Trapping occurred between 9.30 and 11 p.m. on wet and dry heath amongst *Molinia* tussocks and Bog Asphodel *Narthecium ossifragum* (L.) plants. The more notable among the 35 moth species attracted to the traps, or seen nearby were: The Marsh Oblique Barred *Hypenodes humidalis* Doubleday, Dotted Border Wave *Idaea sylvestraria* Hb., Horse Chestnut *Pachynemria hippocastanaria* Hb, Festoon *Apoda limacodes* (Hufnagel) and Dark Tussock *Dicallomera fasciella* (L.), the last-named a particular heathland speciality.

As the leader and Beryl and Bob Heape walked back to Creekmoor along the old track route of the disused railway it was most pleasant to see the faint glow from five separate individuals of, presumably, the Common Glowworm *Lampyris noctiluca* (L.). Their status as to whether they were this glowworm species or indeed, whether they were adult females or just larvae was not investigated, but this was a fitting end to a most pleasant day.

I am indebted to Peter Davey and Mark Parsons, on the night, for providing me with the names of the moth species seen or taken. Thanks are also due to the staff of the Dorset Wildlife Trust for giving permission for the day and night meetings to take place.

Tilshead/Salisbury Plain, Wilts—5 August 2000

Leader: John Phillips. The main purpose of the meeting was to investigate the current status of the Brighton Wainscot *Oria musculosa* (Hübner) which has historically always had its headquarters in the Tilshead area of Salisbury Plain. This species is the subject of a Biodiversity Action Plan receiving attention as part of Butterfly Conservation and English Nature's ongoing "Action for Threatened Moths in England" programme and for which the BENHS Conservation Working Group is undertaking support and assistance over the next three years.

Virtually ideal conditions were encountered for this evening meeting with an extremely gratifying attendance of sixteen members and friends plus the leader. A copy of a map of the local Tilshead area was issued indicating areas where the moth had been recorded over recent years—this resulted in eight moths being located north of Tilshead, four at White Barrow south of Tilshead, four at Gore Cross south of West Lavington and two at Ansty Hill east of Chitterne.

Despite this reasonably extensive coverage not a single specimen of *O. musculosa* was recorded which was very disappointing and would seem to indicate and reinforce the fact that currently this species appears to be in some difficulty. On a slightly more encouraging note a single specimen was recorded by the leader and Stewart Swift at the north Tilshead site on the 30 July 2000 which gives some slight cause for optimism.

Despite the above, one hundred and three species of Lepidoptera comprising eighty-nine macros and fourteen micros were recorded at the meeting and whilst nothing of major significance was noted a few selected species should perhaps be highlighted—namely *Ennomos quercinaria* (Hufn.) (August Thorn), *Xanthorhoe designata* (Hufn.) (Flame Carpet), *Catarhoe cuculata* (Hufn.) (Royal Mantle), *Scotopteryx luridata* (Hufn.) (July Belle), *Perizoma alchemillata* (L.) (Small Rivulet) and *P. bifaciata* (Haw.) (Barred Rivulet).

My sincere thanks for all those members who supported the meeting and to Paul Toynton—Conservation Officer, Defence Estates, Tilshead who kindly arranged permission for our visit.

Formby Dunes, 12 August 2000

Leader: Stephen Palmer—This joint meeting with the Lancashire and Cheshire Entomological Society and the Lancashire Moth Group was planned to investigate the current status of some of this coastline's specialities and, it was hoped, add to the knowledge of groups other than the moths. Unfortunately, as was common for much of the year 2000 in the northwest, rain was forecast and did not disappoint. This deterred a few visitors from further afield who had planned to look at Coleoptera and Hymenoptera.

The early session concentrated on larval searches and any day flying Lepidoptera, including those micromoths which could be disturbed prior to the commencement of the rain. *Auacampsis populella* (Clerck) and *Pammene populana* (F.) were particularly abundant while a *Caryocolum* species found was later confirmed, after genitalia examination, as *C. alsinella* (Zeller) a new record for VC59. Despite dodging the showers the visit was a success in terms of the 43 micromoth and 77 macromoth species recorded and proved Grass Eggar to be still present on the site. The visit coincided with the emergence of the Portland Moth, the five noted at the evening's light traps all being in pristine condition. The only non-Lepidoptera record was supplied by Steve Hind, that being of *Trypetoptera punctulata* (Scopoli), a snail-killing fly. A full copy of the list for the visit has been lodged with the BENHS archivists.

In all seventeen people attended this joint meeting with the Lancashire and Cheshire Entomological Society and the Lancashire Moth Group. I would like to thank Sefton Council and English Nature for permission to record on this site.

Rushy Meadows SSSI, Kidlington, Oxfordshire, 23 September 2000

Leaders: Paul Waring & Martin Townsend. After a warm day with a moderate southerly breeze, the sky remained clear for this evening field meeting. However,

conditions were reasonable for light-trapping with the wind dropping to fairly light, but still sufficient to hold up the temperature. As well as the co-leaders, Martin Corley, Richard Lewington, Mike Wilkins, Roger Kemp and Mark Trasenster were present. Six MV lights were set up in this wet meadow site (for detailed site description see Waring & Townsend (2001)), with wine ropes along the eastern side under hedgerow oaks. There was some apprehension about our equipment as the small number of recently re-introduced (rather small) cattle watched us but, as on the previous occasion, they proved to be very docile and did not approach any of the traps, despite being quite close by.

Moths came in slowly but steadily, and a total of 32 species of macro and 9 of micros were recorded at ivy, blackberries and blackberries. Species of interest in a local context were *Eugnorisma glareosa* (Esper) (Autumnal Rustic), of which about 10 were trapped and 2 second-brood examples of *Schränkia costaestrigalis* (Stephens) (Pinion-streaked Snout). Both of these species are widespread in the county, but rather local. One *S. costaestrigalis* was also caught there in July and these additional records confirm the presence of this marsh and damp woodland species. Autumnal species such as *Xanthia icteritia* (Hufnagel) (Sallow), *X. togata* (Esper) (Pink-barred Sallow), *X. aurago* (D. & S.) (Barred Sallow), *Aporophyla nigra* (Haworth) (Black Rustic) and *A. lutulenta* (D. & S.) (Deep-brown Dart) were only present in small numbers and evidently not yet fully out. Numbers of these species may also have been affected by the cold, wet weather that occurred at this time last year. However, it was good to see such attractive noctuids in fresh condition. The commonest species was probably *Hydriomena micacea* (Esper) (Rosy Rustic). Trapping continued until 11.30 a.m. by which time few moths were arriving.

The wine-ropes, in contrast, attracted no moths, probably because of the presence of ivy and blackberries, although much of the accessible ivy on or near the site was not yet in flower. However, one low-growing clump beside the canal bridge at the entrance to the site was quite productive, with 14 species, 7 of which were not seen at the light-traps. These were the plume *Ennomos monodactyla* (L.), *Gyruuscelis rufifasciata* (Haworth) (Double-striped Pug), *Agrotis segetum* (D. & S.) (Turnip), *A. ipsilon* (Hufnagel) (Dark Sword-grass), *Amphipyra pyramidea* (L.) (Copper Underwing) and *Autographa gamma* (L.) (Silver Y). It was interesting to note that successive visits produced reports of different species. The temperature remained high (ca. 14°C) until well after midnight and several species were not seen on the ivy until after 1 am, illustrating the value of inspecting natural attractants throughout the night. One *Scoliopteryx libatrix* (L.) (Herald) demonstrated the fondness of this species for blackberries by remaining on the same over-ripe berry from dusk until we left (Waring, 2000).

Several specimens of the scarabaeid beetle *Aphodius rufipes* (L.) and one *A. rufus* (Moll) were caught in the light-traps and two specimens of the marshland carabid *Agonum obscurum* (Herbst) were found under the turf at the base of a small willow. Many thanks to all who attended, John Campbell for accessing local data, Darren Mann for identifying Coleoptera, and to English Nature for access permission and restoration management.

Copies of this report, the report of the July meeting, and full species lists have been supplied to English Nature and the BENHS archivists. The moth records have been entered on the National Database.

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Hainault Forest, Lambourne End, Essex, 14 October 2000

Leader: **Ian Sims**—The aim of this meeting, the last on the calendar for 2000, was to record leafmining microlepidoptera. Hainault Forest is a large area of deciduous woodland dominated in the most by old pollarded hornbeams and oak, with some smaller areas of birch and beech. There is a large area of scrub situated on the slopes above a recreational lake in the southern part of the forest and a small area of marsh to the north of the lake. The site used to be managed by the Greater London Council but for the past couple of years most of it has been managed by the Woodland Trust. The leader worked this area for macrolepidoptera from the late 1970s to the late 1980s but has a scant knowledge of its micros. It was hoped to compile a species list for inclusion in a publication on the biodiversity of the forest.

A total of nine members met the leader in the car-park opposite the Camelot public house, Lambourne End, on a cloudy but mild day. Most importantly, given the aim of the meeting, was the absence of any wind which makes searching for leaf mines almost impossible when they are being blown about. Four of the party had joined us from the Dipterists' Forum meeting being held in Epping Forest that week. Before we set off, Alan Stubbs promptly produced some lepidopterous leaf mines saying that it was a measure of the poor weather the dipterists had experienced during the preceding days that he, a dipterist, should be collecting such material. He had found these previously in Essex, but not at this site, and asked what they were. This put the leader on the spot straight away but an interesting discussion ensued during which these items were identified. This proved useful as several of the characteristics of mines used to separate the families of moths were shown to those present.

The party then walked through the forest, along rides and paths mostly as it was very wet under foot, examining foliage for mines as we went. The dipterists party split off from the leaf miners saying that our progress would be too slow for them. To quote one present, "only lichenologists progress slower than microlepidopterists". This caused some amusement among those present. The dipterists pursued their more rapidly moving quarry until we met up several hours later at the Camelot for lunch. During this part of the meeting the characteristics of nepticulids (serpentine and blotch mines), phyllonorycters (blister mines), parornixes (blisters then making folds) and caloptiliads (mines then making cones) were pointed out. Before long those not familiar with the mines of larval microlepidoptera were able to identify these families with ease.

An interesting find included a young larva of *Coleophora kuehnella* (Goeze) skeletonizing the under-side of oak leaves from its characteristically shaped pre-hibernation case. Both species of *Phyllonorycter* on hornbeam were abundant, one, *Phyllonorycter quinata* (Geoff.) mining the upper surface of the leaves and considerably distorting them, the other *P. tenerella* (Joannis) mining the under surface between the veins and causing far less distortion. Hazel leaves contained blisters and the later folds of *Parornix devoniella* (Stain.), blisters of *Phyllonorycter coryli* (Nicelli) on the underside and of *P. nicellii* (Stain.) on the upper-side, and the serpentine mines of *Stigmella microtheriella* (Stain.) and *S. floslactella* (Haw.). The differences between the mines of the latter two species were evident. Methods for overwintering the pupal stages were discussed and several members of the party said that they would try to overwinter material and identify the imagoes next year. It is to

be hoped that the excessive degree of parasitism often suffered by leaf mining larvae will not thwart their efforts.

After lunch the party drove to the southern end of the forest to explore an area of woodland and scrub north of Hainault Lake, part of the area managed by the Local Council. Again, the dipterists separated from the rest and covered a more extensive area as a result. The remainder searched the small reed bed to the north of the lake and part of the extensive area of scrubby shrubs, mostly hawthorn and blackthorn, growing on the hill-side above the lake. Among other species were numerous cases of *Coleophora violacea* (Ström) on blackthorn and bramble, an early case of *C. gryplipennella* (Hbn.) on rose and early blotch mines of the nepticulid *Ectoedemia angulifasciella* (Stain.) on rose. Gavin Boyd found an old pupal exuviae of a large wainscot species in a dead typhus stem. The pupa was clearly in the head-up position with the emergence hole of the adult above the pupal chamber. This was an interesting find, being evidence of what would appear to be Webb's Wainscot *Archauara sparganii* (Esp.) at a very 'inland' site for this species. Furthermore, it is a macro I have not recorded here before.

As evening approached the party adjourned to a cafeteria for a hot drink and discussion of the day's events. During this a light rain started so it was decided to close the meeting at 16.00 h, after what had been an enjoyable day. A full species list has been sent to Jeoff Sinclair of the Woodland Trust, to whom I extend my thanks for permission to hold this meeting, and deposited with our archivists, Alan and Jeri Coates.

Tunstall Forest, East Suffolk, 21 April 2001

Leader: David Young—The main objective for this field meeting was to try to find larva of *Xestia rhomboidea* (Esp.) (Square-spotted Clay Moth), the site chosen being one where the species was recorded last year. For a relatively well known moth there are few, if any, records of larvae being found in the wild and consequently no firm knowledge of its choice of food plant. The species appears to be declining nationally and it is one of fifty-three species listed under the UK Biodiversity Action Plan. Regrettably this field meeting was unable to add to our store of knowledge. Frequent hail and sleet showers in the days preceding the meeting left the ground vegetation cold and virtually waterlogged. A two hour search with lamps failed to find a single larva of any species, never mind the elusive *rhomboidea*.

Four m.v. traps did little better with a modest tally of only seven common spring species being recorded: *Diurnea fagella* (D.&S.), *Polyptoca rideus* (F.), *Alsophila aescularia* (D.&S.), *Xylocaupa areola* (Esp.), *Orthosia cruda* (D.&S.), *O. cerasi* (F.) and *Eupsilia transversa* (Hufn.). Gavin Boyd found a beetle on the trunk of a pine tree, which Matt Smith later identified as the tenebrionid *Cylindrinotus laevioctostriatus* (Goeze).

The leader would like to thank the eight members of the BENHS, and Suffolk Moth Group, for supporting this meeting in such unpromising conditions.

Wisley Common SSSI, Surrey, 5 May 2001

Leader: Andrew Halstead. After the wettest autumn and winter on record, a rather soggy Wisley Common was visited by 11 members and guests. An additional member, who shall remain nameless, misread the meeting place map reference and spent a lonely day on Ockham Common on the other side of the A3 road. After a late spring it was a relief to see some sunshine to bring out the insects, although it did

cloud over and cool down at lunchtime until late afternoon, when the sun reappeared. A full list of the 140 insects recorded has been lodged with the Society's field meetings recorder. One of the highlights of the day was the deadwood anthribid weevil, *Platystomos albimanus* (L.), which was found clinging to the back of Liz Douglas. Mike Fox spent the day searching for ants and located 11 species, including the local species *Stenamma debile* (Förster) and *Leptothorax nylanderi* (Förster). Nymphs of the Wood Cricket, *Nemobius sylvestris* (Bosc), were seen; there is a long established colony of this New Forest cricket at Wisley. Other insects that had probably only recently emerged were the Large Red Damselfly, *Pyrrhosoma nymphula* (Sulzer) and the conopid fly, *Myopa buccata* (L.).

Gibraltar Point National Nature Reserve, Lincolnshire, 16 June 2001

Leader: Paul Waring — This meeting followed two wet days and a wet night, with further rain forecast. This deterred several parties who had expressed interest in attending, but three BENHS members joined the leader and six local people connected with the reserve for an interesting and productive event. Gibraltar Point is a National Nature Reserve. The Lincolnshire Wildlife Trust manage the site on a lease from Lincolnshire County Council and East Lindsey District Council. The reserve is on the coast just south of Skegness and encompasses a wide range of habitats from sandy shoreline and saltmarsh through open herb-rich meadows with pools and freshwater marsh, to scrub and plantation woodland. Currently the reserve is well-known for a colony of about 30 pairs of Little Tern *Sterna albifrons* L. and for Natterjack Toad *Bufo calamita* L. When the meeting started at 15.00 hrs there was a strong northerly wind across this flat and rather exposed site (Fig. 1) and the vegetation was wet. There was little recording work dipterist John Flynn could do in such conditions, but his company was much appreciated. The primary aim of the meeting was to see if we could find the Marsh Moth *Athetis pallustris* (Hbn.) on this site and identify the places where the adults were most frequent. The Marsh Moth was first discovered at Gibraltar Point on 9 June 1972 by Rick Pilcher who ran his light-trap at the extremities of this 700 ha site in 1973 and found the moth occurred rather widely over the site (Pilcher, 1973). The moth was also trapped occasionally in small numbers in a Rothamsted trap which was operated from the Field Centre in the middle of the reserve from 1968–86. In 1995 Leigh Marshall operated an actinic trap on various parts of the reserve to locate the moth, but only saw one individual all season. A single individual was recorded at the north end of the reserve in a light-trap in the garden of the Site Warden Kevin Wilson on 17 May 1997 and this appears to be the last confirmed record for the site.

During the afternoon Assistant Warden Sarah Evans gave us a tour of the site. We selected five places for light-trapping for Marsh Moth on the basis of their similarity to habitat occupied by the moth some 35 km northwards along this coast near Saltfleetby, where Geoff Senior had recorded nine males at two lights four nights previously, on 12 June, and the leader had seen three in good condition using six lights on 14 June. Characteristic features of all these sites were a sparse grass sward with frequent Ribwort Plantain *Plantago lanceolata* L., the confirmed larval food-plant at Saltfleetby. The Saltfleetby site and all but one of the sites at Gibraltar Point also contained abundant Yellow-rattle *Rhinanthus minor* L. A total of ten mercury vapour lights was operated on these, with one additional mv light on the saltmarsh, and an actinic trap near the strandline beyond, with the following noteworthy results: Sand Dart *Agrotis ripae* (Hbn.), Archer's Dart *Agrotis vestigialis* (Hufn.) and White Colon *Sideris albicolon* (Hbn.), one fresh individual of each in the actinic light



Fig. 1. Freshwater Marsh, Gibraltar Point National Nature Reserve, one of the sites on which light-traps were operated during the field meeting on 16 June 2001.



Fig. 2. Rothamsted trap at the Field Centre, Gibraltar Point where it recorded the Marsh Moth regularly during a ten year run in the 1970s and 1980s. The trap has now been modified into a non-killing trap in which moths are held alive in a large tea-chest until morning. The standard 200W tungsten bulb has been replaced by a mercury vapour lamp. It is now operated about once per week in the summer for visiting school parties. L-R John Flynn, Sarah Evans and Adrian Mills.

trap operated by Ollie Slessor by the hide for watching the colony of nesting Little Tern on the beach; Lyme Grass *Phloedes elyui* (Treit.), one fresh individual to the Skinner trap operated by Adrian Russell in the saltmarsh; Lobster moth *Stauropus fagi* (L.), a slightly worn male captured by James McGill at one of his three 80 W mv lights in open habitat on Freshwater Marsh – this is the first record for Gibraltar Point; White Colon also recorded by James on Freshwater Marsh, along with a Long-eared Owl *Asio otus* L. perched on a fence post after dark; a Clouded Magpie *Abraxas sylvata* (Scop.) and a reddish form of the Lime Hawk-moth *Miuas tiliae* (L.) in one of the leaders' Robinson traps near elms on the edge of Plantation Meadow; a Privet Hawk-moth *Sphix liguistri* (L.) at the leader's Robinson trap on the open grassland in front of the Visitor Centre. Interesting species found in several of the traps in the "Plantain and Rattle" habitat included the Small Elephant Hawk-moth *Deilephila porcellus* (L.), Fox moth *Macrothylacia rubi* (L.), Dog's Tooth *Lacanobia snasa* (D.&S.) and Small Clouded Brindle *Apamea unaninis* (Hbn.), while the Bleached Pug *Eupithecia expallidata* Doubl., Broad-barred White *Hecatera bicolorata* (Hufn.), Light Brocade *Lacanobia w-latiuum* (Hufn.) and Shoulder-striped Wainscot *Mythimna commua* (L.) were recorded only as singletons. The Grass Rivulet *Perizoma albulata* (D.&S.), which had been frequent in the traps at Saltfleetby only two nights previously and which feeds as a larva on Yellow-rattle, must have been discouraged from flight by the wind at dusk because only six were seen. A total of 62 species of macro-moths was recorded but most of the traps captured less than forty individuals and only 15–20 species. The Rothamsted trap in mown, plantain-rich grassland by the Field Centre, was noteworthy in capturing 55 Cinnabar moths *Tyria jacobaeae* (L.) while the other traps held only one or two (Fig. 2). No Marsh Moths were seen.

The leader would like to thank Sarah Evans and Kevin Wilson for hosting the meeting, everyone else for providing and manning traps and making the meeting such a sociable event and the Lincolnshire Wildlife Trust for permission to hold the meeting and for their work in conserving and maintaining this reserve. The leader would also like to thank Butterfly Conservation and English Nature for support and funding for his work on the Marsh Moth at this and other sites in Lincolnshire as part of the Butterfly Conservation Action for Threatened Moths Project (Waring 2000).

Note that Adrian Russell was so impressed with the site that he returned a week later, on 23 June, with Ron Follows. Nine lights were operated from dusk to dawn. There was a strong breeze coming in off the sea, little moon, with a dusk temperature of 16°C falling to a minimum of 10°C. Three mv traps were operated in the vicinity of the Visitor Centre, two mv traps and one actinic on Freshwater Marsh and one mv light, one mv trap and an actinic trap in the East Dunes area. 717 moths of 63 species were recorded, including 13 species of micro-moths. The most noteworthy moths were four Sand Dart, two Starwort *Cucullia asteris* (D.&S.), an Archer's Dart and a Lyme Grass in the Eastern Dunes and a Starwort and a Lyme Grass on Freshwater Marsh. 215 Cinnabar moths turned up in the mv trap in the Eastern Dunes, compared with 35 or fewer at each of the other lights. The Privet Hawk-moth proved to be well-established, with two recorded on Freshwater Marsh, one at the Visitor Centre and one on the Eastern Dunes. The Dog's Tooth was one of the more numerous moths, with 52 individuals recorded. However, no Marsh Moths were seen on this occasion either.

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Leigh Woods, Bristol, 30 June 2001

Leader: **Ray Barnett**—This meeting with the Bristol & District Moth Group was held in Leigh Woods SSSI, owned by the National Trust (who kindly gave permission) and on the edge of the Avon Gorge National Nature Reserve. The site is characterised by oak woodland with Ash, whitebeams and a fair proportion of Small-leaved Lime, there is some recently re-started Hazel coppice. Leigh Woods has a history of supporting rare insects, particularly flies but also Lepidoptera such as the Scarce Hook-tip *Sabra harpagula* (Esp.) (last seen here in 1938) and the Double-spot Brocade *Meganephria binaculosa* (L.) (the only two British records). Currently it still has a very strong population of woodland species including many considered to be of local occurrence or of national scarcity, in particular the Small-leaved Lime feeding *Salebriopsis albicilla* (Herr.-Sch.) which has been recorded regularly in the 1990s and the Pauper Pug *Eupithecia egenaria* Herr.-Sch. which has been taken once in recent years.

Twelve mercury vapour lamps were operated at this meeting (between 21.30 h and 01.30 h) and 17 people attended. The meeting followed a warm day and the evening was dry with little breeze but a clear sky and the moon in evidence. In total 127 species of Lepidoptera were recorded. ‘Nationally Notable’ species were *Spatalistis bifasciana* (Hb.), Satin Lutestring *Tetheella fluctuosa* (Hb.) and Blomer’s Rivulet *Discoloxia blomeri* (Curt.). Species of local importance were Gold Swift *Hepialus hecta* (L.), *Cryptoblabes bistriga* (Haw.), Maiden’s Blush *Cyclophora punctaria* (L.), Clay Triple-lines *Cyclophora linearia* (Hb.), Cream Wave *Scopula floslactata* (Haw.), Treble Brown Spot *Idaea trigeminata* (Haw.), Brown Scallop *Philereme vetulata* (D. & S.), Haworth’s Pug *Eupithecia haworthiata* Doubl., Oak-tree Pug *Eupithecia dodoneata* Guen., Clouded Magpie *Abraxas sylvata* (Scop.), Scorched Carpet *Ligdia adustata* (D. & S.), Scorched Wing *Plagodis dolabraria* (L.) and Beautiful Hook-tip *Laspeyria flexula* (D. & S.). The large and distinctive tineid *Morophaga choragella* (D. & S.) was recorded, having been noted as new to the site only in 1996. Lobster Moth *Stauropus fagi* (L.) and Coronet *Craniophora ligustri* (D. & S.) were present as usual in strength.

Other insect species noted that evening include the horsefly *Tabanus bromius* L. and the beetle *Pseudocistela ceraunoides* (L.), the latter associated with rot-holes in old oak and beech.

Although no new species were added to the site list and no great rarities found, the final list was a strong recommendation for the quality of this woodland which will no doubt continue to reveal more species of note in future years.

Eaton & Gamston Woods, Retford, Nottinghamshire, 30 June 2001

Leader: **Sheila Wright**. Eaton and Gamston Woods lie on opposite sides of the minor Eaton to Upton road, near Retford in Notts. The woods are both Nottinghamshire Wildlife Trust reserves and form part of an SSSI that also includes the flower-rich verges adjacent to each. Eaton Wood was recorded as pasture woodland in the Domesday records, more recently it appears to have been mainly ash, elm, and hazel coppice, much of which is still present in an overgrown state. There is also scattered oak, sallow, field maple, silver birch and aspen. There is much

honeysuckle, and this is one of the few sites in Nottinghamshire for White Admiral butterfly. Gamston is an ancient parish wood, predominantly ash, oak and birch. Both woods have a rich ground flora. Little recording had been done for invertebrates in either, and the aim of the meeting was to make a start in rectifying this.

Following a heavy shower in the morning, the weather turned warm and largely overcast for the meeting in the afternoon, although with a few welcome sunny periods which brought out some syrphids and other Diptera and a few butterflies.

The syrphids included *Cheilosia albifrons* (Meig.), and *Cheilosia illustrata* (Harris), the latter nectaring on the flower-rich road verges. Gavin Boyd took an interesting dipteran, *Pelidnoptera fuscipennis* (Meig.) (Phaeomyiidae) in Eaton Wood—it is a predator of millipedes. Gavin also recorded a hornet, *Vespa crabro* L., and the sawflies *Eutoniostethus hiteiventris* (Klug) (foodplant *Juncus effusus* L.) and *Zaraea fasciata* (L.) (a honeysuckle feeder) in Gamston Wood. Unfortunately, no specimens of that other honeysuckle feeder, the White Admiral, were spotted during the meeting—although Red Admiral, Ringlet and Speckled Wood all put in an appearance.

Coleopterist Tony Drane found the Nationally Notable *Gyrophaena augustata* (Steph.) (Staphylinidae) in fungi on a fallen log in Eaton Wood, and the locally distributed *Mordellochroa abdominalis* (Fab.) (Mordellidae), a characteristic woodland ride species, by beating. A male of the sexually dimorphic cerambycid *Stenocorus meridianus* (L.) was found on an umbellifer on the verge adjacent to Eaton Wood. Tony spotted leaf damage caused by the Nationally Local chrysomelid *Pyrrhalta viburni* (Payk.) on the host plant in Gamston Wood.

Several specimens of the damselflies *Lestes sponsa* (Hanse.) and *Coenagrion puella* (L.) were seen hunting and basking in Eaton Wood.

Microlepidoptera included *Apotomis sororeculana* (Zetters.), a birch feeder with a largely northern distribution in Britain, and *Endothenia nigricostana* (Haw.)—which feeds on *Stachys* and is more common in the south of England. Both of these were sent to Harry Beaumont for determination.

Two traps were operated during the evening light-trapping session, and although the skies cleared somewhat, a respectable list of 8 micro and 44 macro moths was recorded. They included several Nationally Local species, including Map-winged Swift, Yellow-barred Brindle, Scorched Carpet and Scorched Wing, although all are widespread in Nottinghamshire.

Despite a rather low turn-out, the day achieved its aim of adding a considerable number of insects, including several nationally important ones, to the species list for these interesting Nottinghamshire woods.

Tilshead/Salisbury Plain, Wiltshire, 21 July 2001

Leader: **John Phillips**—As last year, the purpose of the meeting was to continue to investigate the status of the Brighton Wainscot *Oria muscosa* (Hüb.) which is a BAP species receiving attention as part of Butterfly Conservation and English Nature's "Action for Threatened Moths in England" programme and supported by the BENHS Conservation Working Group.

The meeting was held slightly earlier within the flight period this year in the hope of producing better results than in 2000. Reasonable conditions with some wind were encountered and with a gratifying attendance of twelve members and friends plus the leader hopes were high.

Unfortunately our optimism was unfounded and despite a good coverage of my lights at North Tilshead, Gore Cross and Ansty Hill not a single specimen of *O. musculosa* was recorded; ninety species of macro/micro lepidoptera were recorded with *nothing* of major significance being noted; perhaps the most interesting being six male Garden Tiger *Arctia caja* (L.) at Tilshead.

To place the results of the meeting in perspective it should perhaps be noted that under the auspices of Butterfly Conservation, significant recording and survey effort took place over the plain during 2001. This was undertaken by Barry Fox, David Green and Frank Lowe with the leader producing just three specimens of *O. musculosa* and more significantly all from exactly the same site north of Tilshead as the single specimen found in 2000; the current year's dates being 27 July with two on 3 August.

Consequently based upon the above evidence it would seem that the continued survival of this species in the UK should currently be giving some cause for concern.

The leader wishes to thank all the members who supported the meeting and once again to Paul Toynton, Conservation Officer Defence Estates, Tilshead who arranged permission to visit.

The BAP Conservation programme for *O. musculosa* is continuing and consequently if any members have any new records, both the leader and Mark Parsons of Butterfly Conservation would appreciate contact and information.

Abernethy Forest and Insh Marshes, Speyside, 20 and 28 July 2001

Leaders: **J. Cadbury, D. Green, M. Young, P. Waring & M. Shardlow**—Abernethy Forest and Insh Marshes on Speyside are among the jewels in the Royal Society for the Protection of Birds (RSPB)' complement of 168 nature reserves. Though they were acquired primarily for bird conservation, the two reserves with a range of scarce northern habitats are increasingly recognized for their biodiversity importance. Indeed, the Society has been encouraging specialists to help identify the exceptional range of scarce fungi, plants and invertebrates that occur on these reserves.

It was to this end that the RSPB, together with the British Entomological and Natural History Society (BENHS) and Butterfly Conservation (BC), organised a joint meeting to investigate the moths occurring at Insh Marshes and the lower parts of Abernethy Forest. An earlier meeting arranged for the last week in April had been restricted by Foot and Mouth disease precautions (Waring, 2001). This one, at the end of July, covered two weekends and had a total of over 30 participants. We were particularly grateful to have the expertise and enthusiastic support of David Barbour (Moray Moth Recorder) and Roy Leverton (Banff Moth Recorder) whose local and specialist knowledge was invaluable. It was good that Paul Kirkland (BC Coordinator, Scotland), Jimmy McKellar (Chairman of the Highland Branch of Butterfly Conservation), Anne Elliott (Scottish Natural Heritage) and Peter Cosgrove (Scottish Natural Heritage's Biodiversity Officer for the Highlands) could attend. Tom Prescott, the RSPB warden of Insh Marshes, and Tracey Begg, a research student from the University of Glasgow, played an active part, particularly introducing us to the entomologically important aspen woodland habitat that is well represented on the reserve. Participants came from as far afield as Dorset, Somerset, Glamorgan, London, Cambridgeshire, Peterborough, Merseyside, Lancashire and Cumbria, as well as Scotland. All contributed to a most enjoyable and successful meeting.

Even though we operated almost entirely on the two reserves of Abernethy Forest and Insh Marshes, we were able to sample a variety of habitats. At Abernethy, we ran traps around the RSPB's centre at Forest Lodge, deep in Caledonian pine forest,

among alders by the River Nethy, in an old birch/juniper wood at Rynettin, and at several sites on Tulloch Moor, covering heathland, bog and young birch habitats. At Insh Marshes, we had the opportunity to trap among old birches at Lynachlaggan, among aspen at Invertromie Farm, and in the herb (and Lepidoptera)-rich Tromie Meadow. A visit was also paid to Balavil Fen. In altitude, trap sites ranged from 250 m at Insh Marshes, to 350 m at Rynettin. The sites were situated in two vice-counties: vc 95, Moray that includes part of Abernethy, east of the River Nethy, and vc 96, East Inverness and Nairn that includes Insh Marshes as well as much of the lower areas of Abernethy.

Most of the m.v. light traps used were either of the Skinner or Robinson design, though one 'dustbin' type, designed by the late Bernard Kettlewell, was also successful (Figs 1 & 2). Hunting for larvae produced 19 additional species. There were spectacular flights of several geometers in daylight, particularly in the native pine forest, which had a tall understorey of juniper and ericaceous shrubs. The meeting was blessed throughout with relatively warm, dry weather with little wind and largely overcast skies at night—ideal for moth trapping. This was demonstrated by the huge catches, which were in contrast to those experienced over much of the summer, further south. The weather was also ideal for midges!

Over the nine days and nights, the group recorded a total of 264 species of Lepidoptera: 161 macros, 92 micros and 11 butterflies, which is a good 'haul' considering the northern latitude (57°15'N for Abernethy and 57°5'N for Insh Marshes). These included:

- Two UK Biodiversity Action Plan (BAP) Priority species.
- Two proposed Red Data micros (recorded from 15 or fewer 10 km squares, but may be under-recorded).
- Five Nationally Notable (Na) macro-moths, plus six micros (recorded from 16–30 10 km squares, 1980–99)
- Fifteen Nationally Notable (Nb) species, (recorded from 31–100 10 km squares)
- Twenty-three Nationally Local Species

The noctuid Cousin German *Protolampra (Paradiarsia) sobrina* (Dup.) (Na, BAP priority) was a particular target. Its emergence ranges from late July (it was one of the commonest moths trapped at Insh on 20.vii.1999) on through much of August. Our visit in 2001 coincided with the beginning of the emergence judging by the fresh appearance of specimens. We recorded a total of 14 adults, with the first on 21.vii.: nine in the old birch wood at Rynettin, two at Forest Lodge, and the other three in the Tromie Meadow/Invertromie Farm area where there was plenty of young birch, a larval food-plant.

It was a pleasure to see at least 19 Great Brocade *Eurois occulta* (L.) (Na) of the dark indigenous form. All but two of these were at Insh Marshes. Tromie Meadow produced a single, much cherished Northern Arches *Apanea zeta* (Treit.) (Na) of the dark *assimilis* (Doubl.) form. In the native pine forest at Abernethy, the Rannoch Looper *Itame brunnneata* (Thunb.) (Na) was clearly common and widespread. It came fairly freely to light, but on warm days between 11.45 and late afternoon many males of this attractive rufous geometer could be seen flying over bilberry *Vaccinium myrtillus* L.

In view of the abundance of juniper *Juniperus communis* L. at Abernethy Forest, and in the woodland bordering Insh Marshes, it was not surprising that the Chestnut-Coloured Carpet *Thera coguata* (Thunb.) (Nb) was frequent along with the Juniper Pug *Eupithecia pusillata* (D.&S.) at most of the trap sites. Moreover, the larvae of the Juniper Carpet *T. juniperata* (L.) were beaten from juniper at both reserves.



Fig. 1. Inspection of Robinson light trap, Abernethy Forest.



Fig. 2. Party inspecting Kettlewell light trap at Rynettin, 28 July 2001.

Those of us from the more southerly parts of Britain much appreciated the opportunity to familiarise ourselves with other northern species. We caught eight specimens of the inappropriately named Plain Clay *Eugnorisma depuncta* (L.) (Nb) with its tiger-striped forewings, and 16 Silvery Arches *Polia trimaculosa* (Esp.) (Nb). A late Saxon *Hyppa rectilinea* (Esp.) (Nb) came to light at Forest Lodge. The Scotch Annulet *Guophios obscuratus* (D. & S.) and Dotted Carpet *Alcis jubata* (Thunb.) (both Nb) are so beautifully cryptic when at rest on rocks or birch trunks, respectively. We recorded over 20 *A. jubata* in traps set among the lichen-covered birches at Tromie Meadow. This site also produced three Manchester Treble-bars *Carsia sororiata* (Hubn.) (Nb). With eyebright *Euphrasia* spp. present on grassy moraines, it was not surprising that we recorded a number of Pretty Pinions *Perizoma blaudiata* (D. & S.) (Nb) as well as the local Grass Rivulet *P. albula* (D. & S.), the larvae of which feed on yellow rattle *Rhinanthus minor* L. David Green found the Heath Rivulet *P. minorata* (Treit.) (Nb) flying in sunshine by the car park to the Cairngorm chairlift (now a funicular railway), outside the Abernethy reserve.

Notable in the Scottish context were Orange Swift *Hepialus sylviua* (L.) (two at Lynachlaggan, Insh), a single Grey Scalloped Bar *Dyscia fagaria* (Thunb.) on Tulloch Moor, Satin Beauty *Deileptenia ribeata* (Clerk) (one at Insh Marshes), Chocolate-tip *Clostera curtula* L. (two larvae on aspen, Invertromie Farm), Round-winged Muslin *Thraupatha senex* (Hubn.) (14 of a small, dark and indistinctly marked form, all but one near boggy areas on Tulloch Moor, Abernethy) and Lempke's Gold Spot *Plusia putnami gracilis* Lempke (11 at Insh Marshes). Both *D. ribeata* and *C. curtula*, which were recorded by David Barbour and Mark Young, may be new for vc 96.

We were pleased to find such attractive species as the Green Arches *Auaplectoides prasiua* (D. & S.), Gold Spangle *Autographa bractea* (D. & S.) and Scarce Silver Y *Syugrapha interrogationis* (L.) quite common at both reserves. Among the nationally local species recorded were Gold Swift *Hepialus hecta* (L.) (males performing their swaying flight display at dusk), Smoky Wave *Scopula ternata* (Schrank) around bogs, Beech-green Carpet *Colostygia olivata* (D. & S.), Welsh Wave *Venusia cambrica* Curt. (widespread and frequent), Grey Scalloped Bar *Dyscia fagaria* (Thunb.) (a single specimen on Tulloch Moor), Barred Chestnut *Diarsia dahlii* (Hubn.) (at the start of its emergence season), the Suspected *Parastichtis suspecta* (Hubn.), Light Knot Grass *Acronicta ueuyauthidis* (Esp.), the Confused *Apamea furva* (D. & S.), and the Anomalous *Stilbia anomala* (Haw.) (two at Tromie Meadow). Long may such vernacular names remain in use!

Hunting for larvae produced some species which we should have otherwise missed: Poplar Lutestring *Tethea or* (D. & S.) (local), Seraphim *Lobophora halterata* (Hubn.) (local), Chocolate-tip (local, Scotland) and Clouded Drab *Orthosia incerta* (Hubn.) on aspen; Autumn Green Carpet *Chloroclysta uiuata* (L.) (local), Canary-shouldered Thorn *Erioussus alniaria* (L.), Scalloped Hazel *Odonoptera bidentata* (Clerk) and Hebrew Character *Orthosia gothica* (L.) on native alder; Yellow-horned *Achlya flavicornis* (L.), Birch Mocha *Cyclophora albipunctata* (Hubn.), Autumn Green Carpet, Barred Umber *Plagodis pulveraria* (L.) (local), Lunar Thorn *Selenia lunularia* (Hubn.) (local), Ringed Carpet *Cleora cinctaria* (D. & S.) (Na) and Clouded Drab on birch *Betula* sp.; Glaucous Shears *Papestra bireta* (Goeze) (local) on bog myrtle *Myrica gale* L.; Vapourer *Orygia antiqua* (L.) on sallow *Salix cinerea* L., Beautiful Yellow Underwing *Auarta myrtilli* (L.) on heather *Calluna vulgaris* (L.) Hull as well as Juniper Carpet on juniper as mentioned earlier. Several of these species had been frequent as adults in April. We searched in vain for the larvae of Narrow-bordered Bee Hawkmoth *Hemaris tityus* (L.) (Na, BAP Priority) on devil's bit scabious

Succisa pratensis Moench. which was abundant in Tromie Meadow. This species occurs further down the Spey at Grantown.

Those of us from the south were amazed not only how variable and beautiful were the Highland forms of several species, but how different they were from their southern counterparts, as in the case of the Grey Pine Carpet *Thera obeliscata* (Hubn.), Common Marbled Carpet *Chloroclysta trimacata* (Hubn.), Mottled Beauty *Alcis repandata* (L.), Scalloped Oak *Crocallis elinguaria* (L.) and Ingrailed Clay *Diarsia mendica* (F.) (the dark mark between the stigmata on the forewings was often absent).

Among the micros, the best find was the tineid *Archinemapogon yildizae* Koçak (p. RDB3), an adult of which was taken by David Green at m.v. light by the R. Nethy, close to Forest Lodge, on 21.vii., and was determined by Mark Young. This moth has a larva which feeds on bracket fungi. It was taken in vc 95, but within a few yards of the boundary of vc 96. A single adult of another rare tineid *Nemapogon picarella* (Clerk) (p. RDBK) occurred at m.v. light in Tromie Meadow (vc 96) on 28 July. There were six Nationally Notable (Nb) micros: *Bryotropha galbanella* (Zeller) Glechiidae (two at Forest Lodge, Abernethy); *B. politella* (Stainton) (singles at Tulloch Moor and Insh Marshes but common in vc 95 and 96); *Olethreutes palustrana* (Leinig & Zeller) Tortricidae (single adults netted by day at Tulloch Moor and Lynchlaggan, Insh); *Crambus ericella* Hübn.) Pyralidae (one at m.v. light, Tromie Meadow); *Scoparia ancipitella* (de la Harpe) Pyralidae (a number came to light at both reserves, including in the Rynettin birch wood), and *Udea uliginosalis* (Steph.) Pyralidae (surprisingly, two adults at Tromie Meadow at an altitude of only 250 m). Usually *U. uliginosalis* is a high montane species; off the RSPB reserves, it was seen at over 1000 m on Cairngorm and 1500 m on Carn Ban Mor where it was frequent. It does, however, also occur occasionally at relatively low altitude on Deeside (Mark Young). At Balavil Fen, Insh Marshes, we saw the spinnings of *Prochoreutis mylleraea* (F.) on skullcap *Scutellaria galericulata* L.

Spells of warm sunshine brought out butterflies in the grassy glades along the River Nethy at Abernethy, on Tulloch Moor, and at Tromie Meadow. A few late Small Pearl-bordered Fritillaries *Boloria selene* (D.&S.) were still on the wing, but Dark Green Fritillaries *Argynnis aglaja* (L.) and Scotch Argus *Erebia aethiops* (Esp.) were freshly emerged. A Northern Brown Argus *Aricia artaxerxes* (F.) (Nb, BAP Priority) was observed egg-laying on rock-rose at Invertromie Farm by David Barbour.

Abernethy Forest has a rich selection of northern Odonata. During the course of the meeting, the Northern Damselfly *Coenagrion hastulatum* (Charpentier) (RDB2) was on the wing at Abernethy. Two individuals of the striking Azure Hawker *Aeshna caerulea* Strom were seen, including one over a Tulloch Moor bog. Some of the darters were identified as the Highland species *Sympetrum nigrescens* Lucas.

Sixteen species of caddis (Trichoptera) were taken at my m.v. light at Tromie Meadow by Graham Jones and identified by Ian Wallace (Liverpool Museum). All were common species, though by far the most abundant in the trapped sample of 91 individuals was *Hydropsyche instabilis* (Curtis) (35 males, 14 females), which is usually found in low numbers among other species of the genus. There must have been a swarm of this species near the trap.

Though aspen *Populus tremula* L. is widespread in Britain, only 160 ha of predominantly aspen woodland remains. Moreover, there are only 16 stands that exceed one hectare in size. Speyside, including the Insh Marshes reserve, has some of the most important of these stands, which are considered to be ancient boreal relicts. The importance of aspen for its biodiversity has recently received increasing recognition and was the subject of a symposium at Kingussie in May 2001 (Prescott, 2001). Its associated flora and fauna have affinities with Scandinavian aspen

woodland. Tom Prescott and Tracey Begg were able to show participants on the moth meeting some of the aspen stands at Insh Marshes and the habitat niches occupied by associated invertebrates.

The Dark Bordered Beauty *Epione vespertaria (paralellaria)* (D.&S.) (RDB3) must now be one of Britain's rarest indigenous moths. It has only recently been recorded in Scotland at three restricted sites where there is young suckering aspen and two in England where the larval food plant is creeping willow *Salix repens* L. Though adults were observed at one of the Scottish sites during the moth-meeting week, we searched suitable habitat at Insh Marshes in vain. A single specimen was recorded on the reserve in the 1970s. With its present highly fragmented distribution and low powers of dispersal, *E. parellaria* is unlikely to return to Insh unless reintroduced.

Insh Marshes still has a small population of an extremely rare hoverfly *Hauuverschmidia ferruginea* (Fall.) (RDB1, BAP Priority for which RSPB is the lead partner). Its distribution and ecology on Speyside has been recently studied by Graham Rotheray (National Museum of Scotland, Edinburgh). Tracey Begg demonstrated the critical state of pungent, oily cambial decay in fallen aspens on which the larvae depend. She also showed us the borings of a large longhorn beetle *Saperda carcharias* (L.) (Na) at the base of aspen trunks. Impressive piles of frass and wood pulp indicated that emergence of the adults was imminent.

Complete tabulated results are held at RSPB HQ (Reserves Ecology), Sandy, and at the BENHS Library.

The leaders wish to thank Stewart Taylor, Des Dugan, Andy Amphlett, Richard Thaxton and Nancy Monk, RSPB staff at Abernethy Forest, as well as Tom Prescott and his team at Insh Marshes for all the help they offered.

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Lower Gelt Wood, Brampton, Cumbria, 5 August 2001

Leaders: Paul Waring (P. W.) & Rob Petley-Jones (R. P. J.)—This evening event was a joint meeting between Butterfly Conservation, the BENHS, the Cumbria Moth Recording Group co-ordinated by R. P. J., and the Carlisle Natural History Society. The venue and arrangements had to be changed three times at short notice due to continuing problems with Foot and Mouth Disease. Nevertheless, the meeting was attended by ten people in addition to the leaders, with representatives from all the above and also the Cumbria Wildlife Trust. One of the objectives was to contribute to the nation-wide search for remaining populations of the White-spotted Pinion moth *Cosmia diffinis* (L.). We investigated the thin scatter of elms *Ulmus* spp. in this wood using eight lights. This site is at about or possibly beyond the known northern limit of the moth. It has received little or no moth recording effort, so many of the 61 species of larger moths we recorded were new records for the site. The last of the light traps was operated until 01.00 hrs. The weather was favourable, with a dusk temperature of 15°C, calm, dry conditions until 01.00 hrs and cloud obscured the

moon, but no White-spotted Pinion were seen. Most noteworthy in the catch were a single Double-lobed *Apamea ophiogramma* (Esp.) and six of the Slender Brindle *Apamea scolopacina* (Esp.). The former is not reported in Cumbria every year but is potentially resident in this wooded river gully. The latter is near its northern limit here but was also recorded by Rob and local colleagues at Talking Tarn, just two miles from Lower Gelt Wood, on 28.vii.2001, and has recently been discovered in Dumfries & Galloway (Waring, 1996). The meeting was successful in bringing together locally-based moth enthusiasts of various organisations to discuss work on the UK Biodiversity Action Plan priority moth species in general and the habits of the White-spotted Pinion in particular, in advance of further searches for the moth on National Moth Night the following weekend. P. W. wishes to thank Butterfly Conservation's North-west England Branch for helping to meet the costs of his travel from Peterborough and undertook this meeting in his role as Moth Conservation Adviser to Butterfly Conservation and as part of the Butterfly Conservation Action for Threatened Moths Project, which is part-funded by English Nature.

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Rushy Meadows SSSI, Kidlington, Oxfordshire, 18 August 2001

Leaders: Paul Waring (PW) & Martin Townsend (MT)—The main aim of this evening meeting was to record the moths on the wing in the period between the dates covered by the two meetings on this site in the previous year (22 July & 23 September 2000). Prolonged periods of rain in the afternoon, followed by further rain after dusk, did not discourage 14 hardy souls from attending this event. These included six members of the Society, some relatives and friends, three boys from Headington Middle School and their teachers and one non-member from the Moths of Oxfordshire Recording Scheme (MORS). Four mercury vapour lights were operated. Sixty-five species of moths were recorded, including 11 species of macro-moths and 23 species of micro-moths not seen on the previous meetings. All the light traps were operated until midnight and the last was switched off at 01.15 hrs. Martin Corley did fairly well with wine-ropes set up on bushes by the stream in the centre of the site, recording ten species, with up to ten individuals per wine-rope, including a mating pair of the Flame Shoulder *Ochropleura plecta* (L.). Len Winokur set up five more wine-ropes around the site boundary but these attracted very few moths. Unfortunately, the main target of the wine-roping, the Old Lady moth *Mormo maura* (L.), was not seen at all. The moth was recorded at sugar on this site on 30 July 1982 (by PW) and was likely still to be present. Mark Transter pointed out that the larvae could well be feeding on Ivy *Hedera helix* L., which was well represented in the hedges around this site—he had found larvae on Ivy in similar situations in the London area. In contrast Martin Townsend found and reared a final instar larva on Greater Water Dock *Rumex hydrolapathum* Hud. from wet ground at Milton Keynes in 1999. The wine-ropes also failed to attract the Red Underwing *Catocala nupta* (L.) which was recorded regularly in this area by PW in the 1970s and 1980s. It is the experience of both leaders that wine-ropes are markedly less effective during or following prolonged rain and most attractive in fairly dry conditions.

Martin Corley deployed his light in the centre of the site by the stream, MT and Mark Transter operated theirs near the stand of Turkey Oaks *Quercus cerris* L.

by the canal towpath on the east side of the site and PW set a Robinson trap by elm *Ulmus* regrowth in the thick hedges bordering the south end of the site and the bridleway to Begbroke. The latter was an unsuccessful attempt to discover the White-spotted Pinion moth *Cosmia diffinis* (L.) on this site.

Among the macro-moths, no Nationally Scarce species were recorded. The Dingy Footman *Eilema griseola* (Hbn.) was the only species associated to some extent with wetland. The bulk of the captures included frequent species such as the Square-spot Rustie *Xestia xanthographa* (D.&S.), Common Rustic agg. *Mesapamea* spp., and Smoky Wainscot *Mythimna impura* (Hbn.). Several of the partial second generation of the Straw Dot *Rivula sericealis* (Scop.) were seen. Among the eleven species additional to those recorded previously were the Orange Swift *Hepialus sylvia* (L.), Single-dotted Wave *Idaea diuidiata* (Hfn.), Canary-shouldered Thorn *Ennomos alniaria* (L.) and Six-striped Rustie *Xestia sexstrigata* (Haw.).

The micro-moth of perhaps greatest interest was the Pale-streaked Grass-veneer *Agriphila selasella* (Hbn.) (Local), often considered a saltmarsh species but rerecorded by Martin Corley in a variety of habitats in Oxfordshire, including Martin's farm at Littleworth. The larva feeds on various grasses. Other noteworthy micro-moths included the Small Clover Case-bearer *Coleophora frischella* (L.), believed to be dependent on White Clover *Trifolium repens* L. and the Humped Claw *Psoricoptera gibbosella* (Zell.), which feeds on the foliage of oaks *Quercus* spp. in the larval stage. Several individuals of the Dusty Marble *Bactra luteolana* (Hbn.) were seen, a common wetland species dependent as a larva on *Juncus*, *Scirpus* and *Cyperus*. Rushes *Juncus* spp. were abundant on this site, hence the site name.

The leaders would like to thank all those who attended despite the wet weather, English Nature and the private site owner for permission to hold this event. Copies of the records and this report have been supplied to English Nature, the Berkshire, Buckinghamshire and Oxfordshire Wildlife Trust and the Oxfordshire Biological Recording Centre.

Tunstall Forest, East Suffolk, 18 August 2001

Leader: David Young—This was a return visit to the site visited on 21st April 2001 and with the same overall objective of locating *Xestia rhomboidea* (Esp.) (Square-spotted clay moth). Cloudy and humid conditions promised a reasonable night's trapping but with heavy rain sweeping the country, and known to be falling in torrents only a few miles away, anxious faees studied the darkening sky as intermittent rain threatened to bring proceedings to an early conclusion. Nine m.v. traps and wine ropes were deployed over the site, with rerecording also being undertaken by net and lamps whilst searching the extensive areas of willowherb, bramble and other nectar sources.

Four specimens of *X. rhomboidea* were rerecorded at two m.v. traps located in the same area that we had unsuccessfully searched for larvae in April. No specimens were recorded at the wine ropes, or at nectar sources, which seemed strange for a moth with a reputation for being recorded more frequently whilst feeding rather than at light traps. A total of 176 species of Lepidoptera (63 micros and 113 macro) was rerecorded during the meeting. This is a good total species count especially for late August which can often seem rather quiet after the peak season activity of late June and July.

Three specimens of *Scopula rubiginata* (Hufn.) (Rusty Wave) were rerecorded, a species which is almost certainly breeding at this site and elsewhere in the Ipswich area. The same is probably true for *Mythimna albipuncta* (D.&S.) (White-point) which

was recorded in large numbers throughout 2000/01. There was plenty of activity at Fred Butcher's wine ropes including two specimens of *Catocala nupta* (L.) (Red Underwing), one of which turned up at a light trap and duly obliged for photographs. Other interesting species recorded at m.v. traps included *Earias clorana* (L.) (Cream-bordered Green Pea), *Agrotis vestigialis* (Hufn.) (Archer's Dart) and *Euxoa tritici* (L.) (white-line dart).

Specimens of *Malacosoma castrensis* (L.) (Ground Lackey), *Cataclysta lemnata* (L.) (small china-mark), *Macaria notata* (L.) (Peacock moth), *Arenostola pluragnitidis* (Hb.) (Fen Wainscot), *Archauara geminipuncta* (Haw.) (Twin-spotted Wainscot) and the plume moth *Agdistis bennetii* (Curtis) were probably strays from the nearby reed beds at Snape. No specimens of *Noctua orbona* (Hufn.) (Lunar Yellow Underwing) were recorded but this species seems to have had a very poor year and probably did not appreciate the long wet winter anymore than we did.

The only evidence of migration were a few specimens of *Nomophilula noctuella* (D.&S.) (Rush Veneer), *Plutella xylostella* (L.) (Diamond-back moth) and *Autographa gamma* (L.) (Silver-Y) which reflected the quiet migration activity in this part of the country during 2001.

The only other species which made their way into my notebook were a few *Vespa crabro* L. (hornet) and the beetles *Nicrophorus investigator* Zett. and *Necrodes littoralis* (L.).

A barn owl put in a brief appearance as the gate was locked at 1.30 am, just as the long-expected rain finally arrived.

The leader wishes to thank all who supported this field meeting, and especially to the members of the Suffolk Moth Group for their advice on the current status of Suffolk moths

BOOK REVIEWS

The Bumblebees of Essex by Ted Benton. (Wimbish:Lopinga Books, 2000) 180 pp. Hard cover £18.50. ISBN 0-9530362-4-3.

This is an excellent book and should be on the bookshelf of every member of the society, even those of the most ardent coleopterist or lepidopterist. If you have seen a bumblebee in flight or nectaring at a flower and wish to know its identity and some basic facts about its biology then this is the book for you. Most importantly, it has 55 beautiful close-up colour photographs of virtually every species of bumblebee found in southern Britain. Its relatively small size and firm hard cover means that it can easily be fitted into a jacket pocket or rucksack for use in the field. The attractive outside cover of Shrill carder bees at Hadleigh Country Park was painted by Alan Harris.

There are five introductory chapters on bumblebee biology covering the life-cycle, flower choice, role in pollination, predators and parasites, background information on recent national decline and reasons for the survey of Essex. The next chapter describes the external features necessary for proper identification and includes an illustrated identification guide to the commoner bumblebees found in Essex and a definitive dichotomous key to workers, males and queens of the 20 or so species of bumblebee found, or likely to be found in the south (excluding *Bombus hypnorum*

(L.) discovered in 2001). Diagrams of the sting sheath, genital capsule and abdominal segments of individual species are included for completeness. Any doubts about identification should be dispelled by recourse to the colour photographs taken by the author.

The main section of the book is devoted to the bumblebee survey of Essex. For each species there are two post-1980 county maps, one at a 5-km scale giving an indication of range and the other at 2-km tetrad scale showing the more precise distribution of the species in Essex. A map showing the bee's distribution nationally, pre-1960 and post 1960 to 1980, is included for comparison. Additional information is provided to help confirm species identification together with a more detailed account of the bee's life-history, habitat preference and status within the county. A unique feature is the inclusion of a foraging chart listing the food plants visited during each month of the flight period. Similar information is given for bumblebee mimics.

Although many of the bumblebees recorded may be considered "widespread", the survey showed conclusively that the Essex side of the Thames corridor is home to some of our rarest species such as *B. lunaris* (L.) and *B. sylvarium* Illiger, the latter possibly linked with populations in Kent forming a single large metapopulation. The building of a fourth London airport at Cliffe would seriously influence the ability of these species to survive in south-east England and the data presented in the book have already been used as part of the conservation case against development in this area, underlining the importance of local surveys. The author is to be congratulated on producing a definitive atlas and illustrated guide to the bumblebees of Essex.

JOHN BADMIN

Contributions to a Manual of Palaearctic Diptera. Volume 1. General and Applied Dipterology. Edited by László Papp and Béla Darvas. Science Herald, Budapest, Hungary. 2000. 978 pp. ISBN 963 04 8839 6.

This was the last to be published of 4 volumes, intended to cover all aspects of Diptera in the Palaearctic Region and to provide the sequel to the Manual of Nearctic Diptera published in 3 volumes (1981–1989). The other volumes (1997 volume 2, 1998 volume 3 and 2000 Appendix volume) included chapters on each family of Diptera with keys to the generic level for adults, although the coverage remained incomplete due to various factors explained by the editors in the preface to the present volume.

It was perhaps too ambitious a project, relying on the participation of many specialists with other priorities and the decision had to be made to publish what had been offered. Nevertheless more or less detailed accounts of 110 of the 130 families recognised were included in the other volumes. Volume 1 is rather different in that it includes contributions by many authors on a wide range of topics not considered in the Nearctic Manual, and was intended to provide an introduction to the study of Diptera in general. Overall editing was kept to a minimum, mainly due to time constraints and the amount of peer review was also variable and it is not surprising that different views are expressed on aspects such as phylogeny by different authors. The editors, in publishing what had been offered, appreciated that inconsistencies in emphasis and approach were inevitable. It is also painfully apparent in certain chapters that there was little revision of the English and occasionally sentences appear where the meaning is obscure.

This volume is needed by users of the other three volumes because it includes keys to families of both adults and larvae and these will probably be the most widely used chapters. The key to larvae is well illustrated and should be particularly useful. The adult key contains few figures other than some whole insect drawings but is mostly straightforward. Some inconsistencies in family composition should be noted. The adult key recognises the following families not accorded this status in the 1998 British checklist (family in the latter in brackets): Macroceridae (Keroplatidae), Manotidae (Mycetophilidae), Chiropteromyzidae, Cnemospathididae, Borboropsidae and Trixoscelididae (Heleomyzidae), Helcomyzidae and Heterocheilidae (Dryomyzidae). Recognition of the first two of these follows the Palaearctic Catalogue but they are not now recognised by any specialists in the group. The family Stenomicridae is included in Periscelididae. In the larval key the fungus gnat families (except Ditomyiidae) are grouped together as they are in the chapter on them in the Appendix volume and in couplet 13 the statement 'rarely propneustic or apneustic' does not indicate that these are characteristic respectively of Diadocidiidae and Keroplatidae.

These keys are preceded by four chapters on the morphology and terminology of adults and larvae. While terminology broadly follows that in the Nearctic Manual (not yet adopted in many papers on British Diptera), many terms not found there are included and explained, for adult morphology usefully presented in the form of a glossary. The chapter on male genitalia compares different views on the evolution of these structures but adopts the view of its author in rejecting the periandrial theory in favour of the 'revised epandrial theory'. The accounts of adult morphology are straightforward and directed towards the general user while that on larval morphology is more detailed and less clearly presented, with the contributions of its three authors sometimes inconsistent.

Most of the chapters on other topics are thorough accounts and liberally provided with references, although sometimes the wish to cite everything that has been published on a subject becomes too dominant in the text. Chapter 1.8 is mis-titled as it is mostly an account of physiology of the adult insect and the developmental aspect stated in the title is only dealt with in the concluding section. The chapter on ecology of Diptera is particularly valuable and well presented and the account of the role of Diptera in decomposition follows on well from that. The account of phenology and diapause, however, is unnecessarily obscure and terms are often introduced without being defined, e.g. ecdysteroid titres, infradian cycles. The chapter on communication in Diptera is presented as a report on what research has been done, biased towards pest species, rather than attempting to cover the subject in general. That on genetic systems recognises that a bias towards *Drosophila* exists and endeavours to reach beyond it. The account of parthenogenesis in this chapter accepts taxonomic separation of *Psychoda parthenogenetica* Tonnoir from *P. albipennis* Zetterstedt (given as *severini* Tonnoir in the text); the parthenogenesis at least in part of their range of some *Platypalpus* species and of *Lonchoptera bifurcata* (Fallén) is not mentioned.

The account of the palaeontological record of Diptera is a useful summary and presents fairly new information on the earlier (Triassic) fossils. It does, however, introduce a controversial new higher classification of Diptera into five suborders. This is put forward as if it is the accepted system and used to trace the evolution of the order through its fossil history. However, very little supporting evidence is presented and undue emphasis is placed on wing venation, of necessity where it is the only character preserved in many fossils. Fig. 14.5 in this chapter is of Mycetobiidae, not Mycetophilidae as stated, given correctly in the text on page 536, but wrongly on page 542.

The chapter on forensic dipterology is a thorough contribution, although not particularly pleasant reading. In the chapter on traumatic myiasis a temporary introduction of the calliphorid *Cochliomyia hominivora* (Coquerel) into this country in 1998 is cited. The remaining chapters are otherwise devoted to the biology and control of pest species. Some of the sections on control seem out of place in this type of manual but there is a strong emphasis on biological control. The final chapter on chemical disruption of development barely attempts to restrict its coverage to Diptera at all.

The chapters on pest species include full details of the biology of each species. English names have been invented where they did not exist and in some cases are translations of the scientific name, e.g. such an inappropriate name as marsh cranefly for *Tipula paludosa* Meigen. Curiously the account of bulb flies deals with three species of *Eumerus* but does not mention *Merodon equestris* (Fabricius). It was of interest to read that the 'carrot root miner' *Napomyza carotae* Spencer (described from Holland) has recently been recorded in England. Enquiries by the reviewer have revealed that this species has been known by agricultural scientists to occur here since the 1970s but this information did not filter through to its inclusion in British checklists. A key to genera of Palaearctic Agromyzidae is included in the chapter on exotic dipteran pests as there is no account of this family in the other volumes of the Manual.

There is much of value to the general dipterist in this book and it is expected that it will, together with the other volumes of the Manual, be a useful work of reference.

PETER CHANDLER

The Moths and Butterflies of Great Britain and Ireland Volume 4 (Part1)
Oecophoridae – Scythrididae (ISBN 0 946589 66-6) and (Part2) Gelechiidae (ISBN 0 946589 67-4). Edited by A. Maitland Emmet & J.R. Langmaid (Harley Books, 2002). 326pp & 277pp. £80.00 each or £150.00 the set.

This long awaited volume in the series completes the microlepidoptera which have never been illustrated in colour in Britain before, and so makes a significant contribution to the documentation of our fauna. It has been split into two parts on account of the size. There is a publisher's foreword paying tribute to the enormous contribution to the series made by the late Maitland Emmet, the senior editor.

The first volume begins with an introductory chapter, as is the custom in this series. This is about the ecology and evolution of lepidopteran defences against bats by J. Rydell and M.R. Young. Not only does this describe the various devices used by moths as a defence, but tracks their development from the fossil records. It is an interesting chapter and written in a way that can be understood by the non specialist.

The systematic section follows the style of earlier volumes except that genitalia drawings of both sexes of all species are included. Each species description is accompanied by a distribution map by vice-counties, although no distinction is made between historical records and modern ones. The Momphidae and Cosmopterigidae also have monochrome drawings showing the mine or other habitus of the larvae.

The Gelechioidea have in recent years been divided into groups with less familiar names, such as Autostichidae and Agonoxenidae which are given family rank in this volume. Sensibly, the Gelechiidae are kept together in Part 2 despite this slightly varying from the systematic sequence. Some authors had been preparing their text for many years and so had undertaken considerable research into the life histories. In

particular the Depressariinae are given a key to the larvae which should be immensely useful to field workers. For other families many authors were recruited at shorter notice, including three from outside Britain, which must have made the editorial work of maintaining a consistent standard and style a huge task, but this appears to have been managed successfully. Great efforts were made to include recent discoveries so that one new species is even included in advance of its published description, and the name given in an Addenda and Corrigenda sheet.

The systematic section of Part 1 is divided into nine families, each beginning with its own checklist of species and ending with the references. This can make it difficult to find the references and it would have been preferable to begin with a checklist for the whole volume, with all the references together at the end. Such a practice would also avoid the repetition of many references.

The genitalia drawings are mostly by a new author to the series, M.J. Roberts, and these appear to be accurate as well as neat. Three authors provided their own artwork which is of an equally high standard. The colour illustrations of the adults are paintings by Richard Lewington. The appearance of the plates is pleasing, even though the body and only the right wings are shown; most species are easily recognised by anyone familiar with the insects. Inevitably some drawings do not manage to catch the "giz" of the moth, in Part 1 *Tachystola acroxantha* (Meyrick) being an example where the wing shape doesn't look quite right, and in Part 2 Plate 1, for example, the colour of the head of *Apodia bifractella* (Duponchel) is not as deep as it normally appears on specimens.

With Part 2 it is possible to make comparisons with a recent volume in the series *Microlepidoptera of Europe* which covers part of the Gelechiidae. The text in the volumes under review is much fuller, even if genus and species descriptions may hardly ever be read by most users of the book. The early stages and life history information is incalculably better in the British series, including a wealth of information which is truly new. The genitalia in the European series are photographed, and the Gelechiids are 'unrolled'. Whilst this does make examination of parts clearer, the more natural appearance used in the British work is easier for the non specialist to use. As opposed to paintings, the European series uses photographs of the adult moths; in a few cases the specimens are not as good as one would have liked, but for identification purposes, photographs, using modern reproduction techniques, have to be better. There is the added advantage that the individual data for each specimen illustrated can be known.

The Agenda and Corrigenda sheet referred to above contains chiefly new information, but also corrects the names transposed on one plate, although correctly cited in the text. There is an additional transposition in Part 2 Plate 1 of figure 11 *Eulamprotes unicorella* (Duponchel) and figure 18 *Monochroa tenebrella* (Hübner). Despite these minor shortcomings the standard of production is as high as we have come to expect from Harley Books.

These books, although expensive, are essential to any serious microlepidopterist. The standard of scholarship and the detailed information maintain, and in some respects surpass, the highly acclaimed section on the Coleophoridae in Volume 3. Maitland Emmet, who did not see the finished product, but worked towards it until his death, could justifiably be proud of the achievement, as can those editors and publisher who survive him.

THE MAITLAND EMMET BENHS RESEARCH FUND

In 2001 the family of the late Lt. Col. Maitland Emmet, a distinguished amateur microlepidopterist, made a generous donation to the Society's Research Fund in his memory. As a result the Society has renamed its Research Fund the Maitland Emmet BENHS Research Fund. The objectives of the fund and criteria for awarding grants remain the same. The Society is very grateful to the Emmet family for their generosity.

The Society invites applications for grants, from the Maitland Emmet Research Fund, to be awarded in December 2003. Awards are open to both members and non-members of the BENHS and will be made to support research on insects and spiders with reference to the British fauna, and with emphasis on:

- (a) the assistance of fieldwork on insects with relevance to their conservation,
- (b) work leading to the production of identification guides and distribution lists.

Travel to examine museum collections and to consult taxonomic specialists would be included. The work and travel is not limited to the British Isles but must have a demonstrable relevance to the British insect or spider fauna. Individual grants are unlikely to exceed £500.

Preference will be given to work with a clear final objective (e.g., leading to publication or the production of a habitat management plan). Work specifically on leaf miners and gall forming insects should be submitted to the Society's Professor Hering Memorial Research Fund.

Applicants should send seven copies (one copy if the application is for less than £100) of their plan of work, the precise objectives, the amount for which an award is requested and a brief statement outlining their experience in this area of work, to **Dr J. Muggleton, 30 Penton Road, Staines, Middx, TW18 2LD**, as soon as possible and **not later than 30 September 2003**. Further information may be obtained from the same address (email: jmuggleton@compuserve.com).

THE PROFESSOR HERING MEMORIAL RESEARCH FUND

The British Entomological and Natural History Society announces that awards may be made from this Fund for the promotion of entomological research with particular emphasis on:

- (a) leaf-miners
- (b) Diptera, particularly Tephritidae and Agromyzidae
- (c) Lepidoptera, particularly Microlepidoptera
- (d) general entomology

in the above order of preference having regard to the suitability of applicants and the plan of work proposed.

Awards may be made to assist travelling and other expenses necessary for fieldwork, for the study of collections, for attendance at conferences, or, exceptionally, for the costs of publication of finished work. In total they are unlikely to exceed £1000 in the year 2003.

Applicants should send six copies, if possible, of a statement of their qualifications, of their plan of work, and of the precise objectives and amount for which an award is sought, to **Dr M. J. Scoble, Department of Entomology, The Natural History Museum, Cromwell Road, London SW7 5BD, UK** as soon as possible and **not later than 30 September 2003**.

Applications are also invited from persons wishing to borrow the Wild M3 Stereomicroscope and fibre optics illuminator bequeathed to the Fund by the late Edward Pelham-Clinton, 10th Duke of Newcastle. Loan of this equipment will be made for a period of up to six months in the first instance.

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Meetings of the Society are held regularly in London, at the rooms of the Royal Entomological Society, 41 Queen's Gate, London SW7 and the well-known ANNUAL EXHIBITION takes place in November at Imperial College, London SW7. Frequent Field Meetings are held at weekends in the summer. Visitors are welcome at all meetings. The current Programme Card can be had on application to the Secretary, J. Muggleton, at the address given below.

The Society maintains a library and invertebrate collections at its headquarters in Dinton Pastures, which are open to members on various advertised days each month, telephone 01189-321402 for the latest meeting news. The Society's web site is: <http://www.BENHS.org.uk>

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NOTE: The Editor invites submission of photographs for black and white reproduction on the front covers of the journal. The subject matter is open, with an emphasis on aesthetic value rather than scientific novelty. Submissions can be in the form of colour or black and white prints or colour transparencies.

THE SECOND BENHS EXPEDITION TO BELIZE, APRIL–MAY 1997

PAUL WARING¹, GRAHAM & ANONA FINCH,
BARRY & JIM FOX & PAT HAYNES

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The second BENHS expedition to Belize departed from the UK on 28 April 1997, returning on 18 May. The six-person team consisted of PW (leader) and the above authors (Fig. 1). The broad objectives and techniques were the same as for the first expedition in January–February 1996 and are listed and illustrated in the previous expedition report (Waring *et al.* 1996). The first expedition was timed for the end of the rainy season. This one was timed to coincide with the dark phase of the moon at the start of the rains.

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SITE DETAILS AND SAMPLING PROGRAMME

Moths and butterflies were collected and recorded at four sites in the north and central parts of Belize, as detailed below:

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1. Pook's Hill, near Belmopan, Cayo District (17°09'N 88°51'W):

The main base of the 1996 expedition, Tamandua Farm near the village of St Margarets in the centre of Belize, was not available for this expedition but a similar base was found at Pook's Hill (Fig. 2 and Map 1), just west of Belmopan. Like Tamandua Farm, Pook's Hill is in the foothills of the Mayan Mountains and is surrounded by a similar type of vegetation, which can be described as neotropical moist broadleaved forest. Smith (1996) gives an extensive list of the tree species present, as found on the Tapir Mountain Nature Reserve, against which the boundary of the Pook's Hill property abuts. The trees in the forest surrounding the camp at Pook's Hill were mostly 15–30 m tall. Figure 2 shows the proximity of the camp to the forest. The camp is on a limestone terrace overlooking the forest to the east and with forest above it to the west. We were based at Pook's Hill from 29 April–5 May, returned for the night of 7 May and from 12–16 May. During this time we operated one 6 W actinic light trap on the edge of the camp overlooking the forest and another within the forest on a game trail. We also operated a 160 W mercury vapour bulb all night in front of the white wall of one of the cabins in the camp, hanging the bulb from under the eaves in case of rain (Fig. 3). It was, therefore, only visible from the side overlooking the forest and not from above. In addition, up to ten bait traps were operated night and day in the forest, including two traps made of white netting as well as others of black.

2. Las Cuevas Research Station, Chiquibul Forest, Cayo District (16°44'N 88°59'W):

From 5–7 May four of us (PW, JF, GF & PH) moved operations to a field research station at Las Cuevas in the Chiquibul Forest (Fig. 4). The station was built by the Natural History Museum, London (BMNH) in cooperation with the British Army and the Belizean Government. For the past three years it has been providing the opportunity for researchers from Belize and other countries to undertake studies of the forest and its wildlife. The station is set in one of the largest remaining tracts of broadleaved forest in Belize. All the forests in Belize have a history of disturbance,



Fig. 1: The expedition members: L-R Graham Finch, Jim Fox, Pat Haynes, Barry Fox and Anona Finch (Paul Waring behind camera).



Fig. 2: Pook's Hill Lodge, the base camp, with views over the forests of the Tapir Mountain National Park

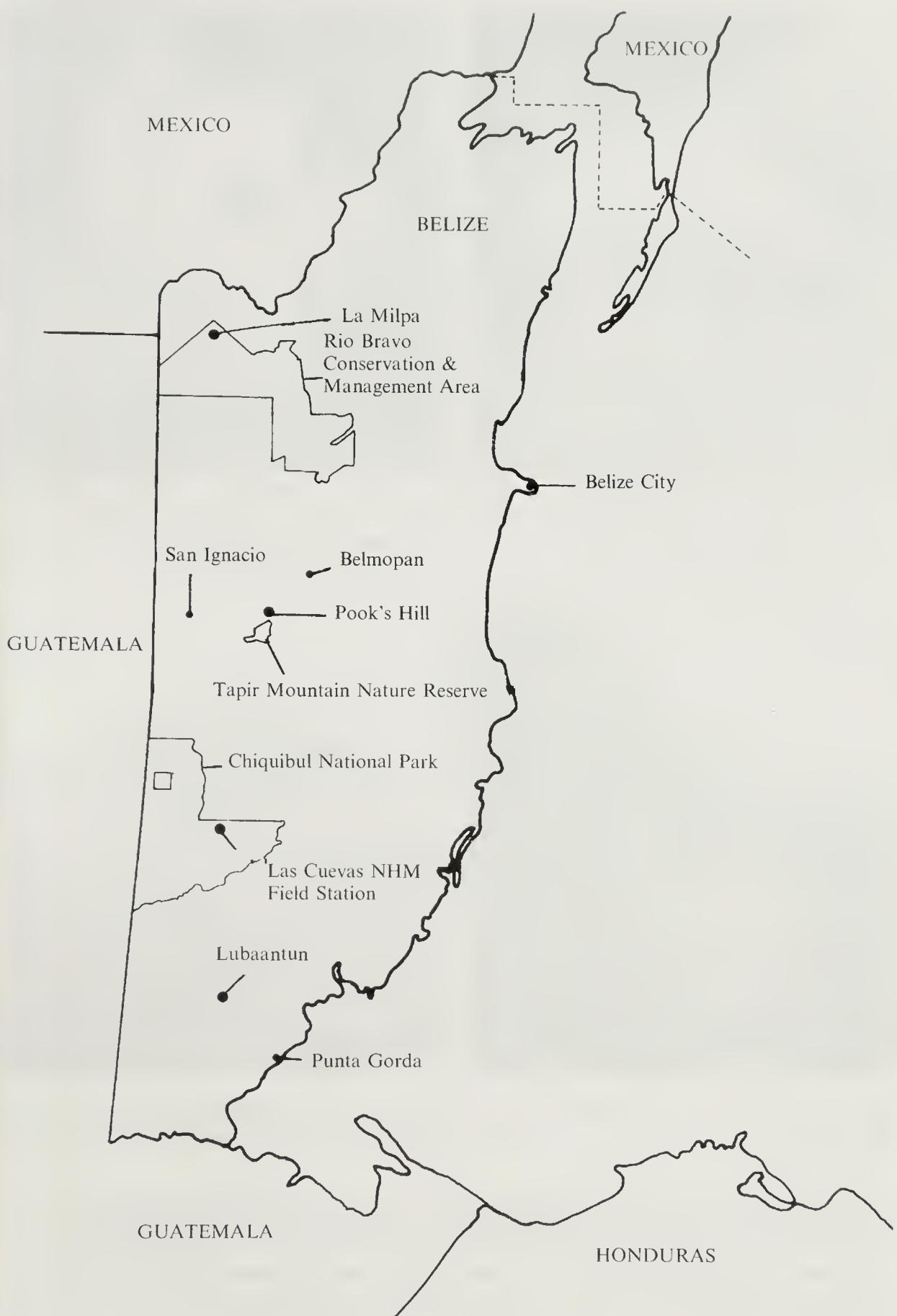




Fig. 3: MV light in operation under eaves of white-walled cabin at Pook's Hill



Fig. 5: MV light and sheet in operation at Las Cuevas Field Station



Fig. 4: Las Cuevas Field Station in the Chiquibul Forest



Fig. 6: MV light with Nissen hut as back drop at Las Cuevas Field Station

Hurricane Hattie in 1961 flattened large areas of the Chiquibul Forest, leaving many broken stems. Over the next 35 years a dense pole forest has developed and this was selectively logged up to 1983 (J. Howell, *pers. comm.*). If most of the trees are not that old, it is also important to remember that the forests themselves have been extensively disturbed by humans. The Mayan population was large and widely distributed up to 1100 AD with most of the present forest areas having large buildings and other Mayan artifacts within them. Much of the forest around these must have been cleared to grow crops. From 1500 AD there was a British presence

and logging for export. The standing forest also experiences natural fires on a comparatively frequent basis because Belize is a convergence zone with great fluctuations around the average climate. About one year in five is markedly drier than the norm and fires then run through the tracts of coniferous forest. About one year in twenty-five, or four times a century, there is a very dry year when fires even enter the broadleaved forest. Lightning strikes may initiate such fires but nowadays man is the most likely cause. The Belizean forests such as Chiquibul, and their wildlife, must have been relatively dynamic and subject to local change for many centuries.

Consequently the trees are not as tall as in parts of South America. 80 m trees are rare and the forest does not have the stratification of canopy structure of primary and mature secondary forest and may lack the organisms which are extreme specialists of such habitat. Nevertheless the forest is known to support a wide range of forest birds and mammals including the Jaguar *Panthera onca* and Baird's Tapir *Tapirus bairdii*. While we were there a party of eighteen Scarlet Macaws *Ara macao* were frequent visitors to the trees around the camp. This bird is now very rare in Central America generally, as a result of hunting and habitat destruction. Las Cuevas appears to be the only site in Belize where the species is regularly seen.

The research station is situated on limestone with a river some 4.5 miles away as the only surface water, so mosquitoes and other biting insects with aquatic immature stages are relatively infrequent compared with many other places in Belize.

The station is in a rectangular clearing in the forest and contains several buildings (Figs 4–6). The edges of the clearing are some 50 m from the central dormitory and laboratory building. Two 160 W blended MV bulbs were operated on these edges, on cables from the central building. One of the bulbs was set up on a small tree from which we hung a vertical sheet (Fig. 5); the other used the outer-facing end of a Nissen hut as a backdrop (Fig. 6). These lights were supplemented by two 6 W actinic light traps, one on the east edge of the clearing and the other on the forest trail leading to the river and known as the Monkey-tail Trail.

3. Tapir Mountain National Park, adjacent to Pook's Hill, Cayo District, (17°09'N 88°51'W):

While four members of the expedition were at Las Cuevas, the remaining two (AF & BF) operated two actinic traps and several bait traps within the boundary of the Tapir Mountain National Park abutting Pook's Hill. This was at the request of, and by arrangement with, our hosts at Pook's Hill and the Belize Audubon Society, who are keen to obtain an inventory of the species present on the reserve. The habitat and situation in which the traps were operated closely resembled the forest site for the actinic trap at Pook's Hill, from which they were only a few hundred metres distant and effectively sampling the same habitat.

4. La Milpa research station, Rio Bravo Conservation and Management Area (Programme for Belize), Orange Walk District (17°50'N 89°01'W):

This site (Fig. 7) was visited for two nights during the 1996 expedition. We were pleased to be able to continue work on this site, staying for four nights, during which we found a quite different range of moths and butterfly species from the first visit.

Four actinic traps were operated, two on the edges of the clearing around the camp (north and south edges) and two along the forest road leading to the nearby Mayan ruins. Mains electricity from the camp generator was only available from



Fig. 7: La Milpa research station in the Rio Bravo Special Conservation Area



Fig. 8: White and black bait traps in operation on forest track at La Milpa

dusk until 22.00 hrs so two MV bulbs were operated until this time, one over a vertical sheet on a cabin balcony facing the forest to the west, the other over a vertical sheet on our dormitory balcony facing the forest to the north. At 22.00 hrs the dormitory MV bulb was replaced by a much less energy-demanding 6 W actinic tube on battery power for the rest of the night. The cabin site ceased operation at 22.00 hrs. Thirteen bait traps were operated along the forest road (Fig. 8).

RESULTS

This paper reports the species of butterflies (Rhopalocera) and birds seen during the expedition, as well as including some notes on other vertebrates recorded. Work to identify and tabulate the hawk-moths (Sphingidae), emperor moths (Saturniidae), tiger moths (Arctiidae) and other families of moths is well advanced and will be published in future papers. Some of the general observations on the moths are included here. We encountered many more moths per night per light at all sites than on the 1996 expedition. At Pook's Hill and Las Cuevas the catches included a wide range of hawk-moths and emperor moths which dominated the other moths in both size and numbers. At Pook's Hill we recorded 38 species of hawk-moths in the first four nights and had twenty-two species to one MV light in one night near the end of the expedition (13/14 May). We inspected the catches at intervals from dusk (18.30 hrs) up to 22.00 hrs and then again at dawn (05.00 hrs). Many moths were collected up as they arrived, and at dawn we attempted to collect at least one representative of each species of macro-moth so that we could construct a full species list. We counted the total catch and the numbers of each species of sphingid and saturniid. The entire catch of moths at each actinic trap was collected and the insects of other orders which entered the traps were recorded.

It quickly became evident that several sphingid species began to arrive at the lights as soon as it became dark, with species added gradually through the night. The sphingid *Emmorphe satellita* L. (Fig. 9) was the most numerous species, with as many as ten individuals at the MV light at Pook's Hill by 22.00 hrs on the first nights of the expedition. In contrast, the great majority of the saturniid species had not arrived by 22.00 hrs, only *Automeris moloneyi* Druce being a regular exception by arriving 30 minutes or so earlier. Fig. 10 shows the sphingid and saturniid species in a pre-22.00 hrs catch at Pook's Hill compared with those arriving between 22.00 hrs and dawn of the same night. Particularly frequent and impressive in size and wing patterns in the catches were *Rhescyntis hippodamia* Cramer (which we also recorded in January 1996—in the forest at Tamandua Farm, Fig. 4 in Waring *et al.* 1996), *Dysdaemonia borens* Cramer, *Caio championi* Druce and *Eacles imperialis* Drury (Figs 11–13).

Virtually all the moths were in very fresh condition—some still releasing meconium. As the expedition progressed, many species became more numerous, indicating that we were at the beginning of the emergence period. This had been our plan in that the first rains after the dry season are known to trigger mass emergences and late April and May is normally the start of the wet season in Belize. In fact there had been two days of intermittent light rain at Pook's Hill on the two days before our arrival. There had also been some rain at Las Cuevas before we arrived there and the emergence of moths was at least as advanced as at Pook's Hill. In contrast, Jan Meerman at Georgeville, only 10 miles from Pook's Hill but in open drier habitat, had had no rain and was getting very few moths nightly to his actinic light. Similarly, at Rio Bravo, in the drier north of Belize, there had been little if any rain and hawk-moths were few and far between. The *Citheronia* species of emperor moths and allies



Fig. 9: *Eumorpha satellita* Linn., the most numerous sphingid species at Pook's Hill, with as many as ten individuals at the MV light per night



Fig. 11: *Dysdaea monia boreus* Cramer (Saturniidae) at rest in eaves by MV light



Fig. 10: Sphingid and saturniid species in a pre-22.00 hrs catch at Pook's Hill (left-hand box) compared with those arriving between 22.00 hrs and dawn of the same night (right-hand box).



Fig. 12: *Caio championi* Druce (Saturniidae) at rest in eaves by MV light



Fig. 13: *Eacles imperialis* Drury (Saturniidae) at rest by MV light



Fig. 14: Swallowtail butterflies *Eurytides philolaus* (Boisduval) imbibing salts on the banks of the River Macal amongst which there were also a few of the white *Eurytides epidaeus* (Doubleday).

were also notably absent. However, *E. imperialis* was well on the wing, along with both *Rothschildia lebeau* (Guérin-Méneville) and *R. roxana* Schaus.

Butterflies seen on the wing by day were generally less numerous than on the previous expedition at Tamandua Farm in January–February 1996. Fresh emergences were only just underway and there was a relative lack of nectar sources to attract butterflies into view. We did not see the distinctive *Heliconius erato* Doubleday at all this time, though it was frequent on the first expedition, but several other heliconiid species were on the wing which we had not seen previously. Several other butterfly species seen on the first expedition were also notable by their absence. The bait traps produced new species on a steady basis however, and by the end of the expedition we had recorded nearly 60 species of butterflies (Appendix 1), rather more than on the first expedition. It was particularly pleasing to see swarms of the black and blue Swallowtail butterfly *Eurytides philolaus* (Boisduval) imbibing salts on the banks of the River Macal south of San Luis, en route to Las Cuevas. We encountered a group of about 300 there at 14.00 hrs on 5 May (Fig. 14), amongst which there were about ten of the white *Eurytides epidaeus* (Doubleday).

Other wildlife was also recorded including just over 200 species of birds (Appendix 2). Particularly noteworthy sightings included the party of eighteen Scarlet Macaws at Las Cuevas, which was active in the trees around the research station throughout our stay. A Jabiru Stork *Jabiru mycteria* was seen at Crooked Tree Nature Reserve on the return journey from Rio Bravo. It was eating a snake out on the baked mud flats by the lagoon. An Emerald Toucanet *Aulacorhynchus prasinus* had a nest in a dead tree by the camp at Pook's Hill and it was often seen



Fig. 15: Patrick Warrior (far left) and Jan Meerman (centre) examining some of the papered specimens with Barry Fox, Paul Waring and Anona Finch.



Fig. 16: Open air lecture by Pat Haynes at La Milpa research station

looking out of the nest-hole, especially at hot times of the day and when it heard activity near the nest. Like the Scarlet Macaws, the Jabiru Stork is also a scarce bird, with two pairs nesting at the Crooked Tree reserve, possibly the only remaining breeding site in Central America. The Emerald Toucanet is an uncommon forest species.

Noteworthy sightings of other vertebrates included: nine-banded armadillo *Dasyurus novemcinctus* on a forest path at Pook's Hill, seen by Graham at 15.15 hrs one afternoon soon after our arrival in Belize; white-nosed coati mundi *Nasua narica*, at Las Cuevas, a group of eight or nine were encountered by Graham on the afternoon of 6 May; Yucatan black howler monkeys *Alouatta pigra*, a troop of about eight individuals, watched in the tree-tops by all of us between 15.30 and 16.30 hrs on 10 May at the Mayan ruins at Las Milpas; Central American spider monkeys *Ateles geoffroyi*, seen within a hundred metres of the howler monkeys at the same time and place. Both these and the howlers included mothers with small infants. Some of the spider monkeys approached us and shook leafy branches at us from their positions in the tree canopy; neotropical river otter *Lutra longicaudis* at Crooked Tree Nature Reserve, seen by all of us at 10.00 hrs on 12 May, swimming in the lagoon and periodically raising up out of the water to look around; tayra *Eira barbara* at Pook's Hill, seen by Paul at 09.20 hrs on 14 May, disturbed in the top of a cahoun palm tree, it climbed agilely from tree to tree, clucking as it moved off and causing palm leaves to crash down. This mustelid has a characteristic yellow head with otherwise blackish brown fur over the body and the long bushy tail of this individual was black; jumping viper *Atropoides unicolor* at Las Cuevas, seen by Paul, Jim and Graham just before dusk coiled up at rest in a lair on the forest floor; brown racer snake *Dryadophis uelatolouus* at Pook's Hill, seen by Barry at 09.00 hrs on 14 May in the forest; boa constrictor *Boa constrictor*, 2 m in length, at Pook's Hill, seen by Barry at 10.30 hrs on 14 May crossing a game trail in the forest while Barry was inspecting our bait traps;

Contrary to some expectations, snakes were infrequently encountered on this expedition. Only three species, the poisonous fer-de-lance *Bothrops asper*, the non-venomous tropical rat-snake *Spilotes pullatus* and an unidentified but harmless brown water-snake were seen at Tamandua on the first expedition, and these once or twice only, with a boa constrictor at Lubaantun. The water-snake was a regular bath companion, creeping about over the floor of the stream I washed in at Tamandua, but it is not listed for Belize in Garel & Matola (1995).

ACTIVITIES AND MEETINGS WITH RESIDENTS AND VISITORS TO BELIZE

During the expedition we were keen to meet up with other individuals who were interested in the wildlife of Belize. We spoke with the staff at each place we stayed and explained our techniques and objectives. We visited Jan Meerman at his home and research centre at Georgeville. Jan has lived and worked in Belize for nearly a decade, during which he has recorded butterflies, hawk-moths and saturniids and built up considerable experience with these taxa. His help with identifications has been most useful and we were able to share with him our records and findings up to that point, some of which he has been able to incorporate in his forthcoming publications. Jan also visited us at Pook's Hill, along with local tour guide Patrick Warrior, and we were able to demonstrate our methods and examine more of the collected material together (Fig. 15). At La Milpa research station the expedition was invited to give a brief presentation on our activities to a group of visiting students

and this included an open air lecture by Pat Haynes (Fig. 16). We also visited Belize Zoo, which is providing the focus for various conservation and education initiatives in Belize. By visiting Belize more than once, we have been able to develop continuing relationships with various organisations and individuals and to build on the preparation and fieldwork of the first expedition. Preliminary lists of species have been supplied to the appropriate contacts among those listed below, together with photographs of identified set specimens, to assist and develop local interest in the Lepidoptera, which is currently hampered by the lack of identification guides. As an indication of the interest the expeditions have generated, Vicki Snaddon at Pook's Hill has collected and sent monthly samples of moths to us, using equipment we have left with her in Belize, and Barry Fox has been back to Pook's Hill to do further recording. All of this is helping to build up knowledge of seasonality and distribution for a broad range of lepidopteran families, some of which have hardly been studied before in Belize and about which little is known in Central America generally.

CIRCULATION OF THIS EXPEDITION REPORT

Belize Forestry Department; Belize Zoo; Pook's Hill Lodge; Programme for Belize (La Milpa Field Station, Belize City office and Valerie Giles); the Belize Audubon Society; Las Cuevas Field Station; the Natural History Museum, London; the Spang family, Seven Hills; Ray Harberd, Fallen Stones Butterfly Ranch; Belize Foundation for Research and Environmental Education (BFREE).

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APPENDIX 1

Butterflies in Belize: BENHS expedition 30 April–16 May 1997

Localities: Pook's Hill (PH) Tapir Mtn (TM) La Milpa (LM) Las Cuevas (LC)

PAPILIONIDAE: Papilioninae: *Parides sesostris xestos* (Gray) TM, *P. arcas mylotes* (Bates) PH, *P. iphidamas iphidamas* (Fab.) PH, *P. lycimeues lycimenes* (Boisduval) PH, *Battus belus chalceus* (Roths. & Jordan) TM, *Eurytides philolaus* (Boisduval) PH, LC, *E. epidaeus epidaeus* (Doubleday) PH

PIERIDAE: Pierinae: *Daptoureira (Melete) isandra* (Boisduval) PH; Coliadinae: *Phoebis sennae marcellina* (Cramer) PH, LM, *Eurema daira daira* (Godart) PH, LM, *E. proterpia* (Fab.) PH +

NYMPHALIDAE: Charaxinae: *Prepona onophiale octavia* Fruh. LM, *Archaeoprepona deuophiou centralis* Fruhstorfer PH TM LM; *A. demophon gulina* Fruh. TM, LC; *A. anaphimachus* (Fab.) PH TM, *Fountainea (Memphis) eurypyle confusa* (Hall) PH; *Meiophis morvus boisduvali* (Comstock) PH; *M. forreri* (Godman & Salvin) LM Nymphalinae: *Colobura dirce dirce* (L.) PH TM; *Tigridia acesta* (L.) PH; *Historis odius orion* (Fab.) PH TM LM; *H. acheronta acheronta* (Fab.) LM; *Hauiadryas ferouia farinulenta* (Fruh.) PH; *H. februa fereutina* (Godart) PH; *Dyuanine mylitta* (Cramer) PH; *Marpesia petreus* (Cramer) PH LM; *Pyrrhogryra neaerea hypseuor* G. & S. PH; *Catoueplile mexicana* Jenkins & de la Maza PH LC; *Nessaea agaura* (Doubleday) PH; *Callicore patelia* (Hewitson) PH; *Anartia fatinia* (Fab.) PH; *A. jatrophae* (Linn.) PH LM; *Mestra amymone* Menetries LM; *Adelpha iphiclus* (L.) TM; *Cllosyne jauais* (Drury) PH; *C. gaudealis* (Bates) PH; *Tegosa guatemalena* (Bates) PH

Heliconiinae: *Heliconius charitonius charitonius* (L.) PH, LM; *H. ismenius* (Latreille) PH

Danainae: *Danaus gilippus gilippus* (Cramer) LM

Ithomiinae: *Tithorea harmonia hippothous* G. & S. PH; *Mechanitis lysimnia* (Fab.) PH; *Aeria euriuedia pacifica* G. & S. PH; *Oleria paula* (Weymer) PH

Morphinae: *Morpho peleides* Kollar PH

Brassolinae: *Opsiphanes quirteria quirteria* G. & S. PH LC; *O. cassina fabricii* (Boisduval) TM; *Caligo memnon memnon* (Felder) TM; *C. eurilochus sulanus* Fruh. PH; *C. uranus* (H.-S.) PH

Satyrinae: *Pierella luna heracles* (Boisd.) TM; *Taygetis uermuria* Cramer PH TM; *T. virgilia rufoumarginalata* Staud. PH; *T. ziuri* Butler PH; *Eupterchia (Cissia) usitata* (Butler) PH; *E. uetaleuca* (Boisduval) PH LM; *E. confusa* (Staudinger), LC

LYCAENIDAE: Theclinae: *Eumaeus toxea* (Godart) LM.

APPENDIX 2

Birds in Belize: BENHS expedition 30 April–16 May 1997

RS = road side; PH = Pook's Hill; LC = Las Cuevas; LM = La Milpa; CT = Crooked Tree

Great Tinamou (*Tinamus major*) PH LC. Slatey-breasted Tinamou (*Crypturellus boucardi*) PH. Neotropic Cormorant (*Phalacrocorax brasiliensis*) PH LM CT. Magnificent Frigatebird (*Fregata magnificens*) RS. Great Blue Heron (*Ardea herodias*) CT. Great Egret (*Egretta alba egretta*) PH LM CT. Snowy Egret (*Egretta thula*) RS CT. Tricoloured Heron (*Egretta tricolor*) RS CT. Cattle Egret (*Bubulcus i. ibis*) PH LM CT. Yellow-crowned Night Heron (*Nycticorax violacens*) CT. White Ibis (*Eudocimus albus*) RS. Glossy Ibis (*Plegadis falcinellus*) RS. Jabiru (*Jabiru mycteria*) CT. Black-bellied Whistling-Duck (*Dendrocygna autumnalis*) CT. Masked Duck (*Oxyura j. jamaicensis*) CT. Black Vulture (*Coragyps atratus*) RS PH LC LM CT. Turkey Vulture (*Cathartes aura*) RS PH LM CT. King Vulture (*Sarcophagoplus papa*) PH LM. Osprey (*Pandion haliaetus*) CT. Swallow-tailed Kite (*Elanoides forficatus*) PH LC. White-tailed Kite (*Elanus leucurus majusculus*) LM. Snail Kite (*Rostrhamus sociabilis*) LM. Plumbeous Kite (*Ictinia plumbea*) PH LC. Northern Harrier (*Circus cyaneus hudsonius*) LM. White Hawk (*Leucopternis albicollis*) PH LM. Common Black Hawk (*Buteogallus anthracinus*) PH. Grey Hawk (*Buteo nitidus*) LM. Roadside Hawk (*Buteo magnirostris*) LM. Ornate Hawk-Eagle (*Spizetus ornatus vicinus*) LM. Laughing Falcon (*Herpetotheres cachinnans*) PH. Barred Forest-Falcon (*Micrastur ruficollis*) LM. Bat Falcon (*Falco rufigularis*) PH. Plain Chachalaca (*Ortalis vetula*) PH LM. Crested Guan (*Penelope p. purpurascens*) LM. Ocellated Turkey (*Meleagris ocellata*) LC LM. Spotted Wood-Quail (*Odontophorus guttatus*) LM. Grey-necked Wood-Rail (*Aramides cajanea*) CT. American Coot (*Fulica a. americana*) CT. Limpkin (*Aramus guarauna dolosus*) LM CT. Black-necked Stilt (*Himantopus m. mexicanus*) CT. American Avocet (*Recurvirostra americana*) LM. Northern Jacana (*Jacana s. spinosa*) LM. Spotted Sandpiper (*Actitis macularia*) PH. White-rumped Sandpiper (*Calidris fuscicollis*) CT. Pectoral Sandpiper (*Calidris melanotos*) CT. Laughing Gull (*Larus atricilla*) RS CT. Bonaparte's Gull (*Larus philadelphicus*) CT. Ring-Billed Gull (*Larus delawarensis*) CT. Least Tern (*Sterna antillarum*) CT. Pale-vented Pigeon (*Columba cayennensis pallidicrissa*) PH. Scaled Pigeon (*Columba speciosa*) LM. Red-billed Pigeon (*Columba flavirostris*) PH LM. White-winged Dove (*Zenaidura asiatica*) LM. Mourning Dove (*Zenaidura macroura*) PH. Plain-breasted Ground-Dove (*Columbina inornata interrupta*) PH LM. Ruddy Ground-Dove (*Columbina talpacoti*) RS PH LC LM. Blue Ground-Dove (*Claravis pretiosa*) PH LC. White-tipped Dove (*Leptotila verreauxi*) LM. Grey-headed Dove (*Leptotila p. plumbiceps*) PH. Aztec Parakeet (*Aratinga astec*) PH LC LM. Scarlet Macaw (*Ara macao*) LC. White-crowned Parrot (*Pionus senilis*) PH. White-fronted Parrot (*Amazona albifrons*) PH LM. Red-lored Parrot (*Amazona a. autumnalis*) PH LC. Mcaly Parrot (*Amazona farinosa*) PH. Yellow-headed Parrot (*Amazona oratrix*) PH. Squirrel Cuckoo (*Piaya cayana*) PH LC. Groove-billed Ani (*Crotophaga sulcirostris*) PH LC LM. Vermiculated Screech Owl (*Otus guatemalae*) PH. Spectacled Owl (*Pulsatrix perspicillata saturata*) PH. Central American Pygmy-Owl (*Glaucidium griseiceps*) PH. Lesser Night-Hawk (*Chordeiles acutipennis*) LM. Common Night-Hawk (*Chordeiles minor*) PH LC. Pauraque (*Nyctidromus albicollis*) PH LM. White-collared Swift (*Streptoprocne zonaris*) PH. Vaux's Swift (*Chaetura vauxi*) PH LM. Lesser Swallow-tailed Swift (*Panyptila cayennensis*) PH. Long-tailed Hermit (*Phaethornis superciliosus*) PH. Little Hermit (*Pygiornis longuemareus*) PH.

White-necked Jacobin (*Florisuga m. mellivora*) PH. Green-breasted Mango (*Anthracothorax prevostii*) LM. Canivet's Emerald (*Chlorostilbon canivetii*) PH. White-bellied Emerald (*Amazilia candida*) PH. Rufous-tailed Hummingbird (*Amazilia t. tzacatl*) PH. LM Purple-crowned Fairy (*Heliothryx barroti*) LM. Black-headed Trogan (*Trogon m. melanocephalus*) PH. Violaceous Trogan (*Trogon violaceus braccatus*) PH LC LM. Collared Trogan (*Trogon collaris*) PH LM. Slatey-tailed Trogan (*Trogon m. massena*) PH. Tody Motmot (*Hylomanes momotula*) PH. Ringed Kingfisher (*Ceryle t. torquata*) CT. Amazon Kingfisher (*Chloroceryle amazona mexicana*) PH. Green Kingfisher (*Chloroceryle americana*) PH. Pygmy Kingfisher (*Chloroceryle aenea stictoptera*) PH. White-whiskered Puffbird (*Malaconotos panamensis inornata*) PH LM. Rufous-tailed Jacamar (*Galbulia ruficauda melanogenia*) PH. Emerald Toucanet (*Aulacorhynchus prasinus*) PH. Collared Aracari (*Pteroglossus torquatus*) PH LM. Keel-billed Toucan (*Ramphastos sulfuratus*) PH LC LM. Acorn Woodpecker (*Melanerpes formicivorus*) LC. Black-cheeked Woodpecker (*Centurus pucherani perileucus*) PH. Golden-fronted Woodpecker (*Centurus aurifrons*) PH. Smoky-brown Woodpecker (*Veniliornis fumigatus*) PH LM. Chestnut-coloured Woodpecker (*Celeus castaneus*) PH. Lineated Woodpecker (*Dryocopus lineatus*) PH. Pale-billed Woodpecker (*Campephilus guatimalensis*) PH LM. Buff-throated Foliage-Gleaner (*Automolus ochrolaemus*) PH LC. Plain Xenops (*Xenops minutus mexicanus*) PH LC LM. Tawny-winged Woodcreeper (*Dendrocincla analatina*) LM. Ruddy Woodcreeper (*Dendrocincla h. homochroa*) LM. Olivaceous Woodcreeper (*Sittasomus griseicapillus*) LM. Wedge-billed Woodcreeper (*Glyptorhynchus spirurus pectorali*) PH. Barred Woodcreeper (*Dendrocolaptes certhia*) LM. Ivory-billed Woodcreeper (*Xiphorhynchus flavigaster*) PH LC. Great Antshrike (*Taraba major melanocrissa*) PH. Barred Antshrike (*Thamnophilus doliatus*) PH LC LM. Dot-winged Antwren (*Microrhopias quixensis*) PH LM. Dusky Antbird (*Cercomacra tyrannina crepera*) PH LC. Mexican Antthrush (*Formicarius monoliger*) PH LC LM. Northern Beardless Tyrannul (*Camptostoma imberbe*) LM. Greenish Elaenia (*Myopagis viridicata*) PH LM. Ochre-bellied Flycatcher (*Mionectes oleaginus assimilis*) PH. Sepia-capped Flycatcher (*Leptopogon amaurocephalus pileatus*) LM. Northern Bentbill (*Oncostoma cinereigulare*) LM. Common Tody-Flycatcher (*Todirostrum cinereum*) PH. Eye-ringed Flatbill (*Rhyncochoccylus breverostris*) LM. Yellow-olive Flycatcher (*Tolmomyias sulphurescens cinerei*) PH. Royal Flycatcher (*Onychorhynchus coronatus mexicanus*) PH LM. Ruddy-tailed Flycatcher (*Terenotriccus erythrurus fulvifrons*) PH. Sulphur-rumped Flycatcher (*Myiobius s. sulphuripygius*) PH LM. Olive-sided Flycatcher (*Contopus borealis*) PH. Tropical Pewee (*Contopus cinereus*) PH. Yellow-bellied Flycatcher (*Empidonax flaviventris*) PH LM. Black Phoebe (*Sayornis nigricans*) PH. Vermilion Flycatcher (*Pyrocephalus rubinus*) PH. Bright-rumped Attila (*Attila spadiceus*) LM. Dusky-capped Flycatcher (*Myiarchus tuberculifer*) PH. Great-crested Flycatcher (*Myiarchus crinitus*) LM. Brown-crested Flycatcher (*Myiarchus tyrannulus*) PH. Great Kiskadee (*Pitangus sulphuratus*) PH. Boat-billed Flycatcher (*Megarhynchus pitangua*) PH LM. Social Flycatcher (*Myiozetetes similis*) PH LM. Sulphur-bellied Flycatcher (*Myiodynastes luteiventris*) PH LM. Tropical Kingbird (*Tyrannus melancholicus*) PH LM. Eastern Kingbird (*Tyrannus tyrannus*) PH LM. Fork-tailed Flycatcher (*Tyrannus savana monachus*) LM. Thrushlike Mourner (*Schiffornis turdinus veraepacis*) LM. Masked Tityra (*Tityra semifasciata*) PH LM. Black-crowned Tityra (*Tityra inquisitor fraserii*) PH LM. White-collared Manakin (*Manacus candei*) PH. Red-capped Manakin (*Pipra m. mentalis*) PH LM. Grey-breasted Martin (*Progne chalybea*) LM. Mangrove Swallow (*Tachycineta a. albilinea*) RS. Northern Rough-winged Swallow (*Stelgidopteryx serripennis*) LM. Bank Swallow (*Riparia r. riparia*) LM. Brown Jay

(*Cyanocorax morio*) PH LC LM. Band-backed Wren (*Campylorhynchus zonatus*) PH. Spot-breasted Wren (*Thryothorus maculipectus*) PH LM. Plain Wren (*Thryothorus m. modestus*) PH. Southern House Wren (*Troglodytes aedon*) RS PH. White-breasted Wood-Wren (*Heuicorhina leucosticta*) PH. Long-billed Gnatwren (*Ramphocaenus melanurus*) LM. Blue-grey Gnatcatcher (*Polioptila caerulea*) PH. Tropical Gnatcatcher (*Polioptila plumbea brodkorbi*) PH. Veery (*Cathartes fuscescens*) LM. Clay-colored Robin (*Turdus grayi*) PH LC LM. Grey Catbird (*Dumetella carolinensis*) RS. Tropical Mockingbird (*Mimus gilvus*) RS LM. Red-eyed Vireo (*Vireo olivaceus*) LM. Tawny-crowned Greenlet (*Hylophilus o. ochraceiceps*) PH LM. Lesser Greenlet (*Hylophilus d. decurtatus*) LM. Chestnut-sided Warbler (*Dendroica pensylvanica*) PH. Magnolia Warbler (*Dendroica magnolia*) PH. Black-and-white Warbler (*Mniotilla varia*) PH LM. American Redstart (*Setophaga ruticilla*) PH LM. Ovenbird (*Seiurus aurocapillus*) PH. Northern Waterthrush (*Seiurus noveboracensis*) PH LM. Common Yellowthroat (*Geothlypis trichas*) PH. Golden-crowned Warbler (*Basileuterus culicivorus*) LM. Bananaquit (*Coereba flaveola*) PH. Golden-hooded Tanager (*Tangara larvata*) PH. Red-legged Honeycreeper (*Cyanerpes cyaneus carniceps*) PH LM. Scrub Euphonia (*Euphonia affinis*) LM. Yellow-throated Euphonia (*Euphonia hirundinacea*) PH LC. Olive-backed Euphonia (*Euphonia g. gouldi*) PH LM. Blue-grey Tanager (*Thraupis episcopus cana*) PH LM. Yellow-winged Tanager (*Thraupis abbas*) PH LC LM. Grey-headed Tanager (*Eucometis penicillata pallida*) PH LM. Black-throated Shrike-Tanager (*Lanius aurantius*) LM. Red-crowned Ant-Tanager (*Habia rubica*) LM. Red-throated Ant-Tanager (*Habia fuscicauda*) PH LM. Hepatic Tanager (*Piranga flava*) PH. Crimson-collared Tanager (*Phlogothraupis s. sanguinolenta*) PH. Scarlet-rumped Tanager (*Ramphocelus p. passerinus*) PH. Greyish Saltator (*Saltator coerulescens*) PH. Buff-throated Saltator (*Saltator maximus*) PH. Black-headed Saltator (*Saltator atriceps*) PH LM. Black-faced Grosbeak (*Caryothraustes p. poligaster*) PH LM. Northern Cardinal (*Cardinalis cardinalis*) LM. Blue-black Grosbeak (*Cyanocompsa cyanoides concreta*) PH LM. Blue Bunting (*Cyanocompsa parellina*) LC LM. Orange-billed Sparrow (*Arremon anrantiirostris*) PH. Olive Sparrow (*Arremonops rufivirgatus*) PH LM. Blue-black Grassquit (*Volatinia jacarina spendens*) LC LM. Variable Seedeater (*Sporophila aurita corvina*) PH. White-collared Seedeater (*Sporophila torqueola*) PH LC LM. Yellow-faced Grassquit (*Tiaris olivacea*) PH LC. Chipping Sparrow (*Spizella passerina*) RS. Red-winged Blackbird (*Agelaius phoeniceus*) CT. Eastern Meadowlark (*Sturnella magna*) LM. Melodious Blackbird (*Dives dives*) PH LC. Great-tailed Grackle (*Quiscalus mexicanus*) RS PH LC. Bronze Cowbird (*Molothrus aeneus*) LM. Giant Cowbird (*Scaphidura oryzivora impacifica*) LM. Black-cowled Oriole (*Icterus dominicensis prosthemela*) PH LM. Yellow-tailed Oriole (*Icterus m. mesomelas*) PH. Baltimore Oriole (*Icterus galbula*) PH. Yellow-billed Cacique (*Amblycercus h. holosericens*) PH. Chestnut-headed Oropendola (*Psarocolius w. wagleri*) PH. Montezuma's Oropendola (*Psarocolius montezuma*) PH.

CACOPSYLLA FULGURALIS (KUWAYAMA), AN ASIAN JUMPING PLANT LOUSE (HEMIPTERA: PSYLLIDAE), CAUSING DAMAGE TO *ELAEAGNUS* IN BRITAIN

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Abstract. *Cacopsylla fulguralis* (Kuwayama), an Asian jumping plant louse new to Britain, is reported causing serious damage to ornamental *Elaeagnus* plants in the Channel Islands and England. The host range, biology, geographical distribution and economic importance of *C. fulguralis* are discussed. *E. commutata* is recorded as a new host.

INTRODUCTION

Cacopsylla fulguralis (Kuwayama) is a 'jumping plant louse' (also known as a 'sucker' or psyllid), native to eastern Asia, where it feeds exclusively on *Elaeagnus* spp. (Elaeagnaceae). The first European record was in France, when it was found at two plant nurseries in Brittany, in November 1999. It is now widespread in north-west and central France (Cocquempot & Germain, 2000). In March 2002, the Central Science Laboratory (CSL) received a sample of *E. x ebbingei* heavily infested with *C. fulguralis* collected in Guernsey by Terry Brokenshire of the State of Guernsey Horticulture Advisory Service. *Cacopsylla fulguralis* was first observed in Guernsey in 1999 (T. Brokenshire, pers. comm., 2002). The pest is now widespread throughout the island and particularly common in the west where it is occurring in 'plague proportions'. It is causing serious economic damage to *E. x ebbingei* hedges, which are becoming thin due to dieback.

Andrew Halstead, the Royal Horticultural Society's (RHS) senior entomologist, also received samples (which were notified to CSL) of *C. fulguralis* between March and June 2002, collected from private gardens in Leigh-on-Sea, Essex; Selsey, West Sussex and Brighton, East Sussex; and Cobham and Woking, Surrey. In each case, large infestations were damaging *E. x ebbingei* or *Elaeagnus* sp. In May, Professor Ian Hodkinson of Liverpool John Moores University reported to the CSL that *C. fulguralis* was damaging *Elaeagnus* plants at the university. In June, *C. fulguralis* was collected on *Elaeagnus* sp. in a public car park in Chichester, West Sussex and at a commercial plant nursery in Hampshire. Rosemary Collier of the Department of Agriculture and Fisheries, Jersey also reported it as widespread in Jersey. At the beginning of July, *C. fulguralis* was found breeding on *E. x ebbingei* 'Limelight' and *E. commutata* growing in the grounds of the CSL, North Yorkshire. In England, adults have been found from March through to September.

Infested *E. x ebbingei* plants, originating in France, had previously been found at a commercial nursery in north-west England in November 2000, but *C. fulguralis* was not identified at the time due to the absence of adult specimens.

Slide-mounted specimens of *C. fulguralis* have been deposited at the Central Science Laboratory and The Natural History Museum, London.



Fig. 1. *Cacopsylla fulguralis* adult.

FIELD DESCRIPTION

There are no native species of plant jumping lice recorded feeding on *Elaeagnus* in Britain. Adult *C. fulguralis* (Fig. 1) are 2.0–2.5 mm long. They have relatively large, membranous wings and strong hind legs adapted for jumping. The body is straw coloured with brown longitudinal bands on the head and thorax. The forewings have distinct markings that vary in colour from pale to dark brown. The nymphs are cream-yellow and the later instars develop dark brown transverse markings (Fig. 2). The antennae, legs, wingpads and posterior of the abdomen are also dark brown in later instars. Each nymph is often seen with a long strand of honeydew, coated in powdery wax, extruding from the posterior of the abdomen. They eliminate copious quantities of honeydew and the upper (and occasionally lower) surfaces of the leaves become covered in sticky honeydew on which sooty moulds grow. The nymphs are usually found feeding in large groups and the adults scattered on the lower surface of the leaves. The later nymphal instars and adults can run and hop rapidly and the adults readily fly. During sunny conditions the adults accumulate in large numbers on the upper surface of the leaves and on the apical plant growth.

Useful references for the identification of this species include Kwon (1983) and Yang (1984) who describe and illustrate the adult, Miyatake (1964) illustrates the female genitalia and Park *et al.* (1980) describe and illustrate the egg and all nymphal stages.

HOST PLANTS AND BIOLOGY

There is little information published on the biology of *C. fulguralis*. In Asia, it is recorded feeding on *Elaeagnus cuprea* (Miyatake, 1972; Yang, 1984), *E. glabra* (Klimaszewski, 1973; Hodkinson, 1986; Park *et al.*, 1988), *E. macrophylla* (Baba & Miyatake, 1971; Hodkinson, 1986; Park *et al.*, 1988), *E. oldhamii* (Cocquempot & Germain, 2000), *E. pungens* (Park *et al.*, 1988); and *Elaeagnus* spp. (Sasaki, 1954). It has also been collected from sweeping *E. thunbergii* but this has not been confirmed



Fig. 2. *Cacopsylla fulguralis* fifth nymphal instar.

as a host (Yang, 1984). In France, it has been recorded on *E. x ebbingei* (a hybrid between *E. macrophylla* and *E. pungens*) (Cocquempot & Germain, 2000). In England and the Channel Islands, it has been found breeding on *E. x ebbingei* and *Elaeagnus* spp.

Small groups of third, fourth and fifth instar nymphs of *C. fulguralis* were found on *E. commutata*, growing at the CSL during July, 2002. *Elaeagnus commutata* is recorded here as a new host for *C. fulguralis*. Adults were collected in large numbers on *E. angustifolia*, growing near heavily infested *E. x ebbingei*, at the CSL. Small numbers of eggs were laid on *E. angustifolia* in July but the nymphs failed to complete their development. According to Cocquempot & Germain (2000), *C. fulguralis* does not breed on *E. angustifolia* and *E. multiflora*.

GEOGRAPHICAL DISTRIBUTION

Cacopsylla fulguralis was described from specimens collected in Japan by Kuwayama (1908—*Psylla*). It has also been recorded in Korea, the Philippines and Taiwan (Kuwayama, 1908; Sasaki, 1954; Baba & Miyatake, 1971; Miyatake, 1972; Klimaszewski, 1973; Park *et al.*, 1980; Kwon, 1983; Hodkinson, 1986). A slide mounted specimen deposited at the Natural History Museum, London was collected on *Elaeagnus* in China (J. Martin, pers. comm., 2002). It has recently been recorded in France (Cocquempot & Germain, 2000), the Channel Islands and England.

ECONOMIC IMPORTANCE

Elaeagnus plants are widely grown in Britain, principally for their lustrous foliage. They are tolerant of poor soils and have a high salt tolerance, so they are popular

in coastal gardens and are often used to create shelter belts in exposed areas. Large infestations of *C. fulguralis* can seriously damage *Elaeagnus* plants. The feeding activity of colonies, especially the nymphal instars, distorts new growth, causes chlorosis and necrosis of the foliage, premature leaf drop and desiccation of stems. Host vigour is reduced by sap removal and the loss of photosynthetic area as infested plants are smothered with eliminated honeydew, which serves as a substrate for the growth of a black sooty mould. Infested ornamental plants lose their aesthetic appearance and therefore their quality and value.

Elaeagnus x ebbingei is widely used for hedging in the Channel Islands but appears to be particularly susceptible to *C. fulguralis*. The psyllids have caused dieback resulting in gaps in hedges in Guernsey. *Cacopsylla fulguralis* is not a known vector of plant pathogens.

REMARKS

Cacopsylla fulguralis is likely to spread and naturalise in much of England and Wales, being limited only by the distribution of its *Elaeagnus* hosts. The adults are active and capable of flight and therefore have a high natural dispersal potential. It is also likely to be moved over long distances in trade and has been found at commercial plant nurseries in England and France. Several exotic psyllids have already been introduced in Britain, for example, *Acizzia uncatoides* (Ferris & Klyver) on *Acacia* spp., *Calophya rhois* (Löw) on *Cotinus coggygria*, *Ctenarytaina eucalypti* (Maskell) on *Eucalyptus* spp., *Homotoma ficus* (L.) on *Ficus carica*, *Livilla variegata* (Löw) on *Laburnum* sp., *Psylla alaterni* Förster on *Rhamnus alaternus*, *Psylla pulchella* Löw on *Cercis siliquastrum*, *Trioza alacris* Flor on *Laurus nobilis* and *Trioza vitreoradiata* (Maskell) on *Pittosporum* spp. (Hollis, 1978; Hodkinson & White, 1979; Halstead, 1992; Martin & Malumphy, 1995). There are several other Asian psyllid species, which feed on *Elaeagnus* spp. that have the potential to become pests in Europe if accidentally introduced.

Suspected outbreaks, or interceptions, of non-indigenous psyllids on growing plants should be reported to the local DEFRA Plant Health and Seeds Inspectorate office or the PHSI HQ, York (Tel.: 01904 455174, Fax: 01904 455197) and samples submitted to the CSL for identification.

ACKNOWLEDGEMENTS

Dr Jon Martin of the Natural History Museum confirmed the identification of the psyllid. Terry Brokenshire of the State of Guernsey Horticulture Advisory Service provided much useful information regarding the psyllid in Guernsey. Professor Ian Hodkinson of Liverpool John Moores University provided copies of most of the references. Susyn Andrews of the Royal Botanic Gardens, Kew, identified the plant *Elaeagnus commutata*.

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CD-ROM REVIEW

Interactive catalogue of World Chalcidoidea 2001. By J.S. Noyes. (Vancouver; Taxapad, 2001). CD-ROM, 351 photographs. US\$190.00

This is an updated version of the *Catalogue of the Chalcidoidea of the World*, Noyes (1998), with records up to mid-2000. The catalogue covers 21,848 species in 2033 genera including all species recorded from the British Isles. Although not the easiest software to use, the database contains species descriptions, close-up photographs and a wealth of useful information on chalcidoid biology. For example, by choosing Chalcidoidea, Statistics and Agromyzidae one can prepare a list of parasitoids attacking this group of flies. Further clicks on Statistics will yield a range of searchable fields and a list of species attacking British agromyzids can be assembled for further interrogation.

JOHN BADMIN

BOOK REVIEW

The Moths of Devon. R. McCormick. (2001). 328 pp., 15 colour plates. Hard cover, price not stated [c.£25.00]. ISBN 09540256-1-X.

The subtitle of this work is *An account of the Pyralid, Phume and Macromoths of Devon*, which is rather more accurate than the title as the work in fact covers less than half of the moths of Devon. It is very nearly fifty years since Stidston's work covered this ground and a modern list is very much to be welcomed.

The early chapters comprise an introduction and sections on: Geology and Landscape; Climate and weather; Conservation; Land Use; History of recorders; Species no longer seen; Migration; and History of Devon Publications. This is followed by the bulk of the work, the systematic list, and concluded by a gazetteer, list of references and sources and a section of colour plates showing habitats and individual species. There are three maps showing geology, the locations of sites which have habitat photographs, and a coverage map. The latter shows the 1km squares from which [one or more] records have been received and clearly illustrates the imbalance between good coverage in the south and poor coverage in the north. None of the maps shows the vice-county boundaries or the locations of the major towns. The body of the book is liberally illustrated with paintings by John Walters which were undoubtedly excellent in their original form but which have lost a lot of their charm in the conversion to grey-tone.

The systematic list which comprises the main body of the book consists of a mention of which of the two vice-counties the species occur or have occurred in, comments taken from the *Victoria County History* and from Stidston's list and either a brief statement of the current distribution or a more detailed analysis of older and more recent records. The definition of the latter appears to be 'records after the mid to late 1970s'. The nomenclature used is totally up-to-date, but would have benefited from the inclusion of synonymy where names have changed from Skinner (1984, *Colour identification guide to moths of the British Isles*). The information given is almost entirely distributional. There is rarely any mention of the foodplants used in Devon or the flight periods or habitat preferences. Such information, while to be found in the more general moth books, does vary locally and is often what makes local lists interesting. There is also no information on local forms or melanism; for example, the account for the Peppered Moth is 'very common throughout the county' with no indication of the frequency of forms or whether melanism is increasing or decreasing. Perhaps the melanic form doesn't occur at all – we should be told! Perhaps the most important omission is the lack of distribution maps. These would show at a glance the nature of individual species distribution; instead, we are often given just a list of sites with no further information as, for example, under recent sightings of Small Argent and Sable for VC3 – to the non-native entomologist this means almost nothing.

The proof-reading is not up to the standard one might expect. It is rather alarming to open a new book and find inserted a double page list of closely-typed errata discovered between printing and publication; and these are just the "more significant" ones. I also found the use of an unjustified right margin rather irksome.

A long list of recorders is given (although not all who have contributed are acknowledged) and it is clear that a considerable amount of work has gone into setting up the recording scheme, encouraging people to record accurately and scientifically, and in compiling and analysing the records. Despite the many criticisms, this is a valuable book which should be of interest to anyone concerned with the local distribution of British macrolepidoptera. It is well bound and reasonably priced.

DISTRIBUTION AND FLORAL PREFERENCES OF THE RARE BUMBLEBEES *BOMBUS HUMILIS* AND *B. SOROEENSIS* (HYMENOPTERA: APIDAE) ON SALISBURY PLAIN

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Abstract. Studies carried out on Salisbury Plain during July–August 2002, showed that 13 *Bombus* species were present, including the nationally rare *B. humilis* Illiger and *B. soroeensis* (Fabr.). Foraging studies indicated the importance of Fabaceae as the preferred pollen source for bumblebees.

INTRODUCTION

Many bumblebee (*Bombus*) species have declined dramatically in recent decades, both in the UK, in continental Europe and in North America (Peters, 1972; Williams 1982, 1986; Rasmont, 1995; Kosior, 1995; Buchmann & Nabhan, 1996; Westrich, 1996; Westrich *et al.*, 1998). Of the 19 ‘true’ bumblebee species and six cuckoo bumblebees known from the UK, three species are now extinct and several more are now confined to a handful of sites. Most researchers are convinced that declines in numbers of bumblebees are linked to the intensification of farming practices (Williams, 1986; Osborne & Corbet, 1994). In Europe this process has been underway for 250 years, but accelerated during the latter half of the 20th century.

The plight of our bumblebee fauna deserves particular attention because loss of bee species will have knock-on effects for other wildlife. A large number of wild plants are pollinated predominantly or exclusively by bumblebees, sometimes by particular species of bumblebee (Corbet *et al.*, 1991; Osborne *et al.*, 1991). It seems probable that reductions in the abundance and species richness of bumblebees may lead to widespread changes in plant communities (Corbet *et al.*, 1991). And of course these changes will have further knock-on effects for associated herbivores and other animals dependent on plant resources.

For practical reasons, most studies of bumblebee ecology and behaviour focus on species that are still common. In Europe, the vast majority of research covers just six species, *B. terrestris* (L.), *B. incornutus* (L.), *B. lapidarius* (L.), *B. pratorum* (L.), *B. pascuorum* (Scopoli) and *B. hortorum* (L.). For most of the approximately 40 remaining European bumblebee species, very little information on foraging preferences, or indeed on any other aspect of their ecology is available. Ecological studies of rare and declining species are urgently needed if appropriate conservation measures are to be deployed.

Salisbury Plain Training Area is the largest area of unimproved chalk grassland that remains in north-west Europe. Its status as a military training area since 1897 has protected it from most of the farming changes that have occurred elsewhere, and much of its 38,000 ha consists of lightly grazed flower-rich grassland and scrub. No attempt has been made to systematically survey Salisbury Plain for bumblebees (or indeed other invertebrates), although some localities have been well studied. Those sites that have been examined suggest

that the plain supports a diverse bumblebee assemblage, with at least 16 species present, perhaps the most that occur at any UK site (Edwards 1999; Carvell 2002). Because of the diversity of bumblebees, it is a superb site on which to study the ecology of our rarer species.

METHODS

Studies were carried out between 19 July and 13 August 2002. This is late for some bumblebee species, but facilitated access since all live firing ceases on Salisbury Plain Training Area for two weeks in early August. Thirty-five sites were selected to cover the extent of Salisbury Plain Training Area, with each site at least 1.5 km from any other. Each site consisted of a circle of approximately 100 m radius, and was searched for one hour. All searches were conducted between 9:00 and 17:00 BST, and during warm dry weather favourable to bee activity. All *Bombus* species were recorded. Since our primary focus was the rare species, no attempt was made to distinguish workers of *B. terrestris* and *B. lucorum* (to do so would have been very time-consuming and unreliable in the field). *Bombus hortorum* Illiger and *B. muscorum* (L.) are indistinguishable on the wing, so all specimens of these species were captured and examined with a hand lens. The area was searched systematically, to avoid recording the same bees more than once, but this probably occurred occasionally. Most bees were visiting flowers: the flower species was recorded, and each bee was observed to determine whether it was collecting pollen or nectar or both (it must be noted that this method is not as accurate as pollen load analysis for determining the relative amounts of pollen gathered from different plant species).

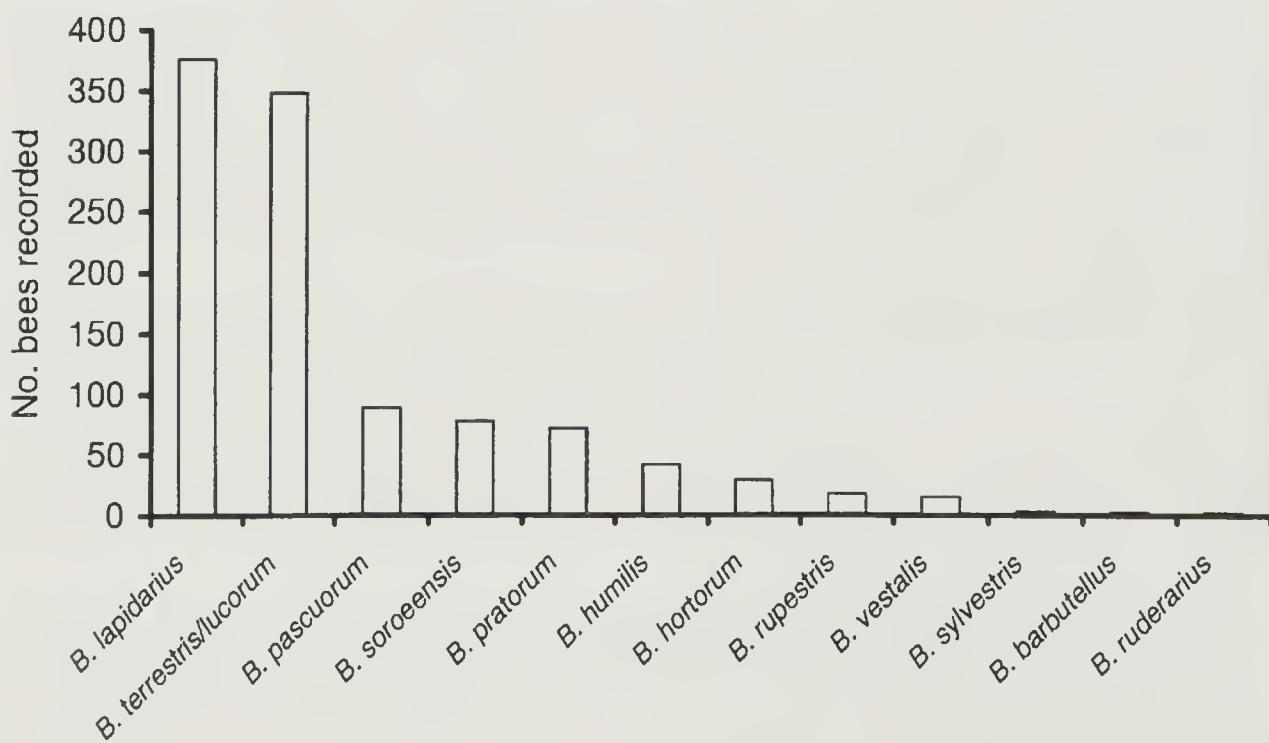


Fig. 1. Abundance of *Bombus* species recorded on Salisbury Plain (all sites combined). Observations were made between 19 July and 13 August 2002.

RESULTS

Distribution of bumblebees

In total, 13 *Bombus* species were recorded of the 22 species currently known from the UK. By far the most common bumblebee species was *B. lapidarius*, followed by the combined category of *B. terrestris/lucorum* (Fig. 1). *Bombus lapidarius* was recorded at every site, while *B. terrestris/lucorum* were found at 33 of the 35 sites. *Bombus pascuorum* was also widely distributed, being recorded at 26 sites, but was far less abundant. *Bombus pratorum* was found at 11 sites, generally in low numbers, but at two sites dominated by scrub it was the most common species. *Bombus hortorum* was widely distributed, being found at 17 sites scattered across the plain, but always in low numbers. More interestingly, two rare species, *B. soroeensis* (Fabr.) and *B. humilis*, were found to be moderately abundant and widely distributed on the plain. Indeed, at five sites *B. soroeensis* was the most common bee recorded. The distribution of *B. soroeensis* was largely confined to the southern central part of the plain, although still spanning an area that we would conservatively estimate to cover 30–40 km² (Fig. 2a). One nest was discovered (3 km due west of Shrewton), the entrance to which was within a dense tussock of grass on the east-facing flank of a valley.

In comparison with *B. soroeensis*, *B. humilis* was more widely distributed, but was rarely as abundant (Fig. 2b). As with *B. soroeensis*, *B. humilis* was most frequently recorded in the central part of the plain around the edges of Larkhill Impact Area. The rarest 'true' bumblebee was *B. ruderarius* (Müller), of which only two males were captured, both in the southern-central part of the plain.

Four cuckoo bees (subgenus *Psithyrus*) were recorded (all males except for one female *B. rupestris* (Fab.)). Both *B. vestalis* (Geoffroy in Fourcroy) and *B. rupestris* were widely distributed but uncommon. Three singletons of *B. sylvestris* Lepeletier were recorded from widely separated sites, while two singletons of *B. barbutellus* (Kirby) were recorded from the southern edge of the plain.

Forage use

In total, 1,061 bumblebees were recorded visiting flowers of 33 different species. For all of the recorded bumblebee species combined, 76.0% of pollen-collecting visits were to members of the Fabaceae: notably *Onobrychis viciifolia* Scop., *Melilotus altissimus* Thuill. and *Trifolium pratense* L. The only other substantial pollen source was *Odonites vernus* (Bell.) Dum. (Scrophulariaceae), which received 11.0% of visits (Fig. 3). In contrast, nectar collection occurred across a broader range of species, mostly within the Fabaceae and Asteraceae. Notable favourites were *Centaurea scabiosa* L., *Centaurea nigra* L. (Asteraceae) and *T. pratense*.

The most specialized bumblebee in terms of its foraging preferences appeared to be *B. hortorum*, which visited *T. pratense* almost exclusively. *Bombus pratorum* also appeared to collect pollen from just two sources, *M. altissimus* and *O. vernus*. In contrast, when collecting nectar it was extremely polylectic, and appeared to opportunistically visit almost any species that was in flower.

Bombus humilis appeared to specialize in gathering both nectar and pollen from the Fabaceae (25/27 visits), but visited several species within this family, notably *T. pratense*, *Lotus corniculatus* L. and *O. viciifolia* (Fig. 4a). *Bombus soroeensis* favoured collecting pollen from *O. vernus* and various Fabaceae, notably *O. viciifolia* and *M. altissimus*. When collecting nectar this species showed very little specificity, visiting a range of Fabaceae and Asteraceae, notably *Centaurea* spp., *Cirsium* spp. and *Knautia arvensis* (L.) Coult. (Fig. 4b).

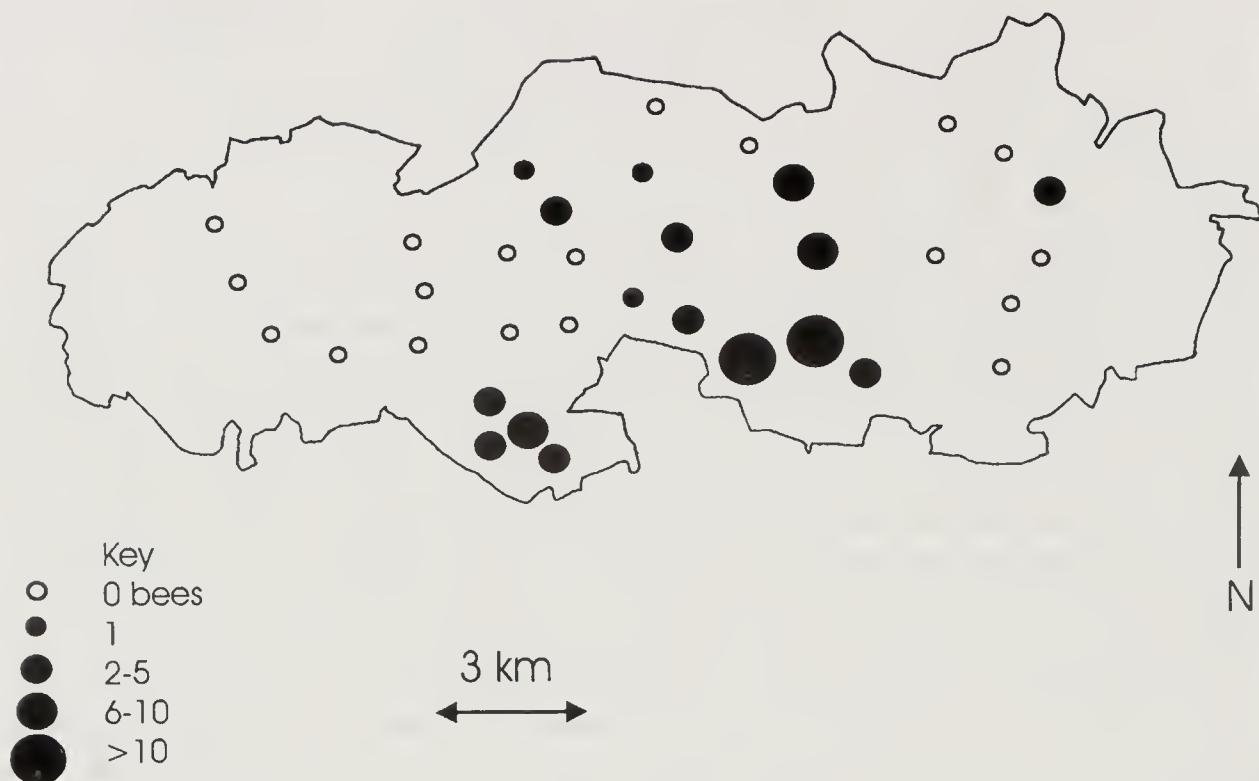
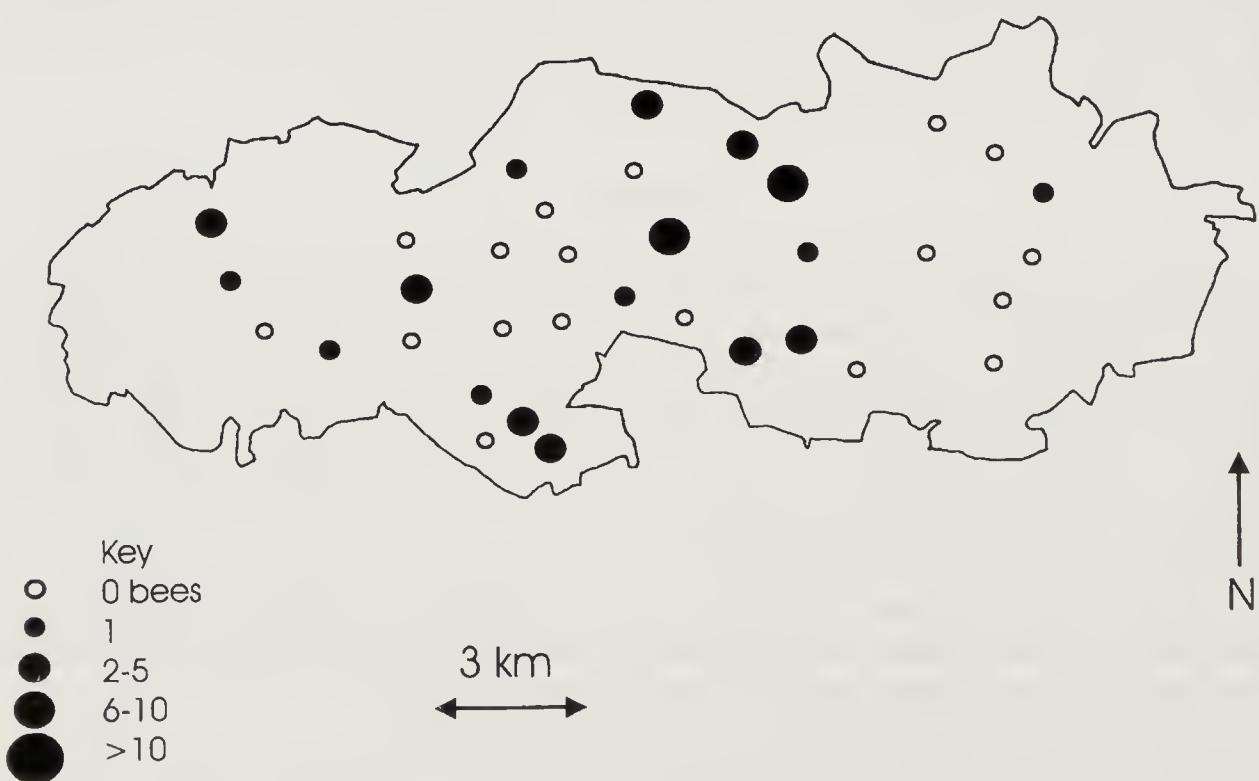
B. soroeensis*B. humilis*

Fig. 2. Distributions of bumblebees on Salisbury Plain Training Area. Each of the 35 sites was searched for one hour, and the total number of each species recorded. a) *Bombus soroeensis*; b) *B. humilis*.

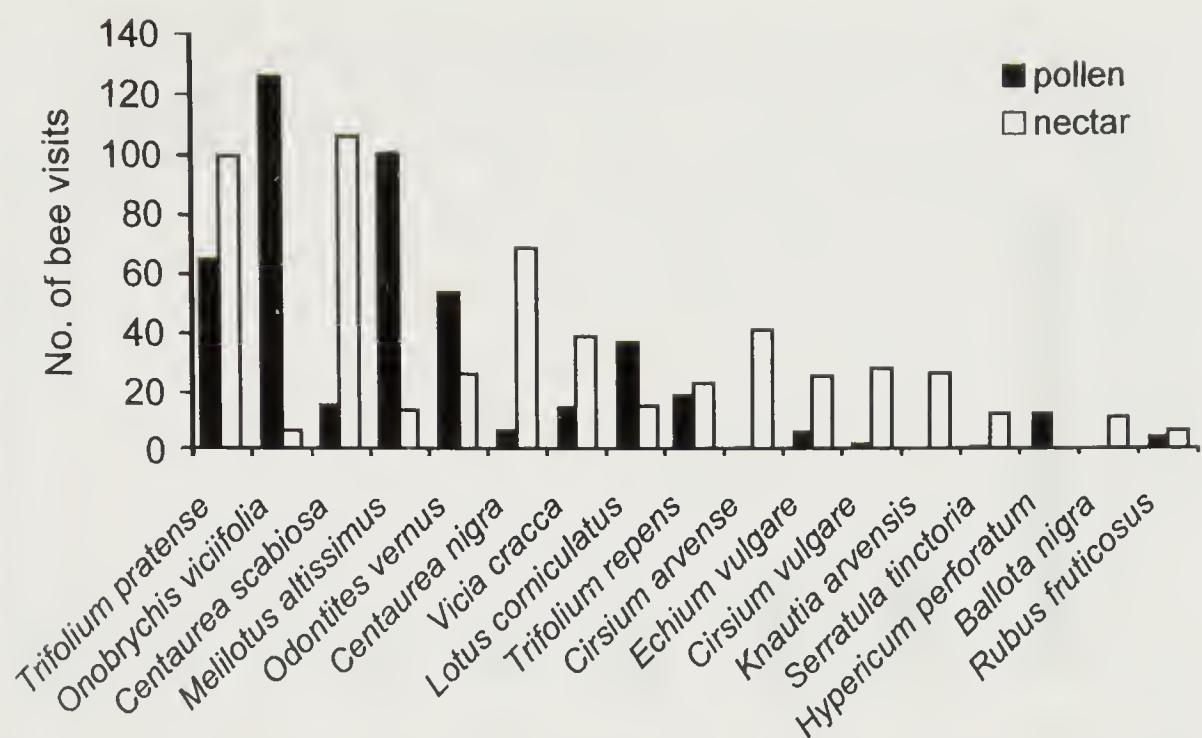


Fig. 3. Numbers of visits recorded to different flowers, according to whether pollen or nectar was collected (for all bumblebee species combined). Only plants for which at least ten visits in total were recorded are included.

The only other uncommon species observed in sufficient numbers to draw any conclusions about their foraging preferences were males of *B. rufipes*. These were most frequently observed on *Centaurea* spp. or *Cirsium* spp., favoured nectar sources of most male bumblebees. Two individuals were also seen feeding on *T. pratense*.

It must be noted that patterns of pollen and nectar collection vary between plant species according to the time of day at which nectar or pollen is released; to obtain a more accurate picture of forage use each site would ideally be observed for an entire day.

DISCUSSION

Our data confirm the importance of Salisbury Plain Training Area as supporting a diverse bumblebee fauna, with substantial populations of rare species such as *B. humilis* and *B. soroeensis*. Both species were found over large areas, and barring major habitat changes their long-term survival on Salisbury Plain seems assured. Some species known to occur on the plain were not recorded (notably *B. sylvarum* (L.) and *B. muscorum*), but our study was short in duration and many sites were not examined. Salisbury Plain covers a vast area and many parts remain to be adequately surveyed for invertebrates. Also the lateness of our study may have meant that the flight season of some species was nearly finished: in particular, only two worn males of *B. ruderarius* were recorded, suggesting that we were too late for this species. Further studies are required earlier in the year to establish the distribution and abundance of earlier species such as *B. ruderarius*, *B. pratorum* and *B. jonellus* (Kirby).

Our results suggest that at least some of the bumblebees on Salisbury Plain Training Area are largely reliant on a rather small number of plant species. Despite the floristic diversity on Salisbury plain, 65% of all flower visits by bumblebees were to just six plant species (of course, earlier in the year other plant species will be used). In particular, pollen was collected overwhelmingly from Fabaceae (76% of visits). Some species, notably *B. humilis*, gathered pollen almost exclusively from Fabaceae, while

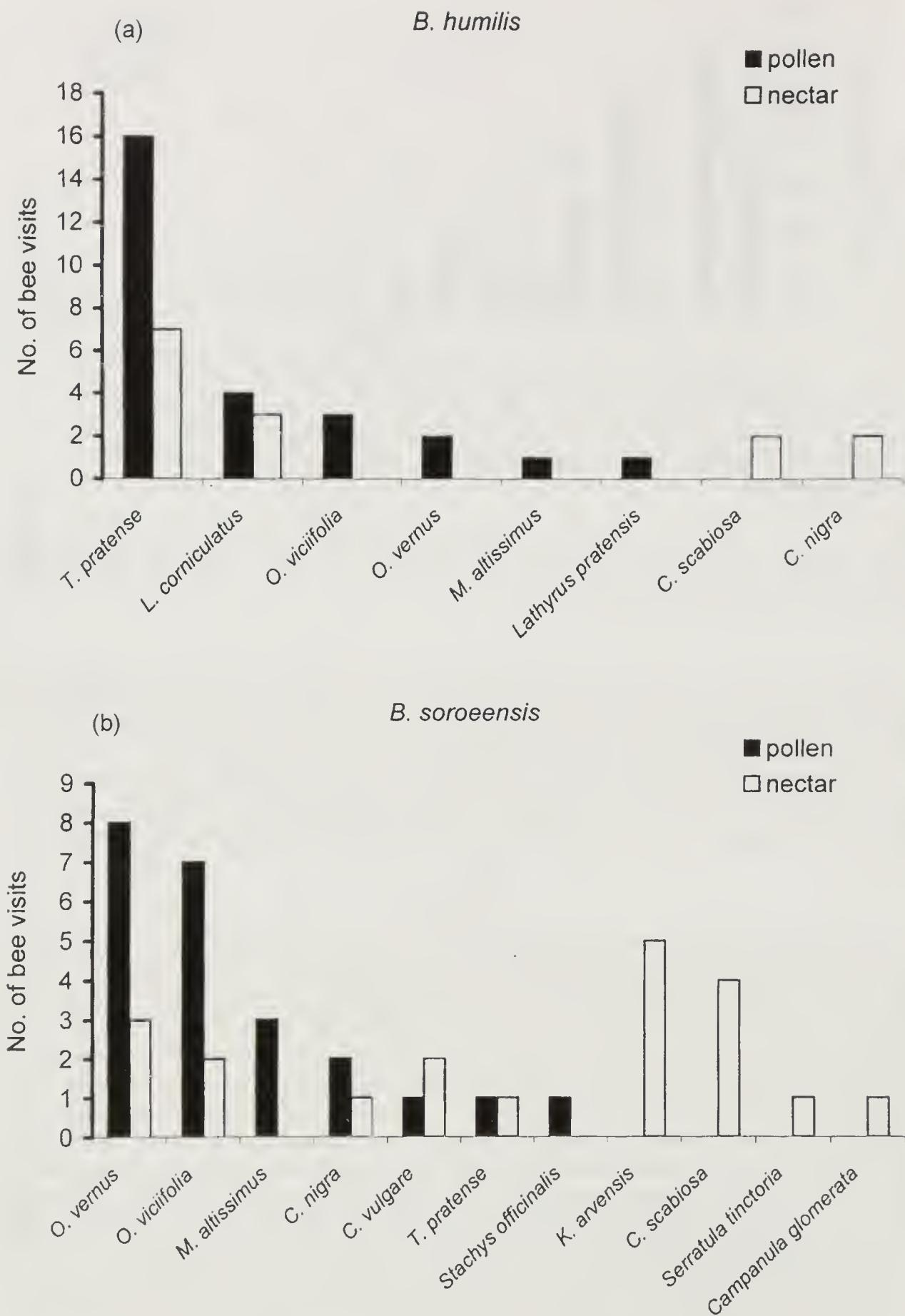


Fig. 4. Numbers of visits recorded to different flowers, according to whether pollen or nectar was collected. All bees were workers, apart from one male of each species recorded visiting *Centaurea nigra*. a) *Bombus humilis*; b) *B. soroeensis*.

B. hortorum was even more specific, gathering pollen largely from just one species, *T. pratense*. Brian (1951) found that pollen from red clover made up 74% of larval food in *B. hortorum* nests in Scotland, and studies in Finland, Sweden and Denmark all suggest the importance of red clover for this and other longer-tongued bumblebee species (Skovgaard, 1936; Teräs, 1985; Jennersten *et al.*, 1988, Rasmont, 1988). Most recently, Carvell (2002) found a strong correlation between abundance of *T. pratense* and abundance of both *B. hortorum* and *B. humilis* on Salisbury Plain Training Area.

It is not known why Fabaceae are the preferred pollen source for bumblebees in general, nor why some bumblebees are more specific in their pollen requirements than others. Fabaceae may simply produce more pollen than members of other plant families, although this seems unlikely and is not apparent from casual inspection of the flowers. Alternatively, there are presumably qualitative differences in pollen from different plant families; perhaps, for example, pollen from Fabaceae contains a higher proportion of protein. Since pollen is the only source of protein for developing brood, its quality is likely to be crucial.

Bombus soroeensis is a species about which very little is known, and in recent years it has been recorded from rather few sites in the UK (although there may be a degree of under-recording; it superficially resembles *B. terrestris*). It is a short-tongued species, and in terms of its foraging preferences, it appears to be quite generalized. It is probably fair to say that we have no idea why it has a restricted distribution, when other species such as *B. terrestris*, which are also short-tongued and have generalized foraging preferences, are very common. The healthy population on Salisbury Plain provides an excellent opportunity to study this species further.

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SHORT COMMUNICATION

***Gonocerus acuteangulatus* (Goeze) (Hemiptera: Coreidae) new to Kent.**—On 15 April 2003, I knocked a specimen of *Gonocerus acuteangulatus* from a Lawson's cypress tree in Horniman Gardens, Surrey, TQ349732. It landed, briefly, in a spider's web, from which I took it into my hand. The day was warm and sunny and the bug was very active. After a few seconds it flew off across the grass, over a fence and disappeared into the adjoining gardens of Forest Hill. Although once restricted to the box trees of Box Hill, this bug has spread dramatically throughout Surrey during the last 10 years, expanding its choice of foodplants to include hawthorn and yew (R. Hawkins, personal communication). I was not too surprised, therefore, to find it on the cypress. This alien garden tree has become host to several heteropteran bug species of late, including the lygaeid ground bug, *Orsillus depressus* Dallas, the juniper shieldbug, *Cyphostethus tristriatus* (Fab.), and the juniper leaf-bug, *Dichrooscytus gustavi* (Jos.) (Jones, R. A., 2000. *Entomologist's Rec. J. Var.* 112: 133–134). However, it is more likely that *Gonocerus* was overwintering on the cypress, rather than feeding on it. The vice-county boundary between Surrey (VC17) and West Kent (VC16) runs right through Horniman Gardens, following the ridge of the hill. So I felt a certain thrill as I watched *Gonocerus* fly away, because I realized that its flight took it out of Surrey and a few metres into Kent . . . a new record for the county? In fact, I later discovered that this was not the first time that the bug had been found in Kent. Roger Hawkins tells me that, on 6 September 2002, he was recording shieldbugs for the forthcoming Surrey Wildlife Trust atlas right on the very edge of the county, but had to walk there from the railway station at Edenbridge in Kent. The bushes of hawthorn and rose beside the station looked like a suitable habitat for this bug, but it took at least half-an-hour of systematic beating before a single adult *Gonocerus* was found, on hawthorn by a field to the west of the station (TQ437475) He was 1.5 kilometres inside West Kent at the time.—RICHARD A. JONES, 135 Friern Road, East Dulwich, London SE22 0AZ (bugmanjones@hotmail.com)

**TWO PARASITOIDS OF THE LILY BEETLE,
LILIOCERIS LILI (SCOPOLI) (COLEOPTERA:
CHRYSOMELIDAE), IN BRITAIN, INCLUDING THE FIRST
RECORD OF *LEMOPHAGUS ERRABUNDUS* GRAVENHORST
(HYMENOPTERA: ICHNEUMONIDAE)**

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Between 1996 and 1998 four hymenopteran parasitoids that attack the larvae of Lily beetle *Lilioceris lili* (Scopoli) were identified in mainland Europe (the ichneumonids *Lemophagus errabundus* Gravenhorst, *L. pulcher* (Szepligeti), *Diaparsis jucunda* (Holmgren) and the euphorid *Tetrastichus setifer* Thomson; Gold *et al.*, 2001). Only one of these parasitoids has previously been reported as present in Britain; *T. setifer* from a garden in Grays, Essex (TQ612793); (Cox, 2001). A search for *L. lili* parasitoids was made at the Royal Horticultural Society's Garden, Wisley, Surrey (TQ0658) during the spring and summer of 2000. A total of 393 *L. lili* larvae were collected from the Garden and reared singly in ventilated glass tubes (75 mm × 25 mm), filled to 25 mm with a 1:1 coarse sand and peat mix; leaves of *Lilium regale* Wilson were provided as a food source, replenished as necessary. A further 50 *L. lili* larvae were received from other localities (*via* the RHS members' advisory service); these were also reared singly. Beetle larvae that died were dissected to establish if parasitoid larvae were present.

All of the hymenopteran parasitoids of the lily beetle larvae found in Europe overwinter in their host's pupal chambers (Gold *et al.*, 2001), thus tubes from which an adult *L. lili* had not emerged by the end of October 2000 were overwintered at 4–6°C for six months. The tubes were brought up to room temperature (22.5°C) in April 2001, and after four weeks two species of parasitoid had emerged. These were tentatively identified as *Tetrastichus setifer* and *Lemophagus errabundus*. The identity of the latter has been confirmed by M. Kenis (CAB International Bioscience, Switzerland), and this is the first time this species has been identified from Britain. The identity of *T. setifer* was confirmed by comparison with specimens supplied by M. Cox. Pupal cells from which no parasitoids emerged were dissected to see if there were any indications of parasitism. Specimens of *L. errabundus* have been deposited in the National Museums of Scotland, Edinburgh and specimens of both species of parasitoid are deposited in the collections at RHS at Wisley Garden.

Tetrastichus setifer adults emerged from *L. lili* larvae received in June 2000 from Surrey (Surbiton, TQ16 and Normandy, SU95) and E. Sussex (Rye, TQ92). Although no adults of this species emerged from *L. lili* larvae collected from Wisley Garden, 15 (4%) of the larvae collected from there were found to be infested with this parasitoid upon dissection of the host larvae or pupal cells. *Tetrastichus setifer* is a gregarious species, a mean of seven adults emerged from east host (range 4 to 11, $n=5$) although it is known that this range can be wider (2–17, mean 8.8; Gold *et al.*, 2001). The larvae are hymenopteriform: spindle-shaped and maggot-like, with whitish translucent skin; the head is reduced and barely discernible. This species overwinters as larvae in the host's cocoon before pupating in the spring (Gold *et al.*, 2001). The adult parasitoids are 2–3 mm long and metallic blue black, the coxae and femora are black with paler knees, the tibiae and tarsi are yellow-brown, the last tarsal segment is darker.

One female and two male *L. errabundus* adults emerged from *L. lili* larvae collected from Wisley Garden. Dissection of host larvae that died or pupal cells indicated that 90 (23%) of the 393 *L. lili* larvae collected had been attacked by this ichneumonid. The translucent white first instar larvae of *L. errabundus* are typical mandibulate form, with obvious segmentation and a large head; subsequent larval instars were not observed. This species overwinters in cocoons within the host's pupal cells (Gold *et al.*, 2001). Dissection of five *L. lili* larvae indicated that *L. errabundus* can be gregarious with up to nine larvae present in one *L. lili* larva, however only one adult ichneumonid emerges from each host (Gold *et al.*, 2001 describe this species as solitary). The adult of this species is 6–7 mm long, the abdomen is primarily orange-brown with the first segment black. The anterior legs are brown with black coxae and trochanters, the second and third pair of legs are orange-brown. The head, antennae and thorax are black. Wing venation and stigma are brown and well marked.

M. Cox (pers. obs.) found ichneumonid parasitoids in *L. lili* larvae collected from his garden in Grays, Essex, in 1998. None of these successfully emerged as adults; examination of some specimens remains and subsequent successful rearing of *L. errabundus* in 2000 indicated that these were also *L. errabundus*. Of 51 larvae collected between May and July 1999, 67% were infested with *L. errabundus* (M. Cox pers. obs.).

Both species of *L. lili* parasitoid so far encountered in Britain are thought to be specific to the genus *Lilioceris* (Gold *et al.*, 2001; M. Kenis pers. com.). As the Lily beetle is an established alien pest (Fox Wilson, 1942; Cox, 2001), and the only species of *Lilioceris* found in Britain, it can be assumed that these two species of parasitoid are also established aliens. Emphasis is currently being placed on *T. setifer* as a potential biocontrol agent for the Lily beetle in Massachusetts, USA, where *L. lili* became established in 1992 (Gold *et al.*, 2001). Investigations into the biology and distribution of the parasitoids in Britain are continuing at Wisley Garden.

Thanks are due to Marc Kenis and Mike Cox for providing observations and commenting on earlier versions of the manuscript. Andrew Halstead for his advice and Ian Waghorn for his assistance in gathering data.

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SOCIETY NEWS

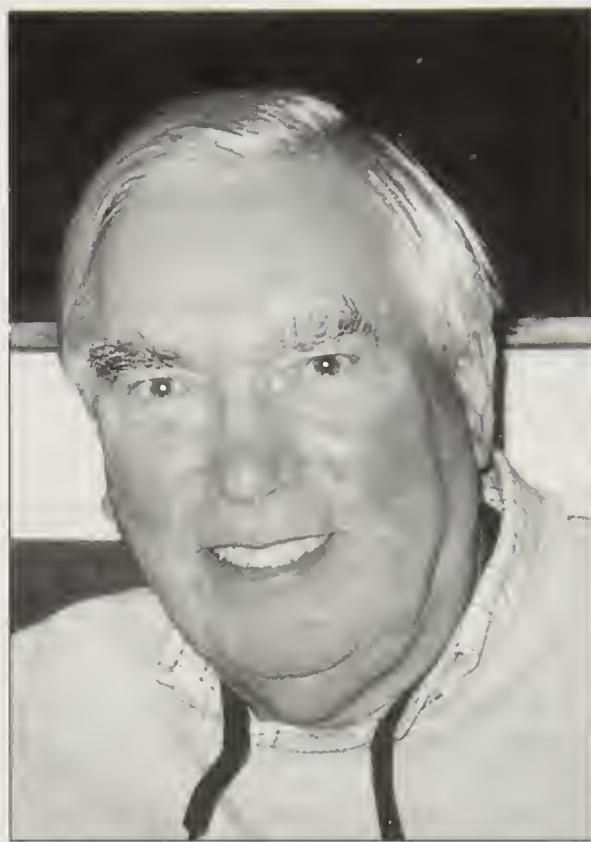
Basil H. Harley, MA, FLS, FRES, BENHS President 2003–2004

Basil Harley is an amateur naturalist with a deep interest in natural history which dates back to the 1930s. He was honorary secretary of his school's natural history society, led by the distinguished arachnologist, G.H. Locket, one of the masters, and while still a schoolboy wrote a short book on the *Birds of the Harrow District*. His primary interest for many years was ornithology but he was also interested in entomology, especially Lepidoptera and Coleoptera. At Oxford, where he read modern history, he was secretary of the Oxford Ornithological Society and became an active bird ringer. Although he was offered jobs by Peter Scott of the Wildfowl Trust and Bruce Campbell of the British Trust for Ornithology, he felt that his qualifications were inadequate and so chose to go into business, pursuing natural history as a hobby.

In 1959 he entered a career in printing, becoming managing director of the Curwen Press in 1964. He developed the company's colour printing techniques as he was determined to attract customers requiring fine printing for natural history books and prints. In 1968, a personal introduction by Eric Classey to Dr Richard B. Dominick, a wealthy American lepidopterist, led to Curwen Press designing and printing *The Moths of America North of Mexico*. Its first fascicle, 'Sphingidae' by Dr Ronald W. Hodges, was published in 1975. This connection more than any other fired his enthusiasm for entomology. Regular visits to South Carolina were 'the icing on the cake'. Other books on Lepidoptera included *Jamaica and its Butterflies* (1972) and the two-volume Ray Society monograph on *British Tortricoid Moths* (1973, 1979).

In 1971 John Heath contacted Basil Harley to enquire whether his company would finance and publish a work similar to the North American series under the title *The Moths and Butterflies of Great Britain and Ireland*. It was intended to be in ten or eleven volumes, appearing at the rate of one a year! This wildly ambitious target was clearly unrealistic for by 1983, when Basil Harley left Curwen Press, only two volumes had been published. However, he took over all rights and material from Curwen and in March of that year set up Harley Books with a view to completing its publication as and when texts became available. Maitland Emmet right up to the year before his death became its editorial driving force. Meanwhile, many other titles on other aspects of natural history were taken on and published.

Basil Harley has a small but sadly neglected collection of Lepidoptera and other Orders, but his prize collection is his large natural history library covering most branches of the subject. He is particularly interested in the history of natural history and contributed to two books published on that aspect by Harley Books *Martin Lister's English Spiders* (1678) and *The Aurelian Legacy* by Michael Salmon. He has



belonged to various natural history bodies over the past fifty years—the British Ornithologists' Union since 1953; the Linnean Society since 1955; and the Royal Entomological Society since 1981. He is currently on committees of the Linnean and Royal Entomological Societies. He joined the British Entomological Society in 1975 and regards his election to its presidency as a great but undeserved honour.

SHORT COMMUNICATIONS

More observations of insect families active during low temperature.—I was interested to read the Short Communication by Patrick Roper on insects active during a period of continuous frost in East Sussex in the December 2001 issue. As a researcher investigating the diet of bats that are active during the winter months, I regularly carried out suction trapping and sweep netting for insects in an area where bats fed. I too was surprised at the presence of active insects at low temperatures.

The study was in a valley in south-east Cornwall and so continuous periods of frost were absent. However, temperatures were regularly below 10°C. The table below lists the main families that were present and the total number of all insects caught along with the temperature.

It has been seen that insects that are particularly prevalent at low temperatures are Psychodidae and Cecidomyiidae with Trichoceridae and Chironomidae also present in some numbers. It is, however, again the Psychodidae and Cecidomyiidae that prevail at the lower temperatures and in mid-winter.

Although my collection was in a different county and at night, my findings are not dissimilar from those of Patrick Roper, with several of the main families present in both

	January	February	February	February	March	March
Psychodidae		8	13	33	71	5
Cecidomyiidae			2			
Trichoceridae		2	1	34		5
Tipulidae			3	2	2	
Mycetophilidae			4	6		1
Chironomidae			7	18		1
Ceratopogonidae		2	2	5	1	
Sphaeroceridae				1		1
Ephydriidae						2
Total insects	1	17	30	110	79	15
Temperature	0.5	5	6.5	9.5	7.5	8.9
	April	May	November	December	December	Deeember
Psychodidae		671	87		30	31
Cecidomyiidae		14	33		3	1
Trichoceridae		2	2			
Tipulidae	2	18	8			
Mycetophilidae	1					1
Chironomidae			1			2
Ceratopogonidae		10	1			3
Sphaeroceridae	1					
Ephydriidae			1			
Total insects	31	755	143	2	33	42
Temperature	9	9.7	6.5	0.5	7	10

studies. Certainly my results agree that it is the tiny, delicate insects that were most in evidence. The only major differences between the findings of our respective studies appears to be the absence of Psychodidae from Mr Roper's survey, which intrigues me.

On the point raised by Mr Roper regarding the importance of these hardy insects for insectivorous birds and spiders, I would comment that bats can also be added to that list. Bats feed in the winter with the likelihood of this occurring being greater in some species of bat than in others. It is certainly true that the likelihood of bats feeding in winter is also related to temperature. In the milder parts of the UK, such as Cornwall, feeding by lesser horseshoe bats *Rhinolophus hipposideros* (Bechstein) is very frequent. Although winter temperatures above 10°C support an abundance of active insects that make foraging by bats worthwhile, lesser horseshoe bats in Cornwall are known to feed at temperatures as low as 5°C.

Trihoceridae, Tipulidae and Mycetophilidae are all important prey families in the winter diet of the lesser horseshoe bat in Cornwall, with Chironomidae and Psychodidae present at lower levels.

I feel it is true to say that these hardy winter-active insects are undoubtedly of great importance for those winter-feeding insectivores as well as proving interesting in their own right.—CAROL WILLIAMS, 10 Treveryn Parc, Budock Water, Falmouth TR11 5EH

Significance of the continued existence of a population of *Euura amerinae* (L.) (Hymenoptera: Tenthredinidae) after 25 years for the identification of factors determining hostplant acceptability

Abstract. An infestation by *Euura amerinae* on *Salix pentandra* was observed to continue over a period of 25 years. It is suggested that ontogenetic ageing of the host probably does not influence the development of populations of this sawfly as much as some previous studies have indicated. The variable reaction of the host to attack, depending probably mainly on site conditions and their effect on growth, greatly affects the availability of oviposition sites for the next generation of sawflies.

Roininen, Price & Tahvanainen (1993) studied the colonisation of a population of the shoot-galling sawfly *Euura amerinae* (L.) (Hymenoptera: Tenthredinidae) on young *Salix pentandra* L. (Bay Willow) growing from seed in eastern Finland. They reached the conclusion that the complete extinction of the sawfly at this site, just seven years after its first appearance, was probably mainly the result of ontogenetic ageing of the hostplants.

In 1976 (Liston, 1982) I found an isolated occurrence of *S. pentandra* at Beecraigs Country Park, Bathgate Hills, West Lothian, Scotland, with a very strong infestation by *E. amerinae*. During the first four years of observation, infestation remained exceedingly heavy, with several hundred fresh galls each year. It was noted in 1976 that the plants originated as a type of coppice growth: three "bushes" had grown from a stem of approximately 25 cm breast-height diameter lying on the ground. In August 2001 the site was revisited and the plants observed to still support a population of the sawfly. Around seventy fresh galls were present on the upper, leading shoots of the willows, which are now approx. 5 m in height (1.75 m when first found). The site conditions, in a wet flush on a former clearfell area, seem to be quite favourable for *pentandra*.

That *E. amerinae* is still present after 25 years contrasts markedly with the observations of Roininen *et al.* (l.c.), and suggests that ontogenetic ageing may not

be the only important factor determining acceptability of the hostplant to this sawfly. The age of this host, arising as it did as coppice growth, must be at least 30 years. Personal observations on larger, older trees of *pentandra* support the conclusion of several authors, that *amerinae* greatly prefers younger plants, but the progress of the infestation at Beecraigs leads me to believe that plant vigour is probably a more important determinant of host acceptability than ontogenetic ageing. The slow height increment in these bushes seems contradictory to a state of vigorous growth, but it is probable that their physiological vigour was masked by the stunting effect of the extremely heavy sawfly attack. This is supported by the large increase in length of new shoots since the weakening of the infestation.

Conspicuous in the Beecraigs infestation was the complete loss of apical dominance in the host after sustained attack and resulting dieback of the leading shoots. Subsequently the sawfly oviposited in new shoots growing from ungalled tissue lower in the plant. Kopelke (1999, p. 111) considers that *E. amerinae* populations exhibit strong resource-regulating effects, which by his definition are effects controlled solely by the action of the gall-maker. It is suggested that in *amerinae* the reaction of the hostplant to attack is nevertheless of great importance to the development, or even the continued existence, of the sawfly population. If the plant is sufficiently vigorous, the net number of potential oviposition sites may not be greatly diminished by previous infestation. Conversely, young plants on a site with sub-optimal nutritional or hydrological conditions might fail to produce any new shoots if weakened by a severe attack.

Factors influencing host acceptability, as pointed out by Roininen *et al.*, have a wide significance in the relationship between population dynamics of herbivorous insects and growth of woody plants. Amongst the sawflies, particularly some of the gall-makers (*Pontania*, *Euura*) exhibit a clear preference for vigorously growing shoots (Kopelke & Amendt, 2001). This is expressed not just in heavier attack on young plants: coppice growth is often preferred to more mature parts of potential hosts (Kopelke, 1999).—A. D. LISTON, Amselweg 84, D-84160 Frontenhausen, Germany.

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THE 2001 PRESIDENTIAL ADDRESS—PART 2

A CELEBRATION OF URBAN ENTOMOLOGY

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The study of insects, like many natural history pursuits, is predominantly a rural pastime¹. Insects, as inhabitants of the natural world, are thought of mainly in terms of being denizens of ‘wild’ habitats like fields and forests, moors and marshes, heaths and dunes. The idea of looking for insects in the grey-brown drabness of towns and cities is merely an afterthought, given the same significance as finding the odd moth attracted to some far distant off-shore light-ship—they might turn up occasionally, but they are not really at home.

But, as we all know, insects can occur everywhere. Nevertheless, urban entomology is a stilted topic and usually considers insects solely from the point of view of them being troublesome domestic pests. True, insects do occur in the home, and hardly any house in Britain over 25 years old will be free of woodworm in some quiet corner or other. And gardeners apparently wage a constant war against would-be pests destroying their prize blooms and treasured crops. Nevertheless, an appreciation of urban wildlife, including insects, is on the ascendant, not just in academic circles, but in the population at large. And it begins in our parks and gardens.

Parks, gardens and open spaces have been an important part of urban planning for centuries. The grandeur of the great architecture that characterizes our cities is softened and enhanced by these open spaces. Depending on the history of the land and the fashions of the day, these green spaces may be the large formal ornamental gardens of palaces or royal parks or the small varied plots attached to individual private dwellings. They may contain remnant pockets of countryside enveloped by urban expansion or they may be newly created nature parks on previously derelict land.

Whatever their history, these green places echo, for urban dwellers at least, the ‘wild’ nature in which humans have long found solace. However, they are also being increasingly recognized, not just for their aesthetic form and setting, but for their potential as valuable wildlife habitat (Anon, 2002 and endless gardening for wildlife books).

SECLUDED SPOTS AND QUIET CORNERS

During the past years I have exhibited many odd and unusual insects at meetings of this society. I must admit that, rather tongue-in-cheek, I have denigrated most of the urban sites that I have visited, emphasizing the mundane or scruffy nature of the localities. There is a stereotype image of urban green spaces as being dull utility

¹ Indeed, when it looked as though the Government might bring in a ban on the hunting of animals using nets, there was some concern that entomologists might be vilified and prosecuted under this new legislation. However, the answers to gentle enquiries to various departments of the Civil Service indicated that collecting insects would probably be considered a ‘traditional country pursuit’.

grassland for people to walk their dogs and children to kick about with footballs. They may be punctuated with elegant trees, but these are often the ecologically sterile London Plane. Many parks and ornamental gardens do fall into this category, but around the edges, or in secret corners, there are often pockets of useful and interesting habitat left to run a little bit wild and which are abuzz with insect life.

Unfortunately, wild corners are not often appreciated by their corporate or local government owners or by portions of the general public. Uncontrolled growth is apt to be tidied up; land left too unmanaged can become clogged with litter and, worse, seemingly abandoned plots left to really run riot are too often illegally fly-tipped by rogue builders. It is a truly difficult balancing act trying to manage an urban green-space for both human users and natural wildlife.

One of the great strengths of the urban environment is its fragmentation into a myriad disparate tiny zones. Living in south-east London, I am more or less equidistant from both Heathrow and Gatwick Airports, and I have flown from both on foreign holidays and business trips. When I fly from Gatwick I take great pleasure in peering out from the aeroplane's windows as it takes off over what I think is one of the great landscapes of the world—the Weald of Sussex and Kent—with its intricate mosaic of woods, meadows, hedgerows and winding streams. And yet, a take-off from Heathrow offers a remarkably similar vista below—but this time the intricate mosaic is one of individual tiny urban and suburban gardens. Some are manicured, some are left unintended, but the complex mixture of underlying geology, open or shaded aspects, fenced or hedged shelter and the diversity of planting of trees, shrubs and herbs, give urban gardens a tremendous opportunity for a wide array of wild plant and animal species to make their homes.

RELICS OF A PAST TIME

About 20% of London open space is garden (Anon, 2002). Private gardens are difficult to visit and difficult to study, but nestling between them are a whole series of much more approachable habitats.

Some of the most important urban sites are those which reflect an ancient past; small islands cut off when the Victorian housing boom enveloped them. Sydenham and Dulwich Woods are reckoned to be part of the Great North Wood, a series of copses and wooded commons that once extended from Selsdon to Brockley. Not much remains now, but there are a few tantalizing place names like Forest Hill, Norwood and Wood Vale. The 'ancient' nature of the woods was first noted over 40 years ago when surveys of the flora showed a number of typically ancient woodland plants occurred there (Lousley, 1959, 1960).

Numerous nationally rare and nationally scarce insects are recorded from the woods, including Stag beetle, Purple Hairstreak and Silver-washed Fritillary—it is the innermost London locality for any of our fritillaries (Plant, 1987). Recent surveys in the woods, notably those of the saproxylic beetles (those breeding in dead and decaying timber) confirm that many species found there are indicators of ancient woodland. In fact, comparison of the species list with other sites nationwide shows that the woods rank respectably high in a published league table of ancient woodlands in Britain (Jones, 2002). Of the 164 beetles found to date, 52 are acknowledged old woodland species including the Spotted Jewel beetle *Agrilus planouonicus* (Pill. & Mitt.) (Buprestidae), *Aderus oculatus* (Payk.) (Aderidae), *Phymatodes testaceus* (L.) (Cerambycidae), *Notolaeus unifasciatus* (Latr.) (Cucujidae), *Melasis buprestoides* (L.) (Eucnemidae), *Couopalus testaceus* (Olivier) and *Hallomenus biotatus* (Quensel) (both Melandryidae).



Fig. 1. Downham Woodland Walk, near Bromley, August 1999. The narrow tarmac path has a few metres of woodland surviving either side. This oak tree is under heavy attack from the wood-boring beetles *Platypus cylindrus*—so much so that sawdust is cascading from the scores of holes being dug.

A much more unusual fragment of similarly ancient wood exists along Downham Woodland Walk, near Bromley. This multiple dog-leg footpath, picking its way between a dense 1930s housing estate also has a promising list of ancient woodland indicator species (Jones, 2003 in press). These include *Steganostus villosus* (Fourc.) (Elateridae), *Phloiotrya vaudouri* Muls. (Melandryidae), *Platypus cylindrus* (Fab.) (Platypodidae) and *Prionychus ater* (Fab.) (Tenebrionidae). And it is the best site I know of for the Stag beetle.

A map of 1805 clearly shows a narrow linear wood hereabouts, surrounded by open fields. It is remarkable that it survived, to be incorporated into the development scheme at a time when urban sprawl was burgeoning. In places it is only a few metres wide, but still contains some old oak trees and pollards that obviously predate the 20th century buildings.

Nearby, Forster Memorial Park has a well-documented history and is thought to be the site of a double assart, a clearing made in woodland for agriculture whilst the wooded edges are retained for shelter. Its two open spaces are bounded by narrow strips of woodland that also contain beetles known to favour ancient woods including *Abdera quadrisignata* (Curt.) (Melandryidae), *Ctesias serra* (Fab.) (Dermestidae), the Stag beetle (of course) and the hoverfly *Didea fasciata* Macq. (Syrphidae).

Another unusual relic is Dacres Wood, in Lewisham. It is the overgrown remains of the garden of a large house, long since demolished, and now run as a local nature reserve. Although less than 1 hectare in extent and surrounded by dense housing, it is

home to the Stag beetle and Purple Hairstreak, and was the locality for one of the bee-beetles, *Trichius zonatus* (Germ.) (Scarabaeidae), which breed in dusty, crumbling, fungoid wood, rediscovered in Britain after a gap of nearly 40 years.

The widespread occurrence of species like the Stag beetle, not only in these enveloped relics of 'real' old woodland, but also in urban gardens generally throughout south London, reflects an important historical process that took place in the area. Even though very large numbers of houses were built in this part of London between 1830 and 1930, they were erected in an age before widespread mechanization—more importantly, before JCBs and bulldozers. Today, a housing developer razes the ground before building begins. Virtually all trace of wildlife is eradicated so that construction can begin on a blank site. Only at the end of building work is some topsoil returned and landscape gardening with bland plantings undertaken.

However, in Victorian building schemes, everything was done by hand, so when houses were built, on the whole, the area allocated for gardens went relatively untouched until the incoming householders started gardening. For something like the Stag beetle, which is primarily a breeder in subterranean tree stumps and roots, it meant that fragments of original habitat were inadvertently incorporated into the garden landscapes and remained hidden, long after building work was completed. To some extent many of these Victorian gardens still contain tiny relics from a time before the suburban building development. Some of these relics are tangible—I know of Victorian cast-iron boundary posts, originally situated around open fields, in hedges or on ditch banks, still surviving in urban gardens to this day.

SYCAMORE—AN ESPECIALLY IMPORTANT URBAN PHENOMENON

Nunhead Cemetery was the first south London site that I regularly visited. It was laid out in 1840, about 50 years before it was engulfed in the continuing urban expansion of the Victorian house building boom. Originally designed to resemble a rather pastoral scene, it was laid out befitting the fashions of the time as a meadow-style cemetery, with gently rolling grasslands blending with the open fields and hedgerows around it. But the cemetery declined dramatically during the first half of the 20th century. With changes in burial practice and social attitudes to death it became more and more unkempt until, abandoned in the 1950s, it became overrun by sycamore and ash saplings. Acquired by the local authority by compulsory purchase in 1975, it is now run as a local nature reserve and 'open' space although it is mostly wooded.

It was at Nunhead that I first observed what I think is an especially urban London phenomenon—the sooty bark disease, a fungus *Cryptostoma corticale* (Elle. & Ev.), which attacks and usually kills sycamore trees. It appears to have originated in Canada where it was first found in the 1880s as a harmless saprophyte growing on sugar maple. It was discovered in Britain, in Wanstead Park, north London, in 1945, again growing harmlessly on the remains of a broken sycamore stem. Three years later it had become the virulent disease that continues to kill sycamore trees (Young, 1978).

Associated with the fungus are a group of beetles, previously thought to be scarce, but which are now seemingly commonplace in the capital. At one time regarded as rare, *Enicmus brevicornis* (Mann.) (Lathridiidae), *Diplocoelis fagi* Guér.-Méne. (Biphyllidae), *Cicones undatus* (Guér.-Méne.), and *Synchita separanda* Reit. (both Colydiidae) are all, to varying extents, widespread in the London area and are species which I now regard as being typically urban in distribution (Jones, 1993, 1996).



Fig. 2. About 50 specimens of the mottled *Cicones undatus* together with about 25 specimens of the smaller black *Enicmus brevicornis*, under dead sycamore bark in Nunhead Cemetery, January 1997. When first discovered in Windsor in 1983 *Cicones* was thought to be an extremely rare old forest relic associated with maples, but it is now widespread, and often abundant, in urban London on sycamores attacked by the sooty bark disease.

Perhaps the main reason they all occur so widely in London is climatic. London has the highest mean temperature of anywhere in Britain and also has one of the lowest rainfalls leading, it is suggested, to an increasing likelihood of water stress in the sycamore trees, a factor which is known to increase the voracity of the fungal attack (Dickenson & Wheeler, 1981).

The orange ladybird, *Halyzia sedecimguttata* (L.), is also exceptionally common in London; at one time it was regarded as a scarce insect, until it was realized that it too is associated with sycamore where it grazes on mildews growing on the leaves. And the recently discovered leafbug, *Deraeocoris flavilinea* (Costa), a sycamore feeder, first found in the Lee Valley in north-east London (Miller, 2001, Nau & Brooke, 2003), is now spreading throughout the London area.

A CROSS-SECTION OF LONDON

Studying insects in towns and cities is fraught with difficulties, problems of access being not the least. It is one thing knocking on the doors of private houses asking the bemused occupants whether one can look for bugs in their back garden, but many commercially owned areas deliberately exclude the public for health and safety reasons and access is virtually impossible. Railway embankments fall into this category. These partly glimpsed stretches of trees, scrub and grass form an intricate green network throughout London, extending from the Greenbelt right into the

heart of the city. Intuitively they seem fascinating green corridors up and down which wildlife can spread. But these, some of the most important wildlife sites in London, are ordinarily inaccessible.

I was more than a little pleased, therefore, to be invited in 1999 to take part in a survey of trackside habitats for London Underground. Though also known as 'The Tube', the London Underground system of tracks extends a great distance from the centre of London, stretching from the underground hub of the Circle Line out to such exotic-sounding locations as Cockfosters, Theydon Bois, Dagenham Heathway, Osterley and Perivale. The central area of track is wholly subterranean and inaccessible, but the many over-ground tracks leading out into the suburbs have many areas available for study. An invertebrate survey of these tracksides reads like a series of transects through the capital, each line a radiating spoke from the city out into the surrounding countryside.

The survey was organized by the London Ecology Unit, originally the wildlife and conservation body which advised the Greater London Council, and now incorporated into the Greater London Authority. The team comprised about half-a-dozen—botanists, ornithologists, general ecologists, and myself. Our first task was to attend a special safety training course to learn how not to get electrocuted by the several thousand volts passing through the live rails and how not to get hit by trains weighing hundreds of tonnes and travelling at 40 miles an hour. After a day-long training session and having successfully passed a written test and medical



Fig. 3. Broad embankment of the Metropolitan Line near Moore Park, surrounded by open grazing meadows, hedgerows and woods. This site, the first of my field visits for the London Underground survey on 21 June 1999, yielded a specimen of the very local longhorn beetle, *Agapanthia villosoviridescens* (Deg.), a large mottled grey species that breeds in the stems of herbaceous plants, mainly thistles and hogweed. It is found in central England and northern East Anglia and this locality is right on the very south-eastern edge of the beetle's known range in Britain.



Fig. 4. Embankment of the Metropolitan and Jubilee Lines just north of Neasden Station, which is just visible in the distance. The Guernsey fleabane, *Conyza sumatrensis* is a prominent part of the flora and on it were large numbers of the lygaeid 'ground' bug *Nysius senecionis*. The 'protection master', my escort up and down the track, waits patiently whilst I thrash around in the tall herb layer.

examination, we were issued with our track passes, travel documents, standard high-visibility reflective jackets and released. We were not exactly allowed to wander at will, but were constantly accompanied by one or more 'protection masters' whose job it was to lead us by the safest route up the tracks and warn at the approach of any trains.

Three days a week, during the period from 21 June to 26 October, we trudged up many scores of miles of railway track, to visit 103 different trackside sites. These were chosen from aerial photographs, and 'spotted' from the train cabs, to represent a range of the different habitats available along the lines. Some of the most impressive were relatively large areas of woodland, marsh or rough grassland on the embankments or between junctions where lines met each other. At the other extreme, there were several ragged bits of derelict land behind the stations including some demolished buildings and lengths of disused track.

It was a truly fascinating year. We were able to visit areas unseen by naturalists for many decades and there was always something new to find. Constraints on time meant that a visit to each site was brief and time given to working up the identifications later in the year was also limited. Nevertheless, a final list totalled a respectable 535 invertebrate species. Many still remain to be identified, if I ever get the time.

Amongst the most impressive finds were 40 nationally rare and nationally scarce species and many others that are very local. Among my favourite finds was the third British specimen of *Otiorhynchus setosulus* Stierlin, a Sicilian endemic weevil, beaten

off a cherry tree on a narrow grassy embankment at Elm Park. *Anthrenus sarnicus* Mroczkowski (Dermestidae) is a museum beetle more or less limited to the Natural History Museum and other buildings in the South Kensington area where, since its discovery in Britain in 1963, it has become a minor domestic pest. I swept it from ragwort and aster flowers four stops down the District Line at Baron's Court. The juniper leaf-bug *Dichrooscytus gustavi* Josifov was known from only a handful of chalk downland sites in south-east England, and I was astonished to find it at Chalfont, beaten from cypress trees, a new foodplant for what was previously regarded a monophagous insect.

The large hoverflies *Volucella zonaria* (Poda) and *V. inanis* (L.) are quite common in London parks and gardens, but I had never seen their close relative *V. inflata* (Fabricius) in the London area and last noted it when I lived in Sussex over 25 years ago, so I was very excited, in a nostalgic sort of way, when I saw it on a bramble flower near Chesham. There were glow-worms at Rickmansworth, Ringlets at Chorleywood, Marbled Whites at Chalfont & Latimer and a caterpillar of Blair's Shoulder Knot at Elm Park.

Another favourite insect was the Purple Hairstreak that landed, one blustery day, on the gravel ballast of the track at Ealing Broadway, just inches from the live rail. It remained there as I photographed it until, with the protection master visibly twitching with anxiety, I moved away as a District Line train came thundering past.

At the time of the survey, there was much talk of the Public-Private Partnership (PPP) initiative, which had been suggested by the government to inject cash into an ageing track and train system. Privately, there ran a constant discussion amongst the ecologists surveying the tracksides. Was the survey proof that London Underground showed a genuine interest in the land that it owned and had started on a true quest after knowledge to better enable it to manage these areas with sympathy for wildlife? Or (the more cynical suggestion put forward) was it trying to quantify what, if any, wildlife interest might pose a financial liability, in terms of specialist management or extra upkeep, if it ever came to selling off the lines? Whatever the impetus to carry out the survey, there was mention that the ecological data we collected might have some commercial sensitivity and should remain confidential, so the final report has never been made public. With the knowledge and permission of London Underground I have published a few *ad-hoc* records of certain species and I hope that as time passes, any sensitivity will pass too, so that I can publish at least a general report of the work we did.

Insects were not all I found along the tracks. It was impossible to miss the activities of other animals. Every stretch of embankment seemed to have its own resident fox and the skeletons of those presumably hit by trains would often produce the odd carrion beetle. Rats were common and part of our training induction was to be aware of the danger of Weil's disease, a severe and sometimes fatal jaundice caused by a spirochaete passed in their urine. At Colindale, I saw a magpie with what looked like two large wriggling worms in its beak. When I got to the spot it had flown from, I found the autotomized tails of two slow-worms still writhing in the grass. Having made off with the larger portions of its prey, the bird came back a few minutes later to retrieve them.

There were plenty of unusual man-made artefacts to discover too. Victorian bottles, discarded railway ironwork, the remains of abandoned buildings that probably pre-dated the railway lines and sundry bits of broken pottery and wood were always examined with interest. It was often a mystery how these curious objects got to be where we found them. One rather damp day I stumbled over something protruding slightly from the wet soil. I bent down and picked out a small shallow

terracotta pot a few centimetres across. As I rubbed off the mud I began to make out some faint markings along its side... 'HAMSTER'.

Not all finds were quite so innocuous. Near the end of station platforms we had been warned to keep a careful eye open for hypodermic needles discarded by illegal drug-users, and there was often offensive litter and rubbish dropped over fences and from footbridges. Several times we found handbags and briefcases which appeared to have been dumped after being stolen. One contained obviously important documents, including medical cards and two passports. Thinking I should act the upright citizen and hand them in to be returned to their owners I took them with me back into Central London after the day's outing.

The British Transport Police were not very interested and, finding no record of any crime against the passport holders on their computer, they seemed unable to cope with lost property. So instead, I handed them in at the tube station manager's office at Victoria. She was a little surprised to find out that I had retrieved them from the trackside, but I was wearing my bright orange London Underground jacket to prove I was 'official'. She pored over the passports, which were slightly mouldy and had been partly nibbled by snails, only to exclaim when she saw a minute creature crawling across one of the pages. I immediately snapped it up and put it into a glass tube—*Chthonius ischnocheles* (Herm.) the only pseudoscorpion found during the survey.

I still remember fondly many of the site visits during the London Underground survey, not least for the company of other naturalists. Entomology is all too often a solitary study. I was able to share my enthusiasm for some of the smaller creatures we found, the others in the team were able to show me water vole droppings near Roding Valley, live field mice near Wembley Park, sparrowhawks at Edgware, a muntjac deer crossing the tracks near Chesham and cannabis growing from a freshly dug embankment near Barkingside.

On 11 August 1999 we visited what was possibly the most mundane site, less interesting even than the demolished buildings behind Shoreditch station in central London. There at least a few plants of Oxford ragwort, *Senecio squalidus* L. and Guernsey fleabane, *Conyza sumatrensis* (Retz.), were sprouting up between the broken concrete floors. On these I found the uncommon hoverfly *Sphaerophoria rueppellii* (Wiedemann) and the lygaeid bug *Nysius senecionis* (Schilling) recently found in Britain and now spreading quickly through the London area. On that auspicious day in August we visited the narrow trackside at Surrey Quays, only to find that almost the entire stretch had apparently been mown a few days before.

The day was not a complete waste of time though—we were able to sit and have lunch whilst watching the eclipse. One of the other members of the survey team had left London for the West Country that day to best view Britain's first total eclipse of the sun for many decades. He later reported how a thick blanket of cloud had completely obscured their view of the sun. But at Surrey Quays a few light wisps of high cirrus added to the drama of the darkening sky and quietening world. And when the sun came out again I managed to find a small patch of bracken, complete with bracken leaf-bug, *Monalocoris filicis* (L.).

THE IMPORTANCE OF LOCAL COLOUR

During the last few years, I have also had the opportunity to visit many other odd and unusual sites in London. They may not be very prepossessing, indeed many of



Fig. 5. The flowery edge of Mast Pond Wharf on the Thames at Woolwich, looking upriver to the Thames Barrier, Millennium Dome and Canary Wharf. This is not everyone's idea of a beautiful locality, much of the rest of the wharf was covered with broken concrete and bulldozed heaps of soil, rubble and rubbish. Nevertheless, this typical brownfield site produced the bug *Stictopleurus abutilon*, the parasitic fly *Gymnosoma nitens*, Clouded Yellow caterpillars and the Adonis ladybird, species all very scarce, but often found on these half-derelict post-industrial sites.

them are stark and gaunt in their bleak ugliness, but their rude appearance belies their ecological interest.

The trouble is that whatever we call them, brownfield sites have an image problem. Brown is not a cool colour—it is the colour of dirt, the colour of excrement. Ruderal, for those that understand its etymology, means growing out of rubble, with all its associations of decay and dereliction. Wasteland just means land that is wasted, i.e. has no agricultural or commercial value, and half-derelict buildings surrounded by bare earth, piles of crushed brick and heaps of soil supporting a scanty growth of stunted weeds is hardly anyone's idea of a rural idyll. To most people, brownfields

are dirty, drear, dull, wastelands—fly-tipped, full of litter, syringes and burnt-out cars—empty plots just aching to be built on.

On the other hand, greenfield sites have all the positive associations that brownfields lack. Ecologists, environmental agitators, rural lobbyists, politicians and the public at large all want to see building schemes limited in our green and pleasant land. However, building more homes on brownfield sites is now official Government policy. Whilst parks, commons, relic woods and ponds encircled by urbanization are, to some extent, valued and protected against further degradation, brownfield plots, often disused, abandoned, derelict eyesores are seen as ecologically worthless, and thus with a value only in terms of future development revenue.

But these sites are not all biologically dull and worthless. An estimated 12–15% of all ‘nationally rare’ (Red Data Book) and ‘nationally scarce’ (Notable) insects are recorded from brownfield sites (Gibson, 1998). Very often, these part-bulldozed plots are more florally diverse than the best ‘natural’ wild flower meadows. A typical 2-hectare plot of rubble and soil heaps next to London’s Woolwich Ferry Terminal produced a list of 185 plant species—a wild flower meadow in the countryside would be considered rich if it held just 50 species.

Two rhopalid ground bugs, *Stictopleurus abutilon* (Rossi) and *Stictopleurus punctatonervosus* (Goeze), both thought to be extinct after not having been seen in Britain for over 50 and 125 years respectively, are now turning out to be widespread on brownfield sites in south-east England and London. An endangered parasitic fly, *Gymnosoma nitens* Meigen, is virtually confined to Thames brownfield sites, its only other known locality being the ancient grazed chalk downs of Surrey’s famous Box Hill. Two curious plant-hoppers, *Asiraca clavicornis* (Fab.) (Delphacidae) and *Oliarus panzeri* Low (Cixiidae) are widespread on London brownfields and sometimes occur in their hundreds. The Adonis ladybird, *Hippodamia* (= *Adonia*) *variegata* (Goeze) is usually quoted as being a mainly coastal species, but it turns up commonly every year on London’s post-industrial sites. The list goes on.

Many of these scarce and unusual plants and insects (and other animals) that occur on brownfield sites are predominantly Mediterranean or central European species, right at the edges of their distribution ranges in Britain. They favour the warm, sunny, well-drained, sparsely vegetated habitats that are the first stages of biological succession. They are species often associated with similar warm dry habitats such as dunes, heaths and chalk downs, all of which have (or had!) extensive areas of bare ground and short grass or herb growth. These semi-natural habitats, valued by everyone, are now under threat in the countryside, not just from loss to development or farming, but also because they are becoming overgrown and scrubbed up after changing land management and the loss of traditional grazing regimes. The Thames Estuary brownfield sites are the new lowland heaths and flower-rich meadows.

In the writings of Thomas Hardy, the intricate character-rich stories are interwoven throughout with a fear and awe of the desolate ‘wastes’ of the Wessex heaths and bogs, now 95% destroyed. In the 19th century they were seen as unproductive for agriculture and therefore regarded as worthless. How sadly ironic that heathland today is prized so highly for its distinctive flora and fauna. Today’s waste places are regarded as unproductive for wildlife and therefore worthless in a world where ‘green’ has become a byword for natural (and spiritual) value. But look close and the brown land is alive with an uncommon diversity of strange plants and stranger creatures.

The real world, however, is both brown and green, but not black and white. It has been interesting to visit some of London’s brownfield sites, treading warily through



Fig. 6. The true celebration of urban entomology—sharing the fascination of an urban insect, the Stag beetle, with eager children.

broken concrete and twisted metal to find Clouded Yellows visiting the hawkweeds and Roesel's bush-crickets singing in the long grass. However, it is all very well finding what I think are interesting insects living in these unusual habitats; it is another convincing owners, developers and planners that there is true natural worth in these unnatural places. We struggle on.

THE PRESS OF PEOPLE

One of the most striking differences I can think of between studying insects in the wider countryside and studying them in a city, is the response of the people I meet. I used to be staggered, when I lived and collected in Sussex, that I could spend hours traipsing the byways and footpaths of the Weald, or the South Downs and see barely a single other living soul all day long. Despite being one of the most populous parts of the country, south-east England remains remarkably empty really. Whenever I did

meet someone, be they rambling, walking the dog, on horseback or driving a tractor, there would almost inevitably be the courteous nod of the head and a short exchanged greeting of "good morning" or "good afternoon". They may have looked askance at my sweep net, but never queried what I was doing. Maybe they knew, or thought they knew, that I was one of those mildly eccentric people who go around chasing butterflies. In London, however, the case is entirely different.

Now, wherever I go looking for insects I meet people all the time and I am beset with questions. "What are you doing? Why are you doing it? Can I have a look what you've found? Are those tiny grey things in the collecting tubes really beetles and flies?" It is a privilege to be able talk to these curious people and to try and explain just what it is about insects that is fascinating, and why studying them in their environment and understanding their ecology is important.

Very often it is the children who are the most inquisitive, and more than once I have been offered instant assistant bugman help, then and there, in the field, by some keen young individuals wanting to have a go at looking for minibeasts themselves. It is through this regular contact with members of the public, and with children especially, that I really get a feeling of celebrating entomology. There is no greater feeling of achievement than seeing the look of enchanted glee on a child's face when they are presented with a furry caterpillar in a jam-jar, or a green shield-bug held in cupped hands, or a huge Stag beetle crawling across the school desk.

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OFFICERS' REPORTS FOR 2002

COUNCIL REPORT 2002

Council meetings seem to be getting longer and an earlier start for meetings was agreed this year. In part the longer meetings reflect the greater range of the Society's activities compared with a few years ago. As usual the Council met seven times at the Royal Entomological Society's rooms in South Kensington with an average of 16 members attending on each occasion. The Council approved 45 applications for membership and was informed of 12 resignations and 7 deaths. Thirty members were struck-off for non-payment of subscriptions and three previously struck-off members were re-instated. Five members completed 50 years' continuous membership at the end of the year and were elected Special Life Members. Alas among the deaths noted above were those of three of our existing Special Life Members. At the end of the year membership stood at 874, one fewer than at the end of 2001. This is the first decrease in membership for some years and was the result of a larger than usual number of members being struck-off. This loss of members was anticipated in last year's report and seems to have been the result of the subscription increase in 2001.

The Society published a revised version of the Code for Insect Collecting in the *Journal* in May. This was accompanied by an editorial endorsing the code and making clear the expectation that all members should abide by it. It is, therefore, disappointing that much Council time has had to be taken up discussing matters relating to collecting and trading and the point at which members who do not abide by the Code should be expelled from the Society. In pursuing such discussions the Council has to bear in mind the wide range of opinions held by the Society's membership, the law of the land and the Society's bye-laws. With nearly 900 members there will inevitably be among them those whose activities dismay other members. However, so long as their activities are within the law, it might seem wiser to keep such members in the Society where they can be engaged in discussion rather than to drive them out.

Following last year's publication of *British Soldierflies*, this year saw the publication by the Society of a fully-revised second edition of *British Hoverflies* by Alan Stubbs and Steven Falk. The book contains details of an additional 21 species that have been added to the British list since the first edition published in 1983 as well as updated information on the other species. The first edition of the book, and its reprints with supplements, has been the best-selling publication in the Society's history and was responsible for the current level of interest among British entomologists in this fascinating group of flies. It is hoped that the second edition will increase this interest. The Society is extremely lucky in having the author and illustrator among its members, and for the privilege of being able to publish the book. Our thanks are also due to the members of the Publications Committee who helped with the production and proof-reading and ensured that the second edition was published speedily and in time for the exhibition. Sales of *British Soldierflies* and *British Hoverflies* totalled over £17,000 in the year with *British Soldierflies* already making a profit over publications costs. These healthy sales help to secure the future of forthcoming Society publications, the books on British plume moths and British Heteroptera and the second edition of *New British Beetles*.

The Society continues to provide a varied programme of meetings including workshops and open days at the Pelham-Clinton Building, field meetings, lecture meetings and the annual exhibition and dinner. The different types of event meet

with varying success. Once again Ian McLean organised a varied lecture programme of eleven meetings on Tuesday evenings at the Royal Entomological Society's rooms in South Kensington. It has to be admitted that these meetings are poorly attended and attendance has dropped to an average of 17 members and visitors this year. Council members make up a third to a half of those attending and so it might seem that these meetings are held largely for the benefit of the Council. The workshops, also organised by Ian McLean, continue to be one of the Society's successes and are invariably well attended. The monthly or twice monthly open days, when members have access to the library and collections, are also well attended. There may be a lesson to be learnt about holding meetings outside of central London. Paul Waring organised 36 field meetings in localities as far apart as West Sutherland and Hampshire, and Conwy and Suffolk. A number of these were joint meetings with local moth groups and with Butterfly Conservation. Before Dr Waring took over as Field Meetings secretary there was usually one meeting a weekend, now there are often two or three meetings each weekend. We must thank Paul Waring for his continuing enthusiasm. The Society's main event of the year, the Annual Exhibition and Dinner, was held in early November under the guiding hand of the Exhibition Secretary, Mike Simmons. The attendance book was signed by 182 members and 49 non-members, and there were 107 exhibits. The number of members attending and the number of exhibits was less than in 2001. The almost complete absence of exhibits of British Butterflies was most noticeable and perhaps reflected another year of poor summer weather which had led to a decline of exhibits and exhibitors of all groups. The Annual Dinner followed the Exhibition. This year 42 diners enjoyed both the food and the occasion.

During the year the Council agreed a grant of £200 to Dr Michael Archer towards the production cost of his book entitled *The Wasps, Ants and Bees of Watsonian Yorkshire* and a grant of £350 to Ray Barnett of Bristol Museum to support publication of *Butterflies of the Bristol Region*.

In July an open day was held at the Pelham-Clinton Building for the Country Park staff. This was attended by the Country Park Manager, some of the Rangers and local volunteers. Finally, towards the end of the year, the Council started negotiations with Wokingham District Council with the aim of extending our premises at Dinton Pastures.

Inevitably these reports draw attention to the major activities of the Society and those responsible for them. It is easy to forget those members such as David Young, Andrew Godfrey, Gavin Boyd and Andrew Halstead, respectively Distribution Secretary, Membership Secretary, Sales Secretary and Indoor Meetings Minutes Secretary whose efforts are equally important in ensuring the success of the Society. To these gentlemen, and to all those members who have contributed to the well being of the Society, we wish a year which is entomologically rewarding.

JOHN MUGGLETON

TREASURER'S REPORT

FINANCIAL YEAR TO 31 DECEMBER 2002

The Society's finances have been adversely affected by the poor performance of the financial markets for the second year running. The market value of our investments fell by 11.6%, a much smaller fall than that sustained by the FTSE index and this indicates the underlying strength of our investments, particularly Charisfund. They

still stand 22% above cost and are well placed to benefit when the markets eventually recover. The losses we have sustained are unrealised and the decision not to invest last year's legacy, but to keep it liquid has been justified. Our present cash reserves should allow us to go through 2003 without selling investments and thus triggering a real loss. Nevertheless I propose that we should be modest in our expenditure in the present climate.

Before these investment losses we incurred a deficit of expenditure over income of £8,991 of which £6,361 was depreciation and £2,630 represented real expenditure. The areas where costs were up included the exhibition and other members services, library costs and unfortunately management costs. Mostly these increases were beyond our control and are offset by the excellent trading resulting in particular from the new editions of *British Hoverflies* and *British Soldierflies*. Expenditure on the library has included ongoing rebinding and new computer equipment.

In normal times our investment growth would be expected to easily cover this realised deficit and given a recovery in world financial health I am confident that the Society continues to be well able to financially support its activities.

Dennis O'Keeffe, our long standing auditor, died suddenly last autumn and Reg Bell who had been one of our auditors until 1999 stepped into the vacancy for one year only. We thank him and Alec Harmer for again undertaking an independent examination of the financial records and accounts as our auditors.

A.J. PICKLES

Trustees' Report

The principal activities of the Society are to hold meetings at the Society's Rooms for the reading of original papers, discussions and lectures, to hold an annual exhibition and field meetings; to issue publications and to form typical collections and a library. These activities are carried on with the object of promoting and advancing research in biological science and its diffusion.

The Society has enjoyed another successful year with a varied programme of Field Meetings, Indoor Meetings and Workshops. Further grants for entomological research have been made from the Maitland Emmet BENHS Research Fund and from the Hering Fund.

A detailed risk assessment has been ongoing during the year.

Signed on behalf of the Trustees
J. MUGGLETON, Secretary

Independent Examiners' Report

We report on the accounts of the Society for the year ended 31 December 2002, which are set out on the following pages.

Respective Responsibilities of Trustees and Examiners

As the Charity's Trustees we are responsible for the preparation of the accounts, we consider that the audit requirement of Section 43 (2) of the Charities Act 1993 does not apply. It is our responsibility to state, on the basis of procedures specified in the General Directions given by the Charity Commissioners under Section 43(7)(b) of the Act, whether particular matters have come to our attention.

Basis of Independent Examiners' Report

Our examination was carried out in accordance with the General Directions given by the Charity Commissioners. An examination includes a review of the accounting records kept by the Charity and a comparison of the accounts presented with those records. It also includes consideration of any unusual items or disclosures in the accounts, and seeking explanations from you as Trustees concerning any such matters. The procedures undertaken do not provide all the evidence that would be required in an audit, and consequently we do not express an audit opinion on the view given by the accounts.

Independent Examiners' Statement

In connection with our examination, no matter has come to our attention:

1. which gives us reasonable cause to believe that in any material respects the requirements
 - a. to keep accounting records in accordance with Section 41 of the, Act; and
 - b. to prepare accounts which accord with the accounting records and to comply with the accounting requirements of the Act. have not been met; or
2. to which, in our opinion, attention should be drawn in order to enable a proper understanding of the accounts to be reached.

R. A. BELL and A. S. HARMER

*Statement of Financial Activities
for the year ended 31 December 2002*

	Unrestricted Funds	Restricted Funds	Endowment Funds	Total Funds 31.12.02	Total Funds 31.12.01
Incoming Resources:					
Bequests and donations	1492	—	—	1492	22500
Subscriptions	12614	—	—	12614	9481
Investment Income	5970	4177	849	10996	11250
Trading Income	593	18483	—	19076	17802
Sundry Income	note 3 1269	—	—	1269	2174
Total Incoming Resources	21938	22660	849	45447	63207
 Resources Expended					
Direct Charitable Expenditure:					
Cost of Journal & Distribution	9986	—	—	9986	13290
Cost of facility at Dinton Pastures	—	3533	—	3533	4573
Members Meetings & Services	8675	—	—	8675	6356
Library & Curation	3248	—	—	3248	2754
Grants	notes 10, 11 3608	—	1000	4608	7850
Depreciation	4151	2210	—	6361	6676
	29668	5743	1000	36411	41499

continued

Statement of Financial Activities for the year ended 31 December 2002 (continued)

Other Expenditure		4964	-	-	4964	4090
Management costs			13063	-	13063	11127
Trading costs	note 2					
		4964	13063	-	18027	15217
Total Resources Expended		34632	18806	1000	54438	56716
Net Resources before transfers		(12694)	3854	(151)	(8991)	6491
Net Incoming /Outgoing Resources		(12694)	3854	(151)	(8991)	6491
Gains & Losses on Investment assets						
Realised						
Unrealised		(7431)	(16391)	(1992)	(25814)	17783
Nct movement in Funds		(20125)	(12537)	(2143)	(34805)	(11292)
Fund Balances brought forward at 1 January 2002		129565	291930	17159	438654	449946
Fund Balances carried forward at 31 December 2002		109440	279393	15016	403849	438654

Summary Income and Expenditure Account

	2002	2001
Gross Income of continuing operations	45447	63207
Total Expenditure of continuing operations	54438	56716
Net Income (Outgoings) for the year	(8991)	6491

Balance Sheet as at 31 December 2002

	Notes	2002	2002	2001	2001
Fixed Assets					
Tangible Assets	4		169996		174996
Investments	5		196391		222205
			366387		397201
Current Assets					
Stocks		20558		16187	
Debtors	6	10954		10117	
Cash at Bank and in hand	7	13232		21359	
		44744		47663	
Creditors: amounts falling due within one year	8	7282		6210	
Net current assets			37462		41453
Net assets			403849		438654
Funds	9				
Endowment Funds—Hering Fund			15016		17159
Restricted Funds—Housing Fund		207905		219277	
Special Publications Fund		71488	291930	72653	291930
Unrestricted Funds:					
Maitland Emmet BENHS Research Fund		50021		54670	
General Fund		59419	109440	74895	129565
			403849		438654

The accounts were approved by the Trustees on 6 March 2003 and signed on their behalf.

Notes to the accounts for the year ended 31 December 2002

1. Accounting Policies

The Accounts of the Charity are prepared in accordance with the Charities (Accounts and Reports) Regulations 1995, the statement of recommended practice, Accounting by Charities, and with applicable accounting standards. They are drawn up on the historical accounting basis except that investments held as fixed assets are carried at market value.

1.1 Income

Donations and legacies are accounted for as soon as their amount and receipt are certain. In the case of donations this is usually when they are received. All other income is accounted for under the accruals concept. Gifts in kind are valued at their estimated value to the Charity.

1.2 Expenditure

Expenditure is accounted for under the accruals concept. The irrecoverable element of VAT is included with the item of expense to which it relates. Depreciation is allocated over the expenditure headings on the basis of the use of the assets concerned.

1.3 Tangible Fixed Assets

Tangible fixed assets are stated at cost or trustees valuation less depreciation which is calculated at rates to write off the excess of cost over estimated residual values of individual assets over their estimated useful lives as follows

Leasehold Buildings at Dinton Pastures	1/70th of cost
Fixtures and Equipment	10% of written down value

1.4 Investments

Fixed asset investments are stated in the balance sheet at mid market value at the balance sheet date.

1.5 Stock

Stock is valued at the lower of cost, including irrecoverable VAT, and market value and consists of publications and sundries held for resale.

1.6 Restricted Funds

Restricted funds are subject to specific conditions laid down by the donors as to how they may be used.

2. Trading Income and Expenditure

Trading income is derived from the sale of the *British Journal of Entomology* to non-members of the Society and from sale of the Society's other publications and products, costs are those of printing and distributing these items.

3. Sundry Income

Sundry income has been derived from the sale of surplus insect cabinets and specimens, photocopying and income from the annual dinner.

4. Tangible fixed assets

Cost	Leasehold Property £	Fixtures & Equipment £	Total £
At 1 January 2002	154736	68038	222774
Additions	—	1361	1361
Disposals	—	—	—
At 31 December 2002	<u>154736</u>	<u>69399</u>	<u>224135</u>
Depreciation			
At 1 January 2002	19890	27888	47778
Charge for year	2210	4151	6361
On disposals	—	—	—
At 31 December 2002	<u>22100</u>	<u>32039</u>	<u>54139</u>
Net book values			
At 31 December 2002	<u>132636</u>	<u>37360</u>	<u>169996</u>
At 31 December 2001	<u>134846</u>	<u>40150</u>	<u>174996</u>

Leasehold premises represents the cost of building and equipping the headquarters at Dinton Pastures Country Park. The total cost of these premises which were completed during the year to 31 December 1993 are being amortised over the seventy year term of the lease. Fixtures and equipment includes a value for the library and collections as well as computers, microscopes and other ancillary equipment. Additions consist of amounts spent on new computer equipment for the library.

5. Investments

In accordance with accounting requirements investments are shown in the balance sheet at market value (M.V.).

	2002		2001	
	M.V.	Cost	M.V.	Cost
Shell T & T	4956	1250	5831	1250
Unilever	8971	248	11356	248
M & G Charifund	58830	20238	65224	20238
Hendersons Bond	52751	58000	59662	58000
Sun Life Bond	47056	56000	56040	56000
Barings Bond	23827	25000	24092	25000
	<u>196391</u>	<u>160736</u>	<u>222205</u>	<u>160736</u>

Unrealised losses arising in the year are shown in the Statement of Financial Activities.

6. Debtors

Due within one year	2002	2001
Trade debtors	2530	1724
Recoverable Taxation	4528	4530
Prepayments and accrued income	3896	3863
	<u>10954</u>	<u>10117</u>

7. Cash at Bank and in Hand

In interest bearing accounts at National Westminster Bank	<u>13232</u>	<u>21359</u>
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8. Creditors: amounts falling due within one year

	2002	2001
Trade Creditors	2198	3710
Accruals	<u>5084</u>	<u>2500</u>
	<u><u>7282</u></u>	<u><u>6210</u></u>

9. Funds

Analysis of net assets between funds

	Tangible Fixed Assets	Investments	Net Current Assets	Total
Endowment Funds:				
Hering Fund	---	15016	—	15016
Restricted Funds:				
Housing Fund	132636	75269	—	207905
Special Publications	—	50109	21379	71488
Unrestricted Funds:				
Maitland Emmet				
BENHS Research Fund	—	31511	18510	50021
General Fund	<u>37360</u>	<u>24486</u>	<u>(2427)</u>	<u>59419</u>
	<u><u>169996</u></u>	<u><u>196391</u></u>	<u><u>37462</u></u>	<u><u>403849</u></u>

The Hering Fund was endowed to make grants out of income for research in specific areas of entomology.

The Housing Fund consists of the property at Dinton Pastures and money put aside to finance its upkeep and eventual replacement. The funds were derived principally from bequests from the late Duke of Newcastle, Mr Crow and Mr Hammond.

The Special Publications Fund finances the Society's publications other than the *British Journal of Entomology* and surpluses from such publications are credited to this fund to finance future publications.

10. Bequests & Donations

The Maitland Emmet BENHS Research Fund was established in 1996 with the intention of financing future grants for entomological research which would be less narrowly defined than those made by the Hering Fund.

11. Grants

Grants of £1000 were paid from the Hering Fund and of £2071 from the Maitland Emmet BENHS Research Fund. Additional grants have been made in respect of the Heathland Flies Project and to support further projects.

THE MAITLAND EMMET BENHS RESEARCH FUND

The sum available for grants was £2100, and seven applications were received. Grants were rewarded to six of the seven applicants; the seventh application was good but failed as it was outside the scope of the Research Fund. The six awards, totalling £2071, were made as follows:

1. Dr M.E. Archer, £300, to continue his survey of specimens of the chrysid wasps in museum collections.

2. Mr G.A. Collins, £208, to assist with a study of the distribution of the tachinid fly *Policheta unicolor* in Cornwall. This fly is categorised RDB2 and parasitises the chrysomelid beetle, *Chrysolina banksi*.
3. Mr G. Jones, £390, to support a project on the ecology and conservation of an endangered moth *Eustroma reticulatum*.
4. Mrs J. Mackay, £273 to provide a set of maps at 1:25,000 scale, to support the cataloguing of Lepidoptera records from south and west Scotland
5. Mr J.W. Phillips, £400 for travel costs to allow completion of the final year of a survey of possible sites for the Brighton Wainscot.
6. Mr S. Williams, £500 for to support fieldwork and museum visits leading to the production of an atlas of the grasshoppers, crickets and allied insects of Monmouthshire.

A report has been received from Mr M. Harvey who received a grant in 1999 for a survey of the Barred Tooth-striped and Chalk Carpet moths from Broughton Down in Hampshire. The continuing existence of the Barred Tooth-striped and Chalk Carpet at this site was confirmed in 2000 when very small numbers of adults of both species were found. Searching for larvae produced only a single larva of the Barred Tooth-striped. Suggestions for management of the site were made. Mr R. Williams has sent an update on the progress of his work for a publication in two volumes on "Oak galls in Britain" for which he was given a grant in 1999. There is still work to be done and specimens of some uncommon gall-forming wasps have yet to be located. The final draft of the book is still a year or two away. Dr M.E. Archer reported that he had completed visits to museums in London, Edinburgh, Oxford and Cambridge to examine specimens of the chrysid wasps *Chrysis ignita* and *C. mediatata* to gather data to assist their identification. These visits were funded by a grant awarded in 2000 and are part of a continuing programme of work for which a further grant has been given this year. Professor M.G. Morris was awarded grants in 1997 and 2000 for museum visits in connection with the production of "True Weevils Part 1" in the *Handbooks for the Identification of British Insects* series. This Handbook was published in 2002 and Professor Morris has donated a copy to the BENHS library. One report for a grant awarded in 2000 is overdue.

The Society invites applications for future awards in the fields of insect and arachnid taxonomy, field biology and conservation in the British Isles. Applications should be sent to the Society's Honorary Secretary (from whom further details can be obtained) before 30 September in any year.

JOHN MUGGLETON

PROFESSOR HERING MEMORIAL RESEARCH FUND

The Committee agreed to support three applications in 2003. Dr Andrew Whittington (National Museums of Scotland) has been awarded the sum of £300 as a contribution to the cost of publishing a major revision of *Afrotropical Plastotephritinae* (Diptera: Tephritidae). The study is to be published as a Supplement to *Studia Dipterologica* and will be extensively illustrated. Ms Candace Low (University of California, Davis) has been awarded £400 to support the cost of travel and supplies for her ecological project on the leaf-mining Lepidoptera species *Antispila nyassaefoliella* (Heliozelidae). The study will use this species as a model to examine how prey species avoid multiple predators. Dr A. Diskus and Professor Rimantas Puplesis (Vilnius Pedagogical University, Lithuania) have been awarded £300 as a

contribution towards publishing a monograph on Nepticuloidea and Tischerioidea (Lepidoptera). The work will include a catalogue to the species of the world with foodplant records. Some additional revisionary work will be added, including descriptions of new species and review of the Lithuanian fauna of these groups. The Committee believes that the three projects will lead to the delivery of valuable products.

Dr Margaret Redfern, who is associated with Sheffield University, received support from the Fund to attend the Third International Symposium on the Biology of Gall-Inducing Arthropods in Stellenbosch, South Africa, 14–18 January 2002, and to deliver a paper. In her report, she noted that the Symposium was attended by scientists from many parts of the world, and that papers were presented on various aspects of the biology of gall insects. Dr Redfern's own paper was entitled 'Top-down, not bottom-up? Weather, tree growth, parasitoid attacks and the dynamics of the yew gall midge *Taxomyia taxi*'. It was well received. The results were derived from data for three populations of *Taxomyia taxi* gathered over 34 years, a period of time rarely equalled for insect population studies. Papers from the Symposium are to be published. Further publications from Dr Redfern's data set are likely to appear because of planned collaboration resulting from the meeting. It is unlikely that Dr Redfern would have been able to attend this meeting had she not had support from the Hering Fund.

Dr Kenneth Spencer died in 2002. With Professor Hering's widow, he was instrumental in getting the Fund established. He was a member of the Fund's Committee from its inception to his retirement from it in 2001. An obituary will be published in the *British Journal of Entomology*, so here I simply record his passing with sadness, and pay tribute to all the work he did for the Hering Fund Committee.

I thank my colleagues on the Committee for their efforts in assessing the applications received for the year current.

MALCOLM J. SCOBLE

LIBRARIAN'S REPORT

This year I have been exceptionally busy with my professional obligations, and as a result have been unable to attend many open days at Dinton Pastures or invest as much time in library duties as I would have liked. I hope members will bear with me in this respect, and can assure you that the coming year should see a return to "service as usual".

The binding of our journal back numbers is almost complete now, as visitors to the library will have noted. Titles dealt with this year include:

Transactions of the Cardiff Natural History Society, Transactions of the Carlisle Natural History Society, Transactions of the Lincolnshire Naturalists Union, Journal of the Folkestone Natural History Society, Transactions of the Leicester Literature and Philosophical Society, Proceedings of the Entomological Society of Ontario, Proceedings of the Birmingham Natural History and Philosophical Society, Journal of the Cheshire and North Wales Natural History Society and the Proceedings of the Royal Irish Academy (Section B).

There remain a dozen or so titles to be bound, plus newly received parts.

The main event this year has been the purchase of a new computer system and associated software. This is soon to be commissioned by Mr Peter Verdon, and will hold our library records on an Access data base. It is also envisaged that the system will be used for other Society's administrative tasks. The provision of a modem

connection to the Internet is viewed as an important provision, in so far as updating the software is concerned. Most companies now make such updates available only via this route.

I have tried to maintain momentum as regards the restoration of old leather-bound journals, and to this end have continued to treat the leather bindings of our extensive holding of *The Entomologist's Record*.

I am pleased to report that the outstanding new acquisitions, ordered last year, were all delivered safely. Unfortunately I have been unable to process these, or any of the titles bequeathed or donated to the society since my last report, but with our new computer I hope to rectify this matter over the coming year.

I have received a suggestion from several members who use the library regularly, to the effect that loans of journals to members be curtailed. Having travelled some distance to make use of our journals on open days, these and other members have been inconvenienced by the items they require being out on loan. On the other hand, in recognition of this problem we do have multiple copies of the most popular journal titles available on our shelves. Nevertheless, there is obviously an issue here. An additional point, from the librarian's position, is one of security as lost volumes of journals are very hard to replace. Therefore, it has been suggested that we cease the practice of loaning journals, as is the case at other libraries such as the Royal Entomological Society. After all, we do have photocopying facilities of which, five years ago, extensive use appeared to be being made by members (*British Journal of Entomology and Natural History*, 12:114–116). This is not the first time that this matter has been raised. Indeed, this time last year Council debated the same issue and concluded then that such loans should continue, but that the matter should be kept under review. In the light of said ongoing inconvenience to members, I have decided to canvas the views of library users on this matter, as it is a fundamental change to the way your library has operated in the past. To this end, I will place a question on the library notice board asking library users if they are for or against the prohibition of journal loans. I expect to be in a position to resolve this issue during the summer.

As is usual with my annual reports, at this point I wish to express my sincere thanks to John Muggleton for his continued efforts in sorting and logging the receipt of new journals. I would also like to extend my thanks to Katherine Hearn, Mark Telfer, Ian Ferguson, Roger Hawkins, Paul Beuk and Brian Gardiner for their generous donations of books and reprints to the library over this period. In addition, Andrew Halstead has informed me that Andrew Callow has recently made a very generous donation of several thousand colour transparencies, encompassing a wide range of orders, to our collection of 35 mm slides. On behalf of your Society I wish to express my sincere thanks to Mr Callow for his generosity.

IAN SIMS

CURATOR'S REPORT

The past year has been one where my personal involvement in curation of the collections has been less following my move west. I have continued to attend most Open Days and Workshops but have not yet been able to implement some of the plans regarding reorganisation of collections. I have no progress to report on the Hemiptera but I am grateful to Bernard Nau for providing me with an updated checklist of Heteroptera, cross-referenced with Southwood & Leston, so I intend to

begin their transfer to a new cabinet shortly. No comparable list of Homoptera is yet forthcoming.

However, other members have provided assistance in a number of areas. As mentioned last year we have a large number of unnamed Microlepidoptera and the same situation existed with Coleoptera, in that case mainly the material donated by Charles Mackenzie-Jarvis. It was decided to advertise the existence of this material in both cases and notices were placed, in the spring of 2002, on the respective websites for moths and beetles, seeking volunteers both to sort specimens into families and to determine sorted material to species.

Several offers were quickly received on the Coleoptera. The result was that the carabids were separated and passed to Mark Telfer while the remainder were taken on by Richard Wright and Steve Lane. Richard has recently reported good progress, sorting to families being complete and determination to species level in several families well advanced. Return of all specimens by the summer is anticipated.

Responses on the Microlepidoptera were more meagre but our archivists Alan and Geri Coates offered to deal with the tortricids. These were separated and taken by them during a visit last July. Tony Davis is looking at some pyralids but assistance with other groups is still necessary and any offers will be considered.

While the priority in both cases is recognition of specimens worthy of adding to the Society's collection, it was agreed that those providing this help could retain duplicate material for their own collections, providing that the data were supplied to the Society. As mentioned last year decisions will need to be taken on what to do with surplus material, especially macro moths.

In that context a further small collection has recently been received, that of the late Mr Dumbleton of Bracknell who died during 2002 and was not a member. This comprises a ten drawer cabinet with shallow drawers, four loose Hill unit drawers and eight store boxes. It principally comprises Lepidoptera but also some Coleoptera and other orders. This collection has yet to be assessed but some specimens had already been removed for the Reading Museum collection.

Most recently, an offer has kindly been made to sort and identify the leaf mines from Eric Bradford's collection, by John Robbins of Porlock. This work was begun in 2001 by Brian Gale and I am grateful to Brian for transporting the entire collection to John Robbins for this purpose.

In September I attended the annual collection managers' meeting, at which the usual range of issues were discussed. This year it was held at Oxford University Museum and unexpectedly coincided with an evening reception at the museum to celebrate the 300th anniversary of the oldest known pinned insect, a Bath White butterfly which, although collected at Cambridge, had found its way to Oxford. While the specimen was worn and showing its age the pin was in pristine condition, suggesting that it may have been pinned more than once. Any doubts about its authenticity were soon dispelled by the resulting festivities.

Once again I am indebted to the many donors of specimens to fill gaps in the collections. Andrew Halstead has again made valuable additions to the sawflies. Jonty Denton and David Gibbs are commended for their respective discoveries of beetles and micro moths already in the collections, whose presence was unsuspected among series of their close relatives.

Most events at Dinton Pastures have gone smoothly but late last year we had the unprecedented experience of arriving to find a lack of power supply to the building. This was a day of universally severe weather conditions and there was a surprisingly high turnout of members. The power remained off all day, but thanks to the resourcefulness of Graham Collins, microscope lights were rapidly connected to a

light trap generator placed outside the main door. Use of the collections by our stalwart regulars continued unabated. Activity in the library on that day was, however, suspended as nobody had thought to bring a torch.

Finally I would like to thank David Wedd for his enthusiastic approach to maintaining our building since taking over the post of building manager. We have all benefited from his involvement over the past year. We completed ten years at Dinton Pastures in 2002 so are fairly well settled in and I would urge all those members who have not yet visited our headquarters to make the effort to do so in the coming year.

PETER CHANDLER

EDITOR'S REPORT

This year saw a change of Editorship; Dr Mike Wilson stepping down in the summer after a stint of 5 years at the helm. The changeover period was a gradual one, with the current editor only taking full command with the last issue of the year. Volume 15 was published in three parts, Part 1 in May, Part 2 in September and Parts 3/4 in December. The total number of pages in Volume 15, 200, was well below the number allocated, reflecting in part the shortage of full length papers. This is surprising for a flourishing national society such as ours, and it is to be hoped that more authors will be forthcoming in future. All editors wish to encourage members to submit manuscripts and, speaking for past editors, I am sure we are more than happy to assist new authors in preparing manuscripts so that they are suitable for publication. Our Editorial Board has a wealth of entomological and editorial experience just waiting to be called upon.

Some comparisons are worth noting. Our sister society, The Botanical Society of the British Isles, which concentrates mainly on vascular plants (approximately 3500 spp.) publishes 470 pp on taxonomy, biosystematics, ecology, distribution and conservation and 160 pp of short notes (e.g. field meeting reports) per year. We have many more taxa to cover, but have a smaller membership. In Kent where I live, the Kent Field Club with a membership one-fifth the size of our own manages to publish an annual 100 pp *Bulletin* on its 30–40 field meetings held each year by the following February, and a *Transactions* of 70 pages. I include the latter comparison simply to destroy the apparently widely-held view that field meeting reports cannot be completed quickly or, so it seems, until at least half-way through the following year when the very last species record has come in. Field reports are intended to be lively informative summaries of the day's activities and not to be fully comprehensive. The large number of species seen on our meetings (probably an average of 200) simply precludes this. We simply cannot do justice to all of the major orders in one report, otherwise the report will be too long. As a matter of good housekeeping we should all endeavour to complete our reports by the end of the year; a simple enough task. Paul Waring who organises the programme and John Phillips who helps compile the reports would welcome more participation by leaders in writing-up reports. We propose to publish some guidelines on the preferred format for field meeting reports in the coming year.

Many members of the Society are involved in helping to produce the journal. The Editor would like to thank Mike Wilson for a smooth transfer process and editing several large papers, Richard Jones for valuable advice on publishing, and Roger Hawkins and Raymond Uffen for proof-reading. The Annual Exhibition report was compiled with the expertise of Richard Barrington, Graham Collins, Harry Beaumont, Norman Hall, Peter Chandler, Roger Booth, Alan Stewart and Andrew Halstead. This is a mammoth undertaking, and despite careful preparation of the

first draft, more than 500 changes were required to revise the combined report such is the amount of detailed information it contains. Special thanks should go to David Wilson who is stepping down from his role as official exhibition photographer. Under David's expert guidance the quality of the exhibition plates has improved tremendously, and to his credit, everyone looks forward to looking at the colour plates in the third issue of the year.

Special thanks should go to Roger Hawkins and David Young for preparing the Indexes to Volumes 13 and 14, Graham Collins for preparing a new Membership List, and David Young (again) for storing and distributing the journal. Several members helped in checking the Indexes for any errors.

On a final note I am pleased to report that Mike Wilson's swansong as Editor, to publish an article with Alan Stewart on the apparent extinction of the leafhopper *Platymetopius undatus* (Degeer) in the UK and a request for any recent sightings, proved successful. On the first table at this year's Annual Exhibition at Imperial College was a specimen of this species taken by Alan Stubbs in Norfolk in 2002. This serves to illustrate how very important it is to publish in the Society's journal.

JOHN BADMIN

REPORTS OF THE AFFILIATED SOCIETIES

DIPTERISTS FORUM

2002 has been another year in which the Dipterists Forum has made good progress on many fronts, and membership now stands at 277.

The programme of events opened in March at Preston Montford, with our 9th Workshop when Peter Skidmore gave an excellent overview of the Muscidae. The enjoyable and productive 29th Summer Field Meeting was based at Tarradale House, near the Muir of Ord in Scotland during the last week in May. A number of interesting Diptera records were obtained, including some new to Scotland, despite having unfavourable weather conditions for much of the time. Our Autumn Field Meeting was held in Norfolk in October, again in variable weather conditions. A third site was found for a sciarid fly new to Britain and on the last day of the meeting a platypezid fly new to Britain was taken (Chandler, P.J., 2002. *Agathomyia sexmaculata* (von Roser) (Diptera, Platypezidae) new to Britain and some other recent records of Platypezidae. *Dipterists Digest* 9: 161—163.).

Both the Dipterists Forum's *Bulletin* and the *Dipterists Digest* journal continue to thrive. There are currently 274 *Dipterists Digest* subscribers with 26 overseas. Most of the overseas subscribers are individuals, only five are libraries.

Thanks and congratulations are due to the members of Dipterists Forum and the BENHS Publications Committee who were involved in the major achievement of producing an extensively revised edition of *British Hoverflies an Illustrated Identification Guide* within a remarkably short time.

It was decided that priority should be given to entering the data held by the Tipulid Recording Scheme onto computer, to be available to enhance the planned Tipulid book.

A Workshop has been arranged at Preston Montford from 28–30 March 2003, on the subject of 'Recorder 2002' to be led by Stuart Ball. Work has commenced on the design of an Internet Web Site for Dipterists Forum. It is hoped that a Web Site will increase recruitment and provide a means of distributing information on Diptera.

KEN MERRIFIELD

BEES, WASPS AND ANTS RECORDING SOCIETY (BWARS)

BWARS continued to thrive in 2002, with membership increasing by nearly 15% to just under 300; 75% of these members had been recruited through the BWARS website. Increased membership also resulted in increased income, some of which was used to cover the expenses of specialist recorders in visiting museum collections.

Part 4 of the *Provisional Atlas* was published by the Centre for Ecology and Hydrology, covering the distribution and ecology of 54 species of aculeate. At the same time, the society's newsletter contained draft maps and accounts of the species to be included in part 5, publication of which will see the half-way stage of the project reached. Up-to-date maps of the current target species were posted to the BWARS website, maintained by Reuben Edwards.

As usual no specific field meetings were held, but BWARS members were invited to attend the Dipterists Forum summer field meeting held at the Muir of Ord in Inverness-shire. This invitation was also extended for the 2003 meeting in Suffolk. BENHS and BWARS members are welcome to attend all meetings of each other society.

The "main event" of the year was the BWARS annual weekend and AGM, held at Dinton Pastures in late September. On the Saturday, members were able to meet and use the facilities of both the Loddon Room and the Pelham-Clinton building, with the BENHS library and collections, to resolve problems of identification of aculeates caught during the year. In the evening a group of members attended a dinner held at a local hostelry. On the second day about 40 members attended the AGM, which was followed by the customary slide show and members' talks, covering subjects as diverse as the aculeate fauna of a Surrey garden, the biology of stenogastrine wasps in south-east Asia, and the pitfalls and pleasures of collecting abroad.

To counter claims of a south-eastern bias in the society's activities the 2003 weekend will be held in Liverpool, and to encourage the recruitment of members from the "far north" an introductory course on the study of aculeates in Scotland will be held at Kindrogan Field Study Centre, 27 July to 1 August, 2003; early booking recommended.

GRAHAM A. COLLINS

BENHS FIELD MEETING REPORTS

Wisley Common SSSI, Surrey, 5 May 2001

Leader: Andrew Halstead. After the wettest autumn and winter on record, a rather soggy Wisley Common was visited by 11 members and guests. An additional member, who shall remain nameless, misread the meeting place map reference and spent a lonely day on Ockham Common on the other side of the A3 road. After a late spring it was a relief to see some sunshine to bring out the insects, although it did cloud over and cool down at lunchtime until late afternoon, when the sun reappeared. A full list of the 140 insects recorded has been lodged with the Society's field meetings recorder. One of the highlights of the day was the deadwood anthribid weevil, *Platystomos albius* (L.), which was found clinging to the back of Liz Douglas. Mike Fox spent the day searching for ants and located 11 species, including the local species *Stenamnia debile* (Förster) and *Leptothorax uylanderi* (Förster). Nymphs of the Wood Cricket, *Nemobius sylvestris* (Bose), were seen; there is a long established colony of this New Forest cricket at Wisley. Other insects that had probably only recently emerged were the Large Red Damselfly, *Pyrrhosoma nymphula* (Sulzer) and the conopid fly, *Myopa buccata* (L.).

Pamber Forest, Hampshire, 12 May 2001

Leader: Graham Dennis. Pamber Forest is a 200 ha ancient woodland six miles north of Basingstoke, scheduled as an SSSI mainly for its invertebrate interest. Habitat ranges from dry to damp acid oak woodland to more open, heathy wood pasture and richer base neutral stream valleys. It has been managed as a nature reserve since 1980 and since 1996 by Hampshire Wildlife Trust.

This meeting was a lepidopterists only session intended to try and locate *Jodia croceago* (D. & S.) (Orange Upperwing) which had been noted here many years ago and seen nearby in 1992. Unfortunately conditions were bright, clear and cold and very few moths were trapped, and nothing of any note. Because of the conditions everyone packed up early, with only about 20 common oakwood species to report.

Newton Abbot Racecourse and the Creepy Crawly Show, 8–9 June 2001

Leader: Roy McCormick. The night was clear and cold with a minimum temperature of 10 °C. We met in the car park as agreed, but both gates to the Racecourse were open so Bernard Barnett, John Muggleton and myself monitored both entrances to make sure we did not miss anybody. Five, including ourselves, made our way to the site alongside the River Teign and set up the equipment; Robin and Pamela Wootton and three children turned up before we started the generator, making eight in all. Around 21.30 h I started the generator (which had already been chained to an open barn on the site) and checked all the lights were working; this was the first field meeting we had been able to hold in Devon in 2001 because of the Foot and Mouth epidemic.

A couple of rounds of the traps produced very little with the list barely reaching double figures and by 23.30 h it was decided that the traps to be left on all night would be checked and the generator topped-up with fuel; these were checked in the morning prior to the Creepy Crawly Show and the total number of species recorded

was 13 with the best catches of the night, one *Laothoe populi* L. (Poplar Hawk-moth) and one *Smerinthus ocellata* L. (Eyed Hawk-moth).

This field meeting is always where we capture as many live specimens as possible to display at the Creepy Crawly Show the following day, but in this case the numbers had to be bolstered by species (which do occur at Newton Abbot Racecourse) from my trap at home, and even then there were few specimens in the net cage that usually attracts a good deal of attention. The people who come to the show have probably not seen the variety of moths that are exhibited alongside the Devon Moth Group stand at this show. These moths are released after the event.

Gibraltar Point National Nature Reserve, Lincolnshire, 16 June 2001

Leader: Paul Waring This meeting followed two wet days and a wet night, with further rain forecast. This deterred several parties who had expressed interest in attending, but three BENHS members joined the leader and six local people connected with the reserve for an interesting and productive event. Gibraltar Point is a National Nature Reserve. The Lincolnshire Wildlife Trust manage the site on a lease from Lincolnshire County Council and East Lindsey District Council. The reserve is on the coast just south of Skegness and encompasses a wide range of habitats from sandy shoreline and saltmarsh through open herb-rich meadows with pools and freshwater marsh, to scrub and plantation woodland. Currently the reserve is well-known for a colony of about 30 pairs of Little Tern *Sterna albifrons* L. and for Natterjack Toad *Bufo calamita* L. When the meeting started at 15.00 hrs there was a strong northerly wind across this flat and rather exposed site (Fig. 1) and the vegetation was wet. There was little recording work dipterist John Flynn could do in such conditions, but his company was much appreciated. The primary aim of the meeting was to see if we could find the Marsh Moth *Athetis pallustris* (Hbn.) on this site and identify the places where the adults were most frequent. The Marsh Moth was first discovered at Gibraltar Point on 9 June 1972 by Rick Pilcher who ran his light-trap at the extremities of this 700 ha site in 1973 and found the moth occurred rather widely over the site (Pilcher, 1973). The moth was also trapped occasionally in small numbers in a Rothamsted trap which was operated from the Field Centre in the middle of the reserve from 1968–86. In 1995 Leigh Marshall operated an actinic trap on various parts of the reserve to locate the moth, but only saw one individual all season. A single individual was recorded at the north end of the reserve in a light-trap in the garden of the Site Warden Kevin Wilson on 17 May 1997 and this appears to be the last confirmed record for the site.

During the afternoon Assistant Warden Sarah Evans gave us a tour of the site. We selected five places for light-trapping for Marsh Moth on the basis of their similarity to habitat occupied by the moth some 35 km northwards along this coast near Saltfleetby, where Geoff Senior had recorded nine males at two lights four nights previously, on 12 June, and the leader had seen three in good condition using six lights on 14 June. Characteristic features of all these sites were a sparse grass sward with frequent Ribwort Plantain *Plantago lanceolata* L., the confirmed larval food-plant at Saltfleetby. The Saltfleetby site and all but one of the sites at Gibraltar Point also contained abundant Yellow-rattle *Rhinanthus minor* L. A total of ten mercury vapour lights was operated on these, with one additional mv light on the saltmarsh, and an actinic trap near the strandline beyond, with the following noteworthy results: Sand Dart *Agrotis ripae* (Hbn.), Archer's Dart *Agrotis vestigialis* (Hufn.) and White Colon *Sideris albicollou* (Hbn.), one fresh individual of each in the actinic light trap operated by Ollie Slessor by the hide for watching the colony of nesting Little



Fig. 1. Freshwater Marsh, Gibraltar Point National Nature Reserve, one of the sites on which light-traps were operated during the field meeting on 16 June 2001.



Fig. 2. Rothamsted trap at the Field Centre, Gibraltar Point where it recorded the Marsh Moth regularly during a ten year run in the 1970s and 1980s. The trap has now been modified into a non-killing trap in which moths are held alive in a large tea-chest until morning. The standard 200W tungsten bulb has been replaced by a mercury vapour lamp. It is now operated about once per week in the summer for visiting school parties. L-R John Flynn, Sarah Evans and Adrian Mills.

Tern on the beach; Lyme Grass *Photedes elymi* (Treit.), one fresh individual to the Skinner trap operated by Adrian Russell in the saltmarsh; Lobster moth *Stauropus fagi* (L.), a slightly worn male captured by James McGill at one of his three 80 W mv lights in open habitat on Freshwater Marsh this is the first record for Gibraltar Point; White Colon also recorded by James on Freshwater Marsh, along with a Long-eared Owl *Asio otus* L. perched on a fence post after dark; a Clouded Magpie *Abraxas sylvata* (Scop.) and a reddish form of the Lime Hawk-moth *Minas tiliae* (L.) in one of the leaders' Robinson traps near elms on the edge of Plantation Meadow; a Privet Hawk-moth *Sphinx ligustri* (L.) at the leader's Robinson trap on the open grassland in front of the Visitor Centre. Interesting species found in several of the traps in the "Plantain and Rattle" habitat included the Small Elephant Hawk-moth *Deilephila porcellus* (L.), Fox moth *Macrothylacia rubi* (L.), Dog's Tooth *Lacanobia suasa* (D.&S.) and Small Clouded Brindle *Apamea unguinis* (Hbn.), while the Bleached Pug *Eupithecia expallidata* Doubl., Broad-barred White *Hecatera bicolorata* (Hufn.), Light Brocade *Lacanobia w-latinum* (Hufn.) and Shoulder-striped Wainscot *Mythimna comma* (L.) were recorded only as singletons. The Grass Rivulet *Perizoma albulata* (D.&S.), which had been frequent in the traps at Saltfleetby only two nights previously and which feeds as a larva on Yellow-rattle, must have been discouraged from flight by the wind at dusk because only six were seen. A total of 62 species of macro-moths was recorded but most of the traps captured less than forty individuals and only 15–20 species. The Rothamsted trap in mown, plantain-rich grassland by the Field Centre, was noteworthy in capturing 55 Cinnabar moths *Tyria jacobaeae* (L.) while the other traps held only one or two (Fig. 2). No Marsh Moths were seen.

The leader would like to thank Sarah Evans and Kevin Wilson for hosting the meeting, everyone else for providing and manning traps and making the meeting such a sociable event and the Lincolnshire Wildlife Trust for permission to hold the meeting and for their work in conserving and maintaining this reserve. The leader would also like to thank Butterfly Conservation and English Nature for support and funding for his work on the Marsh Moth at this and other sites in Lincolnshire as part of the Butterfly Conservation Action for Threatened Moths Project (Waring 2000).

Note that Adrian Russell was so impressed with the site that he returned a week later, on 23 June, with Ron Follows. Nine lights were operated from dusk to dawn. There was a strong breeze coming in off the sea, little moon, with a dusk temperature of 16C falling to a minimum of 10C. Three mv traps were operated in the vicinity of the Visitor Centre, two mv traps and one actinic on Freshwater Marsh and one mv light, one mv trap and an actinic trap in the East Dunes area. 717 moths of 63 species were recorded, including 13 species of micro-moths. The most noteworthy moths were four Sand Dart, two Starwort *Cucullia asteris* (D.&S.), an Archer's Dart and a Lyme Grass in the Eastern Dunes and a Starwort and a Lyme Grass on Freshwater Marsh. 215 Cinnabar moths turned up in the mv trap in the Eastern Dunes, compared with 35 or fewer at each of the other lights. The Privet Hawk-moth proved to be well-established, with two recorded on Freshwater Marsh, one at the Visitor Centre and one on the Eastern Dunes. The Dog's Tooth was one of the more numerous moths, with 52 individuals recorded. However, no Marsh Moths were seen on this occasion either.

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Hittisleigh Wood, Devon, 25 August 2001

Leader: **Roy McCormick.** We gathered at the residence of John Milverton at the pre-arranged time and were offered a glass of wine (all we wanted then were our horses, red coats and hunting horn) and had time for a conducted tour round his very old Devon farm cottage which he was renovating. Because we could not get many vehicles into the trapping spot, equipment and people were transferred to three of the available transports; there were seven in our party with 10 traps in all. We arrived at Hittisleigh Wood (owned by John) and decided where to place our traps to minimise interference. The night was overcast and warm and, despite the late time of the year, we thought we would have a good night. At around 20.30 h the generators were started and a few species were recorded with our nets before the lights took effect. After a couple of rounds of the traps the list began to build, but it was slow going with few specimens coming to our lights; one of the commoner species was *Hepialus sylviua* Linn. (Orange Swift), many of which appeared in every trap; a good number of microlepidoptera were seen and identified, with nothing of significance observed; there are a couple of the microlepidoptera taken still to be confirmed. Our old friends the dreaded Yellow Underwings, *Noctua pronuba* Linn. and *Noctua jauthe* Borkh. were unfortunately common, crashing into everything else as they dashed around the traps. The list at midnight, when we decided to pack up, stood at 77 (including the microlepidoptera still to be confirmed), with the best of these: *Trichiura crataegi* Linn. (Pale Eggar); *Catarhoe rubidata* D. & S. (Ruddy Carpet); *Orgyia antiqua* Linn. (Vapourer), although fairly common in Devon it was strange to see one male at light; *Xestia sexstrigata* Haw. (Six-striped Rustic); *Amphipyra berbera Svenssoii* Fletcher (Svensson's Copper Underwing), several of these being identified by their dull looking appearance along with the underside differences between this and *Amphipyra pyramidea* Linn. (Copper Underwing) which was also recorded, and *Amphipoea oculata* Linn. (Ear Moth), two of which were taken and identified by the genitalia. The meeting closed at 00.45 h.

SHORT NOTE

Possible source of the Madeira monarchs *Danaus plexippus* (L.). I have read with interest the article by Allan Showler (2001) which prompted me to re-read the one by Salmon & Wakeham-Dawson (1999) as well as consulting Manley & Allcard (1970) and other references to Madeiran butterflies such as Swash & Askew (1982), Owen, Shreeve & Smith (1986) and Shapiro (1992). Now back in the 1960s The Entomological Field Station in Cambridge had a large patch of *Asclepias curassavica* in cultivation and while I do not recollect the original purpose, it seemed a pity not to make further use of it and I had a colleague send some *Danaus plexippus* from the States. These were sent as fresh adults papered with the wings folded and inserted into envelopes which were then carefully packed into a strong box. They arrived in perfect condition and by the following day were mating and then egg-laying. Not only did I succeed in breeding several generations but was also successful in rearing them on a similar synthetic diet to that being used for *Pieris brassicae* (L.). Having a surplus I distributed some to various friends and colleagues and these included that delightful couple Bill and Margaret Beer. So could it be that the Monarchs in Spain and Madeira that it seems were introduced there by the Beers may well have originated from my stock which I in turn had received from the United States?

As well as being successful with the Monarch the Beers were also one of the earliest breeders to be successful with Deaths-head Hawkmoth (*Manduca atropos* (L.)) on which Margaret published an extensive article (Beer 1978). However, apart from rearing insects Bill and Margaret were interested in all aspects of natural history, including ornithology and when Doris and I went to stay with them our chief recollection is not of insects but the feeding of the local owls, for they kept a deep-freeze full of day old chicks and every evening a few of these were brought out and either placed on a wooden stand or thrown into the air when said owls, who knew what to expect, would swoop from the nearby woodland and enjoy their bounty.—
BRIAN O. C. GARDINER, 2 Highfield Avenue, Cambridge CB4 2AL.

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OBITUARY

DENNIS O'KEEFFE
1935–2002



Dennis O'Keeffe died on 19 October 2002 at the age of 67, after a short illness. He had been a member of the Society since 1964 and was an active and respected field worker with extensive knowledge of both the macro and microlepidoptera.

Born on 9 September 1935 in Peckham, South London, he was educated at a local convent school and St. Mary's College, followed by National Service with the RAF. His working career was varied, ranging from the Civil Service, opening a toyshop, establishing a computer programming business to his final post as Finance Director with a law firm, retiring in 1993.

His interest, and indeed passion for the Lepidoptera began as a teenager whilst living in Sidcup, South London – a locality with far more green fields in the 1940s than today and close to L. Hugh Newman's famous butterfly farm. Although maintaining an interest in entomology his business life kept him fully occupied until the 1960s when he was able to devote more time to his hobby.

He rapidly established himself as an enthusiastic and knowledgeable lepidopterist and one of the heavyweight "macro men" alongside his great friend Dick Chatelain and embarked on many collecting trips with Bernard Skinner and Brian Elliott. A great researcher, he would study the literature to track down forgotten localities and was very successful in locating 'lost' colonies, including Essex Emerald *Thetida smaragdaria* Fab., Marsh moth *Athetis pallustris* Hübn. and Reddish Buff *Acosmetia caliginosa* Hübn. Looking through the reports of the Annual Exhibition and his

notes and articles in the *Entomologist's Record*, one is impressed by his energy and achievements—he was indeed a formidable entomologist!

Sadly a series of medical and personal problems caused him to withdraw from the entomological world and in 1978 he sold his extensive library, cabinets and collection to Watkins & Doncaster—a decision he later regretted.

However, it is difficult to keep a good entomologist down and in 1984 he married again and moved the following year to Petts Wood becoming a near neighbour of the author. He felt unable to 'start again' on the British Lepidoptera, so concentrated his efforts on the macrolepidoptera of Kent. Despite being a well-worked county, Dennis turned up the first Kentish Balsam Carpet *Xanthorhoe biriviata* Borkh. within a couple of months of starting again!

His interest soon turned to the microlepidoptera. He quickly became adept at finding, breeding and immaculately setting the micros, an unexpected development as he had lost an eye during the 1970s! Soon after embarking on the micros he located the first Kentish breeding colony of the gracillariid *Caloptilia falconipennella* Hübn. in 1988. Many other 'finds' followed including the third British example, and then a breeding colony of the tortricid *Pammene agnotana* Rebel on Dartford Heath in 1990 and the second British record of *Gelechia senticetella* Staud. in 1992.

His ambition was to publish a 'Volume 4' to Michael Chalmers-Hunt's *Butterflies and Moths of Kent* covering the microlepidoptera, and towards this goal he assembled huge numbers of Kent records from the 20th century. The project was not completed and hopefully this valuable data will not be lost.

In 2001 he moved to Dymchurch in Kent and in his brief period there was rewarded with a number of migrant hawk and other moths.

On a personal note, Dennis was a good friend and an enthusiastic companion on field trips. I remember an early morning phone call in July 1990 after Dennis had learned from Michael Chalmers-Hunt that the late L.T. Ford used to find *Dystebenna stephensi* Staint. on an old oak near his house during the 1940s. Dennis thought he knew where that oak might be, and did I fancy a trip to Bexley? We went, we (or rather Dennis!) found the oak, and we found *stephensi* in good numbers. This find gave Dennis enormous satisfaction—the moth, its life history and its provenance all in the bag!

Dennis will be greatly missed as an entomologist who made a significant contribution to our knowledge of the natural history of British moths, and as a friend and expert to the many entomologists who knew him. He is survived by his wife, Wiltrud and his son and daughter.

Paul Sokoloff

ANNOUNCEMENTS

Butterflies of the Bristol Region by R. Barnett, R. Higgins, A. Moulin & C. Wiltshire

This book follows the Flora of the Bristol region and presents the results of the Avon Butterfly Project's survey of the butterflies of the Bristol area over the past decade, with a review of historical records. There are colour photographs of adults and larvae and distribution maps of all species. The decline in fritillary and blue butterflies and their habitats are discussed together with proposals for conservation of the rarer species. The BENHS has supported the publication and as a consequence, it is available direct from the publishers at a special price to members of £19.95 including p&p. (£24.95 from 1st July 2003).

Please make cheques payable to Bristol City Council, mark your order 'The butterflies of the Bristol region' and send to Bristol Regional Environmental Records Centre, Ashton Court Visitor Centre, Ashton Court Estate, Long Ashton, Bristol BS41 9JN.

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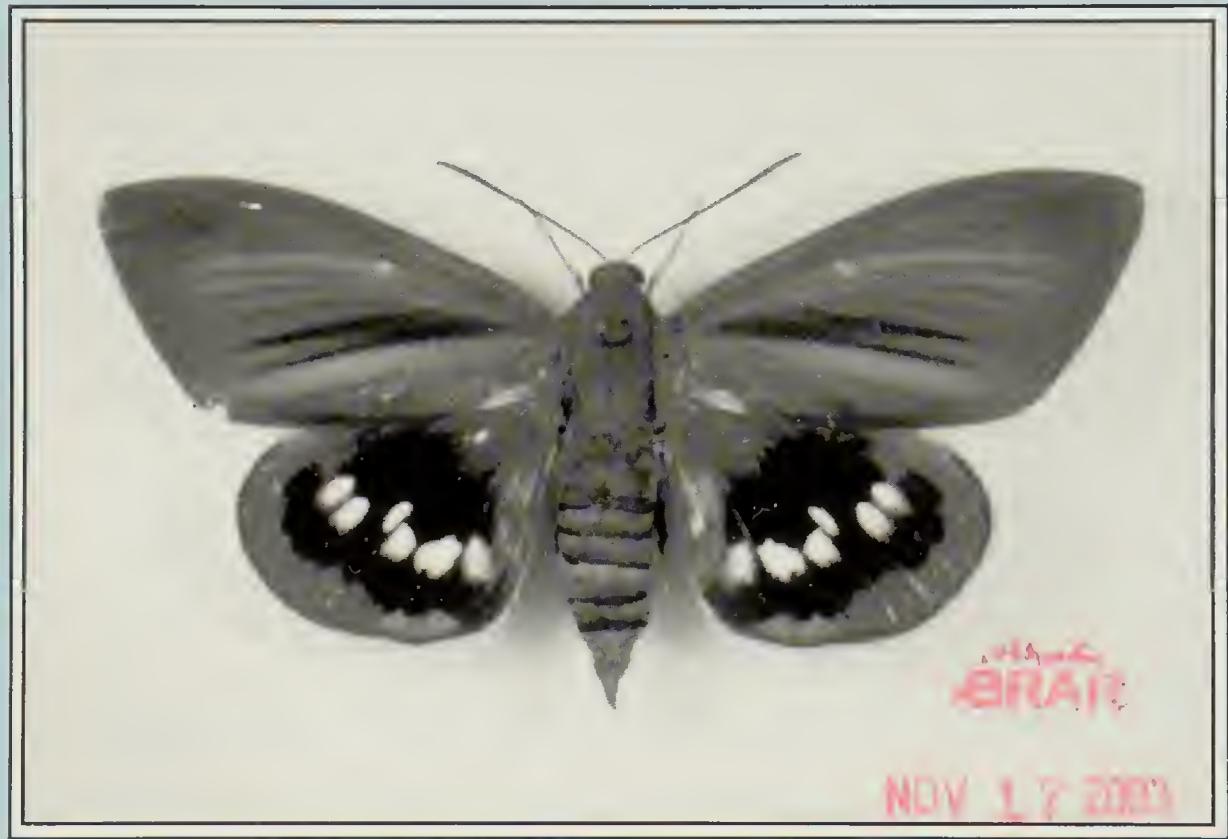
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Meetings of the Society are held regularly in London, at the rooms of the Royal Entomological Society, 41 Queen's Gate, London SW7 and the well-known ANNUAL EXHIBITION takes place in November at Imperial College, London SW7. Frequent Field Meetings are held at weekends in the summer. Visitors are welcome at all meetings. The current Programme Card can be had on application to the Secretary, J. Muggleton, at the address given below.

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Cover photograph: A palm pest *Paysandisia archon* (Lepidoptera: Castniidae), a suspected migrant to UK from southern Europe. Wingspan 100 mm. Photo: Sarah Patton.

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FIRST RECORDS OF *MYRMICA VANELI* BONDROIT (HYMENOPTERA, FORMICIDAE) FOR BRITAIN

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Abstract. Details of two colonies of *Myrmica vandeli* Bondroit, found in South Wales and southern England are reported. Drawings of *M. vandeli* together with a table of key features illustrate how all castes can be separated from the closely related species, *Myrmica scabrinodis* Nylander and *Myrmica sabuleti* Meinert. The biology and ecology of *M. vandeli* are outlined and it is suggested that it might be a temporary social parasite of *M. scabrinodis* colonies.

INTRODUCTION

Myrmica vandeli Bondroit was described from queens and males from the Jura (Bondroit, 1920). It was known only from the type series until Kutter (1977) found a free-living colony near Neuhâital, Switzerland. Queens of *M. vandeli* have a relatively wide postpetiole, tibial spurs with reduced petiolation, and are quite hairy. These characteristics, that are often present in socially parasitic *Myrmica*, led some to speculate that they might be social parasites of *Myrmica lobicorvis* Nylander (e.g. see Bernard, 1967). The exact status of *M. vandeli* remained uncertain until Elmes & Thomas (1985) reported a large population of free-living colonies, co-existing with *Myrmica scabrinodis* Nylander, in the Upper Rhone Valley and the Massif Central of France. Since then, *M. vandeli* has been recorded from Germany, Switzerland and the Czech Republic (Seifert, 1988, 1996), parts of former Yugoslavia and Turkish Thrace (Agosti & Collingwood, 1987), Romania (Markó, 1999) and Austria (Schlick-Steiner & Steiner, 2000). From these records *M. vandeli* would appear to be a free-living, submontane species of central and south-eastern Europe.

Colonies of *M. vandeli* can very easily be mistaken for those of *M. scabrinodis* because the workers of the two species are superficially very similar. The queens of *M. vandeli* are significantly larger and generally much darker than those of *M. scabrinodis* (see Elmes & Thomas, 1985). However, the males are very obviously different, those of *M. vandeli* having relatively long antennal spaces, like those of *Myrmica sabuleti* Meinert (see Elmes & Thomas, 1985). In our experience as field ecologists, we have usually first recognised *M. vandeli* after being puzzled by finding 'M. sabuleti' males in a 'M. scabrinodis' nest.

This most recently occurred when we (Elmes & Thomas) were searching *M. scabrinodis* nests, living on Dorset heathlands, for the presence of larvae of the parasitic hoverfly *Microdon myrmicæ* Schönrogge *et al.* (see Schönrogge *et al.*, 2000). At about the same time Radchenko was working on the Elmes Collection of *Myrmica*, in preparation for a taxonomic revision of the Eurasian *Myrmica* species, and discovered a colony series of *M. vandeli* taken by Elmes in 1983, from Pembrokeshire, South Wales. In this paper we formally record these finds and give information to help other British entomologists find *M. vandeli* and distinguish it from *M. scabrinodis*.

THE BRITISH MATERIAL

Colony 1: (Elmes coll. code GBW13), *M. vaudeli*, 19 workers, 20 alate queens, 24 males; Wern, near Punceston, Pembrokeshire, South Wales (SN015305), leg. Elmes 1 Sept. 1983. In damp, well-grazed grassland, nest under piece of flat slate. Note, the sample from this colony also contained 14 *M. scabrinodis* workers, 2 of the males were intercastes and 5 males, including one of the intercastes, were visibly smaller than the others. A worker, queen and male were deposited (June 2002) in the collection of the Institut Royal des Sciences Naturelles de Belgique, Brussels, which holds the Bondroit type specimens of *M. vaudeli*. In 1983, Elmes determined this series as *M. sabuleti*, based on the males, with a note that the workers appeared to be *M. scabrinodis*.

Colony 2: (Elmes coll. code GB1281), *M. vaudeli*, 6 workers, 1 alate queen, 1 male; Oakers Wood, nr. Bryants Puddle, Dorset (SY803921), leg. Elmes 13 Oct. 1999. Nest in an open area of wet-heath, under a power-line but well sheltered by surrounding woodland, living in a *Molinia* tussock. Note, this nest series also contained 6 *M. scabrinodis* workers.

IDENTIFICATION OF *M. VAUDELI*

Traditionally a range of morphometrics and indices calculated from them are used in the discrimination of *Myrmica* species (e.g. Sadil, 1952; Elmes, 1978; Seifert, 1988). Generally, we have used 19 measurement and 16 indices in our recent treatments of *Myrmica* (e.g. Elmes, Radchenko & Aktaç, 2002). Eleven morphometrics were used by Elmes & Thomas (1985) in a discriminant analysis between *M. vaudeli*, *M. scabrinodis*, *M. sabuleti* and *Myrmica hirsuta* Elmes (a social parasite of *M. sabuleti* nests). They showed that only three of the measurements were sufficient to discriminate workers and queens of *M. vaudeli* from those of *M. scabrinodis*, being post-petiole width [PPW] and number of hairs on the petiole [H], plus head-width measured behind the eyes [HW] in the case of queens, or the minimum distance between the frontal ridges [frons-width, FW] in the case of workers. Similarly, only three measurements (PPW, Post-petiole height [PPH] and H) were required to discriminate between *M. vaudeli* and *M. sabuleti* males. The discrimination functions were:

Queens

$$\text{Discriminant} = 0.19 \text{H} + 13.46 \text{PPW} + 11.91 \text{HW} - 25.89$$

M. scabrinodis < -0.91 > *M. vaudeli* Confidence 99.8%

Workers

$$\text{Discriminant} = 0.42 \text{H} + 33.09 \text{PPW} + 53.10 \text{FW} - 9.69$$

M. scabrinodis < -0.20 > *M. vaudeli* Confidence 99.5%

Males

$$\text{Discriminant} = 30.63 \text{PPH} - 25.23 \text{PPW} - 0.34 \text{HW} + 1.96$$

M. vaudeli < 1.32 > *M. sabuleti* Confidence 99.9%

First separating the workers colonies 1 and 2 into *M. vaudeli* and *M. scabrinodis*, based upon the sculpture of the alitrunk (see below), and then applying the above discriminant function, we obtained mean discriminant values of 2.09 for *M. vaudeli* workers from Pembrokeshire, and 3.01 for workers from Dorset, confirming our more subjective identification with a very high confidence. Similarly, mean discriminant values of -2.31 and -1.83 for the *M. scabrinodis* workers confirmed with a high

degree of confidence that they were indeed *M. scabrinodis*. Mean discriminant values of 0.65 and 1.93 (single specimen) for the queens in the two colonies confirmed them as *M. vaudeli*, whereas discriminant values of 3.85 and 3.53 (single specimen) for males showed that they were not *M. sabuleti*.

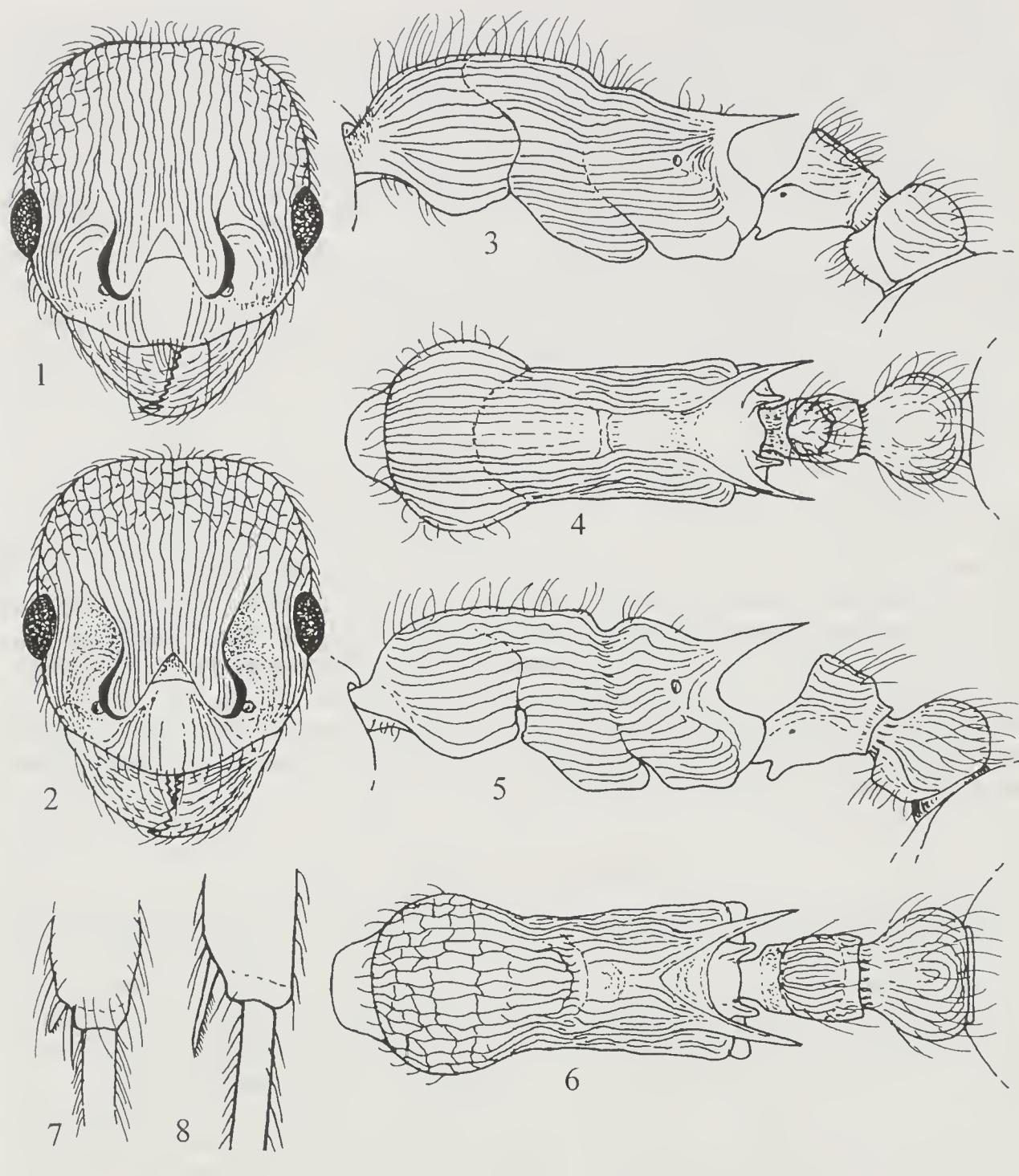
Although morphometrics and discriminant functions are useful to confirm whether a collector has samples of *M. vaudeli*, especially when one has not previously seen the species, *M. vaudeli* does have visibly distinctive features (Figs 1–18), which well separate it from *M. scabrinodis* and *M. sabuleti* (summarised as Table 1). If one uses only the traditional features of scape-lobe shape combined with frons-width, which in Britain well distinguishes *M. scabrinodis* from *M. sabuleti*, it is easy to confuse *M. vaudeli* workers with those of *M. scabrinodis*, even though the scape-lobe shapes generally differ (Figs 9–12). The most useful features which distinguish *M. vaudeli* from *M. scabrinodis* are the finer, less sinuous striation with less reticulation on the head and alitrunk combined with a greater pilosity in waist region, and, for more experienced observers, the notched anterior clypeal margin. Queens usually differ visibly due to their much greater size and dark colouring. Males clearly differ from those of *M. scabrinodis* by their longer scapes; initially they might be confused with those of *M. sabuleti* but obviously differ by the combination of much longer hairs on the head and scape and shorter hairs on the tibia (Figs 13–18). If taken without workers (e.g. in pitfall traps) it is difficult to separate *M. vaudeli* males from those of *M. hirsuta*, even the discrimination proposed by Elmes & Thomas (1985) could achieve a separation with only 84% confidence.

If one examines a large number of workers of any *Myrmica* species one finds a small proportion of pseudogynes (*sensu* Wheeler, 1910); most have only very vestigial traces of sutures for the scutum and scutellum on the pronotum, although a few can have vestigial wings. When examining material for this paper we noted that pseudogynes with very faint traces of sutures, are much more common in *M. vaudeli* (> 50% in many series). In this respect they resemble some socially parasitic species (see Radchenko & Elmes, in press and below).

MIXED COLONIES

Both colonies sampled from Britain contained a mixture of *M. vaudeli* and *M. scabrinodis* workers: 58% *M. vaudeli* workers in Colony 1 and 50% in Colony 2. We are certain these were genuine mixed colonies and not the result of some sort of sampling mistake. We checked therefore, ca. 60 other colony series of *M. vaudeli*, held in the Elmes Collection, and found 4 that also contained some *M. scabrinodis*. These were from two sites in France. Forty-one nests were sampled from a wet meadow fed by a spring, near St. Bonnet in the Haute Alpes, 24 nests (60%) were *M. vaudeli* and the others were *M. scabrinodis*. None of the *M. scabrinodis* series contained *M. vaudeli* but 3 of the *M. vaudeli* contained *M. scabrinodis*, being 6 from 10 workers (60%), 1 from 4 workers (25%) and 1 from 3 males (even though all the workers in this nest series were *M. vaudeli*). Nineteen nests were sampled at a site near Le Puy in the Massif Central, 4 nests (31%) were *M. vaudeli*, one of which had a single *M. scabrinodis* among the series of 10 workers (10%). No mixed series were found from a third site, in the Upper Rhône valley, where we sampled 24 *M. vaudeli* and 111 *M. scabrinodis* nests.

The most probable explanation for these observations is that *M. vaudeli* might be a temporary (perhaps facultative) social parasite of *M. scabrinodis*, not *M. lobicornis* as suggested by Bernard (1977). In many respects, such as reduced spurs and hairy body, and pseudogynous workers, *M. vaudeli* is morphologically similar to *Myrmica*

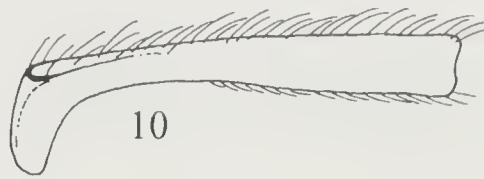


Figs 1-18 (above and opposite). *Myrmica vandeli* worker Figures 1, 3, 4, 7, 9 & 10; *M. vandeli* male Figures 13, 15 & 17; *M. scabrinodis* worker Figures 2, 4, 6, 8, 11 & 12; *M. scabrinodis* male Figures 14, 16 & 18. The *M. vandeli* worker is from the Welsh series (Colony 1), the male is a

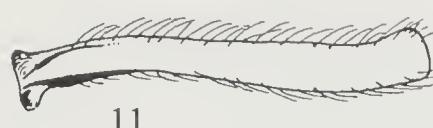
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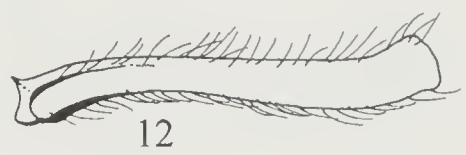
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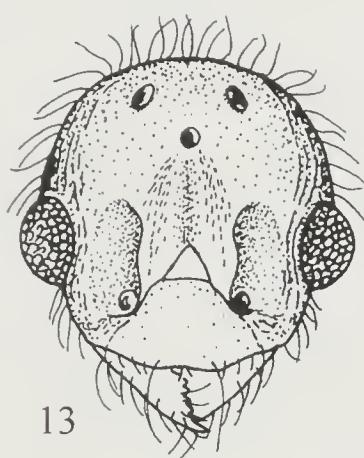
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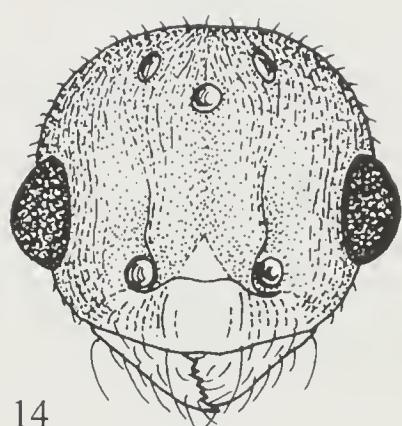
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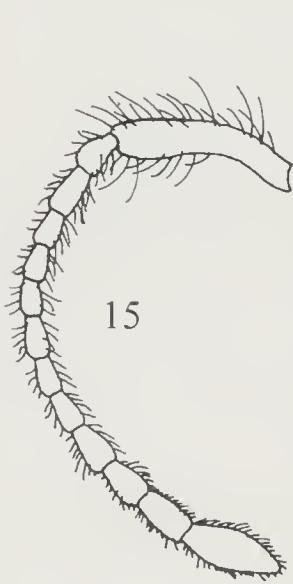
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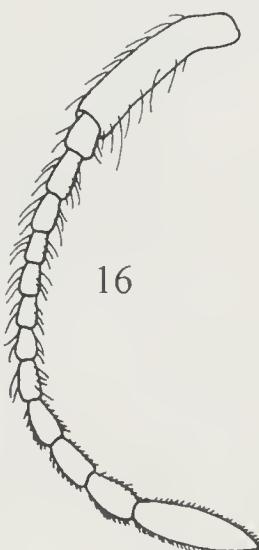
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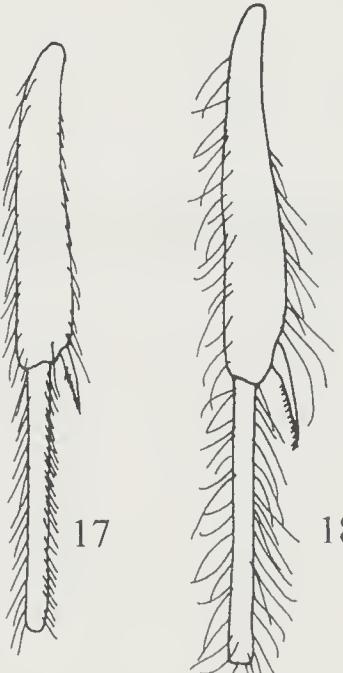
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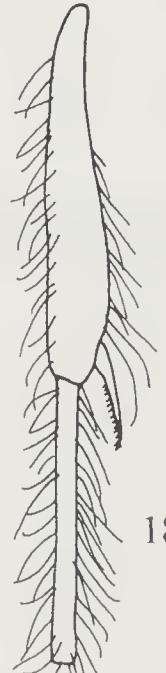
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16



17



18

1.0 mm (figs. 13 - 18)

paralectotype from Bondroit's collection (Brussels); the *M. scabrinodis* worker is the Lectotype from Nylander's collection (Helsinki) and the *M. sabuleti* male is a paralectotype from Meinert's collection (Copenhagen).

Table 1. Summary of the morphological differences between *Myrmica vandeli* and related species.

Workers	
<i>M. vandeli</i>	<i>M. scabrinodis</i>
More hairy than is typical for European <i>Myrmica</i> species: petiole usually with 10–20, sometimes more, long, thin and often curved hairs (Figs 3, 4)	Typical <i>Myrmica</i> pilosity; petiole with less than 10, usually fewer than 8, long, straight, thick hairs (Figs 5, 6)
Anterior clypeal margin with a distinct notch (Fig. 1)	Anterior clypeal margin broadly rounded, with no notch (Fig. 2)
Alitrunk finely sculptured (Fig. 3): dorsum having fine, straight or slightly sinuous longitudinal rugae (Fig. 4)	Alitrunk coarsely sculptured (Fig. 5): promesonotal dorsum usually reticulate or with coarse, strongly sinuous rugae (Fig. 6)
Petiole, and especially postpetiole seen from above, with reduced sculpture (Fig. 4)	Petiole and postpetiole dorsum with coarse sculpture (Fig. 6)
Spurs on middle and hind tibiae always poorly developed and usually with no pectination (Fig. 7)	Spurs on middle and hind tibiae usually well developed and pectinate (Fig. 8), but can be more poorly developed in some specimens.
Lobe on antennal scape less well developed (Fig. 9) appearing more narrow and antenuated from above (Fig. 11)	Lobe generally more developed and appearing rounded from above (Figs 10, 12), in some populations lobe can be extremely well developed but in others less so, more like <i>M. vandeli</i>
Queens	
<i>M. vandeli</i>	<i>M. scabrinodis</i>
Large, headwidth >1.20 mm, usually >1.25 mm; dark in colour, often appearing almost black	Smaller queens, headwidth <1.20 mm, usually <1.15 mm; typical light brown <i>Myrmica</i> colour, though specimens from acid moorland habitats can be quite dark
Males	
<i>M. vandeli</i>	<i>M. scabrinodis</i>
Antennal scape length (SL) relatively long, usually >0.50 mm; average SL/HW=0.60	Scape length distinctly shorter, usually <0.40 mm; average SL/HW=0.38
<i>M. vandeli</i>	<i>M. sabuleti</i>
Head margins with long curved hairs (Fig. 13); antennal scape with long hairs (Fig. 15); tibiae and tarsi with relatively short hairs (Fig. 17)	Head margins with very short straight hairs (Fig. 14); antennal scape with short hairs (Fig. 16); tibiae and tarsi with long curved hairs (Fig. 18)
Postpetiole relatively wide and low, average PPW/PPH=1.02	Postpetiole relatively narrower and high; PPW/PPH=0.96

bibikoffi Kutter and *M. hirsuta*, both social parasites of *M. sabuleti* (see Radchenko and Elmes, in press). We hypothesise that the warm, moist condition (see below) at the Haute Rhône site probably represents the centre of the range of *M. vandeli*, here colonies might successfully compete with *M. scabrinodis* and reproduce by queen foundation or by colony fission, while at the edge of its range (defined by more onerous ecological conditions) queens might have to resort to temporary social parasitism of *M. scabrinodis* to establish a new colony. Ecologically Britain might be at the extreme edge of the range for *M. vandeli* so that it can reproduce only as a social parasite. This might explain why so few colonies have been found in Britain and why, despite considerable repeat searches at the Dorset site, no further colonies were located. A similar explanation might also account for the extremely patchy British distribution of *Formica exsecta* Nylander, which is believed to found colonies by temporary social parasitism of *Formica fusca* L. nests.

ECOLOGY OF *M. VANDELI*

Myrmica vandeli requires wet and warm conditions at the nest site (see Elmes *et al.*, 1998); we noted that it appeared most abundant in a wet marsh at about 500 m in the Haute Rhône, where it lived in tussocks of grass and sedge. Very little difference between the nest sites favoured by *M. vandeli* and *M. scabrinodis* could be detected except that *M. vandeli* was perhaps, more abundant in the central, least shaded part of the site. At the site in the Haute Alpes (ca. 1800m) colonies were living in grass tussocks in a small wet "flush" in a hay meadow, created by a small spring. No obvious ecological difference could be detected here except that *M. vandeli* appeared to be favouring the slightly wetter areas compared to *M. scabrinodis* (Elmes *et. al.*, 1998). At a third site in the Massif Central colonies were living in grass tussocks in a small area of very wet grassland, here the *M. vandeli* colonies occupied tussocks more or less surrounded by water, whereas *M. scabrinodis* were more abundant in the slightly drier edges of the site.

The colony found in Dorset was living in a *Molinia* tussock in an area of boggy heathland surrounding a smaller area with permanent water. In most years the tussock containing the nest would be surrounded by water for much of the time, though when this occurred foraging workers could easily move from tussock to tussock via the vegetation. Many similar tussocks contained *M. scabrinodis* nests. The Welsh site was much more atypical in that the grass was shorter and nests (both *M. vandeli* and *M. scabrinodis*) were under flat stones, nevertheless the site was also quite moist. We found one colony of *M. vandeli* living in similar conditions, under a stone in moist alpine grassland in Switzerland and nests have reportedly been found in moss pads and under stones elsewhere (Seifert, 1988).

The common factor among sites seems to be wet, almost waterlogged habitats that become very warm in summer. Such places were fairly common in the foothills of the southern Alps where they were managed as hay meadows. However, they are becoming rarer as small marshes are either abandoned or drained. Suitably hot, wet conditions probably occurred locally throughout central Europe but were always rare in northern Europe. In Britain suitable habitat might be rare and restricted to the southwest. If the hypothesis of social parasitism is correct then British investigators might have to search many nests in the hottest marsh habitats before finding *M. vandeli*. Finally, if southern Britain gets significantly warmer as predicted by climate change models, *M. vandeli* might be one of the species that becomes more widespread.

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NOTES ON THE BEETLE FAUNA OF THE MID-CHURNET VALLEY, STAFFORDSHIRE

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INTRODUCTION

The mid-Churnet Valley contains a variety of habitats, and is approximately located between Cheddleton to the north-west and Froghall to the south-east, near Stoke-on-Trent. It is generally dominated by acidic oak-birch ancient woodland, but with areas of alder carr and lush meadow vegetation on the banks of the River Churnet itself. Most of these habitats are incorporated within the Churnet Valley Site of Special Scientific Interest (SSSI).

METHODS

Records included here were all generated via fieldwork during the summers of 1996 and 1997. Sites surveyed include Consall Woods (SJ994483), Booths Wood (SK005485), Crowgutter Wood (SK003492), Rough Knipe (SK000495) and additional river-marsh areas (SJ992502). Records were obtained mostly via active collecting. Smaller saproxylic species were mostly collected by hand and pooter, searching under loose bark, in decaying wood, and around fungal fruiting bodies. Larger woodland and grassland species were usually swept from prominent nectar flowers, such as hogweed in woodland rides, or from open grassy or herbaceous vegetation.

RESULTS AND DISCUSSION

In total, 31 beetle species included in Hyman & Parsons (1992, 1994) were found, comprising one Red Data Book (RDB) 2 and two RDB 3, five Nationally Notable A, 22 Nationally Notable B, and one Local species. Of these, two are new to Staffordshire, and six are new post-1970 county records. The species found can be divided into a number of ecological groupings: saproxylic species, which can be further divided into those associated with different kinds of dead wood; species of damp meadows and marshes; and species phytophagous on trees. All species are listed below according to these groupings. Brief notes indicate where/by which sampling method the beetles were found. Additional information is from Hyman & Parsons (1992, 1994) unless stated otherwise.

1. Saproxylic species

(a) Species found in deadwood decayed by fungi and/or in the fruiting bodies of these fungi include:

Histeridae	<i>Gnathoncus buyssoni</i> Auzat	Na	In owls nests
Scydmaenidae	<i>Microscydmus minimus</i> Chaudoir	RDB3	Under bark
	<i>M. manus</i> Schaum	Nb	Under bark
Elateridae	<i>Ampedus pomorum</i> Herbst.	Nb	In rotting birch and oak
Cryptophagidae	<i>Atomaria umbrina</i> Gyllenhal	Nb	In rotting wood debris

Lathridiidae	<i>Lathridius consinilis</i> Mannerheim	Nb	In fungoid wood and fungus on trees
	<i>Euicnius fungicola</i> Thomson	Nb	In slime mould fruit-bodies
Mycetophagidae	<i>Mycetophagus piceus</i> Fabricius	Nb	Under fungoid bark
Melandryidae	<i>Hallonienus binotatus</i> Quensel	Nb	Under bark
	<i>Orchesia minor</i> Walker	Nb	Beating birch

The histerid *Guathonicus buyssonii* is known from decaying trunks, birds nests and fungi on trees. This is a new county record. *Microscydius minimus* is known elsewhere (post-1970) in Staffordshire from Bagot's Park. It is an old forest relic species (Hodge & Jones, 1995). *Microscydius nanus*, which is known from woodland leaf litter and rotten wood, is new to Staffordshire. *Atonaria umbrina* is found in similar habitats. The click beetle *Anipedus poniorum* is associated with decaying birch, as is *Lathridius consinilis*, especially when under attack by the fungus *Piptoporus betulinus*. *Euicnius fungicola* is known to breed in slime-mould fruiting bodies, especially on oak, and this is the first post-1970 county record. *Mycetophagus piceus* requires oak being decayed by the fungus *Laetiporus sulphureus*, which is also a habitat for *Hallonienus binotatus*. The false darkling beetle *Orchesia minor* is a further fungus-feeder, possibly utilizing *Polyporus* spp. in particular, as well as well-rotten wood.

(b) Species associated with freshly dead (or hard) wood include:

Lymexylidae	<i>Hylecoetus dermestoides</i> L.	Nb	Burrowing into dead wood
Cerambycidae	<i>Saperda scalaris</i> L.	Na	On umbel inflorescences in woodland ride
Rhizophagidae	<i>Rhizophagus nitidulus</i> Fabricius	Nb	Under bark
	<i>R. picipes</i> Olivier	Na	Under bark
Scolytidae	<i>Xyloterus signatus</i> Fabricius	Nb	Under bark
	<i>Xyleborus dispar</i> Fabricius	Nb	Under bark

The lymexylid *Hylecoetus dermestoides*, the bark beetles *Xyloterus signatus* and *Xyleborus dispar*, and the longhorn beetle *Saperda scalaris*, are all associated with fresh and hard dead wood, mostly in ancient broad-leaved woodlands. *Rhizophagus* spp. hunt bark beetle larvae under bark and so need dead wood that has been colonized by scolytids, but which still has the bark intact.

(c) Species associated with twigs and small branches, <5 cm diameter, include:

Cerambycidae	<i>Gracilia minuta</i> Fabricius	RDB2	On hogweed flowers in woodland clearings
	<i>Stenostola dubia</i> Laicharting	Nb	On hogweed flowers in woodland clearings

The diminutive longhorn beetle, *Gracilia minuta* has, until now, not been recorded post-1970 in Staffordshire; in fact Hyman & Parsons state that it is only known from five other vice-counties: south Hampshire, east and west Kent, Monmouthshire and Glamorganshire. It was however also recorded in Worcestershire in 1999 (Goddard, pers. comm.). It is known to feed within twigs and small branches of various trees. *Stenostola dubia* is known to feed in branches of <5 cm diameter on lime trees *Tilia*

cordata Miller and *T. platyphyllus* Scop. Adult beetles of both these species also appear to require nectar sources, notably umbel flowers, in woodland clearings.

2. River meadow species

Elateridae	<i>Cteunicera cupreus</i> Fabricius	Local	Swept at edge of wood/marsh
	<i>C. pectiuncornis</i> Fabricius	Na	Swept at edge of wood/marsh
Cantharidae	<i>Cantharis fusca</i> L.	RDB3	Swept in marshes and river meadow
Chrysomelidae	<i>Plateumaris affinis</i> Kunze	Nb	Swept in marshes and flushes
	<i>Mautura obtusata</i> Gyllenhal	Nb	Roots of tussocks in marshes

The habitat requirements of the click beetle *Cteunicera pectiuncornis* are given in Hyman & Parsons as lush grassland in old hay meadows, where the larva feeds at the roots of plants. These are the first post-1970 records for Staffordshire. Presumably *C. cupreus* has similar, if less exacting requirements. The reed beetle *Plateumaris affinis* is phytophagous on sedges, and is usually found on emergent vegetation at aquatic margins. *Mautura obtusata* is associated with *Rumex* spp., particularly *R. acetosa* L. growing in wet meadows, with its larvae probably mining the host plant's leaves. For the soldier beetle *Cantharis fusca*, Hyman & Parsons state that post-1970 records only exist for four other vice-counties, all in southern England, although the species was formerly more widespread, ranging up to East Lothian in Scotland. An update provided by Alexander (2000), discusses records from a few southern coastal areas in Kent, Sussex, Hampshire and the Isle of Wight, from Somerset, where the species is apparently fairly widespread, and from Yorkshire, where three localities are known. It appears to be a species of rich fen and damp hay meadows, where both the adults and larvae are free-living and active, with adults particularly noticeable on umbellifer flowers. Habitats in the mid-Churnet Valley would appear to be small patches of river-meadow within a wider woodland setting.

3. Phytophagous species associated with trees

Silphidae	<i>Aclypea opaca</i> L.	Na	Found near old oaks
Elateridae	<i>Selatosomus impressus</i> Fabricius	Nb	Found by sweeping beneath birch trees
Chrysomelidae	<i>Cryptocephalus bipunctatus</i> L.	Nb	Beating birch
	<i>C. parvulus</i> Müller	Nb	Beating trees
	<i>C. punctiger</i> Paykull	Nb	Beating trees
Curculionidae	<i>Acalles ptioides</i> Gyllenhal	Nb	Beating trees
	<i>A. roboris</i> Curtis	Nb	Beating trees
	<i>Coeliodes ruber</i> Marsham	Nb	Beating trees

These are the first post-1970 Staffordshire records for the burying beetle *Aclypea opaca*, which apparently feeds on plant roots. The natural history of the click beetle *Selatosomus impressus* is poorly known, but it probably has soil-dwelling larvae and adults are associated with trees. The *Cryptocephalus* leaf beetles are all associated with birch, the larvae are cased and ground living, where they feed on fallen leaves. *C. parvulus* preferring leaves browned by fungal infection. Staffordshire contains the only localities for *C. punctiger* outside southern England. The weevil *Acalles ptioides* is found on old trees, especially hawthorn and hazel, and *A. roboris* is associated with

oak. *Acalles* larvae are believed to develop in fallen branches. *Coeliodes ruber* is known to feed on oak and hazel.

CONCLUSIONS

Overall, this is an impressive list of species from a rich and valuable beetle fauna, of an often overlooked area. The ecological requirements of the species found highlight the vital importance of dead-wood resources, including wood being decayed by fungi, freshly dead trees and dead branches on living trees. Further, the importance of what are marginal habitats in this area, small patches of lush river-meadow and marsh along the course of the River Churnet, is also highlighted. Clearly both the mid-Churnet Valley and these latter habitats warrant further entomological investigation.

ACKNOWLEDGEMENTS

Thanks to Keith Alexander and Colin Johnson who have kindly contributed some records to M. Waterhouse, and to Steve Williams of Consall Nature Park for permission to carry out fieldwork at that site.

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SHORT COMMUNICATIONS

New south-eastern county records for *Cacopsylla fulguralis* (Kuwayama) (Hemiptera: Psyllidae).—Following the announcement of the occurrence of this beautiful psyllid in UK (Malumphy, C.P. & Halstead, A.J., 2003. *Br. J. Ent. Nat. Hist.* 16: 89–93) I began searching its hostplant, *Elaeagnus* spp., to assess its current status in the south-east. Its distribution is obviously still patchy as one might expect for a newly-invading species and many searches proved negative. Reasonable numbers of adults were eventually found on some mature bushes of *E. × ebbingei* on an abandoned patch of ground on the eastern edge of Sunbury Golf Course (TQ1068), Middlesex on 2nd June 2003. The first record for Kent turned out to be at Allhallows Holiday Camp (TQ8377), a rather isolated community on the north Kent coast on 17th June 2003. The second locality was of a few individuals found on low, neatly clipped hedges of *E. × ebbingei* in the car-parking area of Hempstead Valley Shopping Centre, Rainham (TQ7963) on 4th July 2003. These were surreptitiously tapped out into my hands in view of the large number of shoppers nearby. None of the bushes showed any obvious signs of insect damage.—J. S. BADMIN, Coppice Place, Perry Wood, Selling, Kent ME13 9RP.

The first phoretic association of *Procalvolia zacheri* (Oudemans) (Acari: Winterschmidtidae) with *Aridius nodifer* (Westwood) (Coleoptera: Lathridiidae)—On the 16. x. 2002 three specimens of *Aridius nodifer* (Westwood), a cosmopolitan species, were collected from the final maturing room of an organic Cheddar cheese producer near Moreton-in-Marsh, Gloucestershire. The specimens were found on the floor and the traditional wooden shelving on which the cheeses stand. The environmental conditions in this store are maintained at 11–12 °C and 80–90% relative humidity. Both the larvae and adults of *A. nodifer* are fungivorous, in this instance feeding on the moulds developing on the wooden shelves and quite possibly the cheese rinds.

A number of small (~0.2 mm long) oval, shiny, pale brown hypopi were attached to the ventral surfaces of the beetles. The hypopus is a modified nymph found in the life cycle of some astigmatid mites. Depending on the mite genus, these occur in either a motile form adapted for phoretic dispersal, usually by attachment to other arthropods, or in an inert form adapted for survival under adverse conditions. The hypopi in this instance were typical of the motile form having the following characteristics: ovoid to round body, dorsoventrally flattened with a convex dorsal surface, robustly sclerotised, reduced mouthparts, well developed legs and possessing a specialised ventri-anal plate bearing suckers by which they attach themselves to a dispersal agent.

Sixteen hypopi were slide mounted and identified as *Procalvolia zacheri* (Oudemans) using the generic key provided by Fain & Rack (1987) and the species redescriptions given by Hughes (1962) (under the junior synonym *Calvolia romauovae* Zatchvatkin, 1941) and Fain (1972).

Procalvolia zacheri is rarely reported and nothing is known of its biology. Most specimens have been taken from damp mouldy substrates or found attached to insects associated with such environments. The few published records indicate that *P. zacheri* only occurs in Europe, currently: **England**, near Moreton-in-Marsh, Gloucestershire, hypopi on *A. nodifer*, reported here; Liverpool University Veterinary Faculty Field Station, Wirral, hypopi on *Stomoxys calcitrans* (L.) (Diptera: Muscidae), collected in the proximity of farm buildings (McGarry & Baker, 1997); **Germany**, Berlin, hypopi collected from mildewed cheese (Oudemans, 1929); northwest Germany, unspecified location, hypopi found in a bungalow with *Ahasvera advena* (Waltl) (Coleoptera: Silvanidae) and *Lathridius minutus* (L.) (Coleoptera: Lathridiidae), one specimen attached to the latter (Rack, 1980) and **Russia**, Moscow, two females in stored wheat and associated with *Acarus siro* L. (Acari: Acaridae) (Zachvatkin, 1941).

The descriptions of the adults and hypopi of *P. zacheri* provided by Hughes (1962) were from fresh specimens ‘found on New Zealand cheese by E. Powell’. Presumably these were collected in the UK, but the exact origin of these mites is not clear. Hughes also synonymised *P. zacheri* with *Calvolia tarsinofracta* Türk & Türk, a species found on rotting potatoes in Erlangen, Germany, however Rack (1980) provides evidence that this synonymy is not justified.

Thanks to our colleague Mr. D. W. Collins for his identifications of *A. nodifer*.—J. C. Ostojá-Starzewski & B. B. Thind, Central Science Laboratory (CSL) Department for the Environment, Food and Rural Affairs (DEFRA) Sand Hutton, York, YO41 1LZ, UK.

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***Rhyzobius chrysomeloides* (Herbst) (Coleoptera: Coccinellidae) new to Kent.**—On 7.v.2002, I collected a single specimen of *Rhyzobius* from Downham Woodland Walk, near Bromley, in south-east London. When I came to identify it, I thought the upper surface marks looked slightly different to the common *R. litura* (Fab.) and that the underside character of the prosternal carinae made it *R. chrysomeloides* (Hawkins, R. 2001. *British Journal of Entomology and Natural History* 13: 193–195). However, having previously thought I had both species only to discover that I had both sexes of *R. litura*, I sent the specimen to Roger Booth for confirmation.

He almost did not bother to dissect it, because the pronotal shape suggested that it was *R. litura*. However, caution got the better of him and he was able to confirm from the distinctive male genitalia that it was, indeed, *R. chrysomeloides*. My thanks go to him for his help.

Since its discovery, this beetle has been found in several Surrey localities (Hawkins, R. 2000, *Ladybirds of Surrey*, Surrey Wildlife Trust) and in Berkshire (R. Booth, pers. comm.). This appears to be the first Kent record.

Downham Woodland Walk is a narrow zigzag wooded path between dense 1930s housing near Bromley, vice-county 16, ‘West Kent’. It is only a few metres wide, but existed as a narrow woodland long before the London urban sprawl engulfed it—it is clearly shown on a map of 1805, bounding the park attached to Southend Manor House and surrounded by open fields. A number of very interesting dead-wood beetles are recorded (Jones, in preparation).

The *Rhyzobius* was collected at the tail end of the walk, where it becomes a mown grass verge under oak and poplar trees and where some hawthorns suggest there was once a hedge. Although I did not record how the specimen was collected (I took it merely as a voucher), it was probably beaten from the hawthorns, which were in flower at the time, or from an ivy-covered log which yielded the ‘vulnerable’ (RDB2) *Nephus quadrimaculatus* (Herbst) a few days earlier on 2.v.2002.—RICHARD A. JONES, 135 Friern Road, East Dulwich, London SE22 0AZ. Bugmanjones@hotmail.com

2002 ANNUAL EXHIBITION

Imperial College, London SW7—9 November 2002

The following account of exhibits has been compiled by A. M. Jones (British butterflies), G. A. Collins (British Macrolepidoptera), H. E. Beaumont (British Microlepidoptera), N. M. Hall (foreign Lepidoptera), P. J. Chandler (Diptera), P. J. Hodge (Coleoptera), A. J. A. Stewart (Hemiptera), A. J. Halstead (Hymenoptera and other Orders) and J. S. Badmin (general). The photographs of individual insects were taken by R. A. Jones and the cost of printing these was met by a grant from the Hammond Memorial Fund. Specimens illustrated are natural size unless stated.

Exhibits under the theme "Wetland Insects" were invited as part of the Annual Exhibition. The notes on these exhibits have been incorporated in the usual categories, but, where appropriate, mention has been made if specimens were exhibited under this theme.

BRITISH BUTTERFLIES

BAILEY, K. E. J.—Results of genetic and temperature experiments 2001–2002. *Pararge aegeria* (L.), four specimens with varied underside pattern from pre and early pupae held at 30°C for several days in high humidity. Uppersides included one with an unusual balanced bleached effect to the forewings.

Enphydryas aurinia (L.), a normal coloured specimen and an ab. *atratus* Bailey both with atypical markings in the forewing cell area possibly due to inbreeding. A specimen with areas of *atratus* on the underside left forewing. An unusual example with the underside hindwings' basal orange area devoid of pattern. A pair of ab. *virgata* Tutt and a pair of *virgata* + *atratus* the result of selective breeding. Two ab. *sebaldus* Schultz, from cold-shocked pupae. Also from cold-shocked pupae was a series of extreme melanics of *Argynnis paphia* (L.) including ab. *nigrizina* Frowhawk. Late cold shock to inbred stock of *Argynnis adippe* (L.) resulted in a male with peripheral forewing melanism. *Vanessa atalanta* (L.) ab. *klemensiewiczi* (Schille) from heat-shocked pupa reared from a wild caught female, Devon, ix.2001.

An interesting series of *Aglais urticae* (L.) including two extreme examples of the polygenic ab. *connexa* Cabeau. An extreme specimen from this stock, ab. *conjuncta* Meuberg + ab. *connexa* from a heat-shocked pupa (Fig. 1). Strong examples of an apparently new, variably expressed recessive aberration with brown suffused underside forewings. This appeared in the *connexa* stock in 2001, but had a severe weakening effect. A specimen with the brown suffusion on the right hand side only.



Fig. 1. *Aglais urticae*, ab. *conjuncta* + *connexa*, bred, K. E. J. Bailey.



Fig. 2. *Aglais urticae*, possible gynandromorph, bred, K. E. J. Bailey.

and with an imbalance in the length of the first legs, possibly a gynandromorph (Fig. 2). Also two specimens of *ab. semiichneumoides* Pronin. from heat-shocked pupae, ex wild Devon larvae.

Anthocharis cardamines (L.) a male ab. *sriata* Pionneau and two female ab. *crassipunctata* Mezger from long cold shock of prepupae and pupae.

Colias croceus (Geoffroy), a series reared from a typical Devon female, the pupae were stored at 5°C for about 20 days then returned to room temperature. One specimen was a small female ab. *electra* Frowhawk, the remainder had extended yellow within the black borders and with slightly melanistic undersides resembling the European species *Colias hecla sulitelma* (Aurivillius).

Also exhibited were two wild-taken *Melanargia galathea* (L.) ab. *valantini* Watkins from a remote Devon site, July 2002, and a male *Mesoacidalia aglaia* (L.) with bleached white spots on the left hand wings from N. Devon July 2002.

HARMER, A. S.—Butterflies from the Scilly Isles, August 2002. *Maniola jurtina cassiteridum* (Graves) bright examples, including a female underside transitional to ab. *fracta* Leeds. *Pararge aegeria insula* (Howarth), some very orange approaching true *aegeria aegeria* (L.) *Polyommatus icarus* (Rott.), including a female ab. *basijuncta* Tutt and ab. *costajuncta* Courv.

Bred *Colias croceus* (Geoffroy), including specimens with pale yellow scaling on the forewing costa and undersides with slightly extended pink markings down the veins on the forewings.

HUMPHREY, D. A.—The highlight of specimens from Dorset and South Wiltshire between 1990 and 1999 was a *Callophrys rubi* (L.) extreme brown underside, ab. *brunnea* Tutt (Fig. 3) taken Stubhampton Bottom, 14.v.1991. Also exhibited were female *Lysandra coridon* (Poda) ab. *radio* Leeds and ab. *obsoleta* Tutt. A male *Melanargia galathea* (L.) ab. *grisescens* Varin. *Maniola jurtina* (L.) ab. *post-radiata* Frowhawk, and other minor aberrations. Two pairs of *Pyronia tithonus* (L.) ab. *excessa* Tutt. A female *Aphantopus hyperantus* (L.) ab. *cuneata* Gilmer.

JONES, A. M. & R.—*Quercusia quercus* (L.) Three female aberrations bred June 2002, ab. *obsoleta* Tutt, a specimen with homoeosis to the underside of the right hindwing, and an extreme ab. *latefasciata* Courvoisier.

A chance breeding of *Polyommatus icarus* (Rott.) ab. *pallida* Tutt from a heavily spotted female taken vi.2002, the F_1 showed specimens with slightly heavier markings. An F_2 of 159 in September/October, comprised 77 males and 82 females, of which 8 males (4 crippled) and 5 females (3 crippled) were ab. *pallida* (Fig. 4), approximately 8%. The aberration corresponds to a similar form in *Lysandra coridon* (Poda) proved to be a simple recessive.

Results of breeding from a female *Boloria euphrosyne* (L.) ab. *stramineus* Frowhawk. A freshly emerged female ab. *stramineus* was paired with a typical male in captivity. The F_1 in May 2001 were all type. The F_2 reared in May 2002 comprised 62 specimens, 27 typical males, 25 typical females, 2 pale males (both crippled), 7 pale females (4 crippled) and one somatic mosaic female with pale patches on the upper and underside of an otherwise typical coloured specimen (not pathological).



Fig. 3. *Callophrys rubi* ab. *brunnea*, Stubhampton Bottom, Dorset, 1991, D. A. Humphrey.

The results show that 14.5% of the brood were pale, it is likely that some of the aberrations died in the pupa, the gene seemed to have a serious weakening effect (6 of the 9 aberrations were crippled). It is assumed that the ab. *strauinicus* is a recessive form but further breeding will be necessary to prove this.

Continued results of breeding from a homoeotic female *Argynnis paphia* (L.). Subsequent broods to an F_1 generation exhibited at the 2001 exhibition. Homoeotic male \times homoeotic female, a brood of 132 specimens, 64 (48.5%) showing homoeosis. Homoeotic male \times typical *valesina* Esper female, a brood of 85 specimens, 28 (33%) showing homoeosis. Typical male from homoeotic/*valesina* stock \times typical *valesina* from homoeotic/*valesina* stock, a brood of 13 specimens, 4 (31%) showing homoeosis. Also two miscellaneous broods from homoeotic stock (parents undetermined) one comprising 12 specimens, 7 (58%) showing homoeosis, the other comprising 10 specimens, 6 (60%) showing homoeosis. The results are difficult to interpret, many specimens only showed very minor homoeosis, breeding from the most extreme examples did not result in more extreme progeny, the most extreme example came from a small miscellaneous brood.

Boloria euphrosyne (L.) An extreme, possibly unique homoeotic female (Fig. 5) with a large portion of the underside right hindwing markings replaced with those of the forewing, captured 12.v.2002. A male *Maniola jurtina* (L.) ab. *alba* Blackie, captured in West Sussex, 17.viii.2002.

SIMPSON, M.—A specimen of *Nymphalis antiopa* (L.), captured in a green house at Ramsey, Cambridgeshire (VC 31) 10.ix.2002, following a telephone call from one of the exhibitor's friends. The specimen had been in the green house for two days prior to capture and was first noticed after a heavy rain storm, from which it may have been taking shelter.

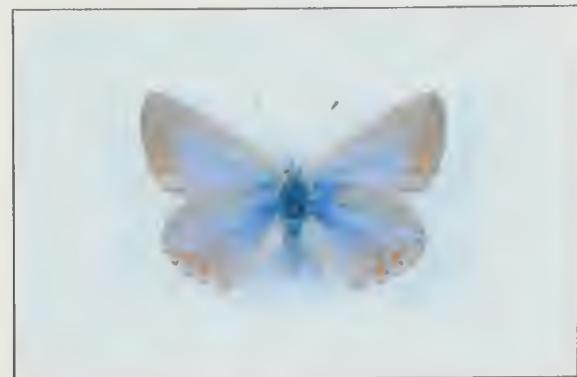


Fig. 4. *Polyommatus icarus* ab. *pallida*, bred F_2 , 2002, A. M. Jones.

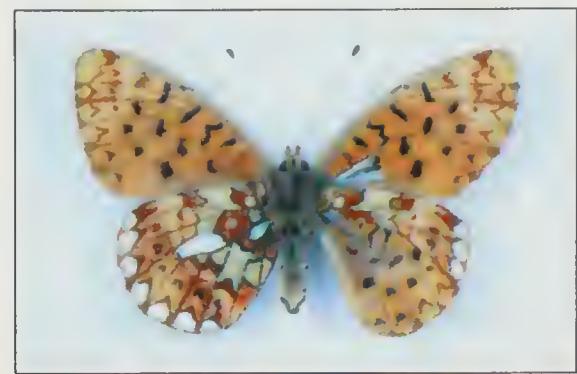


Fig. 5. *Boloria euphrosyne*, homoeotic form, 2002, A. M. Jones.

BRITISH MACROLEPIDOPTERA

AGASSIZ, D.—An asymmetrical aberration of *Spilosoma lubricipeda* (L.), Gravesend, W. Kent, 15.vi.2002.

BAKER, P. J.—Moths from the West Hill area, S. Devon: *Costacconvexa polygranulata* (Borkh.), 23.ix.2000; *Cyclophora pupillaria* (Hb.), 15.x.2001; *Hyles livornica* (Esp.), 30.v.2002; *Trachea atriplicis* (L.), 5.vii.2002; *Eilema cauviola* (Hb.), 5.x.2002; *Lithosia quadra* (L.), 30.ix–2.x.2002, seven examples; and *Deileptenia ribeata* (Cl.), 10.x.2002.

BEAUMONT, H. E.—New vice-county records of moths: *Parascotia fuliginaria* (L.), Misson Carr, Notts., 17.viii.2002; *Lithostege griseata* (D. & S.), Spurn, S.E. Yorks.,

7.vi.2002 (C. Jones leg.); *Archana sparganii* (Esp.), Spurn, S.E. Yorks., 7-13.viii.2002 (B.R. Spence leg.). A moth new to Britain: *Nycteola asiatica* (Krul.), Kilnsea, S.E. Yorks., 11.ix.2002 (B.R. Spence leg., gen. det. HEB) (Fig. 6).

BELL, R. A.—*Trachea atriplicis* (L.), Northwood Park, N. Hants, 12.vii.2002. Examples of both *Abrostola triplasia* (L.) and *A. tripartita* (Hufn.) from Northwood Park. A series of *Megalographa biloba* (Steph.) reared on organic lettuce.

BUTTERFLY CONSERVATION (GREEN, D. G., PARSONS, M. S. & DAVIS, A. M.)—Details of the Action for Threatened Moths Project. Reviews of the current status of UK Biodiversity Action Plan Priority Species, with a summary of selected projects undertaken in 2002 designed to contribute towards their conservation.

CLANCY, S. P.—Immigrant moths from the Dungeness area, E. Kent: *Actinotia polyodon* (Cl.), New Romney, 28.v.2002; *Cleorodes lichenaria* (Hufn.), Greatstone, 28.vii.2002; *Euxoa cursoria* (Hufn.), Littlestone, 28.vii.2002; *Drepana curvatula* (Borkh.), 28.vii.2002, one at Dungeness and one at Lydd; *Notodonta tritophus* (D. & S.), Lydd, 3.viii.2002; *Peribatodes ilicaria* (Geyer), Littlestone, 3.viii.2002; *Anthiphoea lucens* (Freyer), Lydd, 8.viii.2002 and Dungeness, 9.viii.2002; *Cryphia algae* (Fabr.), Littlestone, 14.viii.2002; *Macdunnoughia confusa* (Steph.), New Romney, 16.ix.2002; *Chrysodeixis chalcites* (Esp.), New Romney, 1.x.2002. Species of uncertain origin from the same area: *Hecatera dysodea* (D. & S.), Greatstone, 24.vii.2002; *Closteria amachoreta* (D. & S.), New Romney, 6.viii.2002; and *Scopula nigropunctata* (Hufn.), near Charing, 16.vii.2002. Aberrations, including *Omphaloscelis lunosa* (Haw.), Dungeness, 7.x.2002 (Fig. 7).

CLARKE, J. H.—Immigrant moths from W. Corn, including: *Orthonama obstipata* (Fabr.); *Lithosia quadra* (L.); *Mythimna loreyi* (Dup.); and *Helicoverpa armigera* (Hb.). *Eilema caniola*, East Grinstead, E. Sussex, 21.viii.2002. Notable species from Crawley Down, E. Sussex: *Cyclophora porata* (L.), 13.viii.2002; *Xanthorhoe biriviata* (Borkh.), 20.vii.2002; *Anticollix sparsata* (Treit.), 12.vii.2002; *Abrostola triplasia* (L.), 13.viii.2002; and *Parascotia fuliginaria* (L.), 10.vii and 5.viii.2002.

CORLEY, M. F. V.—An aberration of *Diaphora mendica* (Cl.), Faringdon, Berks., 17.v.2002 (Fig. 8).

DOBSON, A. H.—From Greywell, N. Hants (P. A. Boswell leg.): *Acronicta alni* (L.) ab. *melanica* Schulze, 2.vi.2002; and an autumnal *Orthosia cerasi* (Fabr.), 10.xi.2001.

GLAMORGAN MOTH RECORDING GROUP (SLADE, D. J.)—A brief history of the recording group together with a selection of newsletters and a request for records from VC41.



Fig. 6. *Nycteola asiatica*, Kilnsea, S.E. Yorks., 2002. H. E. Beaumont.



Fig. 7. *Omphaloscelis lunosa*, Dungeness, Kent, 2002, S. P. Clancy.

HALL, N. M.—A dark example of *Lithophane hepatica* (Cl.), Earley Lake, Berks., 9.viii.2002. *Archana sparganii* (Esp.), Hastings Country Park, E. Sussex, 28.viii.2000, an adult found floating on a leaf in a small pond.

HALSEY, J.—Immigrant moths taken at Bonchurch, Isle of Wight, in 2001 and 2002: *Catocala fraxini* (L.), 20.ix.2001 and 25.ix.2001; *Trichoplusia ni* (Hb.), 6.viii.2002; *Hyles livornica* (Esp.), 28.iii.2002; *Trigoniophora flammula* (Esp.), 10.x.2002; *Trisateles euortualis* (D. & S.), 19.vi.2002 and *Uresiphita polygonalis* (D. & S.), 21.x.2001.

HARMAN, T. W.—Aberrations and local forms of moths: *Eumouios quercicaria* (Hufn.), "Chilterns", 2002; *Spilosoma lubricipedata*, Truro, Cornwall [vice-county not stated], 26.vi.2001, and Turville Heath, Bucks., 8.vi.2002 (Fig. 9); *Couistra rubiginea* (D. & S.), Turville Heath, Bucks., 2.iv.2002; *Colocasia coryli* (L.) ab. *metauotia* Haver, Turville Heath, Bucks., 24.iv.2002; and *Perizoma alchemillata* (L.), Turville Heath, Bucks., 24.vii.2002.

HART, C.—An example of *Xestia rhomboides* (Esp.), Devil's Dyke, Poynings, W. Sussex, 3.viii.2002. Immigrant moths: *Heliothis armigera* (Hb.), Mullion, W. Cornwall, 18.ix.2002; and *H. peltigera* (D. & S.), Buckland, Surrey, 18.vi.2002.

HAYWARD, R.—Immigrant moths from Slough, Bucks.: *Rhodometra sacraria* (L.), 2.ix.2002; *Heliothis peltigera* (D. & S.), 20.vi.2002. Moths from Two Bridges, S. Devon, including: *Scopula teruata* (Schr.), 15.vii.2002; *Eupithecia fraxinata* Crewe, 16.vii.2002; and *Lacanobia contigua* (D. & S.). Moths from Slough, Bucks., including: *Furcula bifida* (Brahm), 3.vi.2002; *Eilema griseola* (Hb.), 30.vii.2002 and 6.viii.2002; *Mythimna straminea* (Treits.), 27.vii.2002; and *Xanthia gilvago* (D. & S.), 30.ix.2002.

HENWOOD, B.—Photographs of overwintering, penultimate and final instar larvae of *Bena bicolorana* (Fuess.) showing crypsis varying according to the state of an oak tree. An example of *Hyles livornica* (Esp.), Dawlish Warren, S. Devon, 27.vi.2002. *Photodes morrisii* (Dale), Culverhole Point, S. Devon, 26.vi.2002.

HONEY, M. R.—A specimen of *Catocala nyctophiloga* (Esp.) taken at a light trap in the garden of Buckingham Palace, Middx., 5.ix.2002. A selection of moths from the Wetland Centre, Barnes, Surrey, including: *Seuiaspilates ochrearia* (Rossi); *Lacanobia suasa* (D. & S.); *Mythimna straminea* (Treits.); *M. obsoleta* (Hb.); *Apamea maimaiensis* (Hb.); *Celaena leucostigma* (Hb.); *Archana genuinipuncta* (Haw.); *A. dissoluta* (Treit.); *A. sparganii* (Esp.); *Rhizedra lutosa* (Hb.); and *Chilodes maritiimus* (Tausch.).

KNILL-JONES, S.—Moths from Freshwater, Isle of Wight, including: *Schrankia costaestrigalis* (Steph.), 6.vi.2002; *Eupithecia nullefoliata* (Rössl.), 28.vii.2002;

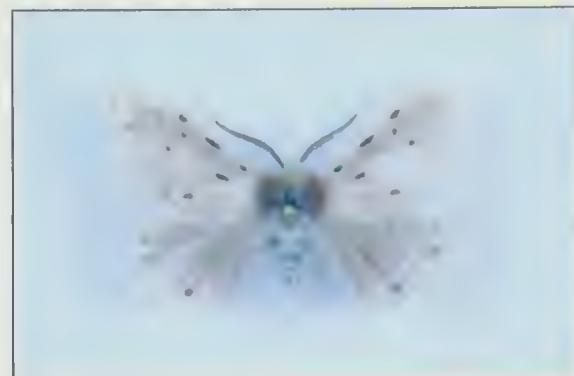


Fig. 8. *Diaphora mendica*, Faringdon, Berks., 2002, M. F. V. Corley.



Fig. 9. *Spilosoma lubricipedata*, Turville Heath, Bucks., 2002, T. W. Harman.

Orthonama obstipata (Fabr.), 6.vi and 22.vii.2002; and *Heliothis armigera* (Hb.), 29.x.2002.

KOLAJ, A.—Moths from Scotland, 2001–2002, including: *Hyppa rectilinea* (Esp.), mainly at light; *Xestia alpicola alpina* (Humph. & West.), reared from pupae; *Anarta melanopa* (Thunb.); and *Itame brunneata* (Thunb.).

LANGMAID, J. R.—An example of *Cryphia algae* (Fabr.), Southsea, S. Hants, 26.viii.2002.

MCCORMICK, R. F.—Interesting moths from Devon, 2002, including: *Cymatophorina diluta hartwiegii* (Reiss.), Boro Wood, Ashburton, S. Devon, 11.ix.2002; *Eupithecia phoeniceolata* (Haw.), Hembury Woods, Buckfastleigh, S. Devon, 22.vi.2002 (B. Henwood & B. Bewsher leg.); *Abraxas sylvata* (Scop.), Holcombe, S. Devon, 26.vii.2002; *Leucoma salicis* (L.), Countess Wear, Exeter, S. Devon, 25.vii.2002 (P. Butter leg.); *Lithosia quadra* (L.), Hembury Woods, Buckfastleigh, S. Devon, 27.vii.2002 (B. Bewsher leg.); *Aporophyla lutulenta* (D. & S.), Countess Wear, Exeter, S. Devon, 27.ix.2002 (P. Butter leg.); *Xanthia citrago* (L.), Countess Wear, Exeter, S. Devon, 1.x.2002 (P. Butter leg.); *Dypterygia scabriuscula* (L.), Buckland Brewer, Bideford, N. Devon, vii.2002 (S. Hatch leg.); and *Schrankia taenialis* (Hb.), Boro Wood, Ashburton, S. Devon, 3.viii.2002, and Shaugh Wood, Plymouth, S. Devon, 15.vii.2002 (P. Butter leg.).

NASH, S.—Immigrant moths from Durlston Head, Swanage, Dorset: *Orthonama obstipata* (Fabr.); *Acherontia atropos* (L.), 20.x.2002; *Hippotion celerio* (L.), 31.x.2002; *Euplagia quadripunctaria* (Poda), 13.viii.2002; *Trichoplusia ni* (Hb.), 3.ix.2002; *Mythimna albipuncta* (D. & S.); *M. vitellina* (Hb.); and *M. unipuncta* (Hb.). Immigrant moths from Coverack, W. Cornwall: *Rhodometra sacraria* (L.); *Orthonama obstipata* (Fabr.); *Mythimna vitellina* (Hb.); *M. unipuncta* (Hb.); and *Ochropleura leucogaster* (Frey.), 12.x.2002. Moths from Fernham, Berks., including: *Idaea rusticata* (D. & S.), 28.vii.2002; *Colostygia multistrigaria* (Haw.), 18.iii.2002; and *Eupithecia egenaria* (H.-S.), 7.vi.2002.

PARSONS, M. S.—An aberration of *Xanthorhoe fluctuata* (L.), Shaggs, Dorset, 22.viii.2002.

PHILLIPS, J. W.—A selection of moths reared or caught during the year, including: *Deltote bankiana* (Fabr.), Wiken Fen, Cambs.; *Charissa obscurata* (D. & S.), Portland, Dorset; and *Spilosoma urticae* (Esp.), Romney Marsh, E. Kent. *Hyles livornica* (Esp.), Hayling Island, S. Hants., 7.viii.2002 (J. Durnell leg.).

PICKLES, A. J.—On behalf of A. Butterworth, an adventive example of *Chrysodeixis acuta* (Walk.) which emerged from a bunch of erysanthemums bought in Brookenhurst, S. Hants.

ROUSE, T.—A selection of aberrant moths, including *Idaea aversata* (L.), Densole, E. Kent, 28.vii.2002 (Fig. 10).

SOFTLY, R. A.—A poster illustrating the recent histories of *Hecatera dysodea* (D. & S.) and *Polynixis flavicincta* (D. & S.) in the London area.

TREMEWAN, W. G.—A melanic aberration of *Idaea aversata* (L.), Playing Place, Truro, W. Cornwall, 29.vii.2002 (Fig. 11).

WEDD, D.—Moths taken or reared in 2001/02: *Coenocalpe lapidata* (Hb.); *Xestia alpicola alpina* (Humph. & Westw.); *Coenophila subrosea* (Steph.); and *Sabra harpagula* (Esp.). Moths from Henley-on-Thames, Oxon, including *Discoloxia blomeri* (Curt.); and, at a pheromone lure, *Bembezia ichneumoniformis* (D. & S.). From the Channel Islands: *Catocala electa* (View.), eight specimens seen between 21.viii and 11.ix.2002; *Scotopteryx peribolata* (Hb.), common amongst gorse; and *Trachea atriplicis* (L.).



Fig. 10. *Idaea aversata*, Densole, E. Kent, 2002, T. Rouse.



Fig. 11. *Idaea aversata*, Truro, W. Cornwall, 2002, W. G. Tremewan.

WEDD, D. and LONG, R.—Species recently discovered, or of uncertain identification from Jersey, Channel Islands, including *Pseudoterpuia coronillaria* (Hb.).

WINTER, P. Q.—Examples of *Catocala fraxini* (L.) bred from a female captured at Muston, S.E. Yorks., 19.ix.2001.

WOOLDRIDGE, D. B.—Moths from Freshwater, Isle of Wight: *Mythimna litoralis* (Curt.), 16.vii.2002; and *Cyclophora pupillaria* (Hb.), 4.ix.2002.

YOUNG, D.—Moths with a wetland theme from Woolhampton, Berks.: *Callinopha dominula* (L.); *Hydraecia petasitis* Double.; and *Diachrysia chryson* (Esp.). Aberrations of moths, including: *Agriopsis marginaria* (Fab.), Tunstall, E. Suffolk, 4.iii.2002; and *Atethmia centrago* (Haw.), Saxmundham, E. Suffolk, 8.ix.2002.

YOUNG, M. R.—Aberrations of moths: *Xanthorhoe fluctuata* (L.), Malham Tarn, Mid-west York, 12.vi.2002; *Perizoma didymata* (L.), Ordiquihill, Banff, 20.viii.2002.; *Lomaspilis marginata* (L.), Dingle, N. Kerry, 19.vii.2002; and *Xestia triangulum* (Hufn.), Oldmeldrum, N. Aberdeen, 2.viii.2002 (Fig. 12).



BRITISH MICROLEPIDOPTERA

AGASSIZ, D. J. L.—*Borkhausenia minima* (L.), Northfleet, Kent, 17.vi.2002. Considered extinct in Britain since 1966, it occurred commonly at nearby Greenhithe and Swanscombe in the 1880s and 1890s. *Vitula biviella* (Zell.), Northfleet, Kent, 16.vii.2002, new to VC16.

BEAUMONT, H. E.—*Caloptilia populetorum* (Zell.), Elveden Forest, West Suffolk (VC26), 13.vii.2002. No VC26 record is shown on map 104 in MBGBI vol. 2. *Argyresthia ivella* (Haw.), Stainton Little Wood, Doncaster, S.W. Yorks. (VC63), disturbed from hazel 10.vii.2002. Only the second recent Yorkshire record and the first from VC63 since 1915. *Isophriictis striatella* (D. & S.), West Melton, Rotherham, S.W. Yorks. (VC63), 30.vii.2002. The first Yorkshire record came from the Doncaster area in 2000, this represents the second county locality. *Scythris inspersella* (Hb.), Allerthorpe Common, Pocklington, S.E. Yorks. (VC61),

Fig. 12. *Xestia triangulum*, Old Meldrum, N. Aberdeenshire, M. R. Young.

24.vii.2002. A single specimen, recently identified, was taken at the same locality in 2001. Several were seen in 2002, this moth has otherwise only been recorded in Britain from N. Norfolk. New to Yorkshire. *Olethreutes olivana* (Treits.), Ripon Parks, Ripon, mid W. Yorks. (VC64), 15.vi.2002. There is only one previous record from VC64 and the only other Yorkshire record was from VC62 in the mid nineteenth century. *Eucosma conterminana* (Guen.), West Melton, Rotherham, S.E. Yorks. (VC63), 1.vii.2002. The first VC63 and second Yorkshire record. *Epermenia falciformis* (Haw.), Misson Carr, Notts. (VC56), several to mv light 17.viii.2002. First Nottinghamshire record. *Donacaula nucronellus* (D. & S.), Strensall Common, N.E. Yorks. (VC62), 27.vii.2002. There is only a single previous county record, from the same locality in 1994. *Dioryctria sylvestrella* (Ratz.) Elveden Forest, West Suffolk (VC26), 14.viii.2002. Several moths recorded at mv light, evidently resident.

BLAND, K. P.—Species recently arrived in Edinburgh (VC83): *Caloptilia azaleella* (Brandts), Blackford, one at mv light 1/2.vi.2002 (also one in 2001). *Phyllonorycter leucographiella* (Zell.), Marchmont, reared from mines on *Pyracantha coccinea* collected 12.ii.2002. Imagines emerged 29.iii.2002. *Cacoecimorpha pronubana* (Hübn.), Mayfield, reared from pupae on *Prunus lusitanica* collected 13.v.2002. Imagines emerged 16.v.2002. *Epihyas postvittana* (Walk.), Blackford, one at mv light 1/2.v.2002. Interesting incurvaroid moths taken in 2002: *Adela cuprella* (D. & S.), Drumcroy Hill, Perthshire, male at *Salix aurita* blossom 31.v.2002. This appears to be the first record from Mid-Perthshire (VC88). *Lampronia pubicornis* (Haw.), Inver, Aberdeenshire (VC92) reared from pupa on *Rosa* sp. collected 30.v.2002. Imago emerged 4.vi.2002. Normally a coastal species, so surprising to find it in a Highland glen. This colony was first found in 2001 by Dr. J. R. Langmaid.

CLANCY, S.—*Bisigna procerella* (D. & S.), near Betherston, Kent, two 22.vii.2002. Only known in Britain from two other Kentish localities. *Nascia ciliaris* (Hübn.), Lydd, Kent, 2.vi.2001. Probably the third or fourth county record. *Duponchelia fovealis* Zell., New Romney, Kent, 20.ix.2002. *Loxostege sticticalis* (L.), Dungeness, Kent, 3.viii.2002. *Pinua boisduvaliella* (Guen.), Walmer, Kent, two of several specimens reared from sea-pea pods collected 10.vii.2002. Apparently double brooded at this locality, the first confirmed breeding of this moth in Kent. *Couobathra tumidana* (D. & S.), Littlestone, Kent, 15.viii.2002. *Dioryctria sylvestrella* (Ratz.), Greatstone, Kent, 16.vii.2002 and near Betherston, Kent, 22.vii.2002, the latter probably indicating the presence of a resident population.

CLARKE, J.—*Palpita vitrealis* (Rossi), Lamorna Cove, Cornwall, 31.x.2002.

DOBSON, A. H.—*Aglossa pinguinalis* (L.), Farnham, Surrey (VC17), 27.vii.2002, flying in a hallway of a block of flats. The wingspan measures only 20 mm. compared with a usual wingspan of 30–44 mm. Barry Goater has two continental specimens of similar size so it may be a migrant. *Diaseuiopsis ramburialis* (Dup.), Starcross, Devon (VC3) 3.vi.2002. *Dioryctria sylvestrella* (Ratz.), Tunstall Forest, Suffolk (VC25), 8.viii.2001 & 18.viii.2002.

ELLIOTT, B.—Hampshire: *Laneprouzia fuscatella* (Tengst.), Newton Common, two galls, one of which is atypical in that it does not occur in a fork but in the stem, rather similar to the gall of *Cydia servillana* (Dup.) on *Salix*. *Digitivalva perlepidella* (Staint.), North Hampshire, reared from *Inula couyza*. *Acrolepiopsis assectella* (Zell.), a locally common pest of leeks which appears to be spreading, having reached the outskirts of Southampton. *Trifurcula beiruei* Pupl., Hayling Island, in an area where *Genista tinctoria* grows in quantity. The second British record since 1935. *Aucylis apicella* (D. & S.), Culverley, New Forest, reared from larvae on *Frangula alnus*. *Epinotia pygmaea* (Hübn.), Michedever Forest. From other counties: *Digitivalva pulicariae* (Klim.), Arne, Dorset, reared from *Pulicaria dyseinterica*. *Pancalia*

schwarzella (Fabr.), Balmedie, Aberdeen, specimens which appeared to be associated with *Viola tricolor*. *Epermenia insecurella* (Staint.), Royston, Hertfordshire, very locally common in 2002.

GIBBS, D.—*Ochsenheimeria vacculella* F. v. R., Flaxley Flushes, Gloucestershire 7.vii.2002; *Coleophora frischella* (L.), Batheaston Oxbow Nature Reserve, Somerset 18.vi.2002; *Elachista triseriatella* Staint., Avon Gorge, Bristol, Somerset 6.vii.2002; *Cochylis flaviciliaua* (Westw.), Fahie, The Burren, 27.vii.2002; *Synaphe punctalis* (Fabr.), Binseg Quarry, Dorset 22.vii.2002.

GREEN, D. G.—*Archineuapogon yildizae* Koçak, Tulloch Moor, Speyside, reared ex. bracket fungus *Fomes fouquetarius* collected 15.v.2002. *Ancylis tineana* (Hübn.), Tulloch Bog, Speyside, 15.v.2002.

HALL, N. M.—*Argyresthia trifasciata* Staud., Earley, Reading, Berkshire (VC22) 16 & 18.v.2002, two typical examples and an aberration with an incomplete inner crossline and a line branching at right angles from the middle crossline. Other examples of *trifasciata* were found in another garden, about a mile distant, on 17.v.2002, so although new to Berkshire, it may already be widespread in Reading. *Psychooides verluella* Bruand, Fairlight Glen, Hastings Country Park, Sussex (VC14) 4.vi.2002, reared from *Asplenium scolopendrium*, new to East Sussex and from Streatley, Berkshire (VC22), 12.vi.2002, also reared from *Asplenium scolopendrium*. The foodplant is generally uncommon in Berkshire, however it is so abundant at Streatley that it was surprising to find only one case. New to Berkshire. *Psychooides filicivora* (Meyr.), Earley, Reading, Berkshire (VC22) 3.vi.1990 reared from *Asplenium*; 2.viii.1990 reared from *Dryopteris filix-mas*. New to Berkshire. The earliest attempts to find *verluella* in Berkshire produced *filicivora* instead. It can feed on *Asplenium* in the spring but then must switch to other ferns such as *Dryopteris filix-mas* in the autumn. *Duponchelia fovealis* Zell., Earley, Reading, Berkshire, 14.viii.2002, new to VC22. *Tachystola acroxantha* Meyr., Birmingham (VC38) at window inside house 4.viii.2002, perhaps new to Warwickshire. *Panthea ochsenheimeria* (Lien. & Zell.), Reading, Berkshire 3.iv.2002.

HART, C.—*Heliussia carphodactyla* (Hübn.), Longstone Heritage Centre, Isles of Scilly, Cornwall (VC1), 22.vii.2002 (leg. M. & W. Scott). The date of capture, falling between the two normal broods presumably represents a late spring brood specimen. New to Isles of Scilly and also to Cornwall; Ketton Quarry, Rutland (VC55), 14.ix.2002 (leg. A. Russell, M. Skevington & A. Mackay). Another specimen, from Groby Rifle Range, Leicestershire, 31.viii.2002 caught by A. Mackay was the first from VC55.

HAWKINS, R. D.—Surrey: *Yponomeuta cagnagella* (Hübn.), Chertsey Meads, 7.vii.2002, seven moths on young spindle bush recently planted. *Ypsolopha mucronellus* (Scop.), Park Downs, Banstead, 11.x.2001, among dead grass; *Aublyptilia acauthadactyla* (Hübn.), Colliers Wood, London, 19.vi.2002, flying indoors in heavily built up area with small gardens.

HECKFORD, R. J.—*Euteucha acetosae* (Staint.), near Bolt Tail, South Devon (VC3), leaf of *Rumex acetosa* with several mines 5.x.2002, locally common, new to VC3. *Ischnoscia borreouella* (Millière), Berry Head, Brixham, South Devon (VC3), 28.vii.2002 (with Dr M. R. Young). *Bucculatrix uigricornella* Zell., Invercauld, South Aberdeenshire (VC92) larvac grazing leaves of *Leucanthemum vulgare* 16.v.2002, moth reared 2.vi.2002, new to VC92. *Bryotropha politella* (Staint.), Devil's Elbow, East Perth (VC89) larvac among *Schistidium* sp. 15.v.2002, larva previously unknown. *Dichomeris juviperella* (L.), Rinabaich, South Aberdeenshire (VC92) full grown larvae in thick opaque tubes amongst *Juniperus communis* 11.v.2002, moth reared 3.vi.2002. Larva not previously recorded as overwintering in the British Isles.

Anatrachyutis badia (Hodges), Marsh Mills, Plymouth, South Devon (VC3) larvae found in the calyces of pomegranates (*Punica granatum*) purchased 6 & 30.x and 3 & 13.xi.2001, moths reared 13 & 26.xi and 12.xii.2001. Four moths exhibited from seven specimens reared from two supermarkets in VC3 during 2001–2002. One of the pomegranates definitely, and the rest probably, originated from Spain. The species is a North American one not yet formally on the European list, but the exhibitor is aware of unpublished continental European records. The larva has not previously been recorded from pomegranate and possibly may not have been described. An adventive new to the British Isles. *Aethes piercei* Obr., Glen Lui, South Aberdeenshire (VC92) 3.vi.2001 (with Dr J. R. Langmaid), new to VC92. *Scoparia autibigualis* (Treits.), Hembury Woods, South Devon (VC3), larva amongst *Rhytidiaadelphus loreus* (Hedw.) Warnst. 29.iii.2002, moth reared 24.iv.2002; Trowlesworthy Warren, South Devon (VC3) larvae amongst *Polytrichum commune* Hedw. 5.v.2002, moth reared 15.vi.2002. *Phycitodes maritima* (Tengst.), Bruar, East Perth (VC89) several larvae amongst flower heads of *Senecio jacobaea* 1.ix.2001, moth emerged 23.vi.2002 (confirmed by dissection), new to VC89.

HECKFORD, R. J. & STERLING, P. H.—*Bryotropha galbella* (Zell.), Old Bridge of Dee, Invercauld, South Aberdeenshire (VC92), reared from larva in the moss *Dicranum scoparium* collected by R. J. Heckford on 3.ix.2001, reared by P. H. Sterling, emerged 21.v.2002. Genitalia checked by R. J. Heckford.

HENWOOD, B. P.—*Phyllonorycter strigulatella* (Lien. & Zell.), Parke, Bovey Tracey, South Devon (VC3), reared ex. larvae on *Ailanthus indica* collected x.2002. *Tebeuna uticalis* (Mann), Abbotskerswell, South Devon (VC3), at mv light 16.ix.2002. *Galleria mellouella* (L.), Abbotskerswell, South Devon (VC3), 7.viii.2002. *Euteucha acetosae* (Staint.), Hartland Point, North Devon (VC4), reared ex. larva on *Rumex acetosella* collected 31.viii.2002. *Celypha aurofasciata* (Haw.), Hembury Woods, South Devon (VC3), 21.vi.2002. *Olethreutes arcuella* (Cl.), Hembury Woods, South Devon (VC3), 24.v.2002 resting on bramble leaf in the evening. *Schiffenbaueria graudis* (Desv.), Hembury Woods, South Devon (VC3), 24.v.2002 beaten from *Quercus petraea*.

HONEY, M. R.—*Cameraria ohridella* Desch. & Dimic, Wimbledon Common (VC17) vii.2002 (Fig. 13), reared ex. mines in leaves of *Aesculus hippocastanum* together with larval mines and a map showing the currently known distribution in the south-west London area. New to Britain. *Triaxouasia capriuuligella* (Staint.), Buckingham Palace grounds, London, 27.vi.2002.

KNILL-JONES, S. A.—Microlepidoptera from the Isle of Wight (VC10) including, from Freshwater: *Cydia fuuebraua* (Treits.), 5.vii.2002. *Oxyptilus laetus* (Zell.), 15.vi.2002, new to VC10 and the 13th British specimen. *Argyresthia goedartella* (L.), 7.viii.2002, and from Cranmore, two on 26.vii.2002, only one previous record from the island. *Ovendenia lieuigianus* (Zell.), 17.vii.2002 and recorded commonly at mv light vi–ix.2002, one at Cranmore 29.viii.2002. Cranmore: *Recurvaria leucatella* (Cl.), 26.vii.2002, new to VC10. *Oidaematophorus lithodactyla* (Treits.), 26.vii.2002. The following represent the first recent records from the Isle of Wight: Freshwater: *Ypsolopha sequella* (Cl.), 6.x.2002 (leg. T. Rogers); *Bryotropha terrella*



Fig. 13. *Cameraria ohridella* × 4, Wimbledon Common, Surrey, 2002, M. R. Honey.

(D. & S.), 9.vi.2002; *Clavigesta purdeyi* (Durr.), 6.viii.2002; *Cydia janthina* (Dup.), 22.vii.2002.

LANGMAID, J. R.—*Trifurcula beiruei* Pupl., Hayling Island, Hampshire, flying over *Geuista tiuctoria* 2.ix.2002.

MANNING, D. V.—Buckinghamshire (VC24) 2002 (leg. Peter Hall). *Autispilsa treitschkiella* (F.v R.). *Opostega salaciella* (Treits.), new to VC24. *Argyresthia brockeella* (Hübn.). *Mouphla bradleyi* Reidl.

MCCORMICK, R. F.—Interesting moths from Devon in 2002 (the specimens exhibited were not necessarily the ones on which the records were based): *Coclylis mollicula* Zell., Berry Head, Brixham, one of two at mv light 16.viii.2002. *Pediasia coutanitella* (Hübn.), 6.viii.2002. *Platytes alpiella* (Hübn.), Dawlish Warren, in good numbers at mv light 6.viii.2002. *Eudonaea pallida* (Curt.), Dawlish Warren, at mv light 6.viii.2002. *Diaseuriopsis rautburalis* (Dup.), Crownhill, Plymouth, 20.v.2002 (leg. J. Beswetherick). *Gymnancyla cauella* (D. & S.), Dawlish Warren, larvae abundant on *Salsola kali* 26.viii.2002. Holland Wood, New Forest, Hampshire on 15.vii.2002: *Morophaga choragella* (D. & S.); *Calauotropha paludella* (Hübn.), three at mv light; *Elophila nyuuphaeata* (L.), a specimen with brown forewings.

NASH, S.—Fernham, nr. Faringdon (VC22): *Caloptilia azaeella* (Brandts), 29, 30(2).vii & 7.viii.2002, new to west VC62. *Yponomeuta rorella* (Hübn.), 31.vii & 6.viii.2002. *Acleris rufana* (D. & S.), 26.vii.2002, the first VC22 record in over 100 years. *Ostrinia nubilalis* (Hübn.), 8, 15 & 22.vii.2002. *Diaseuriopsis rautburalis* (Dup.), 6.vi.2002, the second VC22 record. *Palpita vitrealis* (Rossi), 31.x.2002. *Argyresthia trifasciata* Staud., Highworth, nr. Swindon, Wiltshire, five beaten from cultivated juniper 23.v.2002, new to VC7. *Evergestis extuialis* (Scop.), Church Norton, Pagham Harbour, West Sussex, 17.viii.2002. Pednavounder, Coverack, Cornwall: *Diaseuriopsis rautburalis* (Dup.), 1.x.2002. *Palpita vitrealis* (Rossi), 10.x.2002. Durlston Country Park, Swanage, Dorset: *Palpita vitrealis* (Rossi), 31.x.2002. *Couobathra tenuidana* (D. & S.), 3.ix.2002.

PARSONS, M. S.—Dorset (VC9): *Phyllonorycter strigulatella* (L. & Zell.), Lower Walditch, from mines collected 19.xi.2001. *Pseudateualia flavifrontella* (D. & S.), Walditch, 20.v.2002 & 1.vi.2002. *Craubus silvella* (Hübn.), Shaggs, 19.viii.2002; *Evergestis liubata* (L.), Shaggs, 12.viii.2002. *Euzophera bigella* (Zell.), Bridport, larva 29.ix.2001, imago emerged 1.xii.2001 ex. pomegranate. West Sussex (VC14): *Dioryctria sylvestrella* (Ratz.), Rewell Wood, 4.vii.2002. Surrey (VC17): *Cauteraria ohridella* Desch. & Dimic, Wimbledon, reared from mines on *Aesculus hippocastanum* collected 15.vii.2002. Moray (VC95): *Caryocolum juictella* (Dougl.), Abernethy, 3.iv.2002. *Rhyacionia logaea* Durr., Abernethy, 3.iv.2002. Easterness (VC96): *Archineurapogon yildizae* Koçak, Invertromie, reared from larvae collected 6.iv.2002. *Acleris iuaccana* (Treits.), Abernethy, 3.iv.2002. *Acleris logiana* (Cl.), Lynachlaggan, 3.iv.2002.

PATTON, S. J.—*Paysandisia archon* (Burmeister) (Castniidae), Bosham, Chichester, West Sussex flying in the mid afternoon of 13.viii.2002 (leg. B. & D. Stear) (Fig. 14). Originating in South America this species now appears to be established in southern Europe where its larvae are a pest of various palms. First occurrence in the British Isles, whether it is an accidental importation or immigrant is uncertain.

PORTER, J.—A selection of forms of *Acleris cristana* (D. & S.), all from two adjacent Surrey localities between August and October 2002. The sample consisted of approximately 160 moths tapped on warm days from vegetation that was either close to, or of the preferred foodplant, *Pruinus spinosa*. The most frequent form was

cristatana Don. closely followed by *semiustulana* Curt. Good numbers of *cristana* D. & S., *striana* Haw. and *desfontainiana* Fabr. were recorded but many forms stated to be frequent were not seen at all. *Cameraria ohridella* Desch. & Dimic, Wimbledon, Surrey, 14.viii.2002; *Monochroa elongella* Hein., Tilshead, Wiltshire, 17.vii.2002. *Acleris permutana* (Dup.), Dungeness, Kent, 15.vi.2002, reared ex larvae on *Rosa pinipinnifolia*. *Aucylis uppana* (Treits.), Mickleham, Surrey, 29.v.2002. *Eurrhypara hortulata* (L.), Chessington, Surrey, 5.vi.2002, an aberration.

ROUSE, T.—Specimens of *Dioryctria sylvestrella* (Ratz.); the earliest British specimen currently known from Reinden Wood, Kent, 17.viii.1995. The second British record from Samphire Hoe, Kent, 3.viii.1997. Two specimens showing difference in size taken during the BENHS field meeting to Tunstall Forest, West Suffolk 10.viii.2002.

SIMS, I. & LOPEZ-VAAMONDE, C.—An exhibit showing some preliminary results from a DNA analysis of members of the family Psychidae compiled using the 28S ribosomal DNA gene. The results show that *Luffia ferchaultella* (Stephens, 1850) is genetically identical with *L. lapidella* (Goeze, 1783). The two should therefore be synonymised, the name *lapidella* having priority. *Luffia ferchaultella* is a parthenogenetic form of the sexually reproducing *L. lapidella*. The sub-family Taleporiinae appears to be the most ancestral of those studied. Data from other taxa are required to investigate this further.

STERLING, P. H.—*Alabonia geoffrella* (L.), Puddletown, Dorset (VC9), reared from larva in dead stem of *Rubus fruticosus* agg. collected 21.ii.2002, emerged 9.iv.2002. *Bryotropha umbrosella* (Zell.), Stokeford Heaths, Dorset (VC9), reared from larva in the moss *Ceratodon purpureus* collected 17.ii.2001, emerged v.2001. *Dichomeris alacella* (Zell.), Ashurst Wood, New Forest, Hampshire (VC11), at rest on tree trunk 23.vii.2002. *Cosmopterix pulchrinella* Chambers, Petit Bôt, Guernsey, reared from larvae in mines on *Parietaria judaica* collected (with Peter Costen & Rich Austin) on 6.x.2002, emerged 13 & 14.x.2002. *Archips oporana* (L.), Morden, Dorset (VC9), bred ex. ova from female at mv light on 6.vii.2000 by Peter Davey, larvae reared on *Abies grandis*, emerged v.2001. *Acleris lorquiniana* (Dup.), Radipole Lake Nature Reserve, Weymouth, Dorset (VC9), reared from larvae in flowers of *Lythrum salicaria* collected 20.ix.2002, emerged 15.x.2002. *Phaulernis dentella* (Zell.), Fontmell Down, Dorset (VC9), reared from larvae in seeds of *Chaerophyllum temulum* collected 20.vii.2001, emerged 22.v.2002.

WEDD, D.—*Phyllonorycter leucographiella* (Zell.), *Alabonia geoffrella* (L.) and *Pseudosciaphila brauneriana* (L.), moths recorded for the first time at Henley-on-Thames, Oxfordshire during 2001 or 2002. *Epischnia bankesiella* (Hübn.), Guernsey, C.I., 5.ix.2002 (perhaps indicating a second brood).

YOUNG, D.—*Dioryctria sylvestrella* (Ratz.), Tunstall Forest, East Suffolk Over thirty moths recorded during a BENHS field meeting 10/11.viii.2002 following the recording of a few specimens in 2001.



Fig. 14. *Paysandisia archon* × 0.5, Bosham, Chichester, W. Sussex, 2002 leg. B. & D. Stear, S. J. Patton.

YOUNG, M.—*Dichomeris alacella* (Zell.), Doward, Herefordshire 25.vii.2002 (with Dr M. Harper). *Eudouia alpina* (Curt.), Glen More, Strathspey, 19.v.2002 (with N. Littlewood), a low altitude locality.

FOREIGN LEPIDOPTERA

CORLEY, M. F. V.—22 of the 25 species of Pyralinae recorded from Portugal were exhibited. One *Hypotia* species is undescribed but is now known from several West Mediterranean countries as well as Portugal. Apart from *Actenia* species and *Endotricha flamminalis* D. & S. most show little variation, although some are sexually dimorphic. The life histories of many are little known. Those that are known usually have larvae living on dry or dead plant material, which may be still attached to the plant. *Hypotia corticalis* D. & S. is known from seedheads of *Daucus* and from spinnings among dead leaves on the lower parts of *Santolina*. *Aglossa* species feed on dry dung and vegetable detritus. *Syntaphe punctalis* Fabr. feeds on moss.

Newly described, undescribed and misunderstood Depressariidae from the Iberian Peninsula: (i) an undescribed species of *Depressaria* related to *D. discipunctella* H.-S. and *D. veneficella* Zell., found in Albarracin and the Sierra Nevada. (ii) a species of *Depressaria* known from the Algarve and Malaga, which is probably undescribed. Only females are known at present. (iii) *Agonopterix rigidella* Chrét., described from material reared from *Bupleurum rigidum* in the South of France. Recent works have treated it as a junior synonym of *A. fruticosella* Wals., which feeds on the shrubby *Bupleurum fruticosum*. The specimens displayed as *A. ?rigidella* were reared from *Bupleurum rigidum* in the Algarve. They differ from *A. fruticosella* Wals. in size, forewing appearance, female genitalia and in the larvae. The male genitalia of *A. fruticosella* have still to be examined and have not yet been figured in any published work. (iv) *Agonopterix meadesi* Corley and *Depressaria cinderella* Corley, described recently based on Portuguese specimens, reared respectively from *Centaurea sphærocephala* on the west coast of Algarve and from *Couopodium capillifolium* in the Serra de São Mamede in east central Portugal.

HALL, N. M.—Moths from Spain: (i) *Ochropleura flaminata* D. & S., males and females, Puerto de los Blancares, Granada, 11.ix.2002. Fibiger (*Noctuidae Europeae I*) did not discuss sexual differences. Bretherton in MOGBI states 'thorax with prominent collar, in male black, in female suffused grey'—which appears to be wrong as both sexes have black collars. At first sight both sexes appear to have fine antennae, but through a lens one can see that the male's antennae are slightly pectinated and the female's are not. NMH has been unable to obtain fertile eggs from *flaminata* females despite trying for three consecutive years. (ii) *Agrotis sabulosa* Ramb. and *Cerocala scapulosa* Hb., Matalascañas, Huelva, 4.ix.2002. These are two well known local species that occur in Huelva Province. Emergence date ranges of Spanish Lepidoptera are sometimes not well known because there are relatively few Spanish field entomologists—and non-Spaniards working in Spain are often looking for particular species at times when they are already known to occur. Fibiger (*Noctuidae Europeae I*) says that *sabulosa* comes to light in June & July, but this is presumably an error since his illustrations are of specimens caught on 21.ix.1981 and 2.x.1981. Calle (*Noctuidos Españoles*) says that there is one autumnal generation in October. NMH believes that his specimens taken on 4.ix.2002 were about a month earlier than expected. Similarly, Calle states that *scapulosa* occurs in the spring, but it appears to be just as common in the autumn. (iii) *?Agrotis syricola* Berio, Cala Medio Luna, Parque Natural Cabo de Gata, Almeria 8.x.2000. When

collected they looked as though they were a different species from *Agrotis puta* Hb., which was also present. They could be *Agrotis syricola* Berio, which is known from Italy, and can be distinguished from *puta* by the shining white hindwings and reputedly by the markings on the head. (iv) *Anthracia ephialtes* Hb., Barranco de las Aguilas, Parque Natural Cabo de Gata, Almeria, 7.ix.2002, a closely related species to *Amphipyra pyramidea* Linn. (v) *Enxoa abdallahi* Ob., Puerto de los Blancares, Granada, 5.ix.2002. (vi) *Cryphia simulatrix* Guen., Puerto de los Blancares, Granada, 11.ix.2002. (vii) *Agrotis ripae* Hb., Punta Umbría, Huelva, 1.ix.2002. (viii) *Agrotis crassa* Hb., 2 females, Puerto de los Blancares, Granada, 5.ix.2002, with 'spectacular' abdomens. The 'striped' abdomens of *crassa* are one of their most distinctive field characters—but the very sharply defined black and white stripes on these particular specimens were extraordinary. The moths were almost certainly *crassa*, but *crassa* is largely replaced by *Agrotis lata* Treits. as one moves south through Spain—and the females are not so easy to distinguish as the males. (ix) *Autophila cataphanes* Hb., *Autophila dilucida* Hb. & ?*Rheinaptera gudarica* Dufay, Cave at Embalse de la Peña, Zaragoza, 16.ix.2002. These moths were found in an unfinished abandoned tunnel, cut for about 30m into a rock face. Some moths habitually enter tunnels and caves for aestivation or hibernation. NMH usually finds at least ten (total) of the two noctuids *cataphanes* and *dilucida* in this particular tunnel, which he has visited in most months from May to October, but *Rheinaptera* species are found there less often. (x) *Microloxia herbaria* Hb., 1 male, 1 female, Cala Bordonares, Almeria, 8.ix.2002. Hausmann (*Geometrid Moths of Europe I*) describes only one *Microloxia* species for Europe, but in Spain NMH finds two very different forms, which look like different species. This year, both forms were found at the same locality on the same night, but unfortunately they were of different sexes so the genitalia could not be directly compared. (xi) *Crocallis dardoinaria* Donzel, Puerto de los Blancares, Granada, 5.ix.2002. These included some colour forms NMH had not previously encountered. Some females were retained for breeding. (xii) *Coscinia cribraria* Linn., Puerto de los Blancares, Granada, 5.ix.2002 and *Coscinia benderi* Marten, Punta Umbría, Huelva, 31.viii–3.ix.2002 (Fig. 15). Are they the same species? Gomez Bustillo (*Mariposas de la Península Ibérica, Vol IV*, 1979) treated *benderi* as a separate species and said (1) that it occurs only in Huelva province, (2) that the larvae have yellow legs unlike *cribraria* where the legs are black and (3) the larvae feed exclusively on a single *Cistus* species. de Freina & Witt (*die Bombyces und Sphinges der Westpaläarktis*, 1987) treated it as a form of *cribraria*, and Karsholt & Razowski (*The Lepidoptera of Europe*, 1996) listed it as a separate species.

Gomez Bustillo, 1979 says "Recently, the specialist H. de Toulguet, after studying a series of *benderi* of both sexes, and examples of the sympatric *Coscinia cribraria chrysoccephala* Hb., came to the conclusion—as much from the external morphology as from the genitalia of both taxa—that *benderi* can be treated only as a recessive mutation of *C. c. chrysoccephala*, occurring at low density, appearing from year to year in irregular proportion". In Huelva province NMH saw four *benderi* over four nights and no *cribraria*, which is not what he would expect if two uncommon



Fig. 15. *Coscinia benderi* × 1.25, Punta Umbría, Huelva, Spain, 2002. N. M. Hall

recessive genes were needed to produce *beuderi*. However, *beuderi* is clearly either a true species or is in the process of becoming one and the latter possibility is perhaps the more interesting. If a recessive gene is really involved, perhaps the corresponding dominant gene is 'dying out' locally because the recessive gene produces 'fitter' individuals in this special environment, e.g. it might allow the larvae to feed on *Cistus* efficiently.

Many examples are known where the possession of a single recessive gene can confer a local advantage (e.g. the sickle cell gene in man in the presence of malaria), but they are usually well known because the double recessive is lethal. When the double recessive is also locally advantageous, two species could evolve from one without the need for geographical isolation.

Specimens bred from gravid females caught in Spain and the Canary Islands: (i) *Idaea lutulentaria* Stdgr, Puerto de la Mora, Granada. Female collected 13.vii.2001. F₁: 1 on 4.i.-28.iii.2002. (ii) *Idaea carvalhoi* Herb., Puerto de la Mora, Granada. Female collected 12.vii.2001. F₁: 1 on 24.vi.2002. (iii) *Idaea saleri* Dom. & Baix., L'Hospitalet del Infant, Tarragona. Female collected 31.vi.2001. F₁: 2.x.-26.xi.2001. (iv) *Idaea lusohispanica* Herb. Puerto de la Mora, Granada. Female collected 12.vii.2001. F₁: 15.xi.2001-23.ii.2002. (v) *Idaea laevigata* Scop., Oliva Beach Apartments, Fuerteventura. Female collected iv.2002. F₁: 8.vii.-31.vii.2002. (vi) *Idaea deversaria* H.-S., Puerto de la Mora, Granada. Female collected 12.vii.2001. F₁: 11.v.-1.vii.2002. (vii) ?*Idaea lougaria* H.-S. (could be *Idaea abuorma* Pinker), Oliva Beach Apts, Fuerteventura. Female collected iv.2002. F₁: 1.vii.-13.vii.2002. (viii) *Idaea obsoletaria* Ramb., L'Hospitalet del Infant, Tarragona. Female collected 30.vi.2001. F₁: 29.v.-1.vii.2002. (ix) *Idaea infirmaria* Ramb., L'Hospitalet del Infant, Tarragona. Female collected 1.vii.2001. F₁: 2 on 18.x.2001. Female collected 30.vi.2001. F₁: 14.vi.-10.viii.2002. (x) *Scopula guancharia* Alphéraky, Oliva Beach Apts, Fuerteventura. Female collected 27.xi.2001. F₁: 2 on 9.iv.2002.

Paudesia robusta Walk., Oliva Beach Apts, Fuerteventura. Bred. Larva collected iv.2002, emerged 22.v.2002

MARTIN, G.—Some Sphingidae from Las Cuevas Research Station, Chiquibul National Park, Belize. 62 species of Sphingidae were recorded between 25.vi and 8.viii.2002, including three species new to Belize. An 'Umbrella trap' was used instead of the usual sheet and bulb, producing spectacular results. The 'Umbrella trap' consisted of a 2 metre pole hammered firmly into the ground with an open golfing size umbrella on top, attached with brown packing tape. A large net curtain, stapled together to form a tube, was placed over the umbrella with the top of the tube being stapled to the edge of the umbrella. Two mv bulbs were suspended by their wires from the umbrella vanes, making sure that the bulbs were firmly secured and not touching any part of the net curtain or umbrella. The bottom of the net curtain tube was kept taut by placing rocks on it. The tube is effectively sealed and any Lepidoptera attracted remain on the outside of the net curtain. There are several advantages to this method: (i) light bulbs are safe from rain damage; (ii) recorders can walk round the trap rather than having to go behind a sheet and recover specimens; (iii) specimens tend to either stay put on the net curtain or circle it making collection of specimens easy; (iv) the circular design provides 360° illumination of the surrounding forest.

The following species were collected (nomenclature following Kitching & Cadiou (2000), *Haworthia of the world: an annotated and illustrated revisionary checklist*):

Species new to Belize: *Manduca baruesi* Clark, *Stolidoptera tachasara* Druce, *Hyles lineata* Fabr. Others: *Protaubulix eurycles* H.-S., *P. strigilis* Linn., *Aethioparius*

gaunascus Stoll, *A. ypsilon* Roths. & Jord., *Manduca albiplaga* Walk., *M. dilucida* Edwards, *M. florestan* Cramer, *M. hannibal* Cramer, *M. lanuginosa* Edw., *M. lefeburii* Guerin-Ménèville, *M. muscosa* Roths. & Jord., *M. occulta* Roths. & Jord., *M. rustica* Fabr., *M. schansi* Clark, *Neococytius cluentins* Cramer, *Cocytius duponchel* Poey, *C. lucifer* Roths. & Jord., *Cantethia spuria* Boisd., *Pachygonidia ficus* Linn., *P. syces* Hb., *Enyo gorgon* Cramer, *E. ocypete* Linn., *Aleuron chloropterum* Perty, *Callionima falcifera* Gehlen, *C. nomius* Walk., *C. parce* Fabr., *Madoryx bubastus* Cramer, *M. oiclus* Cramer, *M. phitonius* Fabr., *Pachylloides resumens* Walk., *Hemeroplanes triptolemus* Cramer, *Nyceryx riscus* Schaus, *Perigonia ilus* Boisd., *P. lusca* Fabr., *Pseudosphinx tetrio* Linn., *Isognathus riuosa* Grote, *Erimyis cranieri* Schaus, *E. ello* Linn., *E. obscura* Fabr., *E. oenotrus* Cramer, *E. yucatana* Druce, *Euminorpha ancheniulus* Cramer, *E. labruscae* Linn., *E. satellitia* Linn., *E. triangulum* Roths. & Jord., *E. vitis* Linn., *Xylophanes anubis* Cramer, *X. belti* Druce, *X. ceratoniooides* Grote & Robinson, *X. chiron* Drury, *X. cyrene* Druce, *X. libya* Druce, *X. neoptolemus* Cramer, *X. pluto* Fabr., *X. porcus* Hb., *X. thyelia* Linn., *X. titania* Druce, *X. turbata* Edw., *X. tyndarus* Boisd.

MASTERS, I. D.—Moths from the Dominican Republic, 3–13.viii.2002.

The Dominican Republic shares the island of Hispaniola in the Greater Antilles with the Republic of Haiti. All specimens are from the southeastern coastal location of El Cortecito, a district of Bavaro, Punta Cana in La Altagracia Province. The following species, all taken at light, had been identified: Sphingidae: *Manduca sexta januaicensis* Butl., 11.viii.2002; *Eumorpha vitis* Linn., 13.viii.2002; *Pachylloides resumens* Walk., 11.viii.2002; *Erimyis ello* Linn. (male and female), 11.viii.2002; *Xylophanes pluto* Fabr., 12.viii.2002; *Perigonia lusca* Fabr., 12.viii.2002; *Perigonia uanni* Clark, 12.viii.2002. Noctuidae: *Ascalapha odorata* Linn. (male and female), 11.viii.2002. Pyralidae: *Palpita vitrealis* Rossi, 12.viii.2002.

PICKLES, A. J.—Some Lepidoptera from Iceland.

From 20–28.vii.2002 AJP was privileged to take part in a trek in Iceland on behalf of Macmillan Cancer Research. The party trekked from Mount Hekla south to the Thórsmörk Valley and Gigjökull Glacier via Landmannahellir, Landmannalaugar and the Markarfljót Canyon. Because of the nature of the trek, AJP was only able to take a few boxes and tubes and had no opportunity to deviate from the route, and the weather was bad for much of the time. As a result very few Lepidoptera were encountered. Five species were displayed: (i) *Eana osseana* Scop. was seen at Mount Hekla, at the hot springs at Landmannalaugar, and flying in rain at Thórsmörk. (ii) *Pyla fusca* Haw. This species was abundant in several barren areas where it rested on the black volcanic ground in much the same way as it rests on burned ground in, for example, the New Forest. (iii) *Stenoptilia islandicus* Stdgr. recorded from the lower slopes of Mount Hekla in an area of barren volcanic lava overlaid with dust from the recent eruption in 2000. There were very few colonising plants and AJP was not able to determine which saxifrage it was associated with. The species is reportedly common around hot springs but none was found at the hot pools at Landmannalaugar. (iv) *Xanthorhoe decoloraria* Esp. = *nunitata* Hb. ssp. *arcticaria* Keferstein. About thirty specimens were encountered along a river bank at Landmannahellir—all at rest or making sporadic short flights around 23.00 h. A wide range of variation was exhibited, which seemed marginally different from that encountered in Scotland. Wolff (1971) does not believe the population justifies subspecific status. Scottish and Lakeland specimens of the nominate subspecies were shown for comparison. (v) *Apamea zeta* Treits. ssp. *exulis* Lefeb. This was the only noctuid caught and was flying to isolated *Silene* plants in a rocky defile of the Hrafntinnusker Valley at 13.00 h.

There was no darkness at this time of year and only four other noctuids were seen, all flying very high in the period around midnight. Wine ropes were improvised on one occasion but nothing was attracted.

PLANT, C. W.—(1) Some macromoths recorded at light from mountains in southwest Bulgaria, 22–27.v.2002 by Colin Plant, Duncan Fraser and Lance Gorman. A detailed account of the trip is being prepared for publication in the *Entomologist's Record & Journal of Variation*. The following species were recorded (nomenclature follows the 1996 *European Checklist* by Karsholt & Razowski): Sesiidae: *Chamaesphecia hungarica* Tomala. Cossidae: *Parahypopta caestrum* Hb., *Dyspessa salicicola* Eversm., *Dyspessa ulula* Borkh. Pyralidae: *Synaphe moldavica* Esp., *Synaphe antennalis* Fabr., *Pempelia pahunbella* D. & S., *Ancyllosis cinnamomella* Dup., *Xanthocrambus saxonellus* Zinek., *Chrysocranus craterella* Scop., *Thisanotia chrysoneuchella* Scop., *Evergestis frumentalis* Linn. ssp. *asiatica* Rag., *Evergestis aenealis* D. & S., *Loxostege virescalis* Guen., *Loxostege deliblatica* Szent-Ivány & Uhrik-Meszáros = *huebneri* Koçak, *Ecpyrorrhoe rubiginalis* Hb., *Pyrausta sanguinalis* Linn., *Pyrausta castalis* Treit. Lasiocampidae: *Odonestis pruni* Linn. Sphingidae: *Marumba quercus* D. & S., *Rhetera komarovi* Christ. ssp. *drilon* Rebel & Zerny (Fig. 16), 6858 *Hyles vespertilio* Esp., Geometridae: *Stegania trimaculata* Vill., *Stegania dilectaria* Hb., *Heliothis glarearia* D. & S., *Tephritis murinaria* D. & S., *Neognopharmia stevenaria* Boisd., *Eilicrinia cordaria* Hb., *Nychiodes dahuratina* Wagner, *Synopsia sociaria* D. & S., *Peribatodes nubraria* Hb., *Epiphanthis diversata* D. & S., *Autonechloris smaragdaria* Fabr., *Chlorissa etruscaria* Zell., *Microloxia herbaria* Hb., *Idaea ostrinaria* Hb., *Horisme corticata* Treits., Notodontidae: *Rhegmatophila alpina* Bellier ssp. *osmana* Friedel, *Harpyia milhauseri* Fabr., *Spatialia argentiua* D. & S. Noctuidae: *Acronicta orientalis* Mann, *Idia calvaria* D. & S., *Mimucia lnnaris* Bartel, *Dysgouia algira* Linn., *Prodotis stolida* Fabr., *Drasteria cailino* Lefèb., *Lygephila craccae* D. & S., *Catephia alchymista* D. & S., *Aedia leucomelas* Linn., *Gonospileia triquetra* D. & S., *Zethes insularis* Ramb., *Schinia scutosa* D. & S., *Apanstis rupicola* D. & S., *Pseudoxestia apfelbecki* Rebèl, *Actinotia radiosa* Esp., *Dicycla oo* Linn., *Cosmia confinis* H.-S., *Lithophane nuerckii* Ramb., *Hecatera cappa* Hb., *Hadena magnolii* Boisd., *Sideridis*

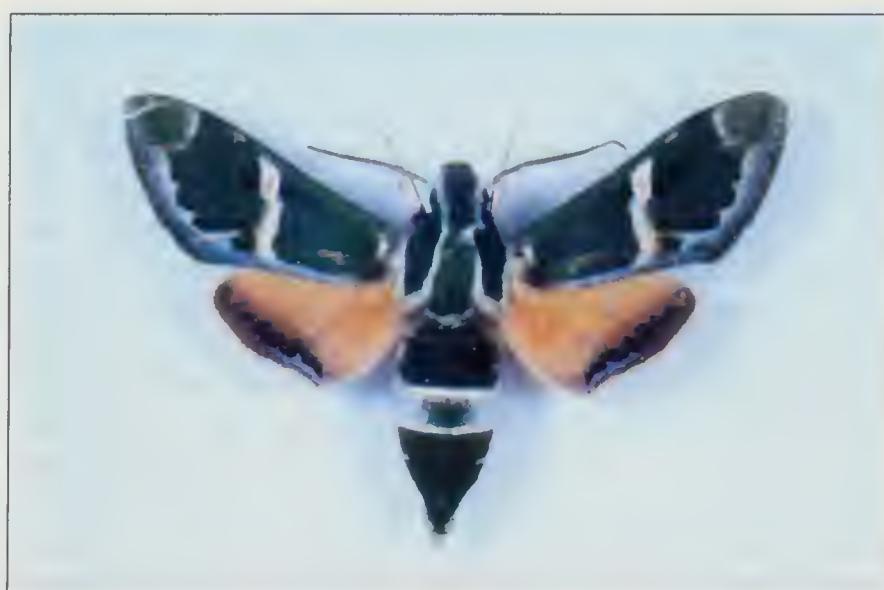


Fig. 16. *Rhetera komarovi* ssp. *drilon*. Struma Valley, Bulgaria, 2002, C. W. Plant

lampra Schaw., *Mythimna andeleggii* Boisd., ssp. *pseudoconima* Rebel, *Pachetra sagittigera* Hufn. Lymantriidae: *Parocneria terebinthi* Freyer. Nolidae: *Meganola gigantula* Stdgr, *Earias vernana* Fabr. Arctiidae: *Setina roscida* D. & S., *Amata phegea* Linn., *Amata kruegeri* Ragusa (Fig. 17), *Watsonarctia casta* Esp. = *deserta* Bartel.

(2) The three European 'Lesser Broad-bordered Yellow Underwings'.

(i) The British 'Lesser Broad-bordered Yellow Underwing' is correctly known as *Noctua janthe* (Borkhausen) and occurs widely and commonly in western and central Europe including southern Scandinavia, but is absent from the former Soviet states in the east and from the Balkan Peninsula. (ii) Langmaid's Yellow Underwing, *Noctua janthina* (D. & S.) has occurred only once in Britain, in Hampshire, and is generally restricted to southern and eastern Europe, occurring only in Spain, southern France and Italy in the west. It replaces *janthe* in the Balkans. (iii) *Noctua tertia* von Mentzer, Moberg & Fibiger was not recognised as a separate species until 1991. It is an overlooked species of Mediterranean-Asiatic origin, known from Greece, Macedonia and Bulgaria in Europe and only from Turkey and Iran outside.

CWP exhibited a series of *N. janthe* alongside a series of *N. janthina*, all from the Department of Tarn in south-west France viii.2002, and a single female *N. tertia* from the Macedonian border area of Bulgaria v.2002.

N. tertia was strikingly larger than the other two species and the French *N. janthina* were distinctly smaller than both the other species, though this was an autumn generation and the example of *tertia* was collected in the spring. The examples of *N. janthina* were far less striking than the Hampshire specimen, the origin of which is unknown, and it was for this reason that these examples had been exhibited.

Separation of set specimens: in *janthina* the black band on the upper surface of the hindwing reaches the edge of the wing at the apex, whereas in both *janthe* and *tertia* the border of the hindwing on the upper surface is entirely yellow. In specimens with wings set well forwards, the hindwing costa (upperside) is always black in *janthina* and *tertia*, but is always at least partially yellow in *janthe*; this is a character that simply cannot be seen if the forewings overlap the hindwings and should be noted during setting. The black area of the underside of the forewing contrasts strongly with the paler areas in *janthe* and *tertia*, but in *janthina* the pale area is less clearly separated or totally obscured. In both *tertia* and *janthina*, the black extends beyond the sub-terminal line and is diffuse on the outer edge; in *janthe* the black ends abruptly at the sub-terminal line usually as a series of small 'fingers'.

Recognition of *janthina* should not present any problem; separation of *tertia* and *janthe* in areas where they may overlap in range is likely to be more of a problem. The genitalia have few distinguishing features of use.

Field recognition: in flight around a moth trap *N. janthina* is distinguishable from *N. janthe* extremely easily since the hindwings appear as black with a yellow spot whilst those of *janthe* appear bright yellow with a black border. Once seen, this difference is very obvious. At a vertical sheet in the south-west of France during August 2002, *N. janthina* settled fairly rapidly and was reluctant to fly again, whereas



Fig. 17. *Amata kruegeri*. Kozhnh. Bulgaria, 2002, C. W. Plant

N. jaunthe fluttered and bashed about for ages before settling and readily took off again if the sheet was accidentally knocked. No field observations were made on the single example of *N. tertia*.

(3) The European 'Spectacle' Moths: *Abrostola* spp.: there are four species of the noctuid genus *Abrostola* in Europe, though only two are currently known from Britain. As species extend their ranges as a consequence of planetary climate change the possibility of other European species occurring in Britain should not be overlooked. The four European species were presented for comparison, together with illustrations of the male genitalia. The characters of the clavus and associated region of the valvae can be seen very easily with a hand lens if specimens have the genitalia splayed during setting. The characters of the aedeagus are very distinct and should be used for problem specimens. To avoid confusion between the two current British species, whose names have been interchanged several times, the English name was also given: (i) *Abrostola tripartita* (Hufn.), the Spectacle or Light Spectacle, occurs commonly across all of Europe. (ii) *A. triplasia* (Linn.), the Dark Spectacle, occurs commonly across all of Europe. (iii) *A. agorista* Dufay is principally found in eastern Europe and the Balkan Peninsula (Italy, Czech Republic, Slovakia, Hungary, former Yugoslavia, Rumania, Bulgaria, Macedonia and Greece), but is also recorded from France. (iv) *A. asclepiadis* (D. & S.) occurs commonly across all of Europe, including France, Belgium and Germany as well as Denmark, Norway, Sweden and Finland, but not yet in Britain, Ireland, Holland or Luxembourg. Surely a candidate for arrival in Britain in due course?

DIPTERA

ALBERTINI, M. V.—*Ctenophora ornata* Meig. (Tipulidae) (Fig. 18) found at Langley Park (TQ0082), near Slough, Bucks, VC 24. Langley Park contains many old oak trees and this RDB1 saproxylic crane fly turned up on one of the moth sheets during an unsuccessful search for the Heart moth. This is the first record for Bucks, but Windsor Forest is a known site for the species and here it also turned up at mercury vapour lamps during a Heart moth survey.

CHANDLER, P. J.—Galls and larvae of *Agathomyia wankowiczii* (Schnabl) (Platypezidae): a galled bracket of the fungus *Ganoderma applanatum* and photographs of such brackets *in situ* on a dead poplar *Populus nigra* trunk at Bressingham, Norfolk, 9.x.2002. This year's galls were present on the new pore surface, which had not completely covered the vacated galls on last year's pore surface. Also exhibited were some larvae that had emerged from this bracket and a Danish specimen of the adult fly. The Norfolk site was visited en route to the Dipterists Forum autumn field meeting, following a report of its presence there in February 2002 during a bryological field meeting. The galled brackets were present on both the standing and fallen parts of a trunk that had snapped off at about 2m from the ground during the 1987 gale. The standing trunk had live brackets with this



Fig. 18. *Ctenophora ornata* Langley Park, Slough, Bucks, M. Albertini.

year's galls on the lower part, the galls being apparent on the fresh white pore surface; the upper part bore old dead brackets, all covered by vacated galls. The fallen part of the trunk also bore brackets covered with fresh galls. Each gall contains one larva, which leaves through an exit hole to pupate in the soil.

It is new to East Anglia but is now widespread in Kent and known from sites in Surrey, Sussex, Berkshire, Middlesex and one in Cheshire, having first been recorded in Britain at Wisley in 1990 by Brian Spooner. It may have arrived from the continent in the 1980s. A male and female from Stanmore Common, Middlesex exhibited in 2000 by John Dobson are still the only adult flies found in Britain. The perennial brackets of this fungus are conspicuous on dead wood of many trees and since the galls are also conspicuous it should be easy to record any further spread. The Norfolk occurrence may represent a separate introduction of the species to this country to that in the south east.

DICKSON, R.—Two species of Syrphidae collected in 2002: *Callicera aurata* Rossi, Common Meadow (SU5810), S. Hants, VC 11, 28.vii, sunning itself on low herbage in a small area of unimproved herb-rich wet pasture but likely to have developed in a rot hole in the adjacent broad-leaved copse; *Xanthandrus couutus* (Harris), Swanwick Nature Reserve (SU5010), S. Hants, VC 11, 11.vi, at *Rosa* flowers—this species was found in reasonable numbers and on several dates, mostly at *Rosa* blossom.

GIBBS, D. J.—Miscellaneous Diptera collected in 2002: *Ctenophora pectinicornis* (L.) (Tipulidae), Shortwood, Gloucs, VC 33 (SO8308), 12.vi; *Gonouyyia couoviensis* Barnes (Limoniidae), Culverhole Point, Devon, VC 3 (SY2789), 16.vii; *Leptomyopiphilus walkeri* Curtis (Mycetophilidae), Lancaunt Nature Reserve, Gloucs, VC 34 (ST5496), 5.ix; *Atrichops crassipes* (Meig.) (Athericidae), Lord's Wood, Somerset, VC 6 (ST6363), 1.viii; *Oxycera terminata* Meig. (Stratiomyidae), Lord's Wood, Somerset, VC 6 (ST6363), 25.vi; *Orthoceratium lacustre* (Scop.) (Dolichopodidae), Lancaunt Nature Reserve, Gloucs, VC 34 (ST5496), 5.ix; *Rhaphium nicanus* (Meig.) (Dolichopodidae), Binnegar Quarry, Dorset, VC 9 (SY8788), 21.vii; *Callicera aurata* (Rossi) (Syrphidae), Shortwood, Gloucs, VC 33 (SO8308), 27.vi; *Rhingia rostrata* (L.) (Syrphidae), Lancaunt Nature Reserve, Gloucs, VC 34 (ST5396), 5.ix and Scotland Bank, Woodchester Park, Gloucs, VC 34 (SO8300), 2.viii; *Xylota florum* (F.) (Syrphidae), Lord's Wood, Somerset, VC 6 (ST6363), 25.vi; *Herina oscillans* (Meig.) (Ulidiidae), Culverhole Point, Devon, VC 3 (SY2789), 5.vii; *Urophora cuspidata* (Meig.) (Tephritidae), Watts Berkshire, Buckinghamshire and Oxfordshire Wildlife Trust (BBOWT) Reserve (White Shute), Berks, VC 22 (SU3377), 11.vii; *Dicraeus scibilis* Collin (Chloropidae), Max Bog, Somerset, VC 6 (ST4057), 24.vi; *Botanophila lobata* (Collin) (Anthomyiidae), Max Bog, Somerset, VC 6 (ST4057), 1.vi; *Eustalouyyia hilaris* (Fall.) (Anthomyiidae), Inkpen Common, Berks, VC 22 (SU3864), 28.vi; *Metopia staegerii* Rond. (Sarcophagidae), Binnegar Quarry, Dorset, VC 9 (SY8887), 15.vi; *Cylindromyia brassicaria* (F.) (Tachinidae), Binnegar Quarry, Dorset, VC 9 (SY8887), 22.vii; *Chrysosomopsis aurata* (Fall.) (Tachinidae) (Fig. 19), Scotland Bank, Woodchester Park, Gloucs, VC 34 (SO8300), second British record, 2.viii; *Paracraspedothrix montrivaga* Villeneuve (Tachinidae), Watts BBOWT Reserve (White Shute), Berks, VC 22 (SU3377), 11.vii.



Fig. 19. *Chrysosomopsis aurata* × 2, Woodchester Park, Gloucs, 2002, D. J. Gibbs.

HALSTEAD, A. J.—Some scarce or local Diptera collected in 2002: *Solva marginata* (Meig.) (Xylomyidae), Thorpe Hay Meadow, near Thorpe, Surrey (TQ030701), swept, 10.viii; *Neopachygaster meronelas* (Dufour) (Stratiomyidae), RHS Garden, Wisley, Surrey (TQ063591), riverbank wildlife area, swept, 26.vii; *Odontomyia tigrina* (F.) (Stratiomyidae), Papercourt Marshes, near Ripley, Surrey (TQ034562), swept, 8.vi; *Stratiomys potanida* Meig. (Stratiomyidae), Margy Pond, West End Common, near Esher, Surrey (TQ126637), swept, 21.vii; *Medetera griseascens* Meig. (Dolichopodidae), RHS Garden, Wisley, Surrey (TQ064580), in heated glasshouse, 14.ii, new to Britain, determined by C. E. Dye; *Neoascia interrupta* (Meig.) (Syrphidae), Papercourt Marshes, near Ripley, Surrey (TQ034562), swept, 16.vi; *Platycheirus occultus* Goedlin (Syrphidae), Papercourt Marshes, near Ripley, Surrey (TQ034562), swept, 16.vi; *Sphaerophoria rueppellii* (Wied.) (Syrphidae), Papercourt Marshes, near Ripley, Surrey (TQ034562), swept, 12.v; *Myopa strandi* Duda (Conopidae), Papercourt Marshes, near Ripley, Surrey (TQ034562), swept, 27.iv; *Melieria omissa* (Meig.) (Ulidiidae), Papercourt Marshes, near Ripley, Surrey (TQ034562), swept, 29.vi; *Acinia corniculata* (Zett.) (Tephritidae), Thorpe Hay Meadow, near Thorpe, Surrey (TQ030701), swept, female 28.vii and male 10.viii; *Enphranta toxonemra* (Wied.), (Tephritidae), Papercourt Marshes, near Ripley, Surrey (TQ034562), swept, 12.v; *Ceratitis capitata* (Wied.) (Tephritidae), reared from larvae in fruit of apple imported from Portugal, emerged 14.viii; *Crataerina pallida* (Latr.) (Hippoboscidae), Wallington, Surrey (TQ296640), on Mrs J. Spenceley, 24.vi; *Gymnosoma rotundatum* (L.) (Tachinidae), RHS Garden, Wisley, Surrey (TQ063580), in poly tunnel, 5.viii.

HAWKINS, R. D.—Some flies from Surrey (VC 17) collected in 2002. From Ashtead Common: *Rhingia rostrata* (L.) (Syrphidae), 13.vi at flowers of *Iris pseudacorus*; *Chrysotoxum verralli* Collin (Syrphidae), 13.vii in long grass by tree fallen over stream. From Effingham Common: *Callicera aurata* Rossi (Syrphidae), 28.viii, male on *Rubus* leaf at edge of woodland; *Myopites inulaedysentericae* Blot (Tephritidae), 27.vii on flowers of *Pulicaria dysenterica*; *Merzomyia westermanni* (Meig.) (Tephritidae), 27.vii, 2 males on *P. dysenterica* flowers and 28.viii, female on leaf of *Senecio erucifolius*; *Phasia obesa* (F.) (Tachinidae), 11.viii, male and female swept from long grass. From Brook, near Witley: *Subclytia rotundiventris* (Fall.) (Tachinidae), 22.ix, on bushes at roadside.

HODGE, P. J.—*Syntormon silvianum* Párvu (Dolichopodidae), a species that has been confused with *S. monile* (Haliday in Walker), Martins Wood, Ightham Mote, W. Kent (TQ5753), 13.vi.1990, 1 male; Petworth Park, W. Sussex (SU9523), 8.vi.1988, 1 male; Par Brook, Billingshurst, W. Sussex (TQ081249), 1 male, 1 female. Exhibited for comparison were two males of *S. monile*, Hatchet Pond, New Forest, S. Hants (SU368014), 14/15.vii.1990.

KNIGHT, G.—Species found during a survey on behalf of the Cumbria Wildlife Trust in 2002: *Hercostomus angustifrons* (Staeger) (Dolichopodidae), birch scrub at Drumburgh Moss, on the Solway Firth; *Rhamphomyia curvula* (Frey) (Empididae), Drumburgh Moss; *Criorhina floccosa* (Meig.) and *C. rannmeni* Panz. (Syrphidae), both from Hutton Roof Crags.

MORRIS, R. & BALL, S.—The status and distribution of *Volucella zonaria* (Poda) and *V. inanis* (L.) (Syrphidae) in Britain. Further to two papers on these species, to be published in this journal, graphs and distribution maps for both species were presented. Current evidence suggests that both species have exhibited further expansions in their ranges in 2002, but early indications are that both were much scarcer in that year than previously. New and detailed records were requested and it

was indicated that there were proposals to develop an interactive Web site to track their changing distribution.

PARKER, M.—A number of rare and local species collected in 2002: *Chorisops nagatomii* Rozkošný (Stratiomyidae), Higher Hyde Dorset Wildlife Trust Reserve, Dorset (SY8590), 21.vii, male and female swept from *Salix*; *Odontomyia ornata* (Meig.) (Stratiomyidae), West Sedgemoor RSPB Reserve, Somerset (ST3726), 29.vi, female swept from meadowland; *Villa cingulata* (Meig.) (Bombyliidae), Warburg BBOWT Reserve, Bix Bottom, Oxon (SU718882), 6.vii, male basking on low vegetation; *Thereva bipunctata* Meig. (Therevidae), west of Borgh, Isle of Berneray, North Uist, Western Isles (NF892808), 8.viii, male swept from a sand dune; *Brachypalpus laphriformis* (Fall.) (Syrphidae), Girdler's Coppice Dorset Wildlife Trust Reserve, Dorset (ST797134), 4.v, male at *Crataegus monogyna* flowers; *Cheilosia barbata* Loew (Syrphidae), Warburg BBOWT Reserve, Bix Bottom, Oxon (SU718882), 6.vii, a male and female at umbel flowers; *C. griseiventris* Loew (Syrphidae), Scrubby Burrows, Cranbourne Chase, Dorset (ST9717), 18.v, female swept from a chalk grassland clearing within woodland; *C. latifrons* (Zett.) (Syrphidae), west of Borgh, Isle of Berneray, North Uist, Western Isles (NF892808), 8.viii, male swept from a sand dune; *C. soror* (Zett.) (Syrphidae), Warmwell Heath, Dorset (SY755872), 24.viii, one male swept from a large area of chalk deposits adjacent to the site; *Criorhinia asilica* (Fall.) (Syrphidae), Scrubby Burrows, Cranbourne Chase, Dorset (ST9717), 18.v, male at *Crataegus monogyna* flowers; *Microdon nmitabilis* (L.) (Syrphidae), Moyree Common, County Clare, Ireland (R3689), 30.v, female resting on an area of limestone pavement; *Neoascia geniculata* (Meig.) (Syrphidae), West Sedgemoor RSPB Reserve, Somerset (ST3726), 29.vi, male swept from meadowland; *Paragus constrictus* Šimic (Syrphidae), Carrowkeel, County Clare, Ireland (R3688), 27.v, a pair *in copula*; *Xanthandrus comitus* (Harris) (Syrphidae), Arinambane, Loch Eynort, South Uist, Western Isles (NF794285), 6.viii, female caught resting on *Fuchsia magellanica* in a small patch of non-native woodland; *Thecophora fulvipes* R.-D. (Conopidae), Warburg BBOWT Reserve, Bix Bottom, Oxon (SU718882), 6.vii, male caught on low vegetation.

PERRY, I.—A selection of uncommon Diptera found during 2002: *Dolichopus agilis* Meig. (Dolichopodidae), Ramparts Field, Suffolk, 18.vii, a male swept from dry grassy heath; *Poecilobothrus ducalis* (Loew) (Dolichopodidae), Orford, Suffolk, 13.viii, a male at edge of a brackish ditch; *Agathomyia cinerea* (Zett.) (Platypezidae), The Kings Forest, Suffolk, 25.ix, both sexes swept from ferns in *Betula* woodland, with females especially numerous and also found in a *Pinus* plantation elsewhere at the site; *A. woodella* Chandler (Platypezidae), The Kings Forest, Suffolk, 3.x, a female in *Ahns* carr and Wayland Wood, Norfolk, 13.x, a female swept from ancient deciduous woodland (both species were new to East Anglia); *Notiphila aumilipes* Sten. (Ephydriidae), Loch Garten, Easterness, 23.vi, swept from *Carex* at edge of loch; *N. subnigra* Krivosheina (Ephydriidae), 23.vi, swept from *Carex* at edge of loch, first confirmed record from Scotland, as previous records had been based on females; *N. guttiventris* Sten. (Ephydriidae), Wicken Fen, Cambs, 24.vii, swept from emergent vegetation in a ditch; *N. umbrosa* Drake (Ephydriidae), Orford, Suffolk, 22.vii and 13.viii, single males in brackish ditch; *Eustalomyia hilaris* (Fall.) (Anthomyiidae), Wimpole Hall, Cambs, 7.viii, a female on a decrepit lime (*Tilia* species) tree in parkland; *Leucophora sericea* (R.-D.) (Anthomyiidae), The Kings Forest, Suffolk, a male swept from chalk heath; *Fannia ringdahliana* Coll. (Fanniidae), The Kings Forest, Suffolk, 28.vii, amongst numerous other Diptera sheltering at the edge of damp *Ahns* carr, during a period of hot dry weather; *Lophosia fasciata* Meig.

(Tachinidae) (Fig. 20), East Wretham Heath, Norfolk, 20.vii, a male on an oak (*Quercus* sp.) tree in heathland.

SMITH, M. N.—Two uncommon species collected in 2002: *Atylotus rusticus* (L.) (Tachinidae), 19.vii, Marsh Gibbon, Oxon (SP6420), a single male dislodged while sweeping bankside vegetation, the first county record for this species, previously recorded in Britain only from Monks Wood, Cambs in 1828 and a small area of East Sussex around Lewes; *Callicera aurata* (Rossi) (Syrphidae), 15.viii, Hambleton, Surrey (SU9733), a female at teasel (*Dipsacus fullonum*) flowers at a disused brickworks.



Fig. 20. *Lophosia fasciata* × 2. East Wretham Heath, Norfolk, 2002. I. Perry.

COLEOPTERA

BARCLAY, M. V. L.—Beetles of interest identified during 2002. *Uloua cultuaria* (L.) (Tenebrionidae), two examples taken in the Forest of Dean, Gloucestershire in 1973 by the late D. M. Womersley, apparently the second UK record for this species; *Otiorhyynchus aurifer* Boheman (Curculionidae), Raynes Park, Surrey, TQ2269, this is the second UK locality for this naturalised species; *Otiorhyynchus crataegi* (Germ.) (Curculionidae), Little Bookham, Surrey, TQ15, in garden and *Blaps mucronata* Latreille (Tenebrionidae), Hastingwood, N. Essex, TL40, x.1996, on beam in old house, coll. G. Goddard.

BARCLAY, M. V. L. & MANN, D. J.—Beetles of interest from Chelsea Harbour and Chelsea Creek, Middlesex, TQ2676, 4.viii.2002. *Trixagus elateroides* (Heer) (Throscidae), *Hippodamia variegata* (Goeze) (Coccinellidae), *Rhyzobius chrysomeloides* (Herbst) (Coccinellidae), *Chrysolinia americana* (L.) (Chrysomelidae), *Otiorhyynchus ligueus* (Olivier) (Curculionidae), *Otiorhyynchus salicicola* Heyden (Curculionidae), *Otiorhyynchus aruadillo* (Rossi) (Curculionidae) and *Polydrusus splendidus* (Herbst) (Curculionidae).

BOOTH, R. G.—(1) Wetland Insects Theme: some rare or notable beetles, including a species new to Britain, collected from a reservoir margin. Although many habitats can be lost when reservoirs are constructed and filled with water, their unengineered margins can provide a linear wet habitat which will be colonised by species often typically found at the sides of naturally occurring waterbodies. A selection from the 31 species found on open mud or among weed along a short stretch of Bewl Water, TQ6931, VC 16 [traditionally treated as part of E. Sussex, but shown as W. Kent in Dandy's 1969 *Watsonian Vice-Counties of Great Britain*], on a warm and sunny 18 July 2002: *Beubidiou obliquum* Sturm, *B. octoniaculatum* (Goeze), *Pterostichus authractus* (Panz.) (Carabidae), *Acrotrichis heurici* (Matt.) (Ptiliidae), *Neobisnius procerulus* (Gravenhorst), *Tachysa objecta* Mulsant & Rey, a species new to Britain, *Gyypeta velata* (Erichson), *Aleochara brevipennis* Graven. (all Staphylinidae) and *Atoumaria gutta* Newman (Cryptophagidae).

(2) A selection of rare or notable species identified during 2002, including a species new to Britain. *Beubidiou uniuuuuu* (Fabr.) (Carabidae), Beddington sewage farm, Surrey, TQ2967, a single female from mud at the edge of a sludge settling bed, 30.iii.2002, an unusual inland record for this predominantly coastal/ estuarine species and apparently the first for Surrey; *Ophonus rupicola* (Sturm) (Carabidae), Graveney

Marsches, Kent, TR0364, under old railway sleepers on embankment at base of sea wall, 11.iv.2002, a post-1970 record for East Kent; *Chlaenius nigricornis* (Fabr.) (Carabidae), Stodmarsh NNR, Kent, TR2362, a single male from wet vegetation, 12.iv.2002, a recent record for north-east Kent; *Hypopycna rufifila* (Erichson) (Staphylinidae), Hackbridge, Surrey, TQ282660, a single female from a flight interception trap in the garden, 2–30.ix.2001; *Stenus continuus* Assing (Staphylinidae), Broadnymett, Bow, North Devon, SS698014, in suction sample from cereal field (CABI Bioscience), 18.vii.2000 and other dates and locations, this species new to Britain has only recently, in 1994, been separated from *S. assequens* Rey, some records of which should now apply to the new species; *Brachynsa concolor* (Erichson) (Staphylinidae), Beddington sewage farm, Surrey, TQ2967, a single female from mud at the edge of a sludge settling bed, 30.iii.2002; *Bibloplectus minutissimus* (Aubé) (Staphylinidae: Pselaphinae), North Wyke, Devon, SX653985, in suction samples from grazed field (CABI Bioscience), 4.vi.1999 and 22.v.2000, post-1970 records for Devon; *Amanronyx maerkelii* (Aubé) (Staphylinidae: Pselaphinae), Farthingloe, Dover, East Kent, in suction sample from grassland (CABI Bioscience), 26.viii.1999, possibly new to Kent; *Stenopelmus rufinasus* Gyllenhal (Eriophagidae), Askham Bog, Mid-West Yorkshire, SE5748, abundant on water fern *Azolla* in a dyke, 14.vi.2002, apparently the first Yorkshire record and *Tychius polylineatus* (Germar) (Curculionidae), Colekitchen Down, Gomshall, Surrey, TQ085489, a single female from suction sample from downland (CABI Bioscience), 8.vi.1999, the first modern British record.

(3) Separating females of the genus *Stenichnus* (Scydmaenidae). All scydmaenids are small, and many are difficult to identify. This is especially true of *Stenichnus* females as existing keys rely on very comparative characters, difficult to interpret without reliably named voucher material for comparison. For those prepared to dissect such small insects, the spermatheca provides valuable species specific characters. The exhibit consisted of mounted females of all British *Stenichnus*, with the exception of *S. godarti* Latreille, accompanied by pencil sketches of their spermathecae.

BOWDREY, J. P.—Some notable Coleoptera from Essex in 2002. *Badister dilatatus* Chaud. (Carabidae), Thorpe-le-Soken, TM173229, at house light, 30.vii.2002; *Agrius pannonicus* (Pill. & Mitt.) (Buprestidae), Lexden, TL9625, on oak trunk, 14.vi.2002, a new record for vice county 19; *Ctesias serra* (Fabr.) (Dermestidae), Thorpe-le-Soken, TM173229, on oak trunk, 26.vi.2002; *Cryptarcha strigata* (Fabr.) (Nitidulidae), Thorpe-le-Soken, TM173229, on sap run on oak trunk, 3.vii.2002; *Cryptarcha undata* (Fabr.) (Nitidulidae), Thorpe-le-Soken, TM173229, on sap run on oak trunk, 26.vi.2002; *Opatrum sabulosum* (L.) (Tenebrionidae), Holland-on-Sea, TM206164, on sandy cliff, 24.ix.2002, first post-1950 Essex record and *Podagrion fuscipes* (Fabr.) (Chrysomelidae), Prittlewell, TQ879875, on *Malva sylvestris*, 13.vii.2002.

COLLIER, M. J.—A few beetles found in Norfolk during 2002. *Hypomedon debilicornis* (Wollaston) (Staphylinidae), Wacton, TM1790, several by sieving large dung heap at riding school, 8.v.2002, a new county record; *Aleochara brevipennis* Gravenhorst (Staphylinidae), Cranwich Pits, TL7795, in pitfall trap, 25.iv.–12.v.2002, (det. confirmed R. C. Welch); *Limniichus pygmaeus* (Sturm) (Limniichidae), East Winch, TF6916, at edge of recent man-made clay-lined pond in horse-grazed paddock, 2.vi.2002, the first county record away from the Cromer cliffs area; *Nephush quadrivittatus* (Herbst) (Coccinellidae), Thompson Common, TL9396, beating ivy 28.ix.2002, only the second definite county record; *Choragus sheppardi* Kirby (Anthribidae), East Harling Heath, TL9883, evening sweeping along ride in

coniferous plantation with deciduous borders, 29.vii.2002; *Bruchela rufipes* (Olivier) (Anthribidae), East Harling Heath, TL9883, sweeping ruderal vegetation on site of clear-felled coniferous plantation (heathland reclamation scheme), 7.vii.2002, a new county record; *Mognolous* (= *Centorhynchus*) *euphorbiae* (Brisout) (Curculionidae), Cranwich Pits, TL7795, sweeping waterside vegetation around disused sand pits, 2.vi.2002, a new county record; *Microplontus* (= *Centorhynchus*) *campestris* (Gyllenhal) and *Gymnetron villosulum* Gyllenhal (Curculionidae), Cranwich Pits, TL7795, sweeping waterside vegetation around disused sand pits, 2.vi.2002; *Athonomus piri* Kollar (Curculionidae), Thompson Common, TL9396, by beating crab apple *Malus sylvestris*, 28.ix.2002, the third county record and first since M.G. Morris found it on 25.ix.1970 at the same site and *Platypus cylindrus* (Fabr.) (Platypodidae), Thompson Common, TL9396, many boring into small oak *Quercus* stump, given away by large piles of frass, 12.v.2002.

DICKSON, R. J.—Two beetles new to Hampshire. *Epiphantes cornutus* Esch. (Eucnemidae), Botley Wood, S. Hants, SU5309, beaten from Field Maple at dusk by D. M. Appleton (there was some stacked timber nearby), 19.vi.2002 and *Lixus scabricollis* Boheman (Curculionidae), Hook shore (part of Hook Lake LNR), S. Hants, swept off *Beta* and *Atriplex*, 21.viii.2002, det. D. M. Appleton.

GIBBS, D. J.—Nine species of Coleoptera collected in southern England. *Benibidion saxatile* Gyllenhal (Carabidae), Culverhole Point, S. Devon, SY2789, 16.vii.2002; *Chlaenius nigricornis* (Fabr.) (Carabidae), Pawlett Hams, N. Somerset, ST2642, 1.v.2002; *Hydrovatus clypealis* Sharp (Dytiscidae), Pawlett Hams, N. Somerset, ST2642, 1.v.2002; *Lomechusa emarginata* (Paykull) (Staphylinidae), Binnegar Quarry, SY8788, Dorset, 21.vii.2002; *Priouocyphon serricornis* (Müller, P. W. J.) (Scirtidae), Shortwood, E. Glos, SO8208, 12.vi.2002; *Prionychus melanarius* (Germar) (Tenebrio-nidae), Shortwood, E. Glos, SO8208, 12.vi.2002; *Oncomera femorata* (Fabr.) (Oedemeridae), near Siccaridge Wood, SO9303, E. Glos, 19.iv.2002; *Plateumaris affinis* (Kunze) (Chrysomelidae), Max Bog, N. Somerset, ST4057, 1.iv.2002 and *Epitrix atropae* Foudras (Chrysomelidae), Shortwood, SO8208, E. Glos, 12.vi.2002.

HAWKINS, R. D.—Specimens of the 12 species of *Cantharis* (Cantharidae) occurring in Surrey (VC17), including one very local species and some colour varieties taken in 2002. *C. figurata* Mannerheim, Ashtead Common, 13.vi., females on grass and beaten from sallow adjacent to damp grassland and Blindley Heath, 14.vi., two males beaten from oak on damp grassy common; *C. rufa* L., Ashtead Common, 13.vi., male with black elytra; *C. livida* L., Ashtead Common, 13.vi., female with black elytra and *C. thoracica* (Olivier), Blindley Heath, 14.vii., female with pale stripe along suture. Also typical specimens of these and the remaining species.

HODGE, P. J.—(a) Four species of Coleoptera collected in southern England in 1994, 1998 and 2002, including two species not previously recorded from the British Isles. *Manda mandibularis* (Gyll.) (Staphylinidae), Bewl Water (south bank), *W. Kent, TQ69653157, 15.vi.2002; *Neobisnius procerulus* (Grav.) (Staphylinidae), Bewl Water (north bank), W. Kent, TQ69373220 and Bewl Water (south bank), *W. Kent, TQ69653157, 15.vi.2002; *Tachysa objecta* Muls. & Rey (Staphylinidae), Bewl Water (north bank), W. Kent, TQ69373220, and Bewl Water (south bank), *W. Kent, TQ69653157, 15.vi.2002, the first British records; *Atheta linderi* Brisout de Barneville in Grenier (1863) (Staphylinidae), Barle Valley near Dulverton, S. Somerset, SS868306, female in *Polyporus* fungus on ash stump, 16.vi.1994 and Newhaven cliff, E. Sussex, TQ448000, several in pigeon droppings on floor of disused radar implantation, 8.iv.1998, the first British records. [* traditionally treated as part of E. Sussex, but shown as W. Kent in Dandy's 1969 Watsonian Vice-Counties of Great Britain].

(b) 22 species of longhorn beetles (Cerambycidae) collected in the Algarve, Portugal between 1998 and 2002. The names and taxonomic order follow Vives (2000 & 2001). Five species also occur in the British Isles (*Gracilia minuta* (Fabr.), *Pseudovadouia livida* (Fabr.), *Melanoleptura scutellata* (Fabr.), *Stenurella uelutina* (L.) and *Stenurella nigra* (L.)). *Gracilia minuta* (Fabr.), near Moncarapacho, 18.iv.2000 and Barao de São Miguel, 30.iv.2001, apparently rare in Portugal; *Stenopterus mauritanicus* Lucas, near Moncarapacho, 8/15.iv.1999; *Certalluu ebulliuuu* (L.), Barranco Velho, 5.v.1998 and near Moncarapacho, 11.iv.1999; *Deilus fugax* (Olivier), Javali, one swept in flowery meadow, 17.iv.2000; *Clytus rhamni* (Germar), 2 km east of Bensafrim, 7.v.2002; *Chlorophorus trifasciatus* (Fabr.), near Moncarapacho, 9/12.iv.1999 and Praia de Alvor, 5.v.2002; *Pseudovadouia livida* (Fabr.), 1 km south of Odelouca, 8.v.1998 and Praia Verde, 13.iv.1999; *Melanoleptura scutellata* (Fabr.), Serra de Monchique east of Picota, 30.iv.2002, female on low herbage, scarce in Algarve; *Aredolpona fouteenayi* (Mulsant), Lagos, 8.v.2002; *Nustera distigma* (Charpentier), 1 km south of Odelouca, 8.v.1998 and Praia Verde, 13.iv.1999; *Stenurella uelutina* (L.), 1.5 km north of Porto de Lagos, 3.v.2002, local in Algarve; *Stenurella nigra* (L.), 6 km north of Bensafrim, 9.v.2002; *Iberodorcatiou lusitanicuuu* (Chevrolat), Sagres, 5.v.2002, one under *Ononis*, confined to south-west of Iberian peninsula, mainly in Algarve, Portugal; *Calanobius filiuu* (Rossi), north of Castro Marim, 9.v.1998, and near Moncarapacho, 9.iv.1999; *Agapanthia annularis* (Olivier), Portela, R. de Odeleite flood plain and near Moncarapacho, on thistles, 11.iv.1999; *Agapanthia asphodeli* (Latreille), 5 km north of Ameixial, on *Asphodelus*, 19.iv.2000, locally common in Algarve; *Agapanthia cardui* (L.), north of Castro Marim, 9.v.1998 and 2 km east of Bensafrim, 6.v.1998; *Opsilia caeruleocephala* (Scopoli), Serra de Monchique, Foia 900 m, 8.v.1998, near Moncarapacho, 9.iv.1999 and 2 km west of Aljezur, 29.iv.2001; *Opsilia uolubila* (Dalman), Quinta de Marim, Olhao, 3.v.1998 and 12.iv.2000 and Portela, R. de Odeleite flood plain, 11.iv.1999; *Phytoecia erythrocuema* Lucas, Lagos, one on *Daucus carota*, 9.v.2002; *Phytoecia rufipes* (Olivier), 2 km east of Bensafrim, 6.v.1998, very localised in Algarve and *Phytoecia virgula* (Charpentier), near Moncarapacho, 11.iv.1999.

LEVEY, B.—Some rare and notable Coleoptera. *Harpalus quadripunctatus* Dejean (Carabidae), Glenmore Forest Park, Easterness, NH9709-9809, on sparsely vegetated sandy and gravelly moraine, 31.v.2002; *Lionychus quadrifluuu* (Duft.) (Carabidae), Seaton, E. Cornwall, SX2954, in coarse shaly sand near seepage at base of cliff, 28.vii.2001; *Gymnetrou beccabungae* (L.) var *fallax* Hoffman (Curculionidae), Loch Eye, East Ross, NH8480, 26.v.2002, this variety with all black elytra does not appear to have previously been recorded from the British Isles and *Tychius parallelus* Panzer (Curculionidae), Glenmore Forest Park, Easterness, NH9709, 25.v.2002.

PHILP, E. J.—A printed copy of a new electronic label list for British Coleoptera, in taxonomic order, and also an index in alphabetical order.

TELFER, M. G.—Personal highlights of 2002. *Dyschirius politus* (Dejean) (Carabidae), Wangford district, W. Suffolk, viii.2002; *Tachys uicros* (Fischer von Waldheim) (Carabidae), Eype's Mouth, Dorset, 4.v.2002; *Agonuu sexpunctatuuu* (L.) (Carabidae), Crossways, Dorset, 20.vii.2002, beside new sand and gravel pits with pools; *Auara montivaga* Sturm (Carabidae), Wangford district, W. Suffolk, viii.2002; *Auara praetermissa* Sahlberg, C. R. (Carabidae), Overstrand, E. Norfolk, 6.vii.2002, second record for this site; *Auara strenua* Zimm. (Carabidae), Potman's Heath, E. Kent, 10.iii.2002; *Bradycellus csikii* Laczó (Carabidae), Barnhamcross, W. Suffolk, 13-14.iv.2002, 8 specimens recorded; *Stenolophus tenuissus* (Schrank) (Carabidae), Crossways, Dorset, 20.vii.2002, beside new sand and gravel pits with pools; *Acupalpus exiguis* Dejean (Carabidae), Potman's Heath, E. Kent, 10.iii.2002;

Acupalpus maculatus Schaum (Carabidae), Dungeness RSPB reserve, E. Kent, recognised as new to Britain on 26.iii.2002 from specimens collected in previous years by MGT and John Paul at the ARC gravel pits; *Licinus depressus* (Payk.), (Carabidae), Barnhamcross, W. Suffolk, 13–14.iv.2002; *Licinus punctatulus* (Fabr.) (Carabidae), Ferrybridge, Dorset, 7.ix.2002; *Badister peltatus* (Panzer) (Carabidae), Thompson Common Norfolk Wildlife Trust (NWT) reserve, W. Norfolk, 7.vii.2002; *Sphaerius acaroides* Waltl (Sphaeriidae), Eype's Mouth, Dorset, 4.v.2002; *Georissus crenulatus* (Rossi) (Hydrophilidae), Eype's Mouth, Dorset, 4.v.2002, one specimen cloaked in mud (as they are in the field) and one with the mud cleaned off; *Tasgnis ater* (Graven.) (Staphylinidae), Wangford district, W. Suffolk, viii.2002; *Curimopsis maritima* (Marsham) (Byrrhidae) Eype's Mouth, Dorset, 4.v.2002; *Athous campyloides* Newman (Elateridae), Overstrand, E. Norfolk, 6.vii.2002, a new county record; *Trixagus carinifrons* (de Bonv.) (Throscidae), Monks Wood NNR, Hunts, from the Rothamsted Insect Survey light trap set on the southern edge of the wood; *Cantharis thoracica* (Olivier) (Cantharidae), Thompson Common NWT reserve, W. Norfolk, 7.vii.2002; *Lycoperdina succincta* (L.) (Endomychidae), Foxhole Heath roadside, W. Suffolk, 13.vii.2002, one of two specimens on unripe *Lycoperdon* puffballs by torchlight at night; *Diaperis boleti* (L.) (Tenebrionidae), Monks Wood NNR, Hunts, from the Rothamsted Insect Survey light trap set on the southern edge of the wood; *Chrysolina sanguinolenta* (L.) and *Psylliodes sophiae* Heikertinger (Chrysomelidae), Wangford district, W. Suffolk, viii.2002 and *Cassida nebulosa* L. (Chrysomelidae), Wangford district, W. Suffolk, viii.2002, on Fat Hen *Chenopodium album* L.

WHITTON, P.—(1) Species of *Dyschirius* and *Clivina* (Carabidae) collected between 1965 and 2002. *Dyschirius aeneus* (Dejean), Barton-on-Sea, S. Hants, SZ227931, on damp undercliff, 15.iv.1995; *D. angustatus* (Ahrens), Dungeness, E. Kent, TR065184, on bank of small gravel-pit, 10.v.2000; *D. globosus* (Herbst), Chimney, Oxon, SU354998, in ditch at edge of unimproved meadow, 20.v.1988; *D. impunctipennis* Dawson, Holkham, E. Norfolk, TF892461, at edge of drainage channel on beach, 25.vi.2002; *D. leudersi* Wagner, near Westhay Moor, N. Somerset, ST453435, in peat cutting, 20.iv.1995; *D. nitidus* (Dejean), Wampool Estuary, Whitrigg, Cumberland, NY226575, on sandy bank of estuary, 4.vi.1998; *D. obscurus* (Gyll.), Dungeness, E. Kent, TR065184, on bank of small gravel-pit, 10.v.2000; *D. politus* (Dejean), Barton-on-Sea, S. Hants, SZ227931, on damp undercliff, 15.iv.1995; *D. salinus* Schaum, Salthouse, E. Norfolk, TG076445, on bare sand in saltmarsh, 26.vii.1994; *D. thoracicus* (Rossi), Holme Nature Reserve, W. Norfolk, TF722448, on bare soil at edge of saltmarsh, 28.vii.1994; *Clivina collaris* (Herbst), Gressingham, N. Lancs, SD581699, on bank of R. Lune, 5.vi.1998 and *Clivina fossor* (L.), Abridge, S. Essex, TQ468975, under loose turf in field, 14.iv.1965.

(2) A selection of the 100 species of ground beetles (Carabidae) recorded from Otmoor, Oxfordshire. *Dyschirius leudersi* Wagner, SP561141, in damp mud beside drainage ditch, 17.viii.1991; *Lasiotrechus discus* (Fabr.), in deep crack in muddy bank of drainage ditch, SP574150, 12.viii.1991; *Benibidion varium* (Olivier), on bare damp mud, SP561141, 17.viii.1991; *B. gilvipes* Sturm, SP580143, in grass tuft, 13.ii.1998; *B. quadripustulatum* A.-S., SP560141, on damp mud, 18.vii.2000; *Pterostichus anthracinus* (Panzer), SP573137, in drainage ditch, 14.viii.1991; *P. longicollis* (Duft.), SP562145, in pitfall trap, 27.iv–19.v.2000; *P. macer* (Marsham), SP564146, in flood refuse, 20.1.1999; *Symichus vivalis* (Illiger), SP563145, in pitfall trap, 23.vii–15.viii.2000; *Aniara lunicollis* Schiödte, SP562139, in grass tuft, 30.xi.1997; *Ophonus ardosiacus* Lutschnik, SP568131, under soil in set-aside field, 14.vi.1992; *Acupalpus exiguus* Dejean, SP580143, at edge of ditch, 13.ii.1998; *A. parvulus* (Sturm),

SP561141, in grass tuft, 25.ii.2000; *Anthracnus consputns* (Duft.) and *Badister meridionalis* Puel, SP563145, in damp soil at base of bund, 2.vi.2000; *B. miupustnlatus* Bonelli, SP584143, in grass tuft beside ditch, 2.ii.2000; *Lebia chlorocephala* (Hoffm.), SP561141, in grass tuft, 20.ii.2000 and *Dromius meridionalis* Dejean, SP564146, in flood refuse, 3.xi.1998.

(3) A copy of an English Nature Research Report: "The conservation ecology of the ground beetle *Badister meridionalis* Puel (Coleoptera: Carabidae)" based on research carried out on Otmoor by the exhibitor between April 2000 and January 2001 and containing 92 carabid species.

HEMIPTERA

BROOKE, S. E. & NAU, B. S.—Fen litter bugs found at Flitwick Moor, Bedfordshire, mid-September 2002, including *Buchananiella continua* (White) (Anthocoridae), ca 20 adults, two fifth instar nymphs and one teneral adult in sedge stacks; *Xylocoris galactinus* (Fabr.) (Cimicidae), two in sedge stacks; *Lyctocoris campestris* (Fabr.) (Cimicidae) two nymphs, three adults and one teneral adult. Exhibit of ongoing study of *Gerris gibbifer* (Schummel) (Gerridae) in garden pond in Toddington, Bedfordshire, since 1999.

DICKSON, R.—*Pinalitus cervinus* (H.-S.) (Lygaeidae), Warsash shore, SU4905, S. Hants, VC 11, beaten from ivy blossom at night, 2.x.2002 (4 specimens); Titchfield Haven NNR, SU4302, S. Hants, VC 11, ivy blossom at night, 9.x.2002 (2 specimens); Hook Lake LNR, SU4804, S. Hants, VC 11, swept 21.viii.2002; *Lygus rugulipennis* Poppius (Lygaeidae); Common Meadow, SU5810, S. Hants, VC 11, swept 14.viii.2002, 21.ix.2002 and 25.ix.2002; Wickham Common, SU5810, S. Hants, VC 11, swept 12.vii.2002; Botley Wood, SU 5510, S. Hants, VC 11, mv lamp, 23.viii.2002; *Lygus pratensis* (L.) (Lygaeidae) Wickham Common, SU5810, S. Hants, VC 11, swept after dusk, 19.iv.2002, swept from hay meadow 29.ix.2001, swept 5.x.2001 (2 specimens).

GIBBS, D.—*Rhopalins maculatus* (Fabr.) (Lygaeidae), Binnegar Quarry, Dorset, SY8987, 15.vi.2002; *Macrosaldula scotica* (Curtis) (Saldidae), Binnegar Quarry, Dorset, SY8987, 15.viii.2002; *Cixius cunicularius* (L.) (Cixiidae), Shortwood, SO8208, 27.vi.2002.

HAWKINS, R. D.—Uncommon bugs taken in recent years, including one new to Britain: *Megacoelum beckeri* (Fieber) (Miridae), Frensham Common, Surrey, 31.viii.1998, on pine; *Anthocoris amplicollis* Horváth (Anthocoridae), Riddlesdown, Surrey, 21.ix.1995, on low growth of oak at edge of mixed deciduous wood (including ash), previously only found on ash in north Yorkshire; *Psallus pseudoplatani* Reichling (Miridae), Sunbury Park, Middlesex, 21.vi.2001, male and female beaten from sycamore, new to Britain, associated with sycamore, dissection of male genitalia is necessary to separate it from related species on oak and field maple; *Aphrophora alpina* Melichar (Cercopidae), Thundry Meadows NR, Elstead, Surrey, 27.vi.2002, in marsh surrounded by alders and sallow bushes, but apparently with no sweet gale (*Myrica gale*), its reputed food plant.

HODGE, P.J.—A specimen of *Nysius senecionis* (Schilling) (Lygaeidae), swept off Common Fleabane *Pulicaria dysenterica* growing in a meadow beside Breech Pool, Pagham Harbour LNR, W. Sussex, SZ87699783, on 7.viii.2002 [there was no sign of Ragwort *Senecio jacobaea* (the usual host plant) growing at this site].

JONES, R.—*Chlamydatus evanescens* (Boheman) (Miridae), four specimens taken by suction sampler from green "eco-roofs" at Canary Wharf, together with many

specimens of *C. pullus* (Reuter) and *C. saltitans* (Fallén). *C. evanescens*, which feeds on *Sedum*, has been previously recorded only from Great Orme area (19th century) and Dovedale (early 20th century). Roofs were laid in 1999–2001 as matting impregnated with *Sedum* plants; some matting is imported from Poland, so true native status of colonies remains in doubt.

NAU, B. S.—Exhibit on Heteroptera recording in Bedfordshire. Key statistics include: 370 species recorded (65% of British list), with average of 174 species per 10 km², five squares have over 200 species and richest square has 304 species. Distribution maps exhibited of *Aelia acuminata* (Fabr.) (Pentatomidae), *Palouena prasina* (L.) (Pentatomidae), *Sehirus luctuosus* (Mulsant & Rey) (Cydnidae) and *Eurydema oleracea* (L.) (Pentatomidae).

STUBBS, A. E.—*Platyuetopius mudatus* (DeGeer) (Cicadellidae), Narborough Railway Line NR, TF7511, West Norfolk, 17.vii.2002, one female, calcareous grassland/scrub transition; as reported in the Society's journal (Vol. 15, p. 125), this species had not been recorded in Britain for some 50 years.

HYMENOPTERA

ARCHER, M.—(1) Some British bees and wasps taken in 2001. Pompilidae: *Priocnemis coriacea* Dahlbom, 22.v, Rauceby Warren, Lincs. Sphecidae: *Gorytes tunidus* (Panz.), 21.viii, Rauseby Warren, third record for Lincs. Andrenidae: *Andrena citeraria* (L.) 22.v, Rauseby Warren, second record for Lincs. *A. triannularia* (Kirby), female, 14.iv, male 10.iv, Sark, Channel Islands. Halictidae: *Sphecodes rubricundus* von Hagens, 2.vii, Highgate Common, Staffs. Anthophoridae: *Nomada fuscicornis* Nylander, 12.iv, Sark, Channel Islands; *N. latiburia* (Kirby), 22.v, Rauseby Warren, second record for Lincs.; *Melecta albifrons* (Forst.), 28.iv, Helmsley Castle, third record for Yorks. Apidae: *Bombus jouellus* (Kirby) 21.v, Messingham Sand Quarry, Lincs.

(2) Some eumenid wasps taken in Europe in recent years. Eumenidae: *Microdynerus longicollis* Morawitz, 17.vi.1999, north of Collodi, Pietrabuona, Tuscany, Italy; *M. tiuidus* (de Saussure), 6.viii.1993, St Cernin de l'Herm, Dordogne, France; *Euodynerus posticus* (H.-S.), 15.viii.1993, near Soulaures, Dordogne, France; *E. uotatus* (Jurine), 11.v.1997, Lajosmizse, Hungary; *Odynerus rotundigaster* de Saussere, 8.iv.1988, Markriyalos, Crete; *Eumenes pseudoryculatus* (Panz.), female, 1.viii.1990, La Reole, Gironde and male, 17.v.1998, Belle-de-Montagne, Avergne, Haute Loire, France; *Aucistrocerus auctus* (F.), female, 16.viii.1979, La Turballe, Loire-Atlantique and male, 7.viii.1993, St Cernin de l'Herm, Dordogne, France.

GIBBS, D.—Some aculeate Hymenoptera taken in 2002. Chrysididae: *Hedyphorin nieuelai* Linsenmaier, female, 15.viii, Binsegar Quarry, Dorset SY8887. Sphecidae: *Cerceris quiuefasciata* (Rossius), female, 21.vii, male 15.viii, Binsegar Quarry, Dorset. Andrenidae: *Andrena tibialis* (Kirby), female 29.iii, Troopers Hill, Bristol, Glos. ST6273. Halictidae: *Lasioglossum malachurum* (Kirby), female 24.iv, Hinton Hill, S. Glos. ST7376; *L. quadrinotatum* (Kirby) females 15.vi and 22.vii, Binsegar Quarry, Dorset; *Sphecodes spinulosus* von Hagens, 31.v, Watts BBOWT reserve (White Shute), Berks SU331772. Anthophoridae: *Nomada ferrugiuata* (L.), female, 16.iv, Swillbrook Lakes, Glos.. SU0293.

HALSTEAD, A. J.—Some scarce or local sawflies and aculeate wasps taken mostly in 2002. Cimbicidae: *Cimbex femoratus* (L.), female of the all yellow form, 29.vii, in a garden, Pyrford, Surrey, TQ037594; *C. connatus* Schrank, female, col. Mrs J.

Donovan, 19.vi, a squashed specimen found under alders in a supermarket car park where larvae had been seen in the two previous years, Barton, near Torquay, Devon, SX907666; *Trichiosoma sorbi* Htg., male, col. J. Bratton, on *Sorbus aucuparia*, 27.vi.2001, above Aber Falls, Cwm yr Afon Goch, Gwynedd, SH675591. Argidae: *Arge berberidis* Schrank new to Britain (Fig. 21), in gardens on *Berberis thunbergii*, male, 24.v, Stevenage, Herts., TQ266231, female, 7.vi, Church Langley, Essex, TL470094. Tenthredinidae: *Loderus praeensis* (Fall.), female, swept from *Equisetum*, 12.v, Paper-court Marshes, near Ripley, Surrey, TQ034562. Pompilidae: *Aulopus carbonarius* (Scop.), female, 10.vii, on a stone wall, off Fulham Road, London SW10, TQ264782. Sphecidae: *Gorytes bicinctus* (Rossius), female, swept, 10.viii, Thorpe Hay Meadow, near Thorpe, Surrey, TQ030701.

KNIGHT, G. T.—Some Hymenoptera found during survey work in 2002. Work carried out by Liverpool Museum included a survey with the Countryside Council for Wales (CCW) of invertebrates on soft rock cliffs in north Wales, a survey of Drumburgh Moss NNR on the Solway Firth and limestone pavements at Hutton Roof Crags for the Cumbria Wildlife Trust, and visits to Dyfi NNR, Ceredigion. The last site produced an unusual colour form of a male *Cimbex femoratus* (L.)

(Cimbicidae) found dead under birch scrub at Cors Fochino, Dyfi NNR, SN630920, by the CCW warden, Mike Bailey, on 23.vi. The specimen had a broad red band across the abdomen (Fig. 22). Other sawflies of the Tenthredinidae family were *Periclista pubescens* (Zaddach), female, 11.iv, at Hutton Roof Crags, Cumbria, SD5578—a considerable northern extension to its recorded distribution; *Doleros liogaster* Thomson, female, 13.v, also at Hutton Roof Crags; *D. uegapterus* Cam., female, 25.iv, Drumburgh Moss NNR, Cumbria, NY246591; *Croesus varus* (Villaret), 21.v, Drumburgh

Fig. 22. *Cimbex femoratus* × 0.75, Dyfi NNR, Ceredigion, 2002, G. Knight.

Moss NNR, Cumbria, NY2559. Aculeate Hymenoptera from N. Wales were Tiphiidac: *Tiphia viuuta* Van der Linden, female, 19.vi, Porth Dinllaen, Caer., SH279408, *Methocha articulata* (*ichneumonoides*) Latr., male and female, 18.vi, Porth Ceiriad, Caer., SH315248. Eumenidae: *Odynerus uelutinus* (Gmelin in Linnaeus), male and female, 27.vi, Porth Neigwl, Caer., SH290257, found nesting in level clay on soft cliffs with *O. spinipes* (L.)—previously only known in Wales from S. Glamorgan. Andrenidac: *Audreua ocreata* (Christ), female, 27.vi, Porth Neigwl, Caer., SH290257. Megachilidae: *Osmia xanthomelaia* (Kirby), male and female, col. C. Clee in 1998 at an undisclosed locality in N. Wales. This RDB1 bee was previously thought to be restricted to the Isle of Wight until discovered by Carl Clee in N. Wales. Work is continuing with CCW to monitor populations, searching for additional sites and investigating the bee's autoecology.

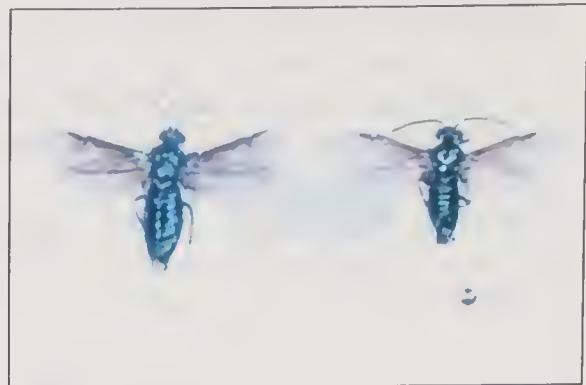


Fig. 21. *Arge berberidis*, female, Church Langley, Essex (left); male, Stevenage, Herts. (right), 2002, A. J. Halstead. × 1.5.



PARKER, M.—A RDB1 ruby-tailed wasp, *Chrysis fulgida* L. (Fig. 23), female, pootered off a telegraph pole, 20.vii.2002 at Goathorn Farm, Studland Heath, Dorset, SZ014851. This wasp is believed to be associated with aspen. There have been a few recent records from Surrey and Hampshire but this is the first Dorset record since 1941.



Fig. 23. *Chrysis fulgida* × 1.5, Studland Heath, Dorset, 2002, M. Parker.

DICTYOPTERA

GIBBS, D.—One of the native cockroaches, *Ectobius pallidus* (Ol.) taken on 5.vii.2002 at Goat Island, Axmouth, Devon, SY2789.

ORTHOPTERA

PORTER, J.—A male specimen of the bush cricket, *Meconema meridionale* Costa, Chessington, Surrey, 21.ix.2002, found inside the 'Pyrex' bowl over the bulb of a moth-trap four hours after the trap had been switched off and examined. The insect has previously been noted on car bonnets and other mild heat sources in Europe and was first recorded in Britain two miles from Chessington in 2001.

WILSON, M. R.—A female of the scaly cricket, *Pseudomogoplistes vicentae* Gorochov from the West Pembrokeshire colony that was discovered in 1999. This is the third colony discovered in the British Isles, the others being on Chesil Beach, Dorset and Branscombe, Devon. Specimens from these sites and from Sark, Channel Islands will be used for molecular studies to provide information on the isolation of these populations.

GENERAL

FARLEY, R.—A display of Field Studies Council publications including recent AIDGAP keys. The principal objectives of the AIDGAP project are to identify those groups of animals and plants for which the difficulty in identification is due to an absence of a simple, accurate key rather than being due to insuperable taxonomic problems and, subsequently to produce simple, well-written aids to identification. A significant feature of the project is the testing of new keys before final publication, by potential users. Feedback from these users is used to amend the keys before publication. Members were invited to volunteer to help with testing and to suggest possible subjects for future guides.

HARMER, A. S.—A selection of photographs of famous lepidopterists to be included in the forthcoming book provisionally entitled *The Cabinet of Curiosities—an Aurelian Anthology* written and compiled by Michael Salmon and Peter Edwards. The competition to name the most lepidopterists and to win a free copy of the book was won by Mr Grahame Parker and Mr Mark Calway.

SALMON, M. A.—A synopsis of chapter headings and topics covered in *The Cabinet of Curiosities—an Aurelian Anthology*.

SIMPSON, M.—The Simpson Collection of Entomological Memorabilia. Examples of collecting equipment, old catalogues, dealers' price lists and letters relating to entomology. Members were requested to forward suitable material they no longer required to help build up the collection.

THE 2002 PRESIDENTIAL ADDRESS PART 1 REPORT

PETER C. BARNARD

Department of Entomology, The Natural History Museum, Cromwell Road, London SW7 5BD

There is no doubt in my mind that the British Entomological & Natural History Society is the most dynamic society of its kind in the UK. Not only is it a long-standing society, having been established in 1872 in a different guise, but it now combines the whole entomological community of this country, both amateurs and professionals, in a unique and fully integrated way that no other group can match. To have seen this process in action at Council meetings over the past year has been both a revelation and an inspiration, and makes me feel certain that whatever difficulties may lie ahead for those who study and collect natural history specimens, this Society will be well-equipped to meet those problems.

I am sure that such complex issues will become more prominent over the coming years. Looking back over past Presidents' reports, they often say "This has been a quiet year". I wish I could say the same—but 2002 has been what one might call euphemistically an "interesting" year. We have seen the publication of the new Code of Conduct for Collecting in our journal, coinciding with some unwelcome publicity over issues of collecting and trading in specimens, and recently the possibility that some more species may be given increased protection under Schedule 5 of the Wildlife & Countryside Act. Our role as a corporate member of Buglife—the Invertebrate Conservation Trust—has been the subject of much discussion at Council and will no doubt continue to do so. There are also implications of the CRoW (Countryside and Rights of Way) Act which need clarification and could have implications for legitimate collecting. It is no coincidence that all these issues are linked to conservation.

Many of these are difficult issues, with many viewpoints, and there will never be agreement on the single best approach. But this Society represents a broad community of interests, and we will have to remain tolerant of each other's views, while at the same time not being afraid to express informed opinions on these contentious issues. The BENHS is one of those societies whose views are always sought and taken into account whenever changes in wildlife legislation are proposed, and I am confident that we will always be able to put forward well-reasoned and responsible views when required.

You have just heard reports from the officers of the Society, and it is traditional to thank those officers for their hard work. That tradition is there for the best of reasons—that the officers keep the Society going is absolutely true! Each contributes in his own personal way to our ongoing successes.

First, our Secretary John Muggleton. It would be so easy to take his work for granted, because everything happens so smoothly but on the rare occasion that he has not been able to attend a meeting this has immediately highlighted just how much the rest of us have to do to fill the gap! His overview of the Society's business coupled with his good humour make him literally invaluable. And he also tells the President what to do, discreetly slipping him bits of paper, saying "just read this out".

As you have heard, our Treasurer, Tony Pickles, has managed to keep the Society's investments in a remarkably good state, despite the current financial climate, and for all his skills we are grateful and rather relieved.

Ian McLean combines three jobs, organising the indoor meetings and workshops programme, acting as lanternist at meetings, and also chairing Publications Committee. On top of that his advice and insight on complex conservation issues have been very valuable at Council meetings.

Our new editor, John Badmin, has settled in very quickly and I am also glad to see that we have not lost Mike Wilson entirely, as he returns to Council as Vice-President.

Our Curator, Peter Chandler, continues to work hard in looking after our ever-growing collections, despite moving further away from Dinton Pastures, and I also thank our Librarian, Ian Sims, and Building manager, David Wedd, who looks after the Pelham-Clinton building for us.

I thank all these and all the other council members, including those already mentioned in the Secretary's report, and I pay tribute to them all on your behalf, because without their hard work we would literally have no Society.

It is always the sad duty at this time to record the deaths of some members throughout the year. In the past twelve months we have heard of the deaths of:

Mr Stephen E. Petley of Southampton, one of our younger members who joined in 1999, and was interested in butterflies and dragonflies.

Miss Ruth Day had been a member since 1987. She was the Odonata recorder of the LNHS and frequently attended BENHS indoor meetings.

Mr Dennis O'Keeffe, who had been one of the Society's auditors since 1994.

Mr Kenneth A. Spencer, a Special Life member, well-known for his work on leafmining Diptera, and a prominent member of the Hering Fund Committee.

Mr Peter Standing, an ex-RAF Squadron Leader, who had a special interest in Lepidoptera.

I have already asked you to stand in memory of these members so I will not ask you to do so again. Sad though it is to see the demise of these members it is good to see that we have gained so many new ones, another measure of the health of the Society and the esteem in which it is held.

Also we have had the pleasure of electing five Special Life members in recognition of 50 years' membership of the Society:

Mr M. J. Leech of Herefordshire

Dr G. C. D Griffiths of Alberta, Canada

Dr D. G. H Halstead of Berkshire

Dr M. G. Morris of Dorset

Mr B. D. Riordan of Hertfordshire

so we not only have many new members but the existing ones seem to live long too. The longevity of entomologists is a well-documented fact!

I think that the Society has a very bright future, and should be proud of its range of indoor and field meetings, its workshops and its publications such as the second edition of the *British Hoverflies*. It also has a direct impact on work in this country by way of its research funds. My only concern about the Society is the low attendance at indoor meetings, and I urge Council to discuss ways of remedying this decline.

It has of course been a great privilege to have been President for the past year, which has gone too quickly, not long enough for one person to make much of an impact, which may be a good or bad thing, depending on your point of view. I am still hoping to be able to create closer links between the Society and the Natural History Museum: if and when the NHM builds Phase 2 of the Darwin centre, which will hold the entomology collections, there are plans to create facilities for societies

and other groups to use those collections, hold meetings and so on, and I hope our Society will be among the first to benefit from this.

One important thing the past year has taught me is to be more attentive during speakers' talks at indoor meetings. It is a tradition that the President asks the first question after the talk, so I have had to stay very alert in order to ask something reasonably relevant!

When I accepted the nomination as President I was told by a former incumbent that it is great fun—the only problems are finding a successor (which we seem to have managed without too much difficulty) and having to prepare the Presidential address (Part 2 will appear in a later issue). I have enjoyed preparing it, and I hope that you find something of interest in it.

BENHS INDOOR MEETINGS

10 September 2002

The President, Dr P. C. BARNARD, welcomed members of the London Natural History Society to the annual joint meeting.

The death was announced of Kenneth A. Spencer, a Special Life Member and world authority on agromyzid flies.

Mr R. A. JONES showed a specimen of *Ptinus sexpunctatus* Panz. (Coleoptera: Ptinidae) found in an upstairs room of his house in East Dulwich on 18.v.02. Hyman & Parsons, in the *Review of the scarce and threatened Coleoptera of Great Britain* (1992), described this as 'a species of dead wood, bee nests, ivy, blossom and indoors'. The exhibitor had found it in the three houses he had lived in during the last 15 years. He believed it to breed in the accumulated grass, feathers and spilled food brought into the roof space by starlings and other birds. The beetle could enter the rooms below by crawling through gaps round light fittings and pipes.

Dr C. SPILLING showed two colour prints of the bee fly, *Bombylius minor* L. (Diptera: Bombyliidae), showing a mating pair. The pictures were taken in late July 2002 at Morden Heath, Dorset, using natural light and a digital single lens reflex camera.

Dr J. MUGGLETON, CHRISTINE MUGGLETON and Mr C. E. DYTE showed a fly found on a stinkhorn fungus in Spain. The fungus, which was found and photographed by Christine Muggleton was *Clathrus archeri* (Berk.) Dring (Homobasidiomycetes: Clathraceae), and is a bright red relative of the common stinkhorn fungus, *Phallus impudicus* Pers. found in Britain. It was seen on 25.vi.02 in the valley of the Rio Baztan, east of Erratzu in north-west Navarra, Spain. The fungus was surrounded by a cloud of flies which were collected by Peter Dyte and later identified by Peter Chandler as the sweat fly, *Hydrotaea irritans* (Fall.) (Diptera: Muscidae). This fly does not appear to have been recorded previously from stinkhorn fungi, although other *Hydrotaea* spp have occasionally been found on *P. impudicus*. In Europe, *Clathrus archeri* is mainly found in the southern countries but it has been recorded in England as a recently introduced species where it is described as rare and slowly spreading in the southern counties.

The following persons were approved as members: Mr Adrian J. Hayward, Mr Peter J. Nicholson, Ms Bridget Peacock, Mr Steve G. Price and Dr Judith A. Webb.

Mr R. A. JONES reported seeing worker hornets on fallen fruits at Firle, E. Sussex on 29.viii.02, further evidence that this wasp has expanded its range in recent years.

Mr R. A. JONES spoke on the 'Invertebrate fauna of green roofs in London'. Some plants are very good at growing on buildings. Good examples are two alien plants, the Butterfly bush, *Buddleja davidii*, and a more recent arrival, the Guernsey Fleabane, *Conyza sumatrensis*. Both are frequent colonists of brown-field sites in the capital. London has many buildings with flat roofs and some of these have had plants deliberately planted and cultivated on them. This practice is encouraged in Germany and some other parts of Europe as a means of 'greening up' urban areas. Planted roofs can also absorb some of the rainfall and reduce water run-off. The speaker had been asked by English Nature, as part of a wider survey, to look at a variety of green roofs in London to see what invertebrate animals were associated with them. The largest green roof in the survey was at Canary Wharf, about 250 feet above ground level. This green roof consisted largely of *Sedum* spp., although some other plants were beginning to colonise the roof. The short stature of the plants made sampling difficult as there was little to sweep, and so sampling was carried out by sifting the vegetation and by using a garden blower modified as a vacuum suction collector. Other sites sampled were at a private house in Forest Hill, the Horniman Museum, the London Wildlife Trust's Gardening Centre at Dulwich and Tower Hamlets Cemetery Visitor Centre. Some of these buildings had pitched roofs; that of the Horniman Museum required abseiling training before it could be tackled.

As might be expected, the insect fauna on these extreme sites was rather limited. A variety of beetles, bugs, spiders and snails were noted, mainly those associated with dry and/or grassy habitats. Relatively few ants, bees and flies were recorded. With pressure for brown-field sites to be developed, the importance of green roofs in urban areas as refugia for insects displaced by development may increase.

8 October 2002

The President, Dr P. C. BARNARD opened the meeting. There were no exhibits and the minutes of the previous meeting were read and approved.

The following persons were approved by Council as members: Mrs Sheila E. Brooke, Mr William E. Fell-Holden, Mr Glyn A. Henwood, Mrs Jo Maguire and Mr Mike N. McCrea.

MATT SHARDLOW spoke on 'Buglife (the Invertebrate Conservation Trust)—a new opportunity'. There are over 30,000 invertebrate species in Britain, which represents ca. 98% of all Britain's fauna. Knowledge of these animals is variable. Land-based insects are comparatively well known, at least in some orders but marine invertebrates have been little studied. There is an absence of long-term or historical data for many invertebrate groups. This makes it difficult to assess whether they are thriving, surviving or in decline. Where long term studies have been carried out, the evidence is that more invertebrates are in decline than are stable or increasing. It has been estimated that 1260 invertebrates have become extinct in Britain during the last 100 years. The rate of loss is likely to be increasing and we could be losing 36 species every year. This is due to various factors, including habitat loss and fragmentation, pesticide use, effects of fertiliser applications, loss of winter cover, tidiness, changes in grazing regimes, drainage and water abstraction, and changes in agricultural practices leading to more monoculture and larger fields.

Britain has 1,900 Red Data Book (RDB) invertebrates from among the 15000 species so far assessed. Thus in total there could be about 3800 invertebrates with

RDB status. As about half of our invertebrates are in decline, there could be 1900 species heading towards extinction. Invertebrate animals are vital components of ecosystems and while some are pest species, many perform valuable functions.

The Invertebrate Conservation Trust (ICT) was set up to focus attention on the conservation needs of invertebrate animals. A new organisation was needed because none of the existing organisations interested in invertebrates was able to take on this role. The ICT aims to prevent invertebrate extinctions and maintain sustainable populations in the UK. This will be achieved by undertaking and promoting study and research; by promoting sound management of land and water; by supporting the conservation work of other entomological and conservation organisations; by promoting education and publicising invertebrates and their conservation; and by influencing invertebrate conservation in Europe and worldwide. The ICT has the support of 29 leading environmental organisations in the UK. Eleven of these are also member organisations, including the British Entomological & Natural History Society. The ICT aims to be the professional voice for the conservation of invertebrates; to attract funding for invertebrate conservation; and to enthuse and inspire others about the wonder and value of invertebrate animals.

Projects already underway include raising issues on Wildlife and Countryside Link, such as Convention on International Trade and Endangered Species (CITES) changes, endangered brown-field sites and endemic ground water shrimps. The Trust is also involved in protecting sites such as St Helena, Aucheninnes Moss and Cliffe Marshes, the proposed site for London's third airport. The Trust is also gathering information on habitat management and making this available to others. It is hoped that an application to the Aggregates Levy will fund work on brown-field sites. A project on oil beetles (Meloidae) is being planned to assess their current status.

12 November 2002

Mr R. HAWKINS showed the tortoise beetle *Pilemostoma fastuosa* (Schaller) (Coleoptera: Chrysomelidae) taken 1.vi.02 on Denbies Hillside, Surrey. This local beetle is found on chalk downland where it feeds on Ploughman's Spikenard. The black and red colour had been preserved by drying the specimen in a freezer for three months.

The President, Dr P. C. BARNARD reported that there were fewer exhibits at the 2002 Exhibition compared to the previous year. The number of names in the signature book was about the same but there were fewer members (182 in 2002, 202 in 2001) and more visitors (49 in 2002, 39 in 2001). There were 42 members and guests at the Exhibition Dinner, compared with 52 in the previous year. Publications sales were buoyant at £1700 due to the recently published books on *Soldier Flies and their Allies* and the fully revised *British Hoverflies*. There was also a new Christmas card featuring the bug *Issus coleoptratus* (F.). Next year's Exhibition has been provisionally booked for 8 November. Mr Hawkins said that traffic jams on the M1 may have prevented some members from attending.

Dr R. KEY spoke on the Lundy cabbage and its associated insect fauna. The island of Lundy is situated in the Bristol Channel and is about three miles long and up to 130 m (400') in height. It is about 18 miles from the nearest point on the mainland. It has an endemic plant, the Lundy cabbage, *Coucyrea wrightii* (O.E. Schultz) Stace, which grows on the cliffs on the eastern side of the island. A wide range of insects has been recorded on this plant but it is the only British endemic plant that also has an associated endemic insect. This is the Lundy cabbage flea beetle, *Psylliodes luridipennis* Kutschera. The larva feeds inside the leaf petioles and

later in the stems. It overwinters as a pupa in the soil. Other notable beetles that feed on Lundy cabbage are the Lundy cabbage weevil, *Ceutorhyynchus contractus* var. *pallipes* (Marsham) and the flightless form of the normally winged flea beetle, *Psylliodes napi* (F.). *Ceutorhyynchus contractus* var. *pallipes* has leaf-mining larvae and the adults occur as either yellow or black-legged forms.

Surveys of the island show that Lundy cabbage is confined to the more sheltered cliff faces on the eastern side of the island, with the strongest colonies at the southern end. Grazing by sheep, goats and rabbits prevents the plant from flowering on the flatter ground. The number of flowering plants varies from year to year. During the 1994–2002 study period the number of flowering plants peaked in 1998 after several drought summers had reduced competition from other plants. There are plans to control rabbits by shooting after a myxomatosis outbreak and to limit sheep grazing by fencing some of the Lundy cabbage strongholds, such as at Millecombe.

Apart from grazing animals, the biggest threat to Lundy cabbage and other rare plants, such as Balm-leaved Figwort, *Scrophularia scorodouia* L., is *Rhododendron ponticum* L. This invasive shrub was introduced to Lundy in the early 19th century and is now widely established on the eastern side of the island. Thickets of plants 7 m tall occur in the valleys leading to the cliffs and seedling plants are continuing to spread down onto the cliff faces. A programme of rhododendron eradication is underway. This involves cutting the plants down and treating the regrowth with herbicides. This is slow and labour-intensive work, especially on the cliffs where the rhododendrons can only be reached by workers abseiling down from the cliff top.

10 December 2002

The President, Dr P. C. BARNARD announced the death of Mr D. O'Keeffe, a member since 1964 and at one time the Society's auditor.

Mr R. HAWKINS showed a female specimen of the jumping spider *Salticus scenicus* (Clerck) collected at Bagmoor Common, Surrey on 20.vi.02. This had been preserved by allowing it to dry in a domestic freezer for three months. This had allowed the specimen to retain its shape and colour.

Mr D. NELLIST noted that spiders that had been freeze-dried at the Natural History Museum tended to fall apart after a few years. Thus preservation in alcohol possibly remained the most reliable means of keeping a spider collection.

The following persons were approved as members: Mr David A. Bennett, Mr Robert A. Chapman, Mr Roy Cheeseman, Mr Richard I. Moyse, Mr Malcolm L. Simpson and Mr Mark E. Winder.

Mr PETER HARVEY spoke on the future of the UK spider recording scheme. This scheme was initiated by Clifford Smith in 1987, later taken over by David Nellist and was now run by the speaker. Most of the 10k squares in Britain had at least one spider record but, as with any recording scheme, there was still plenty to do to improve the coverage and quality of the data. Male and female spiders tended to occur in peak numbers at different times, so in future, emphasis would be put on recording the sex of spiders as well as the species identification. Several maps and charts were shown to illustrate the distribution patterns of various species and their abundance during the year. Some species were now known to be more common than formerly thought, while others were less frequent. There was a need for a review of the conservation status of spiders in the light of the information that had been gathered. The warmer climate that had been apparent in the late 20th century was affecting the distribution of spiders. Some that were formerly confined to southern coastal sites, such as the wasp spider *Argiope bruennichi* (Scopoli), were now much

more widespread in inland areas. Species new to Britain continued to be found. A new version of the spider recording card had been produced which would enable recorders to note a wide range of habitat features of a site, as well as details of the site's management and the collection methods employed. This made it a rather complicated form to fill in but it should increase the quality of the recording data. Special surveys had been carried out aimed at specific, easily identified species, such as the wasp spider and the woodlouse spider, *Dysdera crocata* C. L. Koch.

14 January 2003

The President, Dr P. C. BARNARD showed a specimen of the sponge fly *Sisyra terminalis* Curtis (Neuroptera: Sisyridae) taken at light in a garden at Richmond, Surrey the previous summer. The larvae feed on freshwater sponges and this was the rarest of the three British *Sisyra* spp. It required clean water and had not been recorded in London for over a century, although the exhibitor caught many at Staines about 25 years ago. The presence of this species at Richmond was suggestive of a continued improvement in the water quality of the Thames.

Mr R. HAWKINS said he had received a report from Mr R. Jones to say that he had seen an active queen wasp in his office on 14.i.2003. Mr R. BOOTH said he had found a moribund queen wasp on his car at Hackbridge, Surrey. Dr J. MUGGLETON had seen queens of both a bumblebee and a wasp at Staines, Middlesex on 13.i.2003. Mr M. EDWARDS said that nests of *Bombus terrestris* (L.) and *B. lucorum* (L.) with workers had been reported from Cornwall at Christmas time. Dr C. SPILLING said he had seen wolf spiders active in his garden when the temperature was -4°C .

Mr MIKE EDWARDS spoke on the ecology and conservation of two species of potter wasp, *Pseudopipona herrichii* (Saussure) and *Odynerus simillimus* Morawitz. The former had always been a scarce species confined to a few Dorset heathland sites. There were no records between 1953 to 1976 when it was rediscovered at Godlingston Heath. *P. herrichii* became the subject of a Species Recovery Plan in 1994. Studies of the wasp showed that it needed heathland that had areas of bare clay/sandy soil with water available nearby and mixed heathers, including *Erica cinerea* L. The wasp stocks its nests with the larvae of just one moth—the tortricid *Acleris hyemana* (Haw.). This feeds on various heathers but it is *E. cinerea* that flowers at the right time to provide nectar for the adult wasps.

The female wasp digs a nest in the soil and provisions it with caterpillars before depositing an egg above the food store. Water is required by the females to enable them to seal their nests with mud. Large populations of the wasp on Stowborough Heath were thought to be due to a heather burn that subsequently produced heather of the right age and height to support a high caterpillar population. Trial burns on other nearby sites had created suitable conditions and were colonised by the wasp. However, on some sites cattle grazing had been brought in as a means of heathland management, and this had led to a decline in wasp numbers. The larvae of *A. hyemana* feed on the webbed shoot tips of heaths and these are the parts of the plants that are grazed by cattle.

The potter wasp *O. simillimus* was first recorded at Colchester, Essex in 1860 but it was thought to have been lost from Britain until it was found again in the mid 1980s in coastal areas of Norfolk and Suffolk. In 2002, several additional sites were identified in wetland coastal areas of Essex and Norfolk. It was possible that this wasp had always been there but had been overlooked. The females make nest tunnels in bare soil which are topped by vertical mud tubes. Unlike *P. herrichii*, *O. simillimus*

lays an egg first and then provisions the nest with insect larvae. The identity of the larvae used remains to be confirmed but it was believed to be a weevil of the genus *Hypera*. Nest sites have been located in a variety of situations with no discernible common vegetation features. Confirmation of the prey insect's identity was needed to improve recommendations for the wasp's conservation.

11 February 2003

The President Dr P. C. BARNARD announced the death of Mr Peter Standing.

The following persons were approved as members by Council: Mr Leon S. Barnes, Mr Malcolm D. Bridge, Mr Roy Dobson, Mr Neil Fletcher, Mr Alan C. Nolan, Dr Ross W. Piper, Mr Gerard Sharkey, Mr Michael H. Smith, Dr Ian M. Strachan, Mr Bill Urwin, Mr Michael J. Uwins, Mr John P. Widgery, Mr Brian L. Williamson, Mr Keith B. Wills. Also approved as a junior member was Mr Antony Lamsdell.

Mr R. HAWKINS said he had received reports of Red Admiral butterflies at Godalming and at the RHS Garden, Wisley, Surrey. Mr A. J. HALSTEAD had also noted a Red Admiral and a Small Tortoiseshell in flight at Wisley Garden on 27 January when the lunchtime temperature was 16.5 °C. Dr C. SPILLING reported a female tephritid fly, *Tephritis formosa* (Loew) on the inside of a window in the Garden restaurant on 16.i.2003.

Dr DAVID STROUD spoke on his studies of the Greenland white-fronted goose, *Anser albifrons flavirostris* Dalgetty & Scott. This overwinters in Britain and migrates via Iceland to Greenland for the summer breeding season. In Britain the goose is found mainly on the west and north coasts of Scotland, the west coast of Ireland, with additional wintering sites in south east Ireland and the west coast of Wales. The geese leave Britain in April and depart from Iceland in early May. They fly 1500 km non-stop from Iceland to ice-free areas on the west coast of Greenland. There is little vegetation available in early May, so the geese feed mainly on subterranean parts of plants, especially those of cotton grasses. In late May the geese flocks disperse and pairs select their nest sites. Egg laying begins in June with one egg being laid per day until a clutch of about five has been produced. These are incubated for about 26 days with hatching occurring in early July when grass becomes available. After hatching, the goslings are led to higher areas about 6 km inland to lakes and pastures about 300 m above sea level. In August the adult birds moult their flight feathers and are unable to fly until new ones develop. The geese have a higher risk of predation by arctic fox at this time. The moult period provides an opportunity for geese to be rounded up with funnel nets for ringing and tagging with identity numbers. Aerial photography is used to make counts of the goose population.

In Greenland the snows begin in mid August and the white-fronted goose departs for Iceland in mid September. They arrive in Britain in late September–October. Iceland permits the shooting of white-fronted geese and about 3500 are shot out of a total population of about 26,000. Shooting of this goose is no longer allowed in Britain and Ireland but the white-fronted goose has suffered some loss of habitat through drainage of peat bogs and afforestation.

11 March 2003

The retiring President Dr P. C. BARNARD opened the meeting. The minutes of the previous meeting of 12.ii.2003 were read and approved.

The following persons were approved as members by Council: Mr Matthew J. Deans and Mr Jeff B. Higgott.

The Ordinary Meeting was then followed by the AGM and Officers' reports.

8 April 2003

The President Mr B. H. HARLEY opened the meeting and welcomed members of the Dipterists' Forum.

Mr S. R. MILES remarked that, so far this year, he had seen few butterflies. Others present had seen varying numbers with all the usual seasonal species being recorded but in no great numbers. Mr S. J. PASTON reported the presence of *Epistrophe eligans* (Harris) in his garden in Norwich the previous weekend. This was an early appearance for this hoverfly. Mr R. K. MORRIS said that there would be a hoverfly identification course at Preston Montford Field Centre from 30 May to 2 June 2003.

Dr STUART BALL and Mr ROGER MORRIS then gave a lecture on "The future of hoverfly recording".

Mr Morris started by saying that in Great Britain there were 276 hoverfly species belonging to 69 genera. Worldwide there were around 5000 species. The larval biology and life styles of this family were amongst the most diverse of any family of the Diptera. A recording scheme had been launched in 1976 and had concentrated on producing 10 km square distribution maps. A provisional atlas had been produced in 1983 and coincided with the publication that year of *British Hoverflies* by Stubbs and Falk. The availability of *British Hoverflies* with good keys and illustrations made identification easier and enhanced the popularity of the group with recorders. For the second atlas, which was published in 2000, there was a 50% increase in the number of recorders compared with the first atlas. This second atlas made use of 375,563 records. Mr Morris then described the data acquisition and verification processes. One procedure which had been particularly helpful had been to place the species in five categories according to the difficulty of identification. This was very helpful in sorting out doubtful records.

Dr Ball then spoke about the use of the data for recording changes in distribution and abundance, which were of use for decision making in conservation matters, in ecological research and in maintaining interest in recording. Recording scheme data were typically patchy, both spatially and temporally and this presented a problem when using them for detailed investigations. However these problems could be overcome. For example, there had been claims of a decline in *Rhingia campestris* Mg. which have been blamed on the reduction in dung-dwelling fauna following the use of avermectins. If the records of this species were considered as a percentage of all hoverfly records then there was no significant trend in abundance. If the annual pattern in abundance, measured in this way, was compared with June rainfall then there was a very significant correlation between June rainfall and abundance the following year, with the species being scarce following a dry summer. So, although no evidence was found for a long term trend, some useful ecological data had been obtained from the records.

Using the records in this way had shown some real declines, examples of which were *Chrysotoxum verralli* Collin and *C. festivum* (L.). Indeed a number of species associated with the larvae of aculeate Hymenoptera were in decline. On a more positive note the records traced the expansion of *Volucella zonaria* Poda from its establishment in the 1940s, to a decline in the 1960s and a further expansion in the last ten years. The distribution of this species fits well with regions where the

minimum January temperature is above 1 °C and the maximum June temperature is above 20 °C. It is quite possible that we will be able to use hoverflies to monitor climate change. Climatic warming should lead to new species invading the British Isles, some species moving northwards and others emerging earlier in the year.

Dr Ball ended by giving details of an initiative called "Syrph the Net". This used a large database of European biological information on hoverflies in an attempt to use associations, between species and habitats, to predict and interpret species inventories for sites. The main worker on this project was Dr MARTIN SPEIGHT in Dublin and some successful examples of his work were presented.

13 May 2003

The President, Mr B. HARLEY announced the death of Mr D. C. Warner.

Mr R. UFFEN showed an uncommon "cotton wool" gall on oak caused by the cynipid *Andricus quercusramuli* (L.) It was found on an oak tree at Digsowell Park, Welwyn Garden City, Herts on 12.v.03.

Mr K. MERRIFIELD showed a male *Cimbex femoratus* (L.) one of Britain's largest sawflies. It was found on a path near a car park at Insh Marsh, Inverness-shire on 30.v.02.

Mr A. J. HALSTEAD showed two sawflies (Hymenoptera: Tenthredinidae) associated with hawthorn. A live male and female *Tenthredo celtica* Benson were collected from hawthorn flowers at the RHS Garden, Wisley, Surrey. Hawthorn is not known to be a host plant for the larvae but the adults are often seen visiting May blossom. The other insect shown, a live male *Nematus lucidus* (Panzer), also from Wisley Garden, has gregarious larvae that feed on hawthorn foliage. Mr Halstead also showed a live male *Tephritis zoe* Mg. found in a polythene tunnel at Wisley. This tephritid fly is sexually dimorphic with the two sexes having different wing markings.

The following persons were approved as members by Council: Mr Simon J. B. Camden-Smith, Mr Stephen J. Covey, Mr James A. Foster, Mr David J. Gould, Dr Curt Lambeth, Dr Susan Mallett, Mr Michael A. Nesfields, Mr Nicholas J. Percival, Mr David A. Scott-Langley and Mr Neil Sherman.

Mr R. HAWKINS reported that he had seen a Painted Lady at Horley, Surrey on 09.v.03 and 13.v.03. Mr K. MERRIFIELD had also seen this butterfly species at Pulborough Brooks RSPB reserve, West Sussex on 10.v.03.

Mr Merrifield also reported that a cranefly he had taken at Cawdor Woods, Inverness-shire during the 2002 Dipterists' Forum Field Week, 25.v.–1.vi.02, had been identified by ALAN STUBBS as *Ula mixta* Stary. This small cranefly was new to Britain; it was first described in 1983 and previously known from Czechoslovakia, Germany and Norway.

Dr IAIN MACGOWAN spoke on the work of Scottish Natural Heritage on invertebrate conservation. Scottish Natural Heritage currently employed only one full time invertebrate ecologist but supports other work through grants and contracts. Scotland had a wide range of habitats, including important areas of heather moorland, peat bogs, upland habitats, river shingle beds and native pine forests, as well as conifer plantations. Habitats that were less frequent in Scotland, compared to other parts of Britain, were intensive agricultural and old parkland trees. Dr MacGowan showed slides of these various habitats and some of the invertebrates associated with them. He also highlighted some of the Scottish insects that had been subject to Biodiversity Action Plans or other detailed surveys. The

hoverfly *Callicera rufa* Schummel was at one time thought to be a RDB1 rarity associated with ancient Caledonian pine forest. Studies identified the larval habitat as rot holes in pine trunks or pine stumps. This species was now easier to record as larvae than adults, and was now known to be more widespread in conifer plantations.

Another hoverfly, *Hanunerschmidia ferruginea* (Fallen) remained a RDB1 species and was confined to a few sites which had large aspen trees. The larvae feed under the bark of recently fallen or felled trees, which only remain in a suitable condition for 3–4 years. The trees must be at least 75 cm in circumference. Steps were being taken to increase the availability of suitable breeding habitat. Storm damaged trees on *Hanunerschmidia* sites were felled, as standing trunks dried out too quickly to support the larvae. Large trunks felled elsewhere were also being brought to where the fly occurs. Rabbits could be a problem by gnawing off the bark and so fencing may need to be placed around the trunks. The numbers of this fly had increased following management work; a full survey was planned for this species in 2005.

Blera fallax (L.) was another rare hoverfly that breeds in decaying conifer stumps. The larvae feed in soggy rotting wood, rather than in rot holes. Attempts had been made to increase the larval habitat by cutting holes in stumps. A survey for larvae in these stumps will be carried out in 2003. Trials with conifer sawdust in tin cans as a possible alternative breeding site were also being conducted.

Other work that Scottish Natural Heritage was engaged in included producing a CD-rom of Scottish insects, that was now at the draft stage. Work was also being carried out on site quality monitoring of SSSIs to see if these sites still have the plants/animals or other qualities that led to SSSI designation.

10 June 2003

The Vice President, Dr P. C. Barnard opened the meeting.

Mr M. J. BLECKWEN showed a black form of the usually grey-coloured terrestrial woodlouse, *Porcellio scaber* Latreille.

Mr K. MERRIFIELD showed some galls found 2.vi.03 on a large black poplar or hybrid growing near the National Trust car park at Hampton Loade, Shropshire. These were a petiole gall caused by the aphid *Peyphigus bursarius* (L.) and a midrib gall caused by the uncommon *P. populi* Courchet. The galls each contained a large aphid and several offspring.

Mr A. J. HALSTEAD showed a live male specimen of the hoverfly *Volucella bombylans* (L.) var. *pluvialis* De Geer. This fly is a convincing mimic of some of the white-tailed bumble bees. It also commonly occurs as a form with reddish-brown hairs on the end of its abdomen. The larvae develop in the nests of some bumblebees and social wasps. The fly was collected at the RHS Garden, Wisley, Surrey.

Dr P. C. BARNARD showed some specimens of the Small China-mark moth, *Cataclysta leucomata* (L.). Large numbers of males were seen flying round a garden pond in Essex on 7–8.vi.03. The larvae of this common pyralid moth feed on duckweeds (*Lemna* spp.).

Dr J. MUGGLETON noted it had generally been a poor year for moth trapping but he had recorded 47 species the previous night in his Staines, Middlesex garden. These included three common noctuid migrant species, *Agrotis ipsilon* Hufnagel, *Caradrina clavipalpis* Scop. and *Autographa gamma* L. Mr R. Uffen agreed it had so far been a poor moth year.

Mr R. UFFEN gave some further information on the exhibit of *Andricus quercusranmii* (L.) galls on oak he had shown at the previous meeting. Since then adult cynipid wasps had emerged in large numbers and had laid eggs in oak buds. Mr Uffen had dissected a female and found it contained only about eight eggs. The summer generation would appear to be much less fecund than the spring generation that gives rise to the cotton wool galls.

Dr RORY POST spoke on "The search for sibling species in simuliid flies and other animals". Sibling species are species that are morphologically identical or very similar in appearance. They occur in a wide range of animal and plant taxa. More research has been carried out into Diptera sibling species than other insect orders. This is mainly because chromosome studies are easier to do on flies because they generally have comparatively few chromosomes. The Diptera also have some sibling species of medical importance, especially in the Simuliidae (black flies) and the Culicidae (mosquitoes). In the nineteenth century, malaria was present in parts of Kent, Essex, Norfolk and Lincolnshire. The disease was being spread by *Anopheles maculipennis* Mg., which is now recognised as comprised of two mosquito sibling species *Anopheles messeae* Falleroni and *A. atroparvus* van Thiel. These species can be separated on egg characteristics, or by chromosome studies or DNA sequencing. *Anopheles messeae* is a more inland freshwater species, while *A. atroparvus* prefers brackish coastal waters. It is the latter species that was the main malaria vector in Britain.

In Africa the black fly, *Simulium damnosum* Theobald s.l., can transmit the nematode *Onchocerca volvulus* (Leuckart) while sucking blood from humans. The nematodes initially develop in lumps formed under the skin but later migrate through the body, causing blindness and damage to other organs. River blindness is particularly a problem in west Africa although *S. damnosum* is much more widespread. The form found in southern Africa does not bite humans so there is no river blindness there. It has also been noted that in areas where the fly does bite humans there are different forms of the disease. In the savannah areas there is more blindness while in the forests there are more skin nodule problems. Chromosome studies of *S. damnosum* show that it is a complex of sibling species that can be separated into savannah and forest forms.

Dr Post also referred to some sibling species in Brazilian lizards, the field vole and Orkney vole in Britain and the banded snails *Cepaea nemoralis* (L.) and *C. hortensis* (Müller).

LETTER TO THE EDITOR

Collecting insects.—I write with regard to the reminder on the Code of Conduct for collecting insects circulated recently to members.

When I began collecting butterflies and moths now nearly fifty years ago, the only potential restriction on one's ability to undertake one's chosen hobby was entirely down to the individual's determination, effort and interest to succeed in one's personal aim.

Some of my greatest thrills of collecting came about because what I was doing was perhaps a little clandestine, and by nature required a certain amount of secrecy. When I first started to collect, the various entomological journals were massed with many of the collectors of the day's vivid accounts of their expeditions after their quarry, which I found fascinating, informative and very stimulating. Sadly today's publications are in the main very dull and dreary by comparison, as few want to openly commit their collecting efforts to print, as our society's current attitude towards collecting has driven it underground, a sad reflection on how things are now!

Over the succeeding years I formed a representative collection of butterflies and moths that contained many rare species, including some, which now are in, or have declined to very restricted numbers. But this in my opinion is due to the way our society wants and in the main welcomes change, and has nothing to do with the small minority of us who are butterfly and moth collectors.

Subsequently, an at first very slow but insidious form of interference and restriction took place in regard to one's ability to carry out what I consider to be reasonable activities within our collective society. Due to this changing attitude I decided to give up collecting specimens in the early 1980s, though I still hold a great interest in the subject of entomology and now 'collect' with the aid of a camera and close-up lens.

I wish to remind you that the BENHS is in the main a society of hopefully like-minded individuals who are interested in a minority scientific subject and who collect, record and study the British insect fauna. I joined back in 1968, thanks to my late lamented friends Edgar Hare and Charles de Worms. I do not think that it is the committee's place, or brief to sit in judgement of members. If individuals have very strong views on certain matters they are like all of us still (thank God) able to form their own opinion and act upon it, and if their views are at such odds with the consensus within the society, they are quite at liberty to leave. Please let us leave all the finger-pointing and judgement forming out of our society, and concentrate on the main aim which is surely that of bringing like minded souls together with the object of fostering, not defeating our aims.

REX LANE HARVEY

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BOOK REVIEWS

The Distribution Atlas of European Butterflies. O. Kudrna. Oedipus Nr. 20, 2002. Naturschutzbund Deutschland and the Gesellschaft für Schmetterlingsschutz. 342 pp. ISBN 87-88757-56-0. Available from Apollo books at apollobooks@vip.cybercity.dk (Price 50 Euros).—Everyone who has ever used the tiny maps in a field guide will have noticed the artistic licence that colours large areas with a broad brush. The publication of Dr Otakar Kudrna's impressive atlas marks a new era in accuracy.

Dot distribution maps covering 451 of the 486 butterfly species found in Europe show the results of the 6 years Mapping European Butterflies (MEB) project. Three different timeframes are plotted: 1950 or earlier, 1951 to 1980, and 1981 to 2001. The maps are printed in black and white at 16 cm × 13 cm, two fitting each A4 page—a major improvement on the 2 cm × 3 cm found in Tolman (1997). Each recording field is one degree of longitude by half a degree of latitude, so that the diameter of each dot represents on average 58 km on the ground. The database is a mosaic of National records (from countries which have recording schemes) and the contributions of individuals who specialise in particular countries or taxa. The records from the *Milleuiuu Atlas of Butterflies in Britain and Ireland* were converted for MEB by Dr Len Winokur, one of the 18 British lepidopterists amongst an international team of 254 contributors. If 254 seems a small number for such a mammoth undertaking, it should be remembered that many submitted collated records for whole countries. Great care has been taken to exclude uncertain records rather than to accept doubtful data.

Europe is precisely defined, and covers 45 countries, states, or parts thereof, from Ireland to the Urals, and alphabetically from Albania to Yugoslavia. All the Mediterranean islands are mapped, whilst the records for the Azores, the Canaries and Madeira are tabulated. There are no resident butterflies on Iceland. Only the European part of Turkey is included, and it is noticeable that coverage is rather thin in the east e.g. Belarus. The maps were created on DMAP, using a selection of reference localities in each country. Whilst this system limits the accuracy of individual records, it virtually eliminates the keying errors that would have been made using latitude/longitude or grid systems.

Scientific nomenclature is used throughout, and the absence of English common names may discourage some amateur readers, but is done in the interest of precision. The species checklist used incorporates a revision of the list in Karsholt and Razowski (*The Lepidoptera of Europe*, 1996), paying attention to the latest International Code of Zoological Nomenclature opinions. The result is a streamlined list which loses a number of commonly used subgenera. This can result in a short search to find a species that has been absorbed into a major genus (e.g. *Artogeia* into *Pieris*), but once this hurdle has been overcome, users may find the new checklist a model for the future. I found the absence of an index an irritation, and would suggest one as a worthwhile addition for the second edition.

The technicalities of the MEB study are explained in detail (a necessity for proper understanding), and are followed by the species maps, taking us to p. 300. The analysis that follows includes some outstanding material concerning distribution, diversity and conservation. Maps show the areas with the highest species diversity, and tables show which species occur in the highest/lowest number of squares and biogeographical status. It is interesting to note that most of the British species are found close to the top of the list of Europe's most widely distributed (i.e. most common) butterflies. Endemic species found in very few squares can thus be treated

as Europe's rarest, and may merit conservation priority even if they are not currently under threat. The interplay between that approach and recent Red Data Book work focused on the loss of certain species from north-west Europe (e.g. Swaay & Warren, 1996) is thought-provoking, and could lead towards a pan-European approach to allocating priorities for conservation effort.

Dr Kudrna's forthright style pervades the text; he has had the courage to take rigorous decisions on everything from taxonomy (his specialisation), survey methods, map presentation, computer systems and international co-operation. As a result, we have an authoritative atlas to carry us into the future.

ROB PARKER

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Swaay, C. Van & Warren, M. 1999. Red Data Book of European Butterflies. *Nat. Environ.* 99: 1–260.
Tolman, T. & Lewington, R. 1997. *Butterflies of Britain & Europe*. Harper-Collins, London.

Butterflies by Dick Vane-Wright. (London: Natural History Museum, 2003) 112 pp. Paperback £9.95. ISBN 0 565 09179 4

Butterflies is the latest addition to the Natural History Museum's popular Life Series of publications, which to quote from the rear cover, aims to present an 'accessible introduction to the wonders of the natural world suitable for all nature enthusiasts'. Other titles in the series include snakes, trees, deep oceans and soil which gives an idea of the diverse subjects covered in the Life Series.

Butterflies is one of the most clear and concise introductions to the biology of these colourful and ever popular insects that I have yet seen, and well meets the objectives of the Life Series. In clear and concise language the reader is introduced to the whole life cycle from courtship and mating through to mimicry, variation and evolution. The author has avoided overuse of biological terms, which might confuse the general reader, and throughout the book his enthusiasm for butterflies is evident on every page.

The book is well illustrated with excellent colour photographs, each one illustrating a particular point or opinion made in the text. Whilst many photographs are of live insects from around the world I liked the use of set specimens to illustrate the subtle differences in seasonal or geographical variation and mimicry. It is good to know that in these days of political correctness, and the digital camera, set specimens still have a role to play! There are some interesting photographs of butterflies in flight, a subject which is not always covered in detail in other publications. The book concludes with a chapter on the future of butterflies in an increasingly hostile environment and some thoughts on how individuals can help ensure their survival in the future. A glossary explains the terms used and there are suggestions for further reading and societies to contact. Disappointingly the BENHS is not one of those mentioned which should give us some food for thought.

The book is published on good quality paper with clear type and good photographic reproduction, and represents excellent value at the modest price charged. Anybody with an interest in butterflies will find much of interest in it.

D. A. YOUNG

OBITUARY

KENNETH ANGUS SPENCER
1916–2002



Kenneth Angus Spencer was born on the 16th March 1916 in Cheam, Surrey. He married Ann Campion Devereux Berridge on 2nd December 1950, and together they raised three daughters, Kitty, Fanny and Susie. His wife Ann was a talented artist and draughtswoman, for which we all should be grateful. He died peacefully on 27th July 2002 in Callington, in the County of Cornwall, attended by his family.

He was educated at Whitgift School, not far from his home in Cheam. He gained his BA in German, French and Italian in 1937 at University College, London and was awarded a DSc in 1970 at his old College, for his work and publications on the family Agromyzidae. In 1992 he was honoured by the Linnean Society with the H. H. Bloomer Award, bestowed for important contributions to biological knowledge by an amateur naturalist. He also received a number of other awards from other countries (see *Flycatcher* later).

Ken's interest in Natural History had begun from an early age with encouragement from his elder brother Geoffrey, and by 12 he was collecting anything he could. When he moved to London in his late 'teens he joined the South London Entomological and Natural History Society, mainly collecting butterflies.

Ken's introduction to Diptera occurred in 1949 when, through the same Society, he was asked to translate from German into English, Professor Erich Hering's book *Biology of the Leaf Miners*. This he did with much correspondence with the author and it was published in 1951. Subsequently, his 'day job', which was selling printing equipment, enabled him to travel to Germany and meet Professor Hering and both developed a deep and sincere friendship for each other lasting until Hering's death in 1967. Through this friendship, Ken developed an interest in leaf miners and the Agromyzidae in particular. The Agromyzidae became an obsession, and the rest is history!

It was during the early 1950s that he started collecting leafmines and breeding out the flies, publishing his findings and persuading others of the fascination of these little creatures. One of his converts was a certain Mr. G.C.D. Griffiths!

My own connection with Ken began in 1979–80 when Diane and I decided to concentrate on the Agromyzidae during a survey of Diptera at Malham Tarn, a site of Special Scientific Interest in North Yorkshire, England run by the then Warden, Dr Henry Disney. They seemed ideally suited to our poor sighted eyes, having, we assumed, obvious leaf mines and hence very easily found. All we had to do was to go round collecting the static diagnostic mines rather than fast, small and specifically similar flies. How wrong we were, and in trying to understand the literature I wrote to Dr Spencer, sending some specimens for confirmation and a few which we felt must be new to science! Some months elapsed before we received a letter, apologising for the delay, but setting us to rights with our completely wrong diagnostics and naming our new specimens among the more common agromyzids for Britain. However, this introduction led to sporadic correspondence and wholehearted encouragement to collect, collect and then collect some more. Ken sent us reprints of most of his papers. In late 1982, Ken wrote to me asking advice on suitable methods and chemicals for the treatment of plant material for import/export. After this we communicated regularly and we even acted as sounding boards for some of his ideas and propositions before going into print and we frequently assisted with the preparation of tables and indexes and typing his terrible small scribble. After complaining that we could not cope with more than three sheets of script at a time, and this was agreed upon, the next letter to arrive did indeed contain only three sheets, however one of them consisted of about twenty short pieces of paper, pinned, glued and stapled together like a lace curtain and totalling about three A4 lengths of paper.

Ken was a very disciplined and organised worker, if miserly with his paper supply, rising early and working on agromyzids until midday and lunch, after which he would generally do gardening or other domestic chores in the afternoon. Bedtime was usually between nine and ten. We are not very organised, certainly not early risers but after the day-job, working in the evenings on entomology, sometimes until the early hours of the next day, and so it was somewhat disconcerting to be woken at six in the morning with a bright cheery voice just wanting a chat, or checking on the progress of some project of the moment. By flatly refusing to answer the telephone before seven, and then 8 o' clock in the morning, we finally weaned him from very early telephone calls and even had him sometimes phoning in the evenings—when we were awake!

Ken was a workaholic, never satisfied until a project was completed to the best of his ability, whether it was as interpreter and intelligence officer in the army; salesman, manager and director of a printing equipment company, or entomologist. He demanded no less from any of his colleagues and acquaintances. Friendship was not always an easy ride, but it was always a very rewarding experience and a privilege.

Ken had one great disappointment in his life—that he never received regular employment in an Institution as an entomologist and therefore always considered himself an 'amateur'. However, as I have said elsewhere, Ken was a leading professional in his own field, being contracted by governments and Institutions alike to do a job of work for which he was amply qualified. Like many medical men, lawyers or architects he earned his money from his expertise, the definition of a professional. It was just that money does not flow so readily for entomologists as it does for the others.

In all, Ken described and named 1240 species of Agromyzidae of which only 97 have subsequently proved to be synonyms, a mere 8% and a rare achievement.

I should point out that this rather anecdotal valedictory is only possible because he has left a very detailed account of his life in his 1992 book *Flycatcher* published by

SPB Academic Publishing of Holland. It is not only an autobiography in some depth of an outstanding dipterist, but incorporates much information on the Agromyzidae which has not been published in his other works and, above all, it contains commentaries on the many famous dipterists and other notable people he came into contact with over the years.

The loss of Ken has created a considerable gap in the ranks of the elder statesmen of the entomological community. Whilst his specialist work set him apart from the more generalist entomologists, his high output of publications, so ably assisted by his wife Ann, made him a leader of communication and an example to us all.

In appreciation of 22 years friendship.

DAVID HENSHAW

BOOK REVIEW

A Butterfly Notebook by Douglas Hammersley. (Lewes: The Book Guild, 2003)
140 pp. Hardbound £25.00. ISBN 1 85776 722 5

Anyone who appreciates the artistry of *Benningfield's Butterflies* or the precision of Richard Lewington's work, will be delighted with Doug Hammersley's illustrations, published under the title of *A Butterfly Notebook*. He has captured grace of movement in addition to natural beauty, with a nice blend of scientific accuracy and art. To complement the paintings, Doug has written interesting and amusing accounts of his observations, describing the images of courtship, feeding and pairing shown on the facing pages, and offering anecdotes that reflect the changes in distribution and scarcity over his lifetime.

A skilled medical illustrator by profession, and keen naturalist in retirement, the author has created a 'notebook' of the butterflies of his acquaintance; most of the British species, with a smattering of attractive Continental species now extinct in Britain. Each picture is accompanied by his notes, from Northumberland to West Harling Forest, close to his Norfolk home, and from occasional forays to the Pyrenees and the Adriatic. As the illustrations are so much larger than life, he includes one life-size image on each page as a point of reference. In some cases, the larger pictures serve very nicely to assist with identification, and to highlight the points of difference between two similar species. Reading his account of the features separating Small and Essex Skippers leaves a clearer understanding than many of the field guides, for example. The volume is nicely produced, and the choice of paper has catered well for the reproduction of texture and fine brush-work, without generating the reflection that often spoils glossy photographs. There is only one photograph, and that is a whimsical portrait inside the dust cover, capturing the author in a moment of repose.

So this is neither a comprehensive work of reference, nor a superficial coffee table book. It falls nicely into the niche of what many lepidopterists would like to find in their Christmas stocking; a book to read and re-read, images to view with pleasure. I expect it to become one of my favourites.

ROB PARKER

Announcement: Planning a National Macro-Moth Recording Scheme

There is more interest in moths now than at any other time and this interest increases with every year. A vast amount of recording effort takes place across Britain and Ireland, and new discoveries continue to be made. Some once widespread species seem to have almost disappeared, other familiar species show worrying declines in abundance, whilst immigration seems to bring ever increasing numbers of vagrant and potential colonist species from the Continent. The present network of county recorders does an admirable job in collating data at county level, but it is ironic that at a time when interest in moths has never been greater there is no national recording scheme to harness and present these data on a wider scale.

Butterfly Conservation (BC) is now conducting a planning, consultation and development project that will hopefully lead to the eventual establishment of a new national recording scheme for all macro-moth species. Adrian Spalding and Mark Tunmore are undertaking the bulk of this planning phase, in close association with BC staff. The planning phase is supported financially by the Heritage Lottery Fund, English Nature, the British Entomological and Natural History Society, RSPB and Biodiversity Challenge with the backing of many other partners.

The potential benefits from a co-ordinated national recording scheme are almost limitless. It would provide data to identify and promote conservation priorities, influence planning decisions, inform government policy and contribute to scientific research. It could also lead to the publication of a national distribution atlas in time.

In order for us to develop the type of scheme to which today's moth recorders would like to contribute, and to increase the chances of obtaining the necessary funding, it is vital that those interested in moth recording let us know their views before March 2004. The easiest way to do this is by completing the online questionnaire, viewable at www.mothrecording.org.uk. Alternatively, the same questionnaire is available on a colour leaflet, copies of which are obtainable from the address below upon receipt of a large SAE (A5 size). In the coming months we will be contacting local moth groups and attending events to canvas opinion. The following regional conferences will also take place, at which we look forward to meeting moth recorders, talking more about the scheme and hearing your views. There will also be guest speakers.

ENGLAND: Warwick University. Saturday 10 January 2004 (10.00–16.30hours).

SCOTLAND: Scottish Natural Heritage (SNH): Battleby Centre, Perth. Saturday 13 December 2003 (10.00–16.30hours).

WALES: To be announced. Details available on the website.

Booking is essential for these events as numbers are limited and there will be free lunch and refreshments. E-mail bookings@mothrecording.org.uk or write to the address below.

NMRS (planning), Norfolk House, 16–17 Lemon Street, Truro, TR1 2LS
e-mail contact@mothrecording.org.uk

There will also be a special consultation meeting for BENHS members to discuss the macro-moth recording scheme at Dinton Pastures on Saturday 17 January 2004 (11.00–16.00)

MARK TUNMORE

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The Society maintains a library and invertebrate collections at its headquarters in Dinton Pastures, which are open to members on various advertised days each month, telephone 01189-321402 for the latest meeting news. The Society's web site is: <http://www.BENHS.org.uk>

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Cover photograph: Mating pair of Violet Ground Beetle *Carabus violaceus* L. (Coleoptera: Carabidae), Ladycross Inclosure, New Forest, Hampshire, 6.ix.2000. Photo: L. Winokur.

NOTE: The Editor invites submission of photographs for black and white reproduction on the front covers of the journal. The subject matter is open, with an emphasis on aesthetic value rather than scientific novelty. Submissions can be in the form of colour or black and white prints or colour transparencies.

HABITAT CREATION FAVOURING INVERTEBRATES: AN EXAMPLE FROM ALLERTON BYWATER,^{MCZ LIBRARY} URBAN WEST YORKSHIRE

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Abstract. The terrestrial and aquatic invertebrates on an old colliery site at Allerton Bywater, West Yorkshire were surveyed in 1998, 1999 and 2001. A total of 19 nationally scarce species were recorded as well as a considerable number of other species at the edge of their range. Some of the mainly spoil site was covered in clayey soil and this provided a number of different invertebrate habitats delineated by substrate type and water and the differences in vegetation. The results of the surveys indicate that post-industrial sites with considerable amounts of bare ground are likely to have considerable invertebrate interest.

INTRODUCTION

Post-industrial land and urban sites have been known to be interesting as invertebrate habitats for some time (Davis & Jones, 1978; Hutson & Luff, 1978; Davis, 1982). There have been investigations into a number of invertebrate groups in urban areas; ground beetles (Kegel, 1990), butterflies (Hardy & Dennis, 1999), hoverflies (Wright, 1998), grasshoppers and crickets (Nagy, 1997), leafhoppers (Chudzicka, 1987) and bees, wasps and ants (Jacob-Remacle, 1984; Richter *et al.*, 1986). Some invertebrate groups have been studied on urban demolition and derelict sites, especially leafhoppers and bugs (Kirby, 1984; Sanderson, 1992; Schmitz, 1996) and beetles (Lott & Daws, 1995), whilst Wahlbrink & Zucchi (1994) concentrated on ground beetles on an urban railway embankment. Spoil heaps and reclaimed land from large-scale extractive industry have also been surveyed for ground beetles (Durka *et al.*, 1997), rove beetles (Good, 1999), butterflies (Holl, 1996), spiders (Krajca & Krumpalova, 1998) and for a number of invertebrate groups (Spalding & Haes, 1995).

The invertebrate fauna of urban water bodies, especially dragonflies (Kury & Durrer, 1991; Oly, 1996; Samways & Steyler, 1996) have also been investigated. Wichtowska & Sobczak (1994) surveyed urban ponds for water beetles whilst the effects of man and industry on the distribution of water beetles and bugs has been studied (Eyre, 1985; Carr, 1986; Williams, 1993).

An area of post-industrial land, in this case a colliery, at Allerton Bywater, West Yorkshire, was converted into an area for nature conservation and for use in education in 1998 by Leeds Metropolitan Borough Council. This paper reports on the results of invertebrate survey work, including noting interesting records and assessing habitats for different invertebrate groups.

SURVEY AREA

The old Allerton Bywater colliery, in the valley of the River Aire, was finally cleared in the late 1990s and some of the area was set aside for nature conservation and education purposes in 1998. The area is in a rectangle between the national

grid references SE420272 to SE420275, south to north, and SE420272 to SE425272, west to east, approximately 500 × 300 m. In the west of the area there is a triangular patch of marshy grassland, which appeared to have developed since the demise of the colliery. The northern edge of the area is a strip approximately 100 m wide, which has been cleared of buildings, capped with a heavy clay soil and seeded with a grass/clover mix. Most of the area, about 400 × 200 m, is where the old coal storage area had been and where the substrate is a mixture of colliery spoil and small coal. About a half of this area was capped with a heavy clay soil but the rest is mainly open spoil. These clay and spoil areas have been left to develop naturally. A number of ponds was constructed in 1998, mostly on the spoil.

SAMPLING

Sampling for both terrestrial and aquatic invertebrates was carried out in three 6-week periods; in autumn 1998 and 2001 and in late spring–early summer 1999. Terrestrial site sampling, for Coleoptera, Hemiptera, Orthoptera and Araneae, was carried out using ten pitfall traps (8.5 cm diameter, 10 cm deep, part-filled with ethylene glycol), set in a line, 1 m apart, at 10 different sites. Collections from the traps were after three weeks, with two collections per 6-week period. At the same time as the pitfall traps were installed, suction sampling was carried out around the pitfall sites in 1998. A modified leaf-blower, now standard equipment for suction sampling (Stewart & Wright, 1995), was used for one minute at each site. Sweep net samples, in the same areas as the suction sampling, were taken in 1999 and 2001, with two samples per year.

The pond sampling was carried out using a D-shaped net (1 mm mesh), with two samples taken in 1998 and 1999 and three in 2001. The rationale was to generate a representative sample from each site.

SITES

Ten terrestrial and eight pond sites were sampled and these are shown on a site map (Fig. 1). The terrestrial sites were:

- Site 1. An area of sparse grass cover on wet spoil, next to pond 1. There was a slight increase in vegetation cover in the three years but it was still mostly bare.
- Site 2. By Pond 2, an area of damp, densely vegetation, mainly grasses with some moss, on clay.
- Site 3. The base of a south-facing spoil bank with a little ruderal vegetation, but mainly bare.
- Site 4. A site with fairly dense grassy vegetation, on clay.
- Site 5. A west-facing spoil bank with about a 5% covering of ruderal vegetation.
- Site 6. An area of short, dense, mainly grass vegetation on clay, mowed in the autumn.
- Sites 7 and 8. Two sites in the northern strip of heavy clay capping with dense, unmowed vegetation, mainly grass and clover.
- Sites 9 and 10. In the marshy area with tussocks of *Juncus* and grass and patches of *Ranunculus*.

The eight pond sites were:

- Pond A. Approximately 30 m by 20 m and 50 cm deep when full, this pond had a mainly spoil substrate with considerable amounts of *Carex* tussocks, some *Typha* and a little grass in the edge.

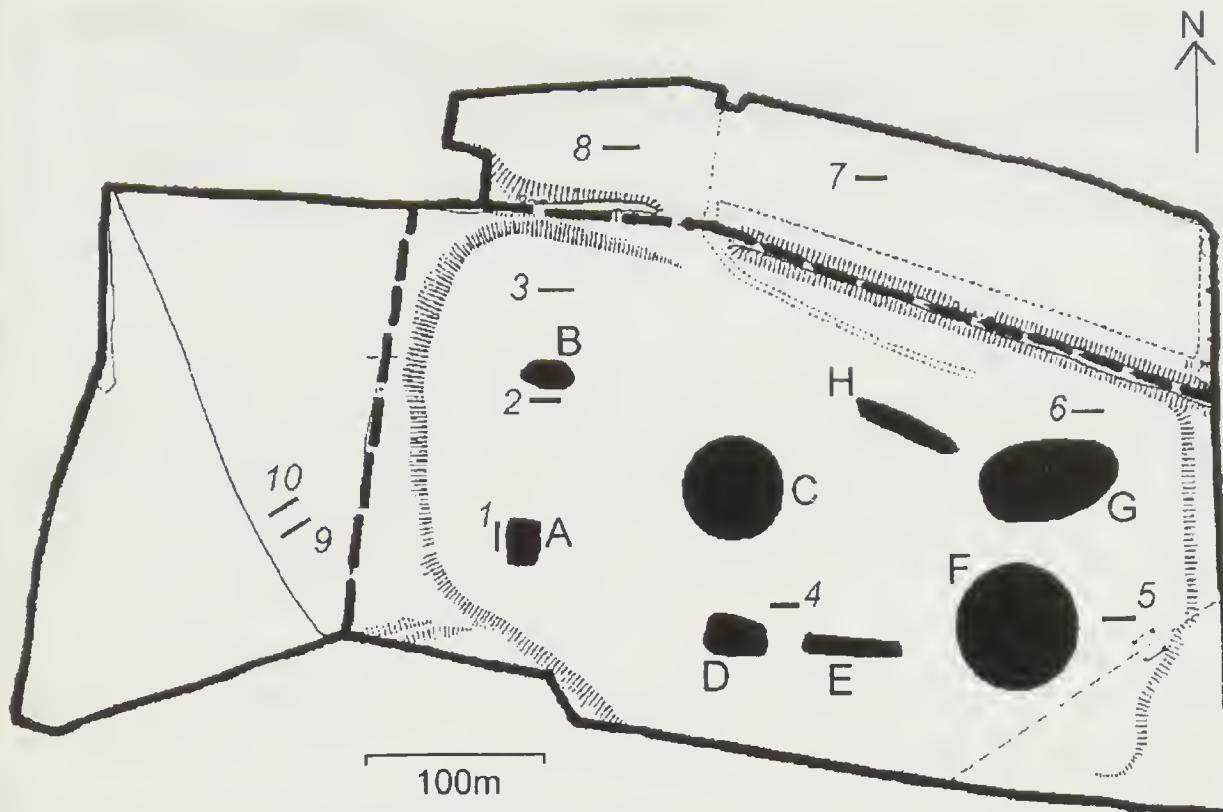


Fig. 1. Map showing the distribution of pitfall trap lines (1–10) and ponds (A–H) on the survey area at Allerton Bywater, West Yorkshire.

Pond B. A round pond, about 25 m in diameter when full, with a clay substrate and considerable amounts of *Carex*, *Glyceria*, *Potamogeton* and moss in the edge, giving high habitat diversity for invertebrates.

Pond C. A round pond, excavated out of spoil, about 30 m in diameter when full. There was a small patch of *Carex* in 1998 and 1999 and this had increased considerably in size by 2001.

Pond D. This was a rectangular pond, about 40 m by 15 m. This pond appeared to be more well established than the other ponds as there was well developed emergent vegetation, especially *Typha*, with *Potamogeton* and a dense moss edge.

Pond E. A thin, rectangular pool, 30 m by 5 m, with a steep edge with some *Carex* and grass, on spoil.

Pond F. A large pond excavated from spoil, about 50 m in diameter when full. There was an area with sparse *Carex* which had changed little in the three years. Most of the pond had a bare, spoil substrate.

Pond G. Another rectangular pond, about 30 m by 20 m, with a small patch of *Carex* in 1998 which had expanded considerably by 2001. There were still considerable areas of open substrate, which appeared to be a mixture of clay and spoil.

Pond H. On clay, this was a small, narrow pond, about 20 m by 5 m, with a little emergent *Carex* and some grass in the edge and a lot of bare substrate.

All these ponds were subject to considerable water level fluctuation but only pond H appeared to be subject to drying out, but there was water in 1999 and 2001.

NOTEWORTHY RECORDS

There were a number of nationally scarce beetle and bug species recorded from both the terrestrial and pond sites, as well as a number of other species at the edge of

their range in Britain. These are listed below, with national scarcity statuses (Hyman & Parsons, 1992, 1994; Kirby, 1992) where appropriate. No nationally scarce spider species were found. Nomenclature follows Ball (1997).

Terrestrial species

Orthoptera

Tetrix subulata (L.)

This groundhopper is not nationally scarce but it is mainly restricted to the southern half of the UK, apart from a record from Lancashire (Haes & Harding, 1997). There are old records from the Thorne Moors area in Yorkshire but this appears to be the most northerly record in the UK on the eastern side. It was found at sites 1, 4, 5 and 9 in 2001 and there is plenty of its preferred habitat of wet, open sites.

Hemiptera

Agallia brachyptera (Bohemian) Nationally Scarce B

This species was found in the marshy sites 9 and 10 in 1998 and 2001 and has been recorded before in Yorkshire (Kirby, 1992). It has been found regularly in north-east England, especially on post-industrial sites and it is probably under recorded and not as rare as previously thought.

Psammotettix frigidus (Bohemian) Nationally Scarce A

Said by Kirby (1992) to have been only recorded from Scotland, from upland sites. It was recorded from site 3 in 1998. We have it from a number of post-industrial sites and coastal dunes in northern England (Eyre *et al.*, 2001) but this appears to be the most southern record in Britain.

Coleoptera

Acupalpus consputus (Duftschmid) Nationally Scarce B

This is a wetland ground beetle liking sites where the standing water dries up in the summer, as at site 9 in 1999. There is only one post-1970 record north of this record, from SE74 (Luff, 1998), and one other Yorkshire record.

Bembidion clarki Dawson Nationally Scarce B

A ground beetle species of well established wetlands, this was found in the marshy sites 9 and 10 in 1998 and at pitfall site 2 in 2001. There are a few records to the north of Allerton Bywater but most are in southern and eastern England (Luff, 1998).

Blethisa multipunctata (L.) Nationally Scarce B

Another ground beetle species of well vegetated wetlands, it was found at site 2 in 2001. There are a few recent and several old records for Yorkshire (Luff, 1998).

Pterostichus gracilis (Dejean) Nationally Scarce B

A ground beetle species found in wet, well-vegetated sites, this was also found in the marshy sites 9 and 10 in all three years and at site 2 in 1999 and 2001. There are three 10-km square records (SE 64, 73, and 74) to the east and, just, to the north of Allerton Bywater in Luff (1998). This is a species at the northern edge of its range in Britain.

Longitarsus ochrolencus (Marsham) Nationally Scarce B

A leaf beetle apparently associated with ragworts, it was swept at site 3 in 2001. It appears to like open and disturbed grassland and there are other records from throughout England (Hyman & Parsons, 1992).

Hippodamia variegata (Goeze) Nationally Scarce B

This ladybird was found at sites 5 and 8 in 1999 and at 1, 5 and 7 in 2001 and appears to be well established. It appears to like sites with ruderal vegetation and is another species on the northern edge of its range in Britain (Majerus *et al.*, 1997).

Notaris scirpi (F.) Nationally Scarce B

This weevil associated with *Typha* was found in 1998 at site 1. There are other northern England records for this species, especially by rivers (Eyre *et al.*, 2000).

Cercyon tristis (Illiger) Nationally Scarce B

A wetland species, found in sites 9 and 10 in 1999 and 2001, we have a number of recent records from pitfall trapping (Eyre *et al.*, 1998, 2000). It is probably not as rare as its conservation status implies.

Ocypus fuscatus (Gravenhorst) Nationally Scarce B

A rove beetle of grassland habitats, found at site 6 in 2001, this is a widespread but scarce species in England (Hyman & Parsons, 1994).

Aquatic species

Odonata

No nationally rare or scarce species were recorded but a number of the ponds, especially A and B, provided good habitat for the total of twelve species (*Aeshna cyanea* (Müller), *A. grandis* (L.), *A. jimbcea* (L.), *Anax imperator* Leach, *Coenagrion puella* (L.), *Enallagma cyathigerum* (Charpentier), *Ischnura elegans* (Vander Linden), *Lestes spousa* (Hansemann), *Libellula quadrimaculata* L., *Pyrrhosoma nymphula* (Sulzer), *Sympetrum danae* (Sulzer), *S. striolatum* (Charpentier)) recorded as larvae. *Aeshna grandis* and *Anax imperator* are near the northern limit of their range in England (Merritt *et al.*, 1996) but are common in the south. The ponds provide a mixture of open and vegetated sites with contrasting water productivity leading to a number of suitable habitats for dragonflies.

*Hemiptera**Ilyocoris cimicoides* (L.)

This is not a nationally rare or scarce species but the recording of it in pond B in 1998 and from ponds C, D and G in 2001 is interesting because it is not recorded from northern England in Savage (1989). We have another record from Thorpe Marsh near Doncaster to the east, and these records are at the northern edge of its distribution in Britain.

Notonecta maculata F.

Another species which is not nationally rare or scarce, it is usually found in ponds and pools with little vegetation, conditions found at ponds C and F from which it was recorded in 2001. It is regarded as a species of southern Britain (Ball, 1997) and is not recorded from northern Britain in Savage (1989).

Notonecta marmorea F.

Also not nationally rare or scarce, *N. marmorea* is not recorded from northern England in Savage (1989) and this and *N. maculata* are likely to be at the northern extremes of their range in the UK. It is a species preferring brackish water and it was recorded from pond F in 1998 and from ponds C, D and G in 2001.

*Coleoptera**Dytiscus circumcinctus* Ahrens Nationally Scarce A

This species was found in the pitfall traps at site 2 in 1999, indicating that it was breeding in the adjacent pond B and had fallen into the trap after emerging from pupation. The distribution of this species is centred on Cheshire and this record is near its northern limit in Britain (Ball, 1997).

Dytiscus circumflexus F. Nationally Scarce B

This species, recorded from the grassy edge of pond B in 1998, tends to be found near the coast but it also occurs inland (Ball, 1997).

Hygrotonus nigrolineatus (von Steven) Nationally Scarce A

A pioneer species, found in the bare pond F in 1998. It was first recorded in the UK in Kent in 1984 but has now been found north to County Durham (Eyre & Foster, 1998). It was not found in either 1999 or 2001.

Enochrus melanocephalus (Olivier) Nationally Scarce B

A species of weedy, dense vegetation that was found in the mossy edge of pond D in 1998. It occurs sporadically throughout northern England.

Helochares lividus (Forster) Nationally Scarce B

Found in the grassy pond B in 1998, this species is approaching the northern edge of its range in Britain (Ball, 1997). It was found in ponds A, D and H in 2001 and is obviously resident.

Helochares punctatus Sharp Nationally Scarce B

This is a species usually found in ponds with base-poor water. It was recorded from ponds A, B, D and E in 2001 and also appears to be well established.

Laccobius sinuatus Motschulsky Nationally Scarce B

This was found in ponds D and H in 1998, the most shallow, and possibly most temporary, of the ponds. It is a species of land slips with trickles but in northern England all records are from either colliery spoil sites or sand workings.

Rhantus grapii (Gyllenhal) Nationally Scarce B

A species of sites with dense vegetation, this species was found in pond D in 1999 and B in 2001. This is another species on the northern edge of its distribution in Britain (Ball, 1997).

Scarodytes halensis (F.) Nationally Scarce B

A species liking open water sites with little vegetation and high conductivity, this was found in pond 6 in 1998. It has been expanding northwards recently but this is a record for the species at the north of its range in Britain. As with the other colonist species *Hygrotus nigrolineatus*, it was not found in 1999 and 2001.

HABITAT DISTRIBUTION

The species lists of leafhoppers, ground, rove and phytophagous beetles and spiders from the terrestrial sites and of the invertebrate lists from the ponds were ordinated using DECORANA (Hill, 1979) to identify which sites were similar and which were different and to identify habitat types by subjectively grouping similar sites. DECORANA is a standard method for identifying trends in species assemblage distribution and is used as a basis for habitat classification (e.g. Eyre *et al.*, 2001). The number of habitat types for the five terrestrial groups and for the aquatic invertebrates, the sites in each group and a description of the habitat are given in Table 1.

Three habitat types were identified for leafhoppers, ground, rove and phytophagous beetles but only two for spiders. The marshy area with sites 9 and 10 produced a separate habitat for leafhoppers, rove and phytophagous beetles but two other wet sites, 1 and 2, had similar ground beetles to the marshy sites. The other habitats for leafhoppers were open spoil sites and more densely vegetated clay sites and a similar pattern was seen with ground and phytophagous beetles. The rove beetle habitats were not as clear, with one group on open spoil and the other on a mixture of spoil and clay with varying vegetation. The two spider habitats differed in site water and vegetation but habitat definition was less clear than with the other groups.

Table 1. The habitat groups of leafhoppers, ground, phytophagous and rove beetles and spiders on the terrestrial sites and of the aquatic invertebrates in the pond sites at Allerton Bywater

Group	Sites	Description
Leafhoppers		
1	1, 2, 3	A mixture of open spoil with sparse vegetation and more densely vegetated spoil, damp or wet.
2	4, 5, 6, 7, 8	Mainly densely vegetated, grassy sites on elay and one open spoil site, with the driest soils.
3	9, 10	Dense grass and <i>Juncus</i> and marshy.
Ground beetles		
1	3, 5	Damp spoil sites with sparse vegetation.
2	4, 6, 7, 8	Densely vegetated, grassy sites on elay, with the driest soils.
3	1, 2, 9, 10	A mixture of open sparsely vegetated and dense grass and <i>Juncus</i> sites, either wet or marshy.
Phytophagous beetles		
1	1, 2, 3, 4, 5	A mixture of both open and well-vegetated sites, mainly on spoil and either damp or wet.
2	6, 7, 8	Densely vegetated sites on elay, with the driest soils.
3	9, 10	Dense grass, <i>Juncus</i> and marshy.
Rove beetles		
1	3, 5	Damp spoil sites with sparse vegetation.
2	1, 2, 4, 6, 7, 8	A mixture of spoil and clay sites, mostly densely vegetated, and with wet, damp and the driest soils.
3	9, 10	Dense grass, <i>Juncus</i> and marshy.
Spiders		
1	3, 4, 5, 6, 7, 8	A mixture of spoil and elay sites, both open and well-vegetated, and with both damp and the driest soils.
2	1, 2, 9, 10	Mostly densely vegetated sites, with one open site, and either wet or marshy.
Aquatic invertebrates		
1	A, E, G, H	Ponds on spoil, with areas of both bare and emergent vegetation.
2	B, C, D	Ponds on both elay and spoil with dense aquatic submerged and emergent vegetation.
3	F	Open pond on spoil with little vegetation.

The invertebrate habitats in the pond sites differed in the amount of vegetation and the type of substrate. Pond F was obviously less productive than the other ponds and had fewer species whilst the other spoil-based ponds were more vegetated with more species. The most species were in the densely vegetated ponds B, C and D.

DISCUSSION

The presence of a number of nationally scarce and other interesting terrestrial and aquatic invertebrate species indicate that this particular post-industrial area has considerable conservation interest. The conservation potential for these types of site for invertebrates has been assessed by Gibson (1998) and there have been a number of reports of uncommon species from sites such as colliery spoil and metalliferous

mine sites (Coldwell, 1993; Eyre & Luff, 1995; Lott & Daws, 1995; Spalding & Haes, 1995), whilst roadsides have been shown to be good habitat for heathland ground beetles (Eversham & Telfer, 1994). Another positive aspect on the old Allerton Bywater site was the provision of clayey soil capping of some of the area when the area was assigned for conservation and educational purposes. These clayey areas complimented the base-poor spoil areas to produce different invertebrate habitats. Most of the terrestrial groups studied had three obvious assemblages, generally delineated by the type of substrate, the amount of substrate water and the amount of vegetation.

A number of the interesting terrestrial species were those preferring open sites and ruderal vegetation on the spoil areas with a number of the important aquatic species in the bare substrate spoil ponds. As Haes & Spalding (1996) pointed out, conservation bodies do not tend to be excited by bare ground although Kirby (1994) estimated that up to 15% of nationally rare and scarce invertebrate species are likely to occur on artificial ruderal habitats. Jones (1999) recorded a number of interesting and nationally scarce invertebrate species from distinctly unpromising urban habitats along two tributaries of the River Thames in London and there is an increasing number of reports of rare and scarce species from urban and post-industrial sites (Eyre *et al.*, 2002a,b). It is likely that the open nature of these sites is the main reason for the occurrence of interesting invertebrate species because they are relatively scarce in a highly managed landscape but even if, as at Allerton Bywater, an area is not aesthetically pleasing, it may have considerable conservation interest.

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SHORT COMMUNICATION

***Lasius brunneus* (Latr.) (Hymenoptera: Formicidae) found indoors.** – In May 2003, a naturalist colleague Mr Mike Paice gave me four ants; he had found them in a house in the village of Jaebob's Well, near Guildford, Surrey, where they had been infesting a tin of biscuits. To my surprise, they were *Lasius brunneus*. In virtually all of the literature, this species is described as being 'fugitive', alluding to its evasive, secretive and non-aggressive habits. To find it invading a house is very unusual. From my own experience the normal ant found indoors is the ubiquitous black pavement ant, *Lasius niger* (L.), which commonly invades kitchens. Busy ant trails often lead to small amounts of spilled food in larders and cupboards or spoiled fruit at the bottom of the fruit bowl. In Norway and Sweden, *L. brunneus* is recorded from timbers in old houses and farm buildings (Collingwood, C. A. 1979. The Formicidae (Hymenoptera) of Fennoscandia and Denmark. *Fauna Ent. Scand.* **8**: 98–99). The house in Jaebob's Well is old, part of it, and the adjoining barn having been built around 1640, so the ant may well have been nesting in some of the ancient building timber. – RICHARD A. JONES, 135 Friern Road, East Dulwich, London SE22 0AZ. bugmanjones@hotmail.com

BOOK REVIEW

The Agroecology of Carabid Beetles. Edited by John Holland (Andover, Intercept Ltd., 2002). 356pp. £67.00. ISBN 1-898298-76-9.

Over the last two decades the increasing interest in providing farmers with an integrated package for pest control in arable crops has stimulated research into the value of biocontrol agents of crop pests. Among the potential candidates have been the carabid beetles, which as many are polyphagous predators on arable land, appear to offer an excellent opportunity to capitalise on their behaviour. Although there have been some much cited books on carabid ecology by Hans-Ulrich Thiele and Konjev Desender and some more recent review articles by Gabor Lovei and Keith Sunderland and Bernhard Kromp, this book represents an excellent review of the ecology of carabids specifically associated with agricultural land. John Holland, as editor, has gathered together contributions from most of the leading carabid experts and produced a volume, which provides not only the 'agroecology', but also a review of many important techniques used in this field of research.

The book sets the scene with a chapter considering the matching of carabid life-strategies to the agricultural environment, including a brief review of sampling techniques and even gives an example of 'Spatial Analysis by Distance IndicEs', (SADIE, developed at IACR Rothamsted), as an approach to assessing distribution patterns in a cereal field. Aspects of spatial distribution return again in the last chapter of the book, where it concentrates on population density variation in space and time in the agricultural landscape. It considers the influence of field boundaries, hedges and woodlands on distribution and also that of abiotic factors like microclimate, soil and moisture. These two chapters complement each other very well and give an excellent review of all aspects of carabid general ecology through the agricultural year.

Within the agroecosystem, those carabid species adapted to this environment form carabid assemblages, which are influenced by a number of factors. One of the chapters deals with 'carabid assemblage organization and species composition' making use of a wide range of data sets to report on the frequency of occurrence of carabid species in arable fields and the influence of management and body size on the species distribution. There is a warning that much of the collected data relies on the use of pitfall trap records, but the conclusion indicates that relatively few carabid genera are adapted to temperate arable fields.

Having determined the availability of carabids as biocontrol agents in arable fields their value can be gauged by their ability to consume crop pests. Four chapters are given over to the predatory habits of carabids in the agroecosystem. These chapters combine to give a thorough review of dietary requirements, adaptive morphology, diagnostic techniques for checking carabid diet and an excellent table showing the wide range of carabids that do kill pests. The remaining chapters cover some interesting aspects with carabids as weed seed predators, the impact of agricultural practices on the carabid population and the value of non-crop habitats in enhancing carabid numbers. There is also a valuable chapter reviewing the use of carabids as indicators of the state of the agricultural environment.

Overall this is a comprehensive and erudite volume about the agroecology of carabid beetles, which provides not only some excellent text, but also a valuable source of references about carabid research. It takes a realistic approach to each topic and highlights the areas where further research should be implemented.

LES ALLEN-WILLIAMS

THE CHANGING DISTRIBUTION OF *VOLUCELLA INANIS* (L.) (DIPTERA: SYRPHIDAE)

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Abstract. The historic distribution of the hoverfly *Volucella inanis* is investigated, following reports that it is undergoing a significant expansion in range. We demonstrate that *V. inanis* underwent a contraction in range prior to 1960. From then until the 1990s, records were concentrated in south-east England after which evidence of range expansion becomes readily apparent, although there are no indications that it is moving back into its former western range. The reasons for these changes are unclear, but climatic factors are believed to be the implicated factor.

INTRODUCTION

Verrall (1901) regarded *Volucella inanis* (L.) as a ‘rather rare species’ but reported that it was known ‘in considerable numbers from Devonshire, Somersetshire, Hampshire, Sussex and Essex’. By the end of the 20th Century, with noteworthy exceptions, it was largely confined to south-east England from the Solent to Suffolk (Ball & Morris, 2000), closely mirroring its near relative *V. zonaria* (Poda). The data we hold show that its western distribution included an extensive scatter of records from the Solent to Cornwall prior to 1960 and there are single records from north Devon, south Wales and a few from Dorset and the Isle of Wight recorded between 1980 and 1989. By 1999, its inland distribution extended well beyond the London area, throughout Surrey (Morris, 1998) and into Hampshire, Berkshire, and Hertfordshire, with an outlying record from Chippingham Fen, Cambridgeshire, but it seems to have disappeared entirely from western England.

Since 1999 there have been a number of remarkable new records from such diverse locations as Peterborough and elsewhere in Cambridgeshire (Stubbs, 2001), Leicestershire, Norfolk, Nottinghamshire and Staffordshire. The number of new records from such outlying locations is a clear indication that *V. inanis* is undergoing an expansion of range that is much wider in extent than *V. zonaria* (Morris & Ball, in press). In tandem with our investigation into the changing distribution of *V. zonaria* we have undertaken a similar exercise to consider the story of *V. inanis*.

Unlike *V. zonaria* (over 1000 records) we have many fewer records of *V. inanis*, (over 750), covering a much greater timespan. One possible reason is that *V. inanis* was considered to be an established component of the British fauna and did not elicit great interest and regular publication of records. Our knowledge of this species’ historic distribution is therefore confined to museum specimens and occasional literature records. The establishment of the Hoverfly Recording Scheme in 1976 meant that there was a co-ordinated effort to assemble records and this means that caution must be attached to perceived distributions prior to 1970, and the changes that appear to have occurred, but some broad observations can be made. It is clear from figure 1 that the numbers of records jumped around the time that the Hoverfly Recording Scheme was launched, and even more so after *British Hoverflies* (Stubbs & Falk, 1983) was published but, even so, yearly numbers fluctuate dramatically.

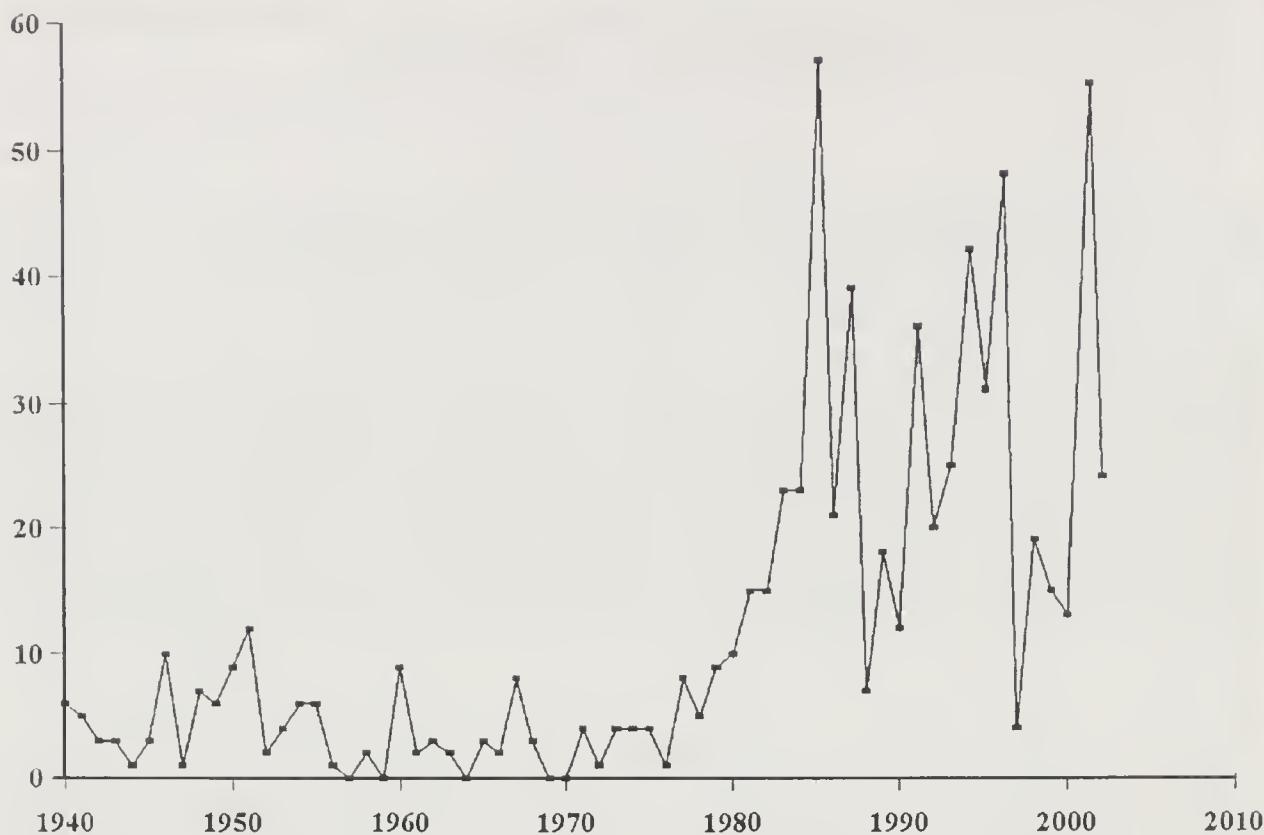


Fig. 1. Numbers of records of *Volucella inanis* 1940–2001.

HISTORICAL CHANGES

There would appear to have been two distinct changes in distribution. Firstly a contraction of the western range to eastern England during the middle of the 20th Century, followed by a northward expansion of range from the 1990s onwards.

Over the 65 years from 1874 (the first record we have) to 1939, the majority of records are of occasional single individuals, although some localities seem to have yielded records on a number of occasions. For example, there are regular records from the New Forest at the turn of the 19th Century, with a number of F. C. Adams specimens in the collections of the Natural History Museum (London). It is therefore possible that *V. inanis* was only a partial resident, with numbers augmented by vagrants or migrants. The mainly coastal nature of the records (Figs. 2a & 2b) might support this conjecture, although it is curious that further southwesterly records are largely absent after the 1960s (Figs. 2c, 3a–c). Between 1940 and 1959, the majority of records were concentrated in the London area and in parts of Dorset and Hampshire to some extent mirroring the distribution of *V. zonaria*. However, in the early 1940s, *V. inanis* was certainly well established on the north Devon coast: there are six specimens (3♂♂, 3♀♀) from Lynton, Devon, between 10 and 17 August, 1941.

The recorded distribution between 1960 and 1979 (Fig. 2c) shows that the principal concentration of records was in south-east England, with a scatter of records from Dorset. Anecdotally, it seems that there may have been a significant contraction of range in the 1960s, with records concentrated in London and the Home Counties, Sussex and Kent. The late Cyril Hammond's diary, for example, lists no records between 1961 and 1966 but resumes with regular records from 1967 until 1979. Furthermore, despite regular forays into the Surrey countryside, he fails

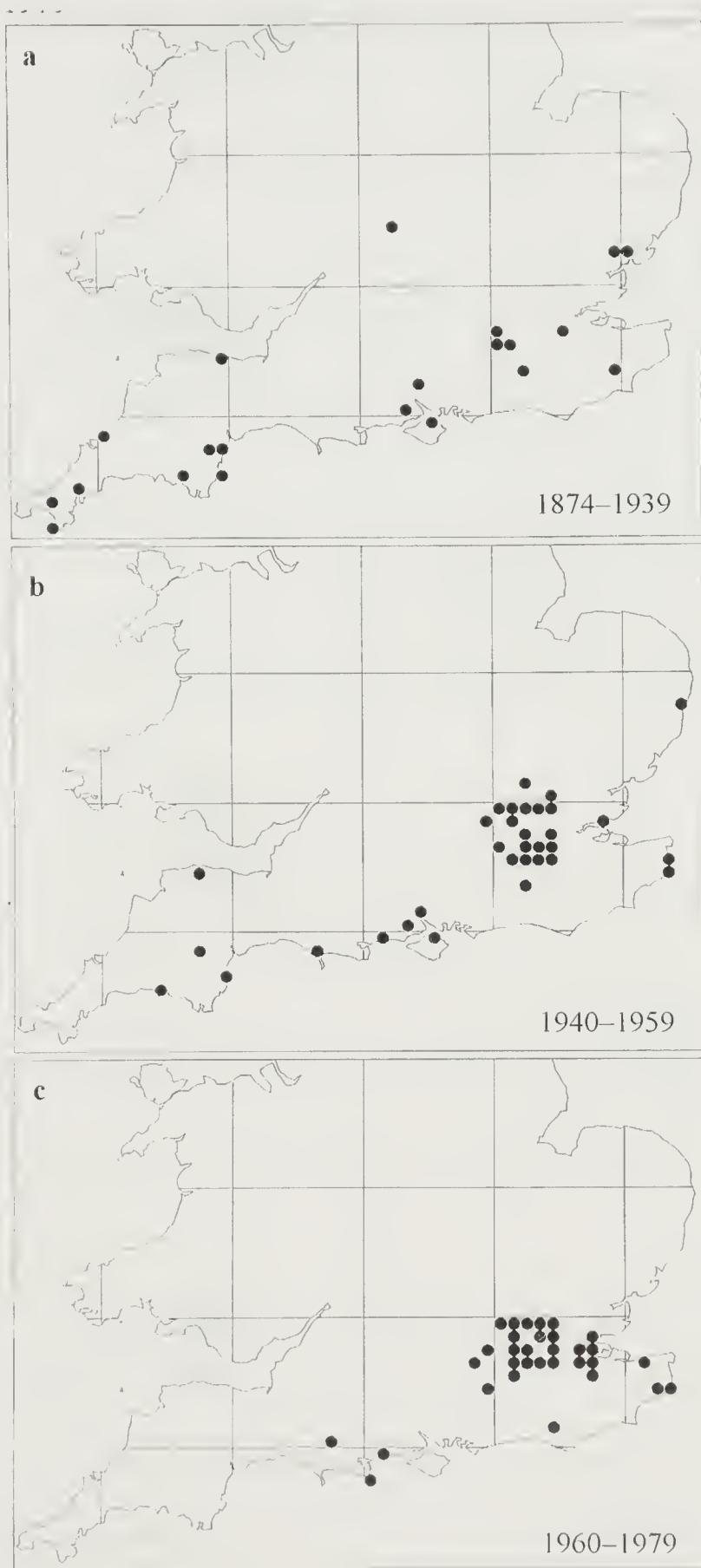


Fig. 2. Distribution of *Volucella inanis* in Southern England 1874 to 1979.

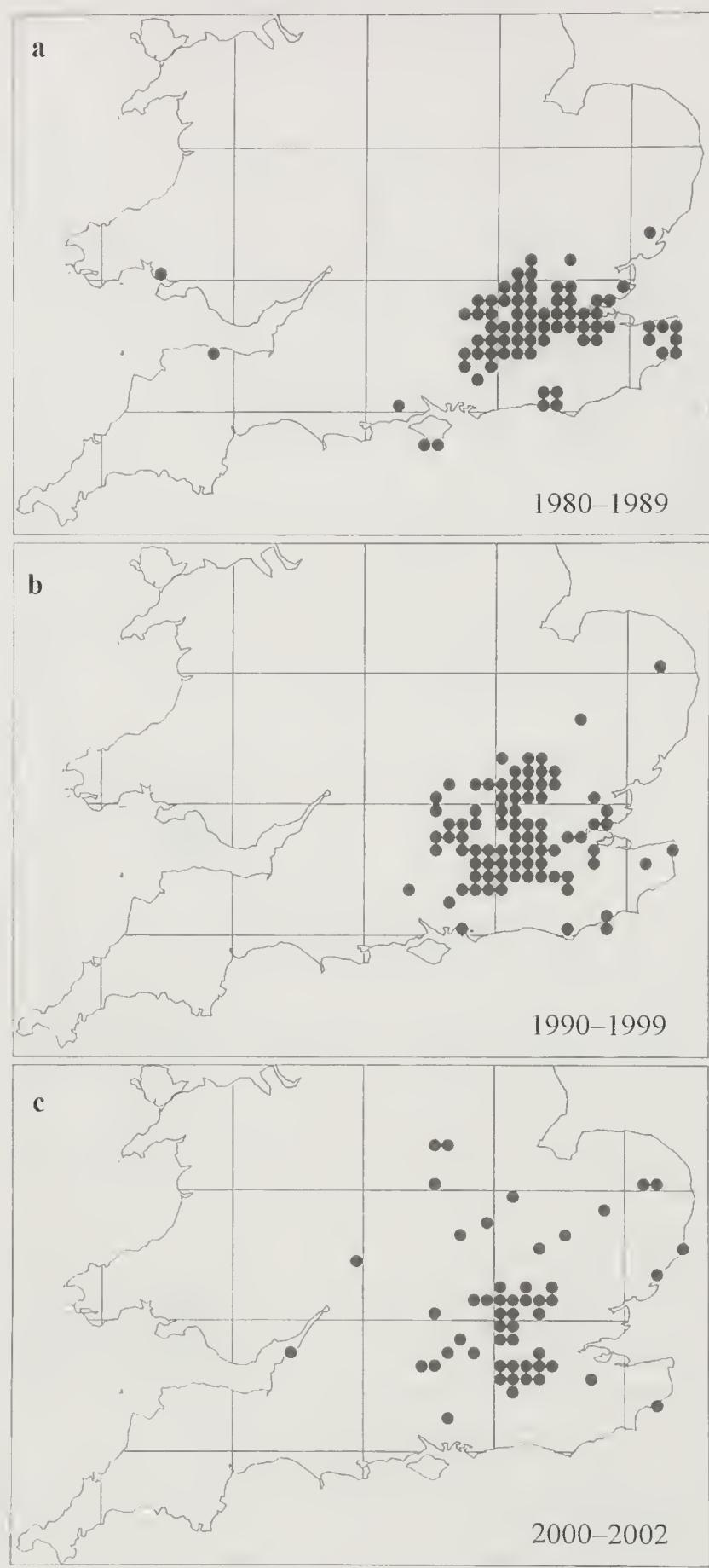


Fig. 3. Distribution of *Volucella inanis* in Southern England and Wales 1980 to 2002.

to record *V. inanis* amongst the hoverflies listed. The reason for this drop in reports in the 1960s is unclear, but it is possible that the period of extreme cold weather was a significant factor.

Concentrated recording effort in the 1980s, especially in Surrey, showed that *V. inanis* was well established in London and the Home Counties, Kent (Clemons, 1998), Sussex and parts of Hampshire; with outlying records from Devon and south Wales (Fig. 3a). Its northern range appears to be more extensive than that for the 1970s and there are the first indications of an expansion in range. This of course may be an artefact of improved recording, but it is possibly more than coincidence that a similar picture is presented in the better recorded *V. zonaria*. Evidence of expanding range is more marked in the 1990s, which show substantial expansion northwards into Hertfordshire, and westwards into Berkshire and Oxfordshire, and north-east into Cambridgeshire and Norfolk (Fig. 3b). However, despite extensive and detailed recording in western England, especially Dorset and Somerset, there are no records of *V. inanis*, suggesting that it had disappeared across its western range.

In 2001 there were unprecedented reports from eastern England of *V. inanis* at localities far away from its known range. Stubbs (2001) reports records from south Cambridgeshire where there were numbers of records, Leicestershire and Nottinghamshire (Fig. 3c). There is also a record from Northamptonshire sent independently to the Hoverfly Recording Scheme, a report from Thetford of a specimen at an mv trap, and records from Norwich (Paston, 2001) which indicate that a population had become established in west Norwich in the late 1990s. However, records supplied to the Hoverfly Recording Scheme are not complete and the full picture for the period since we last trawled records is not available.

WHAT IS CAUSING THESE CHANGES IN RANGE?

At the moment, it is far from clear why there has been a contraction in western range. However, the expanding distribution in to the midlands and eastern England can potentially be explained.

We know that the 1990s saw a period of unprecedented warm weather, with average yearly temperatures exceeding past records in most years (Bealey *et al.*, 1998). Many components of the natural environment have responded accordingly, including expansions in the range such as that of *V. zonaria* (Morris & Ball, *in press*), and earlier emergence times for some species, for example *Epistrophe eligans* (Harris) which has recently been emerging in March in south London (Morris, 2000). Observed changes in the range of *V. inanis* are therefore likely to be a response to climate change.

As we have shown for *V. zonaria*, it is possible to relate the distribution of some species to climate maps. In the case of *V. zonaria*, a clear link to winter and summer mean temperatures has been demonstrated. The distribution of *V. inanis* differs from *V. zonaria* in a number of ways, not least because it appears to be largely confined to eastern England and at the moment is seemingly absent from the majority of the south-west. It is expanding northwards, but there is little evidence of significant westward expansion. This tends to suggest that average summer temperatures are likely to be more influential than minimum winter temperatures. Unfortunately, this is rather less clearly defined than we have been able to show for *V. zonaria*. Exceptionally hot summers, such as those in the early 1990s do not seem to be the over-riding factor, as an expansion in range might have been expected much earlier than the data suggest. However, average summer temperatures do seem to be a possibility. It remains to be seen how much further the range of *V. inanis* will expand.

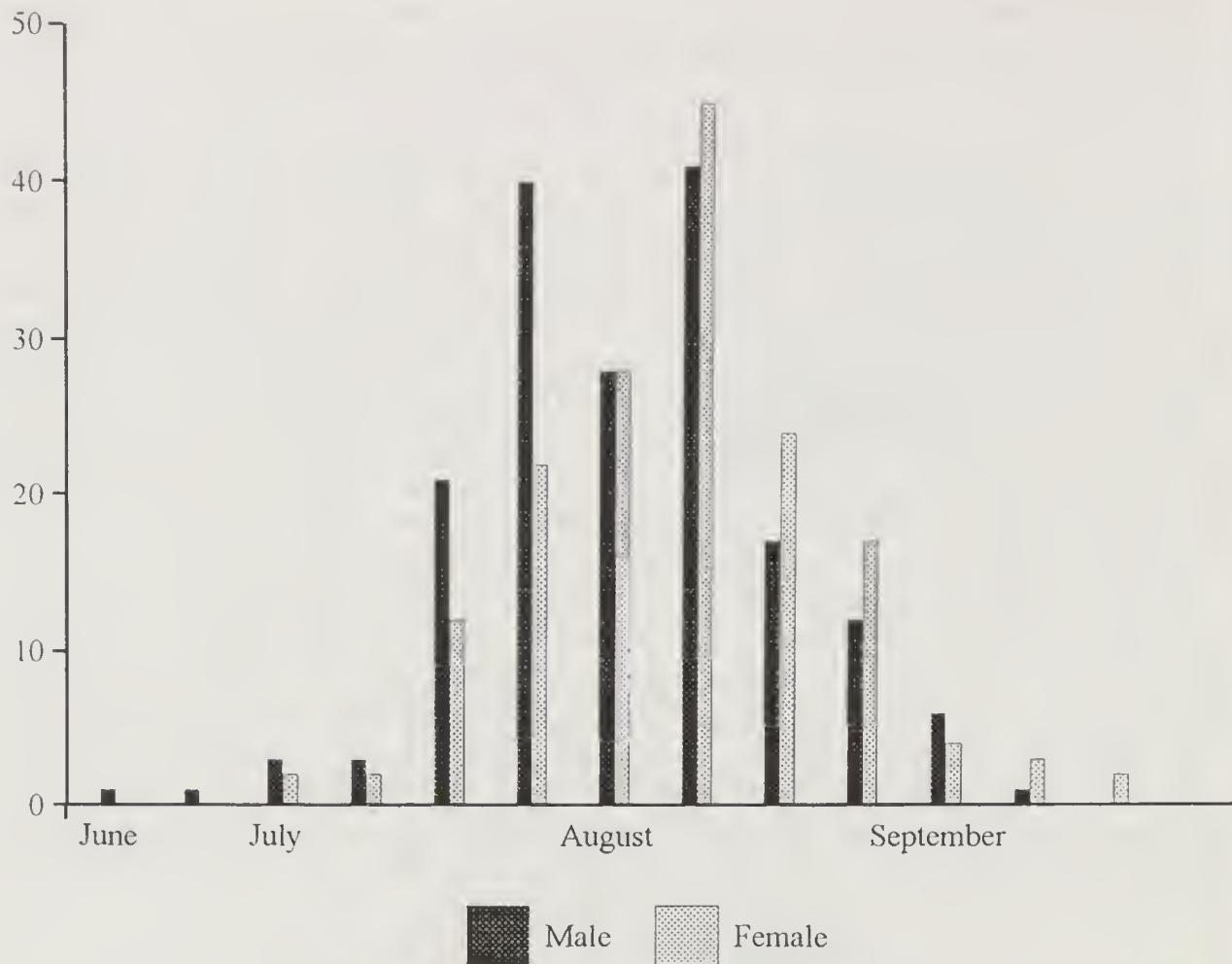


Fig. 4. Phenology of male and female *Volucella inanis*

ADDITIONAL NOTES ON BIOLOGY

Stubbs & Falk (1983) report associations with *Vespa germanica* (Fabr.) and the hornet *Vespa crabro* L. One of us (R.K.A.M.) has seen this species investigating a wasp's nest in a roof and there is a specimen in the Natural History Museum (London), taken by W. J. Tampion in 1952, bearing a data label indicating that the specimen had been taken at a hornet's nest. There is also a report from Mark Telfer of three larvae found on a window sill in October/November 2001, together with large numbers of dead wasps (unknown species) which had fallen through a hole in the ceiling of a house in Stoke Mandeville (Bucks). These larvae were kept in damp sand indoors and yielded three *V. inanis* between 6 and 9 February 2002.

Unlike other *Volucella* which are mainly predators and/or scavengers in vespine nests, *V. inanis* larvae are ectoparasites of wasp grubs (Rotheray, 1993). The reported link with hornets may be influential in determining the ongoing expansion in range of *V. inanis*, because hornets themselves are reported to have had a number of successful years. This may help to explain the presence of *V. inanis* in Peterborough where hornets are well established. However, there are parts of the range of *V. inanis* where hornets do not appear to occur (see distribution map in Edwards, 1997).

The phenology of *V. inanis* shown in Ball and Morris (2000) indicates that this species occurs from June to September, but more detailed analysis of the occurrence of males and females shows that the earliest records are for males and the latest for females. However, unlike *V. zonaria* both sexes are more coincident (see Fig. 4).

Males peak towards the end of July and through to the second week of August, whilst females peak in the second week of August.

COMMENTS

Unlike the story for *V. zonaria*, that of *V. inanis* is less clear-cut and there are a number of conundrums. Why, for example, has its distribution switched away from south-west England? Also, is the current expansion of range linked in any way to the changing fortunes of the hornet? And, of course, can the climatic factors we have identified be refined further?

There are real opportunities to answer some of these questions given detailed recording. We are keen to receive all records of this species and other hoverflies, especially regular counts from frequently visited sites or from gardens. In keeping with our call for careful recording of *V. zonaria* in relation to episodes of high migrant activity, it would also be helpful to see whether any similar picture emerges for *V. inanis*. Much more can be gleaned from studying the remains of wasp and hornet nests, developing a picture of the preferred vespine associations in Britain.

ACKNOWLEDGEMENTS

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BOOK REVIEW

Oaks, Dragonflies and People – creating a small nature reserve and relating its story to wider conservation issues. By N.W. Moore. (Colchester, Harley Books, 2002). Paperback £15.95. ISBN 0 946589 71 2.

Oaks, Dragonflies and People presents the story of what is either one of the UK's smallest nature reserves, or one of its best studied wildlife gardens. Norman Moore's very readable book describes in some detail how, since the early 1960s, he has gradually turned an acre-and-a-half of agricultural land into a small wildlife oasis. This has involved the planting of hundreds of trees, shrubs and wildflowers, and, in the early 1980s, the excavation of a large pond.

Moore's small reserve is in the village of Swavesey, in the Cambridgeshire fenlands. This is a landscape dominated by intensive agriculture, and it provides a real test of the colonising ability of wild plants and animals. Nonetheless, Moore's reserve has been found by Water Vole, Great Crested Newt, Grass Snake, twenty-three species of butterfly, and nineteen species of dragonflies and damselflies. The book includes transect data for both butterflies and Odonata over a period of seventeen years (more for the older parts of the reserve). This provides a good index of population changes, which not only reflects the colonising abilities of the various species, but shows the impact of changes in habitat on the abundance of even common and widespread species. The arrival of new species on the site, the ways they have exploited it, and the eventual loss of some species are discussed in a major chapter, which also includes descriptions of some small, but elegant experiments. For example, by taking advantage of the habit of Common Darters to perch on a garden trug, Norman Moore was able to move territorial males around his pond. Rather than return to their apparent territories, the dragonflies simply defended the space around where the trug was placed.

But this book is more than just a study of one person's private nature reserve. In the final chapters, Moore takes a long and slightly uneasy step from the intimately personal to the broadly political. He starts by arguing in favour of nature reserves – and particularly the continued, and increased, public acquisition of nature reserves – as essential to the conservation of wildlife in Britain. This stance is well supported by the preceding chapters. Moore's experience in his small reserve at Swavesey shows how much biodiversity can be packed into a small area, and, perhaps more importantly, illustrates that physical isolation does not equate with ecological isolation.

Less comfortable is Moore's proposal for a new form of politics, for which he coins the term 'Future Care'. This is envisaged as a way for politicians to take a view that extends well beyond the next election, and considers today's policies in terms of their impact on future generations and the future environment. As such, it does seem somewhat naive to expect the idea, or the term itself, to be taken up with any seriousness in political circles. However, the same might have been said a few years ago of concepts such as 'biodiversity' or 'sustainable development', both of which now sit within the mainstream of politics, although more often in word than deed.

Norman Moore has been a prominent figure in entomology and nature conservation for half a century, and his thoughts and ideas, set out in this interesting and very readable book, deserve to be read and considered. Whether it leads to the adoption of Future Care as a political concept remains to be seen; but if it results in more people setting aside small areas of land for wildlife, the book will have been well served.

A CHECKLIST OF THE IRISH FIGITIDAE EXCLUDING CHARIPINAE & EUCOILINAE (HYMENOPTERA)

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Abstract. The Irish species of Figitidae excluding Charipinae and Eucoilinae (Hymenoptera) are reviewed, and a checklist provided. A total of 17 species is now known from Ireland, 10 of which are recorded for the first time in this paper.

INTRODUCTION

The Figitidae is a family of parasitoid wasps within the superfamily Cynipoidea, the latter including the phytophagous gall-inducing wasps in the family Cynipidae. The biology of the Figitidae is poorly understood, but apart from the Charipinae all seem to be primary, solitary endoparasitoids. The main host preferences of the three (Irish) subfamilies considered in this paper are as follows: Figitinae are internal parasitoids of Diptera in carrion, dung or plant substrates; Anacharitinae are parasitoids of Hemerobiidae (Neuroptera); Aspicerinae are parasitoids mostly of Syrphidae (Diptera) preying on aphids (Hemiptera). From the information available, it seems likely that many parasitic cynipoids have more than one generation per year (Fergusson, 1986). *Callaspidia defonscolombei* Dahlbom has two generations (Rotheray, 1979) and *Figites* can have three. James (1928) has suggested that the preponderance of females in reared samples of *Figites anthomyiarum* Bouché might indicate that a certain amount of parthenogenesis occurs.

Little work has been done on the Irish fauna. However, as with so many other Irish insect groups, A. H. Haliday made a valuable contribution, being the author of three genera (Haliday in Curtis, 1829; Haliday in Walker, 1835). Two of these are still valid (*Aegilips* and *Melanips*) while the third (*Onychia*) is preoccupied. Haliday's latin descriptions of *Aegilips* and *Melanips* are very detailed but no Irish species are cited. Subsequently, Fergusson (1986) and O'Connor and Speight (1987) added five and two species respectively to the Irish list.

THE CHECKLIST

A total of 17 species is now on the Irish list, 10 of which are reported for the first time in this paper. One of these, *Aspicera scutellata* (Villers), has not yet been found in Britain where twenty four species have been recorded. The Irish fauna is therefore well known, with over 66% of that found in Britain. By contrast, the percentages for the braconids (44%) and chalcidoids (30%) are much lower (O'Connor *et al.*, 1999, 2000). The listed material was identified using Fergusson (1986). The nomenclature, host data and British distributions follow that work. Unless otherwise stated, voucher specimens of the new species have been deposited in the National Museum of Ireland, Dublin. The following abbreviations are used in the text: AWS - A. W. Stelfox; BMNH - British Museum (Natural History); EOM - E. O'Mahony; JPOC - J. P. O'Connor; MAOC - M. A. O'Connor; RAP - R. A. Phillips. * = species new to Ireland.

FIGITINAE

**Figites anthomyiarum* Bouché, 1834

CARLOW: St Mullins (S7238), 15.viii.1994, collected on the bank of the River Barrow, JPOC; DUBLIN: Phoenix Park, 27.vi.1943, AWS Collection (BMNH); The Island, 14.viii.1945, AWS; LAOIS: Abbeyleix, 27.viii.1925, RAP.

New to Ireland. *Figites anthomyiarum* is a common species in Britain. The hosts are dipterous larvae of *Anthomyia*, *Calliphora*, *Hydrotaea*, *Hylemya*, *Lucilia*, *Musca*, *Phorbia* and *Sarcophaga*, especially when in carrion.

**Figites consobrinus* Giraud, 1860

LOUTH: near Dundalk, 30.vi.1942, AWS (BMNH); WEXFORD: Carnsore Point (T1203), 1.ix.1980, JPOC.

New to Ireland. *Figites consobrinus* is widespread but not common in Britain. The species is a parasitoid of Diptera associated with carrion and dung.

**Figites ictus* Fergusson, 1986

KILKENNY: no locality, 8.ix.1925, RAP; WICKLOW: The Murrough, south of Newcastle, 5.viii.1942, AWS (BMNH).

New to Ireland. *Figites ictus* is known from six English counties. Its host is unknown.

Lonchidia clavicornis Thomson, 1862

Recorded from Dublin, Leitrim, Sligo and Wicklow by Fergusson (1986). In Britain the species has only been reported from three counties in England. Its host is unknown.

Lonchidia macnlpennis (Dahlbom, 1842)

Recorded from Dublin and Wicklow by Fergusson (1986). The species has been reported from eight British counties. Its host is unknown.

Melanips microcerus (Kieffer, 1903)

Recorded from Dublin and Wicklow by Fergusson (1986). The species has been reported from four British counties. Its host is unknown.

**Melanips opacus* (Hartig, 1840)

CAVAN: Virginia Woods (N5987), swept in mixed woodland, 21.v.1989, JPOC & MAOC; DUBLIN: Castleknock (O0837), Malaise trap in suburban garden, 7–21.vi.1984, JPOC & MAOC; Phoenix Park, 23.vii.1942, AWS (BMNH); KILDARE: Rye Water & Royal Canal, 16.v.1943, AWS Collection (BMNH); MEATH: Kilmessan (N8857), swept from vegetation along disused railway track, 27.v.1990, JPOC & MAOC; WATERFORD: near Passage East (S6811), swept from vegetation along hillside path, 12.vi.1991, JPOC; WEXFORD: Slieve Coiltia (S7221), 14.vi.1990, JPOC.

New to Ireland. *Melanips opacus* is very common in Britain. The hosts are hoverfly larvae belonging to *Episyrphus balteatus* (Degeer), *Syrphus ribesii* (L.), *S. torvus* Osten Sacken and *S. vitripennis* Meigen (Diptera: Syrphidae).

**Melanips sylvanus* Giraud, 1860

WEXFORD: Fethard (S7905), swept from sand-dunes, 10.vi.1990, JPOC.

New to Ireland. *Melanips sylvanus* has only been reported from Fife and Surrey in Britain. Its host is unknown.

**Sarothrus tibialis* (Zetterstedt, 1838)

TIPPERARY: Ballinacourty, Aherlow, 26.ix.1943, AWS Collection (BMNH).

New to Ireland. *Sarothrus tibialis* is common in Britain. Its host is unknown.

ANACHARITINAE

**Aegilips atricoruis* Fergusson, 1985

DUBLIN: Castleknock (O0837), Malaise trap in suburban garden, August 1984, JPOC.

New to Ireland. *Aegilips atricoruis* is common in Britain. Its hosts are lacewing larvae belonging to *Wesmaelius betulinus* (Ström) and *W. subnebulosus* (Stephens) (Neuroptera: Hemerobiidae).

**Aegilips uitidula* (Dalman, 1823)

LEITRIM: Glencar (G7643), swept from vegetation beside the waterfall, 25.viii.1992, JPOC; WATERFORD: Ballin Lough (S4403), swept from lakeside vegetation, 18.vi.1990, JPOC & MAOC.

New to Ireland. *Aegilips uitidula* is common in Britain. Its hosts are lacewing larvae belonging to *Hemerobius* sp. and *W. subnebulosus* (Neuroptera: Hemerobiidae).

**Anacharis eucharioides* (Dalman, 1818)

ANTRIM: Glenarm, 26.vii.1931, AWS; CARLOW: Cloughristick (S7069), swept from mixed vegetation beside River Barrow, 19.vi.1982, JPOC & MAOC; CLARE: Burren (M2711), swept from vegetation in a marsh, 4.vi.1992, JPOC & MAOC; Kilshanny (R1093), swept from a hedgerow, 31.vi.1992, JPOC; near Formoyle (M1606), Burren, swept from vegetation on limestone pavement, 29.v.1992, JPOC; DOWN: Conlig, 4.viii.1931, AWS; DUBLIN: St Anne's, Clontarf, August 1924, EOM; KILDARE: Louisa Bridge (N9936), swept from vegetation in a marsh, 2.viii.1982, JPOC & 30.viii.1991, JPOC & MAOC; Newbridge Fen (N7616), swept in fen, 8.ix.1991, JPOC & MAOC; LEITRIM: Glencar (G7643), swept from vegetation beside the waterfall, 25.viii.1992, JPOC; WATERFORD: near Passage East (S6811), swept from vegetation along hillside path, 3.vii.1991, JPOC & MAOC; Belle Lake (S6605), swept from lakeside vegetation, 11.vi.1991, JPOC; WESTMEATH: Pakenham (N4470), swept in mixed woodland, 23.vii.1989, JPOC; WEXFORD: Curracloe (T1127), swept in marsh beside sand-dunes, 13.vi.1991, JPOC & MAOC.

New to Ireland. *Anacharis eucharioides* is very common in Britain. Its hosts are lacewing larvae belonging to *Hemerobius micans* Olivier, *Wesmaelius betulinus* and *W. subnebulosus* (Neuroptera: Hemerobiidae).

**Anacharis iuuuunis* Walker, 1835

DUBLIN: St Anne's, Clontarf, emerged 22.v.1939 from Diptera in the nest of a mistle thrush collected on 23.iv.1939, EOM; WATERFORD: near Passage East (S6811), swept from vegetation along hillside path, 3.vii.1991, JPOC & MAOC; WICKLOW: Athdown, 8.ix.1938, AWS Collection (BMNH).

New to Ireland. *Anacharis iuuuunis* is very common in Britain. Its known hosts are lacewing larvae belonging to *Hemerobius stigma* Olivier, *W. betulinus* and *W. subnebulosus* (Neuroptera: Hemerobiidae). O'Mahony's Clontarf record is therefore of interest.

Xyalaspis aruata (Giraud, 1860)

KILDARE: Kilkea Park, September 1937, AWS (BMNH).

Recorded from Dublin and Sligo by Fergusson (1986). The species has been reported from three counties in Britain. Its host is unknown.

Xyalaspis petiolata Kieffer, 1901

DUBLIN: Harold's Cross, 29.viii.1933, AWS; WESTMEATH: Tudenham (N4147), swept from lakeside vegetation, 9.vii.1997, JPOC.

Recorded from Kildare by O'Connor and Speight (1987). The species is common in Britain. Its hosts are lacewing larvae belong to *Hemerobius* and *W. subnebulosus* (Neuroptera: Hemerobiidae). The adults are often found on tree bark.

ASPICERINAE

Aspicera scutellata (Villers, 1789)

Recorded from Meath by Fergusson (1986). The species has not been found in Britain. Its host is unknown.

Callaspidia defonscolombei Dahlbom, 1842

KILDARE: Louisa Bridge (N9936), swept from vegetation in a marsh, 2.viii.1982, JPOC; TIPPERARY: Aherlow, 13.ix.1943, AWS.

Recorded from Westmeath by O'Connor and Speight (1987). *Callaspidia defonscolombei* is common in Britain. The species is a solitary parasitoid of hoverfly larvae (Diptera: Syrphidae). The adults are bivoltine, being most numerous in early August and late September.

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THE GLOW-WORM *LAMPYRIS NOCTILUCA* L. (COLEOPTERA: LAMPYRIDAE) IN ESSEX

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Abstract. During 2001 and 2002, a detailed survey investigating the distribution and abundance of the Glow-worm *Lampyris noctiluca* L. was undertaken in Essex. Only 13 records existed for this species within the county at the start of the survey, and many of these were old and gave imprecise location details. A simple transect method was utilised to ascertain the abundance of *L. noctiluca* at 12 sites, whilst records of this species since 1992 were collected to determine the current distribution in the county. The survey results suggest a widespread distribution of *L. noctiluca* in Essex and a large number of recorded sites, despite a lack of favourable habitat in the county. However, the transect survey data highlight the uncertain future for this species in Essex. Counts of glowing adult females on the transect walks were generally very low. Some of the smaller populations were isolated by several kilometres from the next nearest occupied site. These colonies are therefore most at risk from extinction, particularly as the available favourable habitat at these sites is limited.

INTRODUCTION

The Glow-worm *Lampyris noctiluca* L. (Coleoptera: Lampyridae) has a widespread but distinctly local distribution in Britain (Tyler, 2002), apparently being more abundant in southern England, especially on areas of chalk downland (Tyler, 1994). This species is predominantly a grassland insect, although it occurs in other habitats such as hedgerows and open woodlands (British Naturalists' Association, 1971). The status of *L. noctiluca* in Britain is poorly documented, however, some efforts have been made to ascertain its national distribution. The earliest of these was a survey conducted by the British Naturalists' Association in the 1960s and early 1970s. It was from this initial survey that a decline in the British *L. noctiluca* population was first suspected; with many recorders noting an apparent fall in numbers (British Naturalists' Association 1971; 1974). In 1991/92, a survey was launched by Robin Scagell (Scagell, 2003), with the aim of both revisiting the sites identified by the British Naturalists' Association survey and investigating previously unrecorded ones.

A survey of Gloucestershire between 1980 and 1990 found *L. noctiluca* to be particularly widespread with a large number of colonies (Alexander, 1992). Particularly favourable areas in Gloucestershire included unimproved limestone grasslands in the Cotswolds, the Forest of Dean and scarp grasslands overlooking Cheltenham and Gloucester. Alexander (1992) states that Gloucestershire is one of the best counties in Britain for *L. noctiluca*, perhaps due to the large area of suitable habitats that are present. However, in Essex, favourable grassland habitats are rare due to the extent of urban and suburban areas, and the main land use of arable production (Essex County Council, 1996). The remaining grassland areas suffer from fragmentation and consequent isolation, which may have a significant impact on a sedentary species such as *L. noctiluca* (Tyler, 1994). This species has been suspected as rather rare in Essex (Corke, 1984), but this may be due to under-recording because

the county recorder has historical records for only 13 sites. Many of these records are extremely old with imprecise location details, for example, 'Hazeleigh Wood 1890s'.

To rectify this under-recording, a detailed survey of Essex in 2001 and 2002 was instigated by the authors in an effort to determine the current distribution of *L. noctiluca* in Essex. In addition to recording the locations of this species in the county, the number of glowing females present at these sites was also recorded using a simple transect method. This paper presents the results of the survey and assesses the impact of isolation and habitat availability in determining the future survival of extant *L. noctiluca* colonies in Essex.

METHOD

Study Sites

A transect was established at each of 12 sites with a known *L. noctiluca* colony to allow the abundance of glowing adult females to be ascertained, thus providing comparative data on population size at different sites. Habitats recorded at the transect sites included ancient woodland and unimproved meadow (Table 1). Several of these sites had legal conservation designations, with four transects on land designated as Sites of Special Scientific Interest (SSSI). The remaining transects were established on unprotected land in the general countryside, including rural roadside verges and scrubland.

Table 1: Characteristics of the transect sites in Essex

Site	Site name	Grid ref.	No. females counted	Designations	Description
A	Benfleet Downs	TQ7885	17	SSSI & SPA	Hillside meadow with fringing scrub
B	Bulford Mill Lane	TL7720	10	—	Roadside verge with mature hedgerow
C	Finches Nature Area	TQ9094	79	—	Scrub with rides and glades
D	Danbury Woods	TL7806	57	SSSI	Ancient woodland with rides and glades
E	Dry Street	TQ6986	11	—	Hedgerow with grassy path
F	Hadleigh Castle	TQ8186	72	—	Rough grassland and scrub around castle walls
G	Hatfield Forest	TL5420	6	SSSI & NNR	Ancient grazed grassland adjoining ancient woodland
H	Iron Latch	TL9526	25	—	Restored meadow with fringing scrub and ancient woodland
I	Marks Hill	TQ6888	5	—	Hedgerow with grassy path
J	One Tree Hill	TQ7086	362	SSSI	A mixture of meadow, scrub and woodland
K	Shut Heath Wood	TL8513	18	—	Ancient woodland with glades
L	Manwood Chase	TM0019	83	—	Meadow, scrub and woodland

NNR, National Nature Reserve
SPA, Special Protection Area

Each transect was at least 100 m in length and was walked once in each of three two-week periods: 9–22 July, 23 July–5 August, and 6–19 August in both 2001 and 2002. Any glowing adult females which were observed along the route were recorded. It was felt that these three periods adequately incorporated the peak glowing season in Essex when most adult females would be displaying. The main disadvantage to using transect counts of glowing females as an estimation of colony size is that females only mate once, after which they stop glowing (Tyler, 2002). Therefore, low numbers of glowing females at a site may indicate successful breeding on previous nights rather than a small colony.

Survey participants were required to commence each walk between 2200 and 2300 h, and to terminate by midnight. However, most walks were started at approximately 2200 h and had finished by 2300 h. Therefore, very few walks finished after 2330 h when females may have 'switched off' for the night. A slow strolling pace was recommended for the walks to reduce the risk of overlooking glowing females along the route. Surveys were not conducted in unfavourable conditions, for example, when it was cold, wet or windy, because counts may be reduced under such climatic extremes (Alexander, 1992).

To analyse the quantity of favourable habitat within the immediate vicinity of each transect route, Ordnance Survey Maps and *Wild Essex* (Gunton, 2000) were consulted. Using the maps and the detailed description of transect sites in *Wild Essex*, the approximate area (in ha) of favourable *L. noctiluca* habitat adjoining each transect route was calculated. Favourable habitats included unimproved meadow, scrub, woodland ride, deciduous woodland, roadside verge and any area of nature reserve. The area of favourable habitat was then related to the distance of each transect colony (in km) from the next nearest *L. noctiluca* population, to ascertain which populations were most at risk from extinction. The authors believe that small, isolated colonies which exist in a limited area of favourable habitat are most likely to become extinct in the future.

Casual records of *L. noctiluca* since 1992 were collected from members of the public in both 2001 and 2002 to determine the current distribution of this species in the county. The survey was widely publicised in various newspapers throughout the county and on BBC Radio Essex. Leaflets were distributed to nature reserve visitor centres and a press release was posted on the Essex Wildlife Trust website and the British Glow-worm page www.glowworms.org.uk. Although the survey therefore involved participants with limited or no entomological knowledge, the distinctive nature of the adult females minimised the likelihood of identification difficulties.

SURVEY RESULTS AND DISCUSSION

Lampyris noctiluca has a widespread but localised distribution in Essex (Fig. 1). This species is scattered throughout most of the county, having occurred at 54 sites in 22 10-kilometre squares (approximately 39% of 10-kilometre squares in Essex) since 1992. In comparison with other counties, Essex has a reasonably high number of *L. noctiluca* colonies. For example, in a 10 year survey of Gloucestershire from 1980 to 1990, 58 colonies were recorded (Alexander, 1992). It would appear that in Essex, *L. noctiluca* only occurs where there are suitable habitats such as unimproved meadow and ancient woodland (Gardiner *et al.*, 2002). The majority of sites where *L. noctiluca* individuals were observed during the survey are managed only by infrequent mowing.

Favourable *L. noctiluca* habitats such as unimproved meadow and ancient woodland are rare in Essex, as the majority of the land area comprises arable,

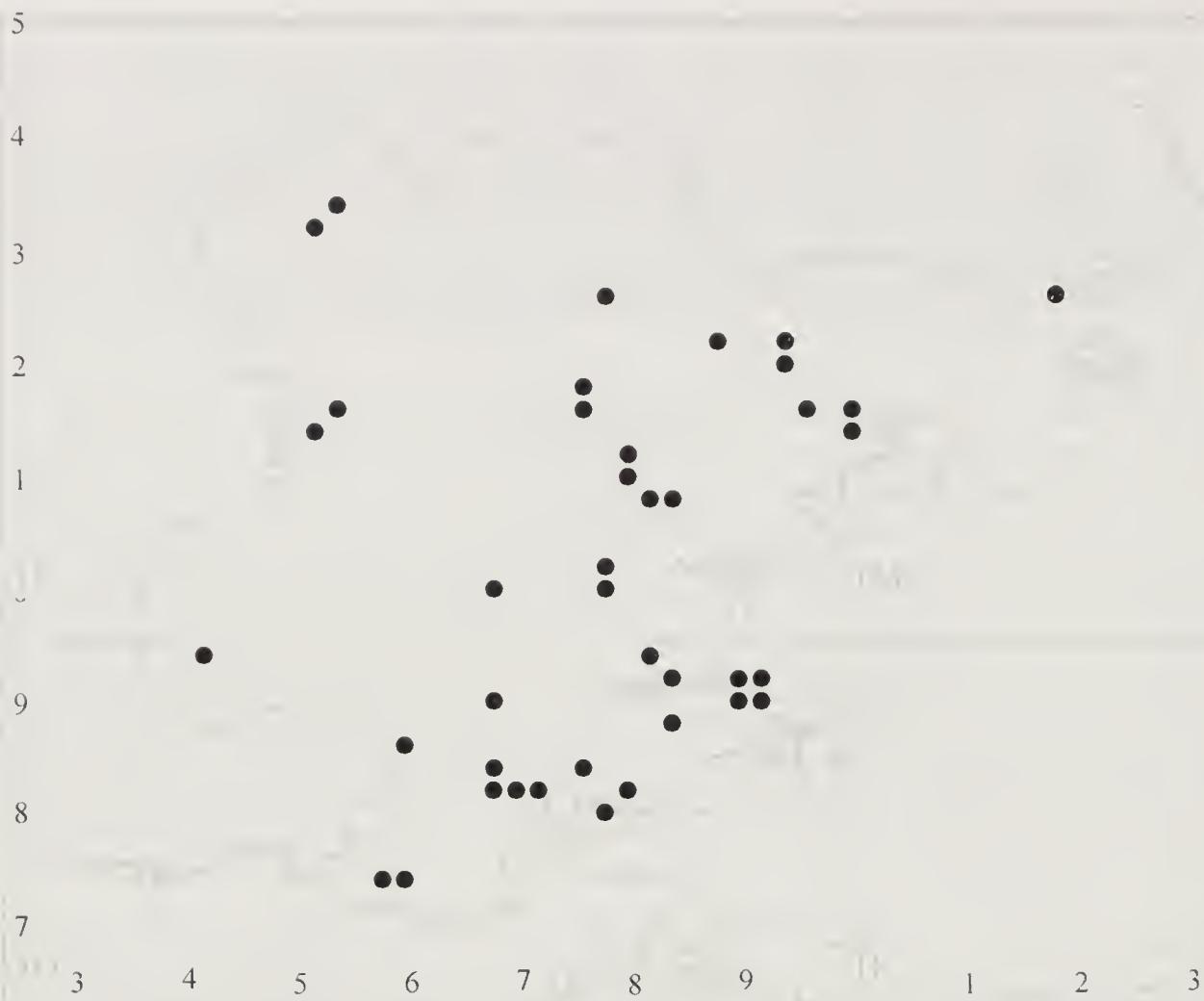


Figure 1. Distribution of *Lampris noctiluca* records in Essex since 1992

pasture or urban/suburban habitats (Table 2). These areas are unsuitable for breeding populations of *L. noctiluca*, which tend to favour unimproved grassland (Tyler, 2002). Potentially favourable habitats for this species such as unmanaged rough grassland only comprise approximately 3% of the land area in Essex (Table 2). However, much of this 10800 ha of rough grassland may have been improved for agriculture and may therefore be unsuitable for sustaining breeding populations of *L. noctiluca* which could be due to the low abundance and diversity of larval prey such as snails in these intensively managed agricultural grasslands. The dearth of

Table 2: Total area of selected habitats in Essex

Habitat	Area (ha)	Proportion
Arable/tilled land	199500	0.52
Pasture/mown grassland	84930	0.22
Urban/suburban	45286	0.12
Deciduous woodland	13070	0.03
Rough grassland	10800	0.03
Other	30298	0.08
Total	383884	

Data from Essex County Council (1996)

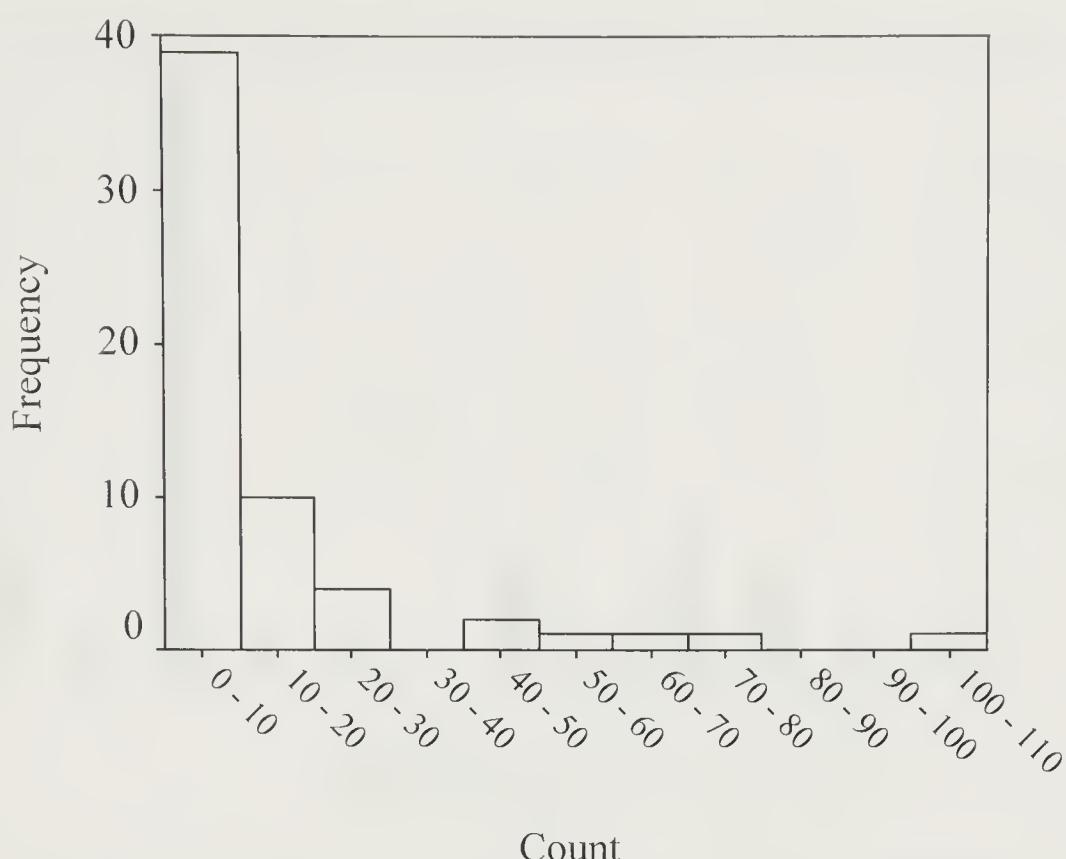


Figure 2. Frequency of *Lampyris noctiluca* female counts in the survey for 2001 and 2002 combined ($n = 59$)

favourable habitats in Essex may explain the extremely localised distribution of this species.

A total of 745 female *L. noctiluca* were observed on the 12 transects in 2001 and 2002. Counts were generally very low (Fig. 2), for example, the modal count was one female (recorded 15 times). The highest count of the survey was recorded at Site J (One Tree Hill, nr Basildon), where 101 females were observed on 10 July 2002. This site had the greatest abundance of *L. noctiluca* females observed over both years (Fig. 3). Numbers were much lower at the other transect sites, particularly Sites E, G and K. *Lampyris noctiluca* is a predator on snails and slugs in its larval stage and as such, is limited to much lower densities than its prey (Tyler, 1994). Numbers of *L. noctiluca* females are liable to large fluctuations from year to year and natural extinctions of local populations can occur (Tyler, 1986), with small colonies particularly vulnerable.

Individuals in small populations may share many of the same genes due to a high occurrence of inbreeding. The smaller Essex populations may have little genetic variability, which Young (1997) states can lead to less adaptability to environmental conditions. This can lead to reduced fitness and genetic variability (Young, 1997) and could ultimately jeopardise the viability of a colony. This area of *L. noctiluca* ecology urgently needs further research.

Approximately nine sites are known nationally where nightly counts may exceed 100 glowing females (Derbyshire Biological Records Centre, 2003). One count of over 100 females was recorded at Site J during the survey, which underlines the importance of this colony in the county and national context. Fortunately, Site J is managed as a nature reserve and consideration is given to *L. noctiluca* in

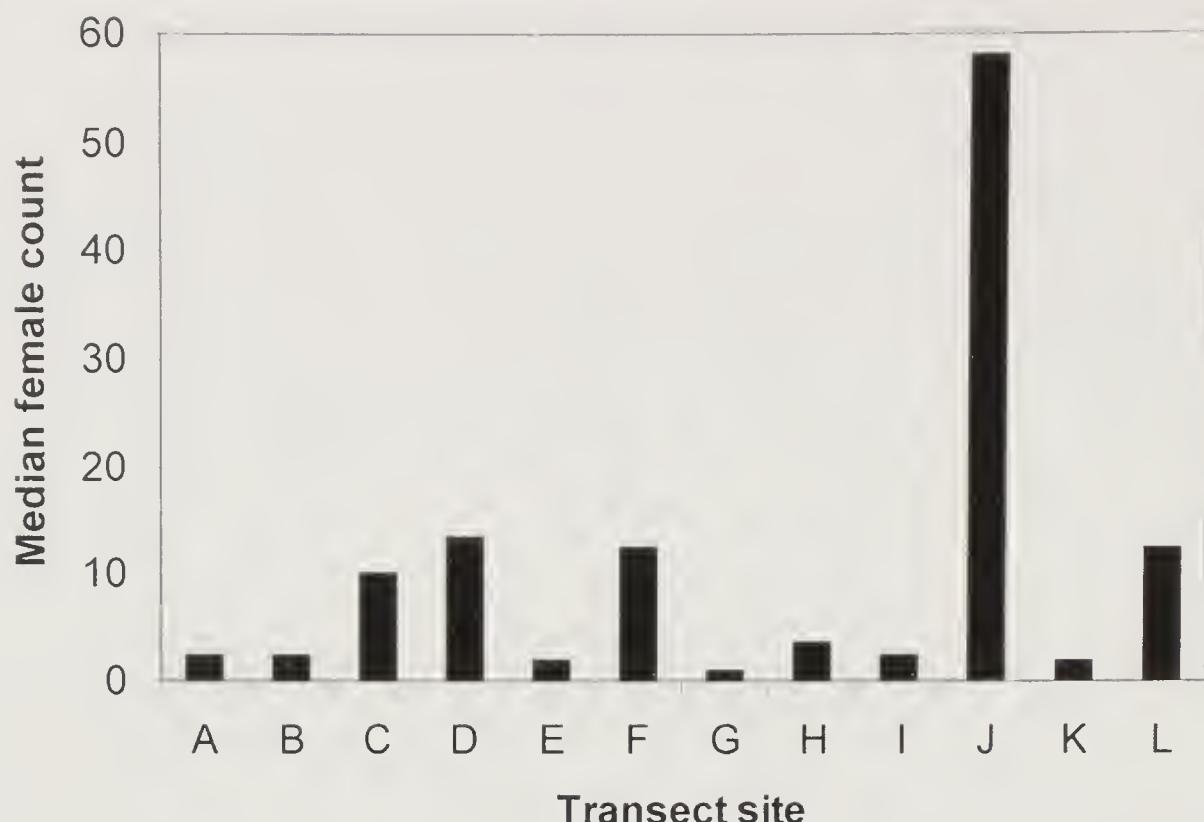


Figure 3. Abundance of *Lampyris noctiluca* females at the 12 transect sites for 2001 and 2002 combined

management planning for this site. Ongoing monitoring of this important colony will continue in the future as any decline in numbers could have serious consequences for the continued presence of this species in the county.

Having determined that most of the colonies in the transect survey are small, it is possible to ascertain which of these populations are most at risk from extinction. This can be achieved through a comparison of the isolation of each colony from the next nearest occupied site and the extent of available favourable habitat in the immediate vicinity. Figure 4 illustrates the level of isolation for each of the 12 transect sites and relates this to the size of available habitat in the immediate vicinity.

There are several colonies (Sites B, C, K and L) which are relatively isolated from the next nearest occupied site ($> 1\text{ km}$), and the size of available habitat in the vicinity of these sites is very small ($< 20\text{ ha}$) (Fig. 4). Colonies which exist in a relatively limited area of favourable habitat may be more prone to extinction due to random events. For example, the small colony at Site B (Bulford Mill Lane, nr Cressing) occurs on a very narrow roadside verge (only one metre in width), where females have been seen glowing within centimetres of the road. Vehicles regularly park along the grassy portion of the verge, which may destroy favourable habitat and have serious deleterious impacts upon larvae and glowing females. At Site J, the largest colony recorded in the transect survey, a large area of favourable habitat is present in the immediate vicinity (160 ha) and the next nearest colony is not too distant (1.0 km), therefore, the survival of this important Essex population seems relatively secure in the short-term. The *L. noctiluca* colony at Site G (Hatfield Forest) is very small (Fig. 3), but exists in a very large area of favourable habitat (approximately 420 ha). There is plenty of potential for this species to become more widespread and common in the Forest, as the main habitats are unimproved grazed grassland and ancient woodland with wide rides.

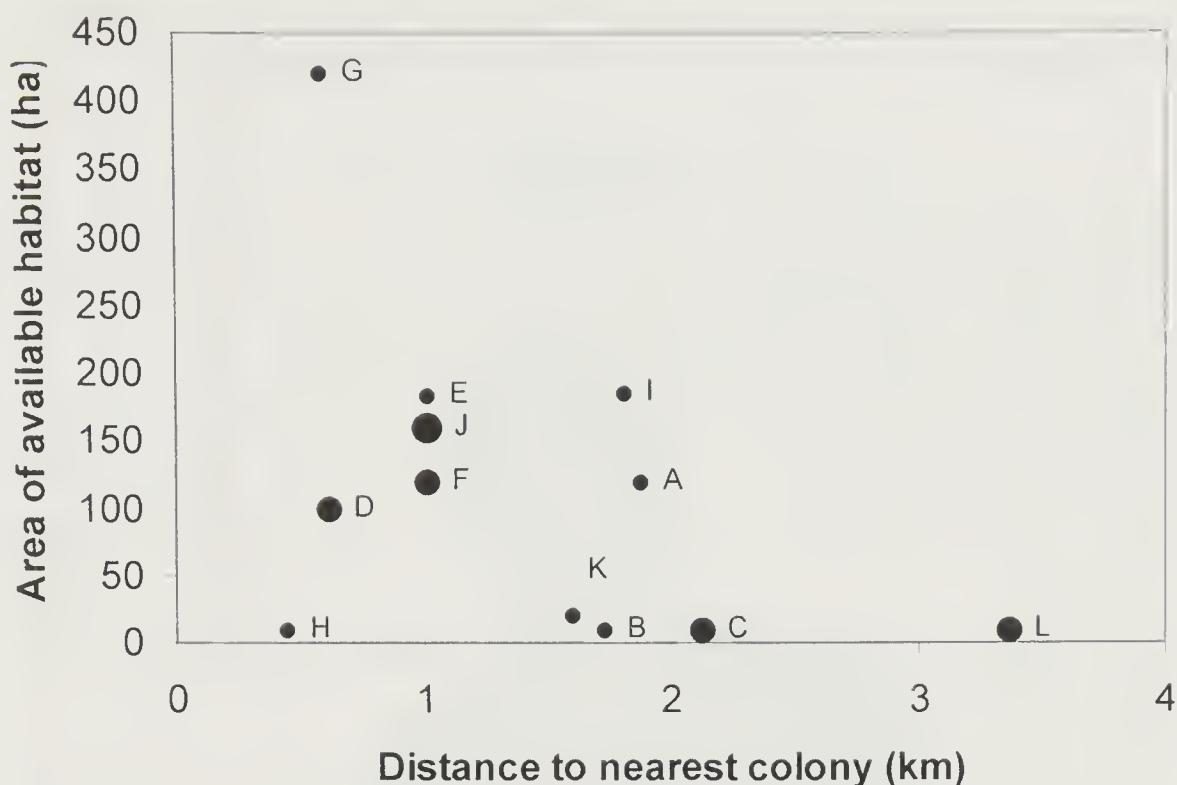


Figure 4 The relationship between colony isolation and habitat availability for each transect site (increasing dot size = increasing median female count)

If colonies such as that found at Site B become extinct, the chances of re-colonisation by individuals from another population are remote. *Lampyris noctiluca* is an extremely sedentary species with very limited dispersal capabilities (Gardiner & Tyler, 2002). Although the winged male is relatively mobile, the adult female is wingless and is completely sedentary during adult life (Tyler, 1986). In a study of marked glowing females, the mean distance travelled between nights was approximately 17 centimetres (Tyler, 2002). Therefore, the ability of *L. noctiluca* to colonise new areas is totally dependent on how far the larva can travel. Tyler (1994) states that a typical larva can travel approximately five metres per hour, although it is not known whether larvae traverse unfavourable habitats such as arable fields. This could have potentially serious consequences for the smaller Essex populations because if a colony becomes extinct either through natural or human intervention, the chances of re-colonisation of the site by larvae from a nearby population is unlikely.

The transect sites will need to be closely monitored in future years to ascertain whether numbers are declining towards extinction.

ACKNOWLEDGEMENTS

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and Essex Wildlife Trust for supporting the survey, and to Writtle College for providing finance and resources for the duration of the project.

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BOOK REVIEW

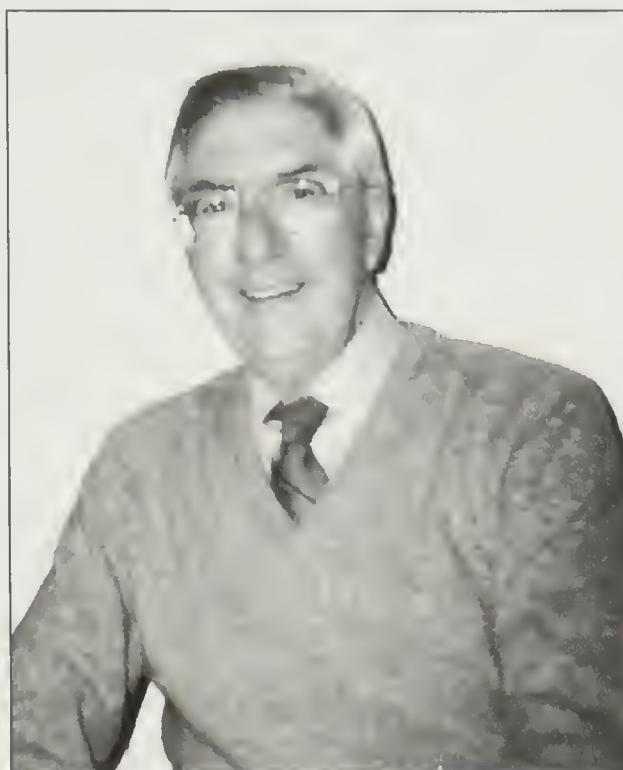
Dragonflies by Steve Brooks. The Natural History Museum, 2002. 96 pp., 95 colour photographs. Paperback. £9.95. ISBN 0-565-09180-8.

Steve Brooks will be known to many odonatists as the author of the *Field Guide to Dragonflies and Damselflies of Great Britain and Ireland*. Steve, who is based at the Natural History Museum, has produced another excellent book entitled simply *Dragonflies*. It is a well balanced, easy to read book, which is very informative and interesting, yet not too scientific or “stuffy”. It is beautifully illustrated with many superb colour photographs, including various larvae, a sequence of 6 photographs showing the emergence of a Common Darter *Sympetrum striolatum* (Charpentier) from the larval skin, adult dragonflies from around the world, and a few examples of habitats. Chapter headings include ‘What are dragonflies and damselflies?’, ‘Immature stages’, ‘Adults’, ‘Mating’, and ‘Dragonfly and damselfly diversity’, each one covering subjects such as classification, life-cycle, flight, feeding, predators and dispersal. The last chapter ‘Odonata and humans’, includes useful information on conservation and creating a pond for dragonflies. This is a book for anyone with an interest in wildlife, and especially the amateur odonatist, who wishes to know more about dragonflies; a book that should encourage further study into the fascinating world of Odonates. This latest addition to the Life Series books published by the Natural History Museum will be a useful addition to your collection and I highly recommend it.

JOHN BROOK

OBITUARY

DOUGLAS HOWARD STERLING 1919–2001



Dougie Sterling died on 24th December 2001, nearly eight years after suffering a debilitating stroke. All of us in the family had to endure a distressing period in our lives that has now thankfully come to a peaceful resolution. In particular Mark and I are now able to reflect on his fulfilling life and to pay our personal tribute to his dedication to British entomology.

Dougie was born on 27th July 1919 in Battersea, London. His parents were keen that he should become a banker and on leaving The Bec School he joined Barclays Bank expecting to make this his career. However, in 1939 he was called up to serve in the Royal Engineers and he saw active service in France, in Greece, in Crete where he escaped the German invasion on a coal barge and was subsequently mentioned in dispatches, and in Egypt and Palestine. After returning to England at the end of the War he received a regular commission into the Royal Army Pay Corps and was stationed in Exeter and then Devizes where he met Audrey who was to become his life-long companion for the next 52 years.

Dougie served in Korea for two years at the beginning of the 1950s, then after a brief spell in Leicester, he was posted to Bermuda. On return from a delightful few years abroad he again went to Devizes, moving then to Worthy Down near Winchester until 1968. He was then posted to Nottingham and in the early to mid 1970s to the British Army of the Rhine station at Rheindahlen in Germany and the SHAPE headquarters in Belgium. He then moved back to Winchester whilst he worked at the War Office in London until his retirement in 1978. He remained living in Winchester for the rest of his life.

None of us knew a great deal about Dougie's day-to-day work; perhaps military secrecy prevented him from saying much, but he was undoubtedly very successful and skilful in the areas of finance and computing. At Worthy Down he was part of a pioneering team computerising the Army's pay role for the first time, an example of the distinguished career he had in army service.

Dougie had three passions in life: his family, his religious faith and his entomology. He was a quiet and kind man, with a wicked sense of humour, a gentle persuasiveness, and an innate ability to inspire others with his knowledge and enthusiasm, never more evident than when he was 'with his moths'.

He was a most dedicated natural historian, and his interest in Lepidoptera had developed from a very early age, perhaps as early as seven. An aunt gave him the book *Butterflies and Moths Shown to the Children*, by Rev. Theodore Wood, published at about the turn of the century by Jack (London & Edinburgh), which he cherished as a boy. Luck must have played a part in kindling his youthful enthusiasm, and on August 30th 1930, when he was just 11, he found a Death's-Head Hawk-moth floating on the tide-line of the sea at Broadstairs in Kent. His eyes were sharp, and whilst on holiday in Swanage in June 1939, he was seen standing on his father's shoulders reaching for a Pine Hawk-moth (a considerable rarity in those days) he had spied half way up a telegraph pole. He also found numbers of Goat Moth pupae there under the bark of an elm tree.

During the War in Egypt he continued collecting, storing numbers of specimens in triangular papers at the bottom of his kit bag, including an Oleander Hawk-moth which he had reared in October 1942 from a larva found at Moascar Camp in Ismailia. On his return to England after the War he was stationed at Exeter in Devon; there in 1947 he was photographed for the local newspaper after catching a Bath White in his military cap, having chased it down one of the main streets!

The specimens he brought back from Egypt were not relaxed and set until the 1960s, whilst both Mark and I were developing our interest in moths. It is certainly unusual for two sons to follow father's hobby so passionately, but that is what happened to both of us from the age of about five. No doubt we were given regular encouragement from Dougie, but this was never blatant or forceful. We recall on one occasion a considered, rather reserved comment, coupled with a broad smile, when at the age of seven Phil caught a Sharp-angled Peacock in his hands and brought it to him; he had never seen the species before. His quiet encouragement helped develop a healthy competitiveness between the three of us over our respective captures, and strengthened the life-long bond between us.

Dougie bought a Robinson-type moth trap in early 1968, which he then ran in the garden wherever he lived for the next twenty-five or so years. Whilst specimens of interest were retained in the family collection, it was not until the mid 1970s that he kept regular lists of species recorded in the garden, and 1978 when he started a detailed diary of visits by all of us to sites outside the garden. The mid 1970s marked a turning point in our joint interests; we started dipping into the world of microlepidoptera. We were strongly encouraged to do so by the late Denzil ffennell, visiting him with a store-box of 'goodies' after the summer of 1976. We found to our surprise that we had found a number of species of interest in our first year, including specimens of *Agonopterix bipunctosa* (Curtis) (Oecophoridae), which led to the subsequent discovery of the life history of the species on nearby downland. Then in autumn 1977 Phil met John Langmaid and Mike Harper on a field meeting at Haugh Wood in Herefordshire to look for leaf miners. Shortly afterwards, John met Dougie and Audrey, and they became good family friends. John and Dougie met up very regularly to go on field trips for the next 15 years or so, mainly in Hampshire, and

their joint efforts have added considerably to our knowledge of the moths of that superb county, together with further understanding of the life histories of many species.

We were convinced by Denzil's wise words about rearing microlepidoptera, rather than relying on capture of adults alone, as being the only way to come to understand the breadth of their diversity. Dougie spent hours designing and redesigning cages for rearing the various families of micros, with Audrey's talents for sewing put to good use whenever large quantities of net curtaining needed stitching together. Every winter, bushes in the Winchester garden were festooned with the legs of old stockings, containing a host of cases, mines and cocoons collected during the summer and autumn.

Much of Dougie's recording effort in Hampshire was concentrated on the Leckford Estate, five square miles of land owned by the John Lewis Partnership in the heart of the River Test valley near Stockbridge. Dougie became the recorder for the Estate following Denzil's death, and he worked the wide variety of habitats on foot, usually with John Langmaid, and using mercury vapour and actinic light traps for many years. It was whilst he was recording at Leckford that Dougie found the first British specimen of *Sclerocona acutellus* (Eversmann) (Pyralidae) on the night of the 8th August 1988. He also recorded considerable rarities there, such as Barberry Carpet, a protected species he studied under licence, as well as *Elachista unifasciella* (Haworth) (Elachistidae), new to Hampshire.

Dougie was very keen on the New Forest and, when out of school and university, we spent many days with him recording across the heaths, bogs and woods. He was particularly fond of Denny Heath, Matley Bog and the woods at Parkhill Inclosure and Emery Down. Between us we led a number of field meetings for the BENHS, AES and Hampshire & Isle of Wight Naturalists' Trust there.

Although Dougie was a meticulous recorder, his writing was somewhat illegible, and we would all have benefited from the development of the home computer for him a decade or so earlier! He spent weeks at the end of every year writing up lists to support conditions of permits, reports for the *Leckford Record* and the Naturalists' Trust, and occasional articles and notes and observations for entomological journals. Each year he also spent weeks dissecting specimens he had fished from the bottom of his trapping sessions in mid summer; as a result of this dedicated work, the list for his Winchester garden up to 1993 totalled some 920 species. His careful study of the garden trap revealed species not previously recorded in Hampshire, such as *Coleotechnites piceaella* (Kearfott) (Gelechiidae) and *Lobesia botrana* ([Denis & Schiffermüller]) (Tortricidae), and confirming the presence of others, such as *Sorhagenia rhamniella* (Zeller) (Cosmopterygidae).

Dougie was also a loyal supporter of the BENHS. He started as a member of the South London Entomological Society as it was then known, and in 1977 he combined his considerable accounting skills with his support for the Society and for a long and successful period as its treasurer until 1989.

Dougie is now missed by many of us who had the pleasure of his company in the field and behind the microscope. For Mark and myself we have also lost a father, and Audrey a husband, who combined the love of his family and his hobby, and nurtured a unique bond between us all.

PHIL & MARK STERLING

BENHS FIELD MEETINGS

Rivacre Valley Country Park, near Chester, Cheshire, 4 August 2001

Leaders: Adrian Wander (AW) & Paul Waring (PW). This was a joint evening meeting with Butterfly Conservation and the Cheshire Moth Group, in search of the White-spotted Pinion moth *Cosmia diffinis* (L.), a Priority Species both in the UK Biodiversity Action Plan and in the BC Regional Action Plan. The species has undergone a serious decline nationally since the 1970s, following Dutch Elm Disease. Rivacre Valley Country Park near Chester is the best site for elm and the elm-dependent White-letter Hairstreak butterfly *Satyrium w-album* (Knoch) in Cheshire. It still supports healthy mature trees of both English Elm *Ulmus procera* Salisb. and Wych Elm *U. glabra* Hudson, both of which are confirmed larval foodplants for the White-spotted Pinion. The site is near the northern limit of distribution for this moth, which has not been reliably recorded from Cheshire in recent decades. Even the closely related but more well distributed Lesser-spotted Pinion *C. affinis* (L.) and Lunar-spotted Pinion *C. pyralina* (D.& S.) are considered rare in Cheshire, the former seldom recorded outside the environs of Chester, the latter only recorded as several individuals at Prestbury in 1976, according to Ian Rutherford (1994 County list and pers. comm.). Showers during the day, and heavy rain from 18.00–19.00 h probably discouraged attendance at this meeting but the leaders were joined by Steve Hind (Microlepidoptera Recorder for Cheshire), Graham Jones and Hannah Barlow. By 19.30 h the rain had ceased. Mist began to form in the river valley and open fields between the groups of trees as we explored the site and selected sites for light-trapping (Fig. 1). Between us we covered the three major groups of elms on site. PW operated a Robinson trap on a large earthen mound under mature Wych



Fig 1. Dusk at Rivacre Valley Country Park, 2001. Photo P. Waring

Elms in mixed broadleaved woodland, also including Pedunculate Oak *Quercus robur* L., Beech *Fagus sylvatica* L. and Sycamore *Acer pseudoplatanus* L., on the field corner reached from the gate at the end of Mossvale off Fairways Drive. The rest of the party operated traps by elm trees within easier reach of the main entrance to the park. All the traps were running by 22.30 h, soon after dusk. It was dry, dead calm and dark under the trees. However the patchy cloud soon started to break up and for the rest of the night there was a bright moon. The air temperature was 12 °C from dusk until midnight, when we started packing up our equipment. Not surprisingly, in view of the described weather conditions, the catches of moths were small. None of the above three elm-dependent moth species was seen in any of the six light-traps operated. A total of 24 species of macro-moths was recorded for the night, as follows:

Drinker *Euthrix potatoria* (L.); Common Lutestring *Ochropacha duplaris* (L.) Small Fan-footed Wave *Idaea biselata* (Hufn.); Riband Wave *Idaea aversata* (L.); Dark-barred Twin-spot Carpet *Xanthorhoe ferrugata* (Clerck); Common Carpet *Epirrhoa alternata* (Mull.) Small Phoenix *Ecliptopera silaceata* (D. & S.); July Highflyer *Hydriomena furcata* (Thunb.); Clouded Border *Lomaspilis marginata* (L.); Brimstone Moth *Opisthograptis luteolata* (L.); Early Thorn *Selenia dentaria* (Fab.); Willow Beauty *Peribatodes rhomboidaria* (D. & S.); Common Heath *Ematurga atomaria* (L.); Iron Prominent *Notodonta dromedarius* (L.); Pebble Prominent *Notodonta ziczac* (L.); Lesser Swallow Prominent *Pheosia gnoma* (Fab.); Swallow Prominent *Pheosia tremula* (Clerck); Large Yellow Underwing *Noctua pronuba* (L.); Lesser Broad Bordered Yellow Underwing *Noctua janthe* Bork.; Square-spot Rustic *Xestia xanthographa* (D. & S.); Smoky Wainscot *Mythimna separata* (Hübn.); Poplar Grey *Acronicta megacephala* (D. & S.); Dunbar *Cosmia trapezina* (L.); Snout *Hypena proboscidalis* (L.).

Despite the negative results, we all enjoyed a very sociable evening and the walk around a most attractive and atmospheric site. A copy of this report has been supplied to Butterfly Conservation, the Cheshire Moth Group and Rivacre Valley Country Park.

Sunderland Point, Lancashire, 6 April 2002

Leaders: **Paul Waring (PW) and Steve Palmer (SP)**. This event, organised by the Lancashire Moth Group, was a joint meeting with Butterfly Conservation, the BENHS and the North Lancashire Naturalists' Group of the Lancashire Wildlife Trust. The event comprised a morning session in the field from 08.30–12.30 h attended by 22 people, an indoor session of illustrated lectures from 14.00–17.45 h attended by 38 people and night-time fieldwork from 20.30–23.00 h attended by 15 people. The Lancashire Moth Group, co-ordinated by SP, provided the bulk of the attendance, but of course many of those attending were members of more than one of the above organisations.

The main aim of the fieldwork was to search for adult males and females of the Belted Beauty moth *Lycia zonaria* (D. & S.) in the vicinity of Sunderland Point, for which the previous definite post-1980 records known to us were of a single male on 22 April 1982 (J. Leedall) and single larvae on 6 July 1985 (P. Livermore) and 27 June 1993 (Ian and B. Wallace), respectively. We hoped to obtain an indication of the numbers and distribution of the moth on the site and make some observations on the condition of the habitat in which they were found. This report concentrates mainly on recording those results. The Belted Beauty is a priority species for special conservation measures in the UK Biodiversity Action Plan (UK Biodiversity Group,

1999) and the Butterfly Conservation Regional Action Plan for north-west England (Ellis & Bourn, 2000). This field meeting and report have helped to advance actions recommended in those plans.

The first of the indoor lectures consisted of an illustrated presentation and hand-out by PW introducing all the moth species recorded in north-west England which have been identified in the UK Biodiversity Action Plan and Butterfly Conservation's Region Action Plan for north-west England as in need of special survey and conservation measures. The talk included coverage of the techniques and tips for finding the adults and larvae of these species. Next, Alice Kimpton covered the Belted Beauty in particular. Alice started working on the species for Butterfly Conservation in 2000 (Kimpton, 2000). Her work includes ecological study of the only known population of the moth in England in those years and searches during 2000 and 2001 of similar habitat at various points on the coasts of Cheshire, Lancashire and Cumbria north to Silleth in the hope of finding other surviving populations, though without success. Ian Kimber showed some transparencies of a selection of British micro-moths from his accumulating collection. Ian compiles the UK Moths website at: www.ukmoths.force9.co.uk. Lastly, SP showed a selection of slides, taken by Paul Cleary-Pugh, of significant moths found in Lancashire during the 2001 season. All of the lectures were enthusiastically received. It was interesting that this session had the largest attendance, but very pleasing that such a large proportion of the audience were able to join us for the fieldwork as well, in spite of the early start for a Saturday morning and the cold windy conditions at night!

The Belted Beauty population Alice had been studying was on the coast of the Wirral, Cheshire, where the species occurs in dry sandy conditions beyond the reach of all but freak tides and where broad-leaved herbs as well as grasses are starting to become well established. The larvae feed mainly on the petals and leaves of Bird's-foot Trefoil *Lotus corniculatus* L. and occasionally other members of the pea family (Fabaceae) in tussocky vegetation where the grassy sward is holding the sand together but remains sparse, with some bare sand still visible. The females have been observed in these areas, laying eggs on the old seed-heads of Yarrow *Achillea millefolium* L. and climbing other dry stems remaining from the previous year, from which they attract males by pheromones. Such dry stems seem to be an important habitat feature for this moth, but are removed by mowing or heavy grazing. These conditions and observations are similar to those made at the remaining colony on the coast of north Wales, at Morfa Conwy (A. P. Fowles, pers. comm.), and on the much more extensive populations on the open machair or coastal shell-sand habitat of the west coasts of mainland Scotland and the Outer Hebrides (PW, pers. obs.).

Several of the colonies reported on the coastline of north-west England prior to 1980 are known to have been destroyed by construction work and other developments, and Alice had found that most of the other potential sites were mown short or were too heavily grazed to be suitable (Kimpton, 2000). Some are under intense trampling pressure from dog-walkers and conversely a few are so neglected that they have been encroached by scrub. The vicinity of Sunderland Point had appeared unpromising on first inspection because habitat similar to that at the Cheshire site was extremely limited in extent, but the site was considered worthy of further inspection in view of the three post-1980 records.

The morning of the event was glorious, sunny and dry, but with a strong easterly wind and a substantial chill factor. The meeting point was the car-park of the Heysham Nature Reserve in the lee of the power station, from which we moved into the office block with the locally famous "toilet trap". This is one of the washrooms in which a 160 W blended mercury vapour light bulb is left on all night behind a

window which is left open. However, there were only three moths in the room after the previous night. This was in spite of some splendid clumps of sallows, still bearing catkins, adjacent to the building. Apparently, the catches are always low when there is a wind from the east, as on this occasion. The window faces east. A short welcome and briefing session hosted by the North Lancashire Naturalists Moth Recorder Pete Marsh was held in the office, during which Alice produced for examination some corpses of male and female Belted Beauty moths which she had found dead of natural causes at the Cheshire site two years previously. The females often die in position on seed-heads and stems after having laid their eggs. Alice reported that in 2002 the flight season had started in mid-March in Cheshire.

To search the whole area between Sunderland Point and Potts Corner we divided the party into three groups, each with a section of the coastline and proceeded along it police cordon-style, with people at intervals from the fenceline above the strandline to the saltmarsh below (Fig. 1). Dead stems, driftwood, and all manner of debris were examined for basking females. We found five larvae of the Drinker moth *Euthrix potatoria* (L.), one of the Common Footman *Eilema lurideola* (Zinck.) and one of the Garden Tiger moth *Arctia caja* (L.) sun-bathing near the ground on fence-posts. At one point a raised track headed off across the saltmarsh and that was searched too. It led to a series of weather-beaten posts remaining from a derelict fence-line and at 10.30 h on the stump of a broken post, David Bradley found our first female Belted Beauty of the day. To say there was much euphoria and celebration would be an understatement. This female was extremely plump and did not appear to have laid any eggs as yet. She was stationary and in a flattened position against the stump, some cm above the soil surface. The stump was surrounded by tussocks of the Sea Rush *Juncus maritimus* Lam. with almost flat patches of the Fescue grass *Festuca rubra* agg. in between and occasional flowers of Scurvy-grass *Cochlearia* sp. (plant determinations by Jennifer Newton). We were on the seaward side of the strandline by at least 70 m and the area was evidently subject to frequent inundation by saltwater. According to Peter Marsh, the site is inundated at least three times a year, and certainly was inundated in February 2002. The sandy soil was wet although there had been no rain that day. The tide was so far out it was not seen during day or night sessions. In addition to the saltmarsh plants, we found tiny shoots of Bird's-foot Trefoil and White Clover *Trifolium repens*. Peter Marsh had long experience of the area and informed us that various trefoils and Common Rest-harrow *Ononis repens* L. were frequent and very obvious later in the season, once they were flowering. He commented that the area where the female was found may be in a natural process of changing from sand-dunes to saltmarsh. A thorough search was made of all the other posts in the derelict fence-line and much debris nearby, but no more females were found during the morning session. At this stage we did not know if the single female was an exceptional individual which had been carried out to this position on a tide, as an adult or mature larva, or was a representative of a colony breeding on the saltmarsh.

The eggs of the Belted Beauty are a bright emerald green and easy to see but we found none anywhere on the stump or in its crevices. We hoped that the female was unmated and would attract a male. We revisited her at intervals until we left the site at 12.30 h but no males were seen. When we left she had assumed an egg-laying position in which her abdomen was curled into a crevice, but she had laid no eggs.

We returned to the site at 20.00 h for the evening session of fieldwork. The light was fading as we set up four mercury vapour lights along the coast. Two of the lights were placed up near the strandline and two in the saltmarsh. One of these was within 5 m of the female and the other was on the line of a similar derelict fence some 250 m



Fig. 1. Fence post stump on which a female Belted Beauty was found by day during the meeting near Sunderland Point, showing distance below strand line, 6 April 2002. Photo P. Waring

away, where there were also sections of raised bank. The air temperature at dusk was 9°C, falling to 7°C by the time we packed up the lights at 22.45 h. The chilling easterly wind continued to blow until about 22.00 h when it dropped to a light breeze. During this night session only three moths came to the lights, a single Common Quaker *Orthosia cerasi* (Fab.), a Hebrew Character *O. gothica* (L.) and an Early Grey *Xylocampa areola* (Esp.). All were presumed wanderers from hedgerow trees in the fields just beyond the strandline. However, we found a total of seven females and two males of the Belted Beauty by searching in the ground vegetation with torches. The first was the female found by day. We refound her still on the stump, though she had moved into the shelter of a crevice by this time. Still no eggs had been laid. All the other individuals were in similar developing saltmarsh habitat and in an area of about 250 m by 100 m, but there was much similar habitat we did not have time to search. None of the moths was found in the narrow grassy strip of dry habitat between the strandline and the adjacent farm fields.

The females were found gradually during the session, but more so towards the end, as if they were climbing into more obvious positions as time proceeded and the wind calmed. One was found, by Sam Ellis, at dusk, head pointing downwards, on the base of a fence-post 40 m from the female originally found by day. The others had all climbed up 5–10 cm above ground on dead stems but were now stationary. There was no evidence of egg-laying. Both the males were found in the last 30 minutes of the session. Both were at rest and in perfect condition, as if newly emerged. Neither male showed any intention of moving, even though the wind had dropped, so possibly the main flight was later in the night. It is possible that the flight season was less advanced on this site than on the Cheshire coast and this may be due to the soil in the saltmarsh being substantially wetter and therefore slower to warm up than dry sandy ground.

The development of saltmarsh where previously there were sand-dunes may have implications for the long-term future of the Belted Beauty on this site. At present there are no sand-dunes above the strandline for colonisation by this moth if the area

below the strandline becomes unsuitable. Further study is required to discover the extent to which the various stages of the life-cycle can cope with inundation by saltwater and whether the population is in decline as a consequence. Two observations reported at the meeting are of interest in this context. Alice Kimpton noted that the largest number of adults at the Cheshire site in recent years followed a freak winter inundation of the site by storm-blown waves while the insect was in the pupal stage. Glenn Summers, a BENHS member who came over from Yorkshire for the meeting with his daughter Larna, recalled how spraying the foodplant of captive Belted Beauty larvae with saltwater had improved their survival rate to adult. Glenn had collected some larvae he found feeding on plantain leaves on the west coast of Scotland but they did not thrive on plantains he collected back home inland and deaths began to occur. When the foodplant was sprayed with a weak salt solution there were no more deaths. There could be a number of reasons for both these observations and neither confirm that the saltwater produced the result, but some simple experiments could quickly determine if some exposure to saltwater really is beneficial.

Several records of other invertebrate groups were made during the day, the most noteworthy being two 16 Spot Ladybird *Tytthaspis sedecimpunctata* (L.) found by Mr G Band. The identification was confirmed by Jennifer Newton who advised that this species appears to be restricted to coastal saltmarsh in Lancashire and that the insect is near its northern limit within Britain.

At dusk and for an hour after dark on the evening of 5 April 2002, PW, SP, Alice Kimpton and Barry Dyson made a search of the grassy habitat along the fenceline dividing the Fleetwood Golf Club course from the coast. A very strong wind made conditions unsuitable for light-trapping and even hampered torchlight searches for adults within the sward and on fence-posts. However, all the fence-posts were searched, as was much of the turf along the fence-line. No Belted Beauty moths were found and the grass sward in this area was considered too rank and dense to be high quality habitat, with a large amount of dead litter or thatch. However, growth of herbs was at such an early stage that it was difficult to judge their likely abundance later in the year. A search for larvae in late June was recommended and in view of the above results, attention should also be given to those areas below the strandline.

PW would like to thank the Butterfly Conservation "Action for Threatened Moths" Project and English Nature for the financial support to co-plan and attend this event, Steve Palmer and Pete Marsh for local logistics, and Alice Kimpton and Ian Kimber for their presentations and involvement. Ian's assiduous searching by torchlight produced the first male, which made everyone's evening complete. We would like to thank everyone who attended and made the event such a success, with a special thanks to those who have offered to help with future survey work. Several of those at the meeting were inspired to return to the site within days to make further observations which will benefit the understanding and conservation of this moth. Robin and Meg Griffiths and Kate Orr returned to the site on the morning of 7 April at about mid-day and found and photographed a female in the same position as one of those from the previous night. They also found two males, one at rest on a twig, the other on a fence-post, all within the same area of saltmarsh. On 8 April John and Betty Holding found a female at the south end of the site, away from the rest. It was actively crawling over another small post, again in saltmarsh, at about mid-day. They sat and watched her in the hope she might attract a mate while they ate their packed lunches but no males visited her. Afterwards they met up with Joyce Birchall and Mary Bloomfield and located four males on the posts in the saltmarsh inspected during the meeting. Two of the males were on posts well out into the marsh. Two of the three females John had seen during the meeting on 6 April were still *in situ* over

36 hours later. In all, the total number of Belted Beauty seen between 6–8 April 2002 on this site was a minimum of nine females and four males.

Copies of this report have been supplied to Butterfly Conservation, English Nature, the Lancashire Moth Group and the North Lancashire Naturalists' Group of the Lancashire Wildlife Trust.

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Kennick Reservoir, Devon, 18 May 2002

Leader: **Roy McCormick**. Several of us met in the designated car park with a couple of our group meeting us at the site where it was proposed to run the lights; but because of a mix-up about who owned the land (South West Lakes Trust [SWLT] had said they owned the area and a local farmer said they did not), it was decided that it would be prudent to move on to a site further north at the top end of the reservoir.

As there was not a lot of room for all the traps we had at our disposal, a couple of people said they would run their traps on a track along the road and so the leader took his Land-Rover on the track by the reservoir. By the time we had all set up our lights and started the generators, a fine drizzle had begun, but fortunately this did not last long. The leader and a couple of others walked along the road to the farthest traps and by the time we had reached them they had caught several species including a couple of *Lampropteryx otregiata* Metc. (Devon Carpet) and one *Scoparia subfusca* Haw., an early specimen.

We went back to the main group of traps and the list was building up nicely, but mainly geometers. By around 23.30 h, with the temperature standing at 11–12 °C, species coming in had slowed considerably with the list standing at around 50; it was decided that we should pack-up at midnight. The species list at the end stood at 62 with the main content still being geometers, with the best of these: one *Scoparia subfusca* Haw.; several *Lampropteryx otregiata* Metc. (Devon Carpet) a new site for the species in Devon; one *Chloroclysta siterata* Hufn. (Red-green Carpet); three *Eupithecia lariciata* Freyer (Larch Pug); several *Eupithecia tantillaria* Boisd. (Dwarf Pug); one *Pseudopanthera macularia* Linn. (Speckled Yellow); two *Paradarisa consouaria* Hb. (Square Spot) and one *Panolis flammea* D. & S. (Pine Beauty).

The mix-up about who owned the site called 'Clampitt' occurred because there are two sites with the same name, one owned by SWLT and the other owned by local farmers. SWLT assumed we were going to their 'Clampitt' and did not check the map reference given to them and erroneously gave us permission to hold our Field Meeting on the wrong site.

Red Farm Flash, North Somercotes, Lincolnshire, 8 June 2002

Leader: Paul Waring. — The main aim of this field meeting was to explore Red Farm Flash for the Marsh Moth *Athetis pallustris* (Hbn.), a Red Data Book and UK Biodiversity Action Plan priority species. The site is on the Lincolnshire coast just a few kilometres north of the known site for the moth at Saltfleetby and consists of similar dune-slack habitat and coastal grassland in which Ribwort Plantain *Plantago lanceolata* L., the proven larval foodplant at Saltfleetby, is abundant. The Marsh Moth has never been recorded previously at Red Farm Flash but may never have been sought here specifically because the site is remote and somewhat difficult to access. Light-trapping appears to have been limited to occasional visits by Rick Pilcher and Dick Lorand some years ago.

The meeting commenced at 20.00 h and was attended by ten persons, including site managers John Walker from English Nature and Rob Scott from the Lincolnshire Wildlife Trust. Member James McGill of Somerset had come the greatest distance for the meeting, Adrian Wander had come over from Cheshire, the others with the exception of the leader were from Yorkshire. The meeting was primarily a moth recording event and all but one of the members were lepidopterists but we were pleased to see member John Flynn from Grimsby whose main interest is Diptera and who took away a selection of flies from the light-traps for later identification.

The air temperature at dusk was 15°C, falling to a minimum for the night of 11°C. The weather was dry with a light to moderate south-westerly breeze and cloud cover varied from 50–100% throughout the night, providing good conditions for moth-trapping. At least sixteen mv light-traps were operated. All of us stayed on site all night, sleeping in our cars, and the moths were examined in the morning. The Robinson traps held catches of between 70–100 macro-moths each. Of the 53 species we recorded, the most locally distributed in Great Britain were the Dog's-tooth *Lacanobia suasa* (D. & S.) (abundant), Fox moth *Macrothylacia rubi* (L.) (several including a male as well as females), one or two Lesser Cream Wave *Scopula immutata* (L.), one Starwort *Cucullia asteris* (D. & S.), one Lyme Grass *Photodes elyni* (Treit.), and three White Colon *Sideris albicolon* (Hbn.). Several of those attending had not seen the White Colon before and all the last three named were freshly emerged. The Grass Rivulet *Perizoma albulata* (D. & S.) was numerous and the larval foodplant, Yellow Rattle *Rhinanthus minor* L., is abundant at both Red Farm Flash and at the Saltfleetby site. A single immigrant Striped Hawk-moth *Hyles livornica* (Esper) turned up at one of the lights some time after 00.45 h and a single immigrant Bedstraw Hawk-moth *Hyles gallii* (Rott.) was captured nearby at Howdales, near Skidbrooke, Lincolnshire, by John Janes the same night. Other species recorded during the meeting included three larvae of the Common Footman *Eilema lurideola* (Zinck.), several Drinker moths *Euthrix potatoria* (L.) as fully grown larvae although the adults were also on the wing. No Marsh Moth was seen. The previous night the leader and James McGill had operated nine mv lights at the Saltfleetby site and had captured only two Marsh Moths, both males in very worn condition. On this date in 2001 there were adults on the wing in good condition and they were still being recorded a week later. It would appear that the Marsh Moth flew early in 2002 and was right at the end of its flight period on the date of the meeting. This site merits return visits for this moth and these should be made on a range of dates, from late May to mid June. Certainly the moth cannot be considered absent on the basis of the negative results of this single visit.



Fig. 1. Red Farm Flash, North Somercotes, Lincolnshire coast, 8/9 June 2002, showing some of the light-traps distributed through the dune-slacks. Photo P. Waring

Thanks to English Nature and the Lincolnshire Wildlife Trust for arranging the necessary access permission, and Butterfly Conservation for providing support for the event. Copies of the list of moths have been supplied to English Nature, the Lincolnshire Wildlife Trust and the Lincolnshire County Moth Recorder. On 6 June 2002, members Adrian Russell and Ron Follows light-trapped with ten mercury vapour lights at the golf course adjacent to Gibraltar Point Nature Reserve but saw no sign of the Marsh Moth. At present the Saltfleetby site is proving to be the only locality in Britain where the Marsh Moth can be found reliably.

Type, Dorset, 9 June 2002

Leader: Michael Salmon. This field trip proved a surreal experience. With a high wind, driving rain, and an unseasonable drop in temperature, the possibility of a good turn out seemed remote. Indeed, so remote that I seriously contemplated not turning up. However, on arrival at the cliff-top car-park I was amazed to find a small crowd of between ten and twelve individuals pulling on boots and unloading equipment from cars. At the same time the weather had improved and the omens looked distinctly propitious. I quickly introduced myself to the party, suggested that we move off in fifteen minutes time so as to allow time for any stragglers to appear, and returned to my car to collect my sweep net and equipment. It was then that I realised the mistake that I had just made. These individuals were all carrying picks, hammers and chisels. They were not entomologists but geologists, and nothing whatsoever to do with the BENHS. Feeling extremely foolish I sought to hide my embarrassment in the confines of the car. As the geologists moved off Mark Telfer and Jo Hodgkins raced into the car park and the sun appeared for the first time.

The three of us tramped along the beach to the famous undercliff but, on arrival, discovered that a massive landslip had now obliterated the eastern part of the collecting ground, making the approach extremely hazardous. To make matters

worse, the vegetation was now so thick that we had great trouble getting through to the bare areas where fresh water rills run down from the cliff face. Successful at last, we were delighted to find a number of the rarer coleopterous species without any trouble. *Drypta dentata* (Rossi) (RDB1) obliged me by walking onto my sweep net as this lay on the ground, and *Tachys micros* (Fischer von Waldheim) (Notable A) was immediately found at the first freshwater rill examined. Both of these ground beetles were found in some numbers. Examination of *Ononis repens* L. then revealed a number of *Sitona gemellatus* (Gyllenhal) (RDB1). This species is currently known only from this site. By mid-afternoon the tide appeared to be coming in fast and I set off to return to the car park. It was then that the unreal nature of the day really dawned on me. As I sat in my car to dismantle my sweep net a specimen of *Eubria palustris* Germar (RDB3) crawled out of the netting. This small psephenid beetle is currently only known from Dorset, Caernarvonshire and Anglesey. Rather stunned by such luck, I immediately concluded that field trips, even on the most inclement of days, are the stuff of entomology.

Rushy Meadows SSSI, Kidlington, Oxfordshire, 15 June 2002

Leader: Paul Waring. This event, which was part of National Moth Night 2002, was the latest in a series of field meetings at this site, which has now been visited in June, July, August and September (Waring & Townsend, 2001; 2003a&b).

As with the previous meetings, it was a joint meeting with Butterfly Conservation Upper Thames Branch and the Oxfordshire Moth Recording Scheme and was well attended by nine lepidopterists who are members of one or more of the above.



Rushy Meadows, Oxfordshire, 15 June 2002. L-R: Angus McCrae, Andrew Kershaw and Chris Tyler-Smith move light-traps and generator into position by bridge over stream.

BENHS member Norman Binstead had come up from Hampshire, the rest with the exception of the leader were based in Oxfordshire.

The meeting commenced at 20.30 h in calm dry cloudy conditions. The air temperature at dusk was 14°C. Three mv lights were operated, one by Norman Binstead over a sheet on the bridge over the stream in the centre of the site, and two Robinson pattern light traps by the leader, one by stream-side carr and stands of Meadowsweet *Filipendula ulmaria* (L.) and Ragged-Robin *Silene flos-cuculi* (L.), the other by streamside and thick hedgerows near the lock on the canal at the southern entrance to the site. We noted three black cattle grazing the meadows but these did not interfere with the trapping operation.

Amongst the first moths seen on the wing as dusk approached were some twenty or more individuals of the Gold Swift *Hepialus hecta* (L.) flying low over open boggy ground between taller vegetation, predominantly rushes *Juncus* spp., from 21.30–21.45 h. Several male and female Ghost Swift *Hepialus lunuli* (L.) came to Norman's light on the bridge as darkness fell. The leader flushed a Round-winged Muslin *Thumathia senex* (Hbn.) in immaculate condition while examining a dark stand of Ragged Robin flowers for nectaring insects just after dusk. This was one of three target species we hoped to see during the evening, the others being the Lesser Cream Wave *Scopula immutata* (L.) and the Blackneck *Lygephila pastinum* (Treit.). Brimstone moths *Opisthograptis luteolata* (L.) and Yellow Shell *Camptogramma bilineata* (L.) were netted on the wing while a steady trickle of moths arrived at the traps. Two Sloe Pug *Chloroclystis chloerata* Mabille arrived just after 23.00 h and an Eyed Hawk moth *Smerinthus ocellata* (L.) was found amongst rushes near the sallow carr some minutes later. Several Large Elephant Hawk-moths *Deilephila elpenor* (L.) arrived at the lights all at once just before midnight. A Lesser Cream Wave eventually turned up, in immaculate condition, at the trap by the stream-side carr at about midnight and just as we started to pack up the traps at 00.20 h a single freshly emerged Blackneck came to the same trap. It would appear that all three of the target species had only just begun to emerge and had not yet reached peak numbers. All three had been recorded on this site in fair numbers during the 1980s (Waring & Townsend, 2001).

A total of 42 species of macro-moths was recorded for the evening, which was predominantly a moth recording event. Most are widespread species occurring in many open habitats including gardens. Those slightly more restricted in distribution included the Straw Dot *Rivula sericealis* (Scop.), Marbled White-spot *Protodeltote pygarga* (Hufn.) and Latticed Heath *Chiasmia clathrata* (L.). A heron *Ardea cinerea* L. was also seen.

We thank English Nature and the site owner for permission to hold the meeting. Copies of this report and the full species list have been supplied to English Nature and the Oxfordshire Biological Recording Scheme, of which the Oxfordshire Moth Recording Scheme is a part.

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Orlestone Forest, Kent, 15 June 2002

Leader: Sean Clancy. Overcast and slightly breezy evening conditions led to a mild and productive night's light-trapping, with the rain holding off until the early hours of the morning. This meeting was arranged as part of the National Moth Night programme, in the hope of recording good numbers of one of this event's target species, the Scarce Merveille du Jour *Mouua alpium* (Osbeck). This RDB3 species has occurred in the Orlestone complex for many years, but the extensive coverage of this field meeting presented a rare opportunity to gauge its relative abundance and distribution across a large part of the site. A total of seven members and eight non-members attended the field meeting, with twenty mv light-traps being operated. Nine of these traps were run in Long Rope, two in Birchett's Wood and nine in the southern part of Fagg's Wood.

A total of 99 species of macrolepidoptera and 62 species of microlepidoptera were recorded from the light-traps. Of the micros, a single *Dioryctria sylvestrella* (Ratz.) in Long Rope was the most notable. This pyralid has been turning up occasionally in Kent in recent years, and is probably breeding in small numbers at Orlestone. More expected were Orlestone specialities such as Lunar Thorn *Selenia lunularia* (Hb.) (one), Poplar Kitten *Furcula bifida* (Brahm) (two), Red-necked Footman *Atolmis rubricollis* (L.) (six, all in Fagg's), Orange Footman *Eilema sororcula* (Hufn.) (one) and White-line Snout *Sclerankia tenuialis* (Hb.) (five, all in Long Rope). A single Lead-coloured Pug *Eupithecia plumbbeolata* (Haw.) in Long Rope was more surprising as there is not thought to be any larval foodplant present in the area.

A respectable total of 31 *M. alpium* was recorded during the night, indicating the continued presence of a healthy population of this species at Orlestone. Of these, 26 were recorded in Long Rope, five in Fagg's and none in Birchett's, showing the oak-rich woodland around the more traditional Orlestone sites still holds the strongest populations of this most attractive and enigmatic insect.

My thanks to all those who attended the meeting, particularly Jim Porter who identified the majority of the microlepidoptera recorded. All the records have been forwarded to the relevant county recorders and to Brian Goodey, collator of the National Moth Night records.

Waun y Mynach Common and Penywaun Nature Reserve, Llangors, Breconshire – 22/23 June 2002

Leaders: Paul Waring (PW) and Norman Lowe (NL). Waun y Mynach Common is an area of open common land some seven hectares in extent with Penywaun Nature Reserve consisting of a small copse and paddock adjacent to it and less than one hectare in area. The nature reserve is owned and managed by the Brecknock Wildlife Trust. The ownership of the Common is unknown and it currently receives no management.

The Common comprises mainly open grassland with large patches of Purple Moorgrass *Molinia caerulea* (L.) Moench and Bracken *Pteridium aquilinum* (L.) Kuhn. Ragged Robin *Lysimachia flos-cuculi* L. was frequent and in bloom at the time of the visit and small patches of Devil's-bit Scabious *Succisa pratensis* Moench and Meadow-sweet *Filipendula ulmaria* (L.) Maxim. and occasional clumps of Tufted Vetch *Vicia cracca* L., Meadow Thistle *Cirsium dissectum* (L.) Hill and Saw-wort *Serratula tinctoria* L. were recorded. The south end of the Common in particular supports much scrub of which the main species are Goat Willow *Salix caprea* L., Ash *Fraxinus excelsior* L., Sessile Oak *Quercus petraea* (Mattuschka) Liebl., Common

Hawthorn *Crataegus monogyna* Jacq., Blackthorn *Prunus spinosa* L. and Alder *Alnus glutinosa* (L.) Gaertner. Penywaun Nature Reserve at the north end of the site is mainly Ash and Oak woodland with Field Maple *Acer campestre* L., Holly *Ilex aquifolium* L. and Sycamore *Acer pseudoplatanus* L. as minor components.

Fourteen people attended the meeting which commenced with an indoor session in Llangors Village Hall and covered search techniques for larvae and the habits of relevant moths listed on the UK Biodiversity Action Plan. This was followed by a sunny afternoon session exploring the site, during which the most noteworthy discovery was a larva of the Early Tooth-striped *Trichopteryx carpinata* (Borkhausen), found while beating the Goat Willows shown in the accompanying photograph (Fig. 1). The larva was collected and continued to feed on leaves of Goat Willow until pupation by 29 June. As the larva of this widespread moth is seldom reported, it is useful to have this recent confirmation of foodplant. Additional reported foodplants include Honeysuckle *Lonicera periclymenum* L., Alder and unspecified birch *Betula*. Other larvae beaten included Dotted Border *Agriopsis marginaria* Fab. on Hazel *Corylus avellana* L., Common Quaker *Orthosia cerasi* (Fab.) on Field Maple and Hebrew Character *Orthosia gothica* (L.) on Ash. Adult Green Carpet *Colostygia pectinataria* (Knoch.), Silver-ground Carpet *Xanthorhoe moutanata* (D. & S.) and Common White Wave *Cabera pusaria* (L.) were flushed from vegetation, a Gold Swift *Hepialus hecta* (L.) was found at rest in grass and St Mark's flies (Bibionidae) were on the wing. The only butterfly seen was a Green-veined White *Pieris napi* L.

In the evening two mv Robinson light-traps were operated in the Nature Reserve and one on the Common (see Fig. 2). The most noteworthy captures were the Dingy Shell *Euchoea nebulata* (Scop.), Oblique Carpet *Orthouama vittata* (Bork.), Wood Carpet *Epirrhoa rivata* (Hbn.) and Flame Carpet *Xanthorhoe designata* (Hufn.), all at



Fig. 1. Waun y Mynaeh Common, Llangors, Breconshire, 22 June 2002: Members of the group beating the Goat Willow from which a larva of the Early Tooth-striped was obtained.



Fig. 2. Waun y Mynach Common, Llangors, Breconshire, 22 June 2002: The group walking across the common to Penywaun Nature Reserve, with beating trays.

the trap on the Common. Both Dingy Shell and Oblique Carpet had been recorded previously by Norman Lowe on the south shore of the lake and the Dingy Shell had also been seen a week previously at Pont-ar-dolas. There is only one comparatively recent record of the Dingy Shell from Llanbedr, in 1975, (Sankey-Barker *et al.*, 1978), but this is probably an indication of how relatively under-recorded Breconshire was at the time. It was described as "very abundant" in the county in 1926.

A female Glow-worm *Lampyris noctiluca* (L.) was found producing her greenish light at midnight in the grassy verge of the road that runs along one edge of the Common and a vixen and cub were encountered at the end of the night session. In addition a battery-operated actinic trap was used to record moths on the Lakeside Caravan Site by Llangors Lake, an area of agriculturally semi-improved horse-grazed grassland with thick hedgerows and an Alder grove. This also produced the Dingy Shell and Oblique Carpet.

The leaders would like to thank Nichola Davies (BC Development Officer, Wales) and Alan Wagstaff (BC Moth Officer, Wales) for their assistance with the organisation and promotion of this event which was a joint meeting associated with the Butterfly Guardians project co-ordinated by Butterfly Conservation. We were privileged that Gordon Parker, one of the co-authors of the Breconshire county list of butterflies and moths was able to join us for this meeting. The full species lists from the meeting are with Norman Lowe as County Recorder and representative of the Brecknock Wildlife Trust.

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Great Torrington woodland, Devon, 6 July 2002

Leaders: Roy McCormick & Paul Waring. We arrived at the site at around 20.30 h, the agreed time to find a few people waiting. We decided where to place our equipment; Paul had two lights and Brian Bewsher had one. There was also a new person to the mothting scene, Steven Hatch who had one light and the leader had four of a new type of trap that had been used in the field at other sites with some success; Adrian Henderson, a local man who owned woodland nearby had four traps running on his own patch. By the time we had finished setting up, more people had arrived, twelve in all from various Societies and Groups including a couple from near Bristol; dedication of the highest level to observe our resident species of Scarce Merveille du Jour and I hoped their journey would not be in vain.

Around 21.45 h we started our generators and spent some time looking round for insects to net; a species found commonly was *Perizoma didymata* Linn. (Twin-spot Carpet) and quite a lot of these were netted along with a few other species. A steady drizzle started by the time night came and it was thought this might bring things to an early close, but conditions dried considerably though they did not make any difference to the clouds of small flies and midges the site is renowned for. Quite a lot of moths were also buzzing around the traps and our list started to build, but considering there were eight traps, numbers of moths were low. By around 23.30 h we had 45 species with a few micromoths still to be identified, not including species seen at Adrian's traps. We continued going round the traps and it was a relief to see our first Scarce Merveille du Jour at around 23.45 h; by the time we decided to pack up around 00.45 h we had seen six at the original site with Adrian recording it in his wood as well. The list finished up, with micromoths being determined at home the following morning, at 111, including species from Adrian's wood (which is in the same 1 km square as the original site). Unfortunately we did not see the other target species *Heterogenea asella* D. & S. (Triangle), even though the last trap was not cleared until 00.15 h with the temperature standing at 12°C.

The best of the species recorded were: *Eudonia dehuella* Stt.; *Phlyctaenial stachydalis* Germ.; *Aucyllosis oblitella* Zell.; *Aublyptilia punctidactyla* Haw.; one very well marked *Chloroclysta citrata* Linn. (Dark Marbled Carpet); *Plemyria rubiginata* D. & S. (Blue-bordered Carpet); *Euphyia unangulata* Haw. (Sharp-angled Carpet); *Eupithecia valerianata* Hb. (Valerian Pug) – we often wondered why we had not seen this species before as the foodplant is locally abundant; several *Hydrelia sylvata* D. & S. (Waved Carpet), one of Devon's common Biodiversity Action Plan (BAP) species; *Deileptenia ribeata* Cl. (Satin Beauty); *Parectropis sinularia* Hufn. (Brindled White-spot); *Naenia typica* Linn. (Gothic); 8 *Moma alpium* Osb. (Scarce Merveille du Jour), the main BAP species, and several *Laspeyria flexula* D. & S. (Beautiful Hook-tip). Luckily we missed the worst of the rain, which came soon after we left.

Misson Carr, Nottinghamshire, 13 July 2002

Leaders: Paul Waring (PW) & Sheila Wright (SW). Misson Carr Site of Special Scientific Interest (SSSI) is a newly acquired nature reserve of the Nottinghamshire Wildlife Trust (NWT), purchased in 2001. Previously the site belonged to the Ministry of Defence (MOD) and was known as Misson Training Area. The history, wildlife interest and past management are currently being researched by Jeremy Fraser, Management Plan Officer for the NWT. Jeremy is also developing the

management plans for the future and is keen to take account of all the special wildlife interest. This meeting was designed to extend our knowledge of the fauna of the site.

The main habitats on Misson Carr are fenland, marshland, sandy grassland, sallow carr and wet broadleaved woodland. A summary of the biological interest of the site has been prepared by Dr Sheila Wright, Keeper of Natural Sciences at Nottingham Natural History Museum and County Moth Recorder for Nottinghamshire (Wright, 2001a). The site is known to be important both locally and nationally across a range of taxonomic groups including the Lepidoptera, Odonata, Coleoptera, Amphibia, Reptilia, birds and mammals. The botanical interest of the site is unique in Nottinghamshire. From the 1980s onwards, the moth fauna of Misson Carr has been explored by light-trapping on one or two nights per year, usually between July and September, by SW. Early results indicated a species-rich moth fauna which included many locally, regionally and nationally scarce species. Moth recording was continued when it became clear that the MOD would be disposing of the site and there was concern over future ownership and management. Additional rare moths were discovered and the moth data eventually formed part of the basis for the subsequent notification of the site as an SSSI. The progress of the moth recording was reported in the national conservation press at the time (e.g. Waring, 1996–1999). The richness of the site for moths was further demonstrated when the site produced more species (151) on National Moth Night in 1999 than all but one of the other 303 sites throughout the United Kingdom which were surveyed on that night (Goodey, 2000). Forty-six moth species of national conservation importance (i.e. of Nationally Local status, or higher, as per Waring, 1994 & 1999) had been recorded from the site since 1980, as at August 2001 (Wright, 2001b). That Misson Carr ranks in species quality alongside some of the top sites in central southern England is an indication of the quality, condition and variety of habitats on the site. Aware of the importance of the moth fauna on their new reserve and keen to maintain and enhance it through appropriate management, the NWT invited the leaders (PW & SW) to visit the site for a meeting which took place on 18 October 2001. During the meeting and in the subsequent report, Waring (2001) identified the following as the most important habitat features for the Nationally Scarce and Local macro-moths on the site: the open marshy swards; other swards sheltered by scrub; a range of key larval foodplants within these swards, such as *Thalictrum flavum* L. (Common Meadow-rue), various woody species including oak, willow, aspen and poplars, birches, buckthorns; the reed-beds and dyke-sides, particularly by the main drain. The poorly explored sandy grassland at the south-east corner of the site is likely to support its own restricted fauna of specialist species and to be particularly sensitive to management.

This field meeting was the first of two in 2002 to explore Misson Carr for moths and indeed for all its wildlife interest. The more noteworthy of the moth observations are presented first. The latter sections deal with other elements of the fauna.

The long day-time session (11.00–18.00 h) was attended at various stages by ten people. Two of the highlights were watching a Scallop Shell *Rheumaptera undulata* (L.) nectaring at flowers of Common Valerian *Valeriana officinalis* L. at 13.00 h and the attraction of several Red-tipped Clearwing *Synanthedon formicaefornis* (Esp.) to combined myo/tip/vesp pheromone lures amongst sallows at 13.55 h.

Although the night was cold, nine people attended the night session and ten light-traps were operated (Fig. 1). The dipterists and coleopterist had left at the end of the day session and were replaced by some very keen lepidopterists. The air temperature was 9 °C just after dusk, falling to 6 °C by 01.00 h, but the moths came in steadily to the lights. It was calm, with no rain. Noteworthy species included the Lesser Cream

Wave *Scopula immutata* (L.) and a worn Blackneck *Lygephila pastinum* (Treit.), which arrived before midnight and a single male each of the White Satin *Leucoma salicis* (L.) and the Garden Tiger *Arctia caja* (L), both of which arrived later, in two Robinson traps kept running all night after all the other trappers had gone home. Of the three Peppered moth *Biston betularia* (L.) recorded in these traps, two were of the typical peppered form and one of the all-black form *carbonaria* Jordan. These traps were set amongst sallow carr which also produced a Miller *Acronicta leporina* (L.), two Suspected *Parastichtis suspecta* (Hübn.), a Bordered Beauty *Epione repandaria* (Hufn.) and a Scallop Shell, species which were also seen at some of the other traps. The two all-night traps, fitted with 125 W MB/U bulbs, produced 181 macro-moths of 33 species and 133 macro-moths of 41 species, respectively.

Species associated with the reedbeds and dyke banks included the pyralid moth *Chilo phragmitella* (Hübn.), the Fen Wainscot *Arenostola phragmitidis* (Hübn.), and the Southern Wainscot *Mythimna straminea* (Treit.). The pyralid *Phylctaenia perlucidalis* (Hübn.) was also recorded. This moth was first discovered in Britain at Woodwalton Fen, Huntingdonshire, in 1951 but is now proving to be rather widespread in eastern England northwards to Yorkshire, usually favouring wetland sites.

The Dotted Clay *Xestia baja* (D.&S.) is local in Nottinghamshire but was recorded in most of the traps at Misson Carr. A total of four was noted in the two all-night Robinson traps. A Small Scallop *Idaea eniarginata* (L.) was flushed by day in birch woodland and the Common Lutestring *Ochropacha duplaris* (L.) at light were additional species worth noting here.

Twelve species of butterfly were recorded during the day, including the Purple Hairstreak *Quercusia quercus* (L.), not previously recorded for the site and a very welcome addition to the Lepidoptera list for Misson Carr. One was seen by Brian Wetton, nectaring on umbellifers on the west ride. The other more well distributed species encountered during the visit were Small Skipper *Thymelicus sylvestris* (Poda), Large Skipper *Ochlodes faunus* (Turati), Large White *Pieris brassicae* (L.), Small



Fig. 1. Misson Carr, 13th July 2002. Photo: P. Waring, 2002.

White *P. rapae*, Green-veined White *P. napi* (L.), Small Tortoiseshell *Aglais urticae* (L.), Peacock *Inachis io* (L.) (as penultimate instar larvac), Comma *Polygonia c-album* (L.), Gatekeeper *Pyronia tithonus* (L.), Meadow Brown *Maniola jurtina* (L.), Small Heath *Coenonympha pamphilus* (L.) and the Ringlet *Aphantopus hyperantus* (L.) which was in some numbers.

Some interesting Coleoptera were found by Derek Lott, who spent most of the day scrabbling around in the bottom of the drains which crisscross the site. In a dried-up drain, Derek came up with three Nationally Scarce staphylinids – *Oxytelus fulvipes* Erichson, *Calodera riparia* Erichson and *Philhygra hygrobria* (Thomson), which he has previously found amongst an interesting assemblage from floodplain wetlands in an advanced state of ecological succession along the Trent and Soar valleys.

PW spotted a beautiful specimen of the Musk beetle *Arounia moschata* (L.), a Nationally Scarce species, clinging to a reed stem near one of the many willows in the swampy south-east corner of the site. This is a scarce species in Nottinghamshire – other than at Misson Carr where it has been recorded on one previous occasion in 1999, modern records have been restricted to a few sites along the Trent and Idle rivers. Also seen was an example of the local cerambycid beetle *Strangalia quadrifasciata* (L.), probably the first record for the site.

Twenty species of hoverflies were found during the day by the county recorder for this family, Brian Wetton. Interestingly, Brian found none of the typical fenland species that he had recorded there previously (probably a seasonal difference), but instead a range of widespread species, such as *Chrysotoxum bicinctum* (L.), *Volucella bombylans* (L.) and *Melanostoma scalare* (Fab.), exploiting the feeding opportunities offered by the profusion of flowering umbellifers. Whilst all were common, the records formed a useful addition to the overall invertebrate tally for this fascinating site. Three species of robber-fly were also recorded – *Dioclea atricapilla* Mg., *Leptogaster cylindrica* (Degeer), and *Machimus atricapillus* (Fall.). Several horseflies, including *Haematopoda pluvialis* L. and *Chrysops relictus* Mg. were also discovered by Brian, whilst the rest of us were unfortunate enough to be discovered by the horseflies!

Saw-flies, an under-recorded group in Nottinghamshire, included *Athalia bicolor* Lep. and *Arge nigripes* (Retz.).

Some close encounters with mammals and birds were also enjoyed during the day. Camcorder at the ready, PW crept up to a Roe deer fawn *Capreolus capreolus* L. which was nibbling at the pea crop in an arable field bordering the east of the site. The deer spotted him – but rather than taking fright, boldly strode up for a closer inspection of the strange silvery box being pointed in its direction, before sauntering off back into the reserve! A young Red fox *Vulpes vulpes* L. was seen in broad daylight engaging in a standoff with a Pheasant *Phasianus colchicus* L. and two Grey Partridge *Perdix perdix* L. on the track running alongside the reserve. They eyed each other suspiciously for several minutes, but then the inexperienced fox slunk away, having proved no match for a belligerent cock pheasant! Again, the whole scene was captured by PW's camcorder.

As he arrived for the evening session, Nottinghamshire Wildlife Trust worker John Ellis was surprised by a male Sparrowhawk *Accipiter nisus* L. which shot over the hedge, seized an unsuspecting Blackbird *Turdus merula* L. in its talons, landed on the track a few yards in front of his car, and proceeded to pluck its by now lifeless supper! Other birds encountered during the day included a Turtle Dove *Streptopelia turtur* (L.) which was foraging in the car parking area when we arrived, a Woodcock *Scolopax rusticola* L. in flight, and a singing Grasshopper Warbler *Locustella naevia* L. – several pairs are known to breed on the reserve. Many pellets of a Barn Owl

Tyta alba L. were found in a derelict military van in the car-park at the south end of the reserve. Some were covered in the empty pupal cases of a tineid moth. The chick of a Long-eared Owl *Asio otus* L. was heard calling during the night.

The leaders would like to thank all those who supported this meeting and contributed to its broad coverage of invertebrate and vertebrate animals. We also thank Jeremy Fraser, Management Plan Officer for Nottinghamshire Wildlife Trust, for inviting us to hold this field meeting, making the necessary arrangements and accompanying us in the field.

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Old Sulehray Forest & Quarry, Yarwell, Northants, 13 July 2002

Leader: **Gavin Boyd**. The leader was joined by one other member of the society, John Cole, and by one non-member, John Smeathers (primarily interested in micro-fungi and galls) on a fine dry summer's day with plenty of sun. Both parts of the reserve (old limestone quarry and mixed deciduous woodland) were examined, though not as thoroughly as would have been possible with a greater turnout. Nevertheless, the combined total of recorded taxa reached 205 species – 18 plants, 11 fungi and 176 invertebrates. This total was largely due to the list of Diptera provided by Jonathon Cole, a list impressive in numbers and diversity despite the author's disclaimer that it included mostly common and widespread species. He highlighted as notable: *Eggisops pecchiolii* Rondani (Calliphoridae), a parasitoid of snails, and *Aulacigaster leucopeza* (Mg.) (Aulacigastridae) found (typically) around a sap run on a large Horse Chestnut tree. Numbers of *Volucella inflata* (Fabr.) were also seen in the main woodland ride, but this was no surprise since this species has long been known from this site.

John Smeathers's most interesting find was a lichen, tentatively named as *Pycnothelia papillaria* Hoffm., growing in moss patches on limestone in the quarry. This species does not appear to be on the Northants county list and verification is awaited from the county lichen recorder.

The best record from a fairly banal list of Lepidoptera was the handsome ermine moth *Ethmia dodecea* (Haw.) netted along the broad, main ride through the wood, where the larval food plant *Lithospermum officinale* L. was seen with other interesting herbs. It was also nice to see the plume moth *Marasmiarcha lunaelectyla*

Haw., swept from Restharrow in the quarry, even though this is a relatively widespread species.

The evening session, intended for moth trap operation, came to an untimely end as night fell and no-one came to join the leader. Since he does not possess a light trap, he went home to an early supper after a little quite productive 'dusking' before the light faded completely. A pity because conditions for moths were just about ideal. Thanks are due to the local Wildlife Trust for permission to hold the meeting on their reserve.

**Strensall Common & Allerthorpe Common, Yorkshire, Newham Bog,
Northumberland, and Middleton Quarry, Co. Durham, 27–30 July 2002**

Leader: Paul Waring. The Dark Bordered Beauty *Epione vespertaria* (L.) is only known currently from two sites in England and three in Scotland. This UK Biodiversity Action Plan priority and Red Data Book species was the subject of a series of field meetings which took place in Yorkshire, Northumberland and Durham from 27–30 July 2002 as part of the Butterfly Conservation (BC) Action for Threatened Moths Project, part funded by English Nature. The event was advertised to and attended by members of BC North of England Branch, the Yorkshire Naturalists Union and the BENHS.

On 27 July we visited Strensall Common, about 10 km from York (Fig. 1). The Dark Bordered Beauty has been known from this area since the early 19th century and its status on this site has been monitored from 1894 to the 1990s by the now defunct York and District Field Naturalists' Society (YDFNS) (Sutton & Beaumont, 1989, Crossley & Waring, in press). On our visit the weather was dry, bright, with an almost clear sky and quite warm. The first Dark Bordered Beauty of the day, a worn female, was flushed from open grassy heathland at 12.15 h by James McGill, on land managed by the Yorkshire Wildlife Trust (YWT). When we visited the same spot at 15.45 h, five males and three females flushed readily from the sward which was dominated by Purple Moor-grass *Molinia caerulea* (L.) Moench and Cross-leaved Heath *Erica tetralix* L. growing to the height of our wellington boots. Amongst the Purple Moor-grass were slightly shorter plants of Creeping Willow *Salix repens* L., long known to be the larval foodplant on this site. Philip Winter told us how he and the late Archie Heron had found larvae on plants only 30 cm tall or less in open ground here years before. We surveyed the open heath police cordon-style, involving six persons, for 100 m, to count the adult moths. Only four were seen, three males and a female, and on this day we found them only on the edge of a stand of birch and other scrub woodland bordering a railway-line. Possibly the moths had accumulated there as a result of a light wind which was blowing across the site towards the wall of scrub. The larval foodplant was distributed patchily throughout the open ground. A similar survey 100 m in length was then conducted across the road on the Ministry of Defence (MOD) training area (by permission), with exactly the same result, three males and a female seen. However, three more counts elsewhere on open heathy ground in the extensive MOD holdings produced negative results. This indicates that the moth is not found at the same density throughout the site, and it may be absent from some parts.

Just before dusk we set up five 125 W mercury vapour light traps, three along the scrub edge where we had seen the first moths on the YWT land and two over the road on the MOD ground. It was a calm, cloudy, dry, muggy night, with an air temperature of 17°C from dusk to dawn, but in spite of such perfect conditions for moth-trapping, we had seen no Dark Bordered Beauty by 01.00 h, by which time



Fig. 1. On Stensall Common, Yorkshire Wildlife Trust Reserve. Some of the group coming together to examine a Dark Bordered Beauty netted by Philip Winter.

most people had to return home. Already the traps each held several hundred moths of other species. The leader remained on site to operate his two Robinson traps all night by the YWT scrub. At first light the traps held catches of 429 and 522 macro-moths of 58 and 48 species, including 4 and 5 male Dark Bordered Beauty, respectively. There were no females even though we had seen them at the trap sites in daylight just a few hours before. The males must have had a flight at some time between 01.30 h and dawn. Clearly if light-traps are used to locate or monitor this species, they will need to be operated all night.

Other noteworthy moths recorded during the light-trapping session (on the YTS reserve) included the nationally scarce Light Knotgrass *Acronicta menyanthidis* (Esper) and Angle-striped Sallow *Enargia paleacea* (Esper), the local Small Rufous *Coenobia rufa* (Haworth) and Double Kidney *Ipmorpha retusa* (L.) and other species often associated with wetlands such as the Suspected *Parastichtis suspecta* (Hbn.), Striped Wainscot *Mythimna pudorina* (D. & S.), Double-lobed *Apanthea ophiogramma* (Esper), White Satin *Lenormia salicis* (L.), a single, worn Bordered Beauty *Epione repandaria* (Hufn.) and several Lempke's Gold Spot *Plusia putnami* Grote ssp. *gracilis* Lempke. The latter was added to the Yorkshire list in the 1980s and has since proved to be widespread but local in the county, having previously not been distinguished from the Gold Spot *Plusia festucae* L. (Sutton & Beaumont, 1989, Beaumont, 2002). Several Satin Beauty *Deileptinia ribeata* (Clerck) were seen. This moth was overlooked in Yorkshire until 1974. The Garden Tiger *Arctia caja* (L.) was noted at one of the two traps operated all night. This is worth reporting in view of the current widespread decline of this species (Conrad *et al.*, 2001, 2002). The Pine Hawk-moth *Sphinx pinastri* L. was recorded at one of the two all-night traps. This is of interest in view of the continuing gradual northward extension in



Fig. 2. Newham Bog, Northumberland 28 July 2002. Photo P. Waring

distribution of this moth, which has now reached a number of sites in Yorkshire (Plant, 2002).

The following afternoon Newham Bog, Northumberland, was visited (Fig. 2). This is the second of the two current English sites for the Dark Bordered Beauty. The site is a National Nature Reserve managed by English Nature and can only be visited by permit. The moth was first discovered here in 1890 (Dunn & Parrack, 1986). The weather conditions on our visit were much as the previous day, but despite a good walk round the boardwalks, no Dark Bordered Beauty moths were seen. The site differs in many ways from Strensall Common. Most notably, it is much wetter, hence the boardwalks. Several species of willows grow within easy reach of the boardwalks, where they are kept short by cutting. In previous years the moth has been seen by day from these paths, usually several individuals per visit. However, none was seen on this visit, nor by Alan Coates the previous week. The leader made return visits to Newham Bog in favourable weather on the morning of 29 July and in the middle of the day on 8 August, both with negative results. It appears that there were no other sightings of the Dark Bordered Beauty at Newham Bog in 2002 and none were reported in 2001 (Phil Davey, EN Site Manager, pers. comm.). However, the site was effectively off-limits during 2001 due to access restrictions imposed to control the epidemic of Foot and Mouth Disease. Phil reports that the site has become much wetter in recent years and it may be that numbers of the moth have declined as a result. This requires further investigation and the author is recommending this to Butterfly Conservation and English Nature as a research priority for 2003.

On the afternoon of 29 July a search was made of the privately-owned Middleton Quarry in Upper Teesdale, Co. Durham, which is now thought to be the site where Ian Findlay captured a Dark Bordered Beauty on the wing by day on 13 August 1976. Previously this individual has been reported as taken at the Rothamsted light-trap in Ian's garden at Middleton-in-Teesdale but it seems the specimen may have

been sent to the late Tom Dunn, the former County Moth Recorder for Co. Durham, at the same time as a batch of moths from the trap and was assumed to be part of the catch (Alan & Jeri Coates, current Durham County Moth Recorders, pers. comm.). We found low growth of small-leaved willows in damp parts of the quarry floor and by a stream running through it, but no sign of the moth. The habitat at this site is certainly worth visiting again at several times within the normal flight season in case we were simply unlucky.

Allerthorpe Common, near York, was inspected with Roy Crossley and David Chesmore on the leader's return south on 30 July. This site still has plenty of Creeping Willow on its margins but is drying out as a result of drainage ditches installed on the surrounding land. David has now visited the site sufficiently in recent years to be as sure as one can be that the moth does not occur here.

The leader wishes to thank English Nature, Mark Parsons and Sam Ellis of Butterfly Conservation for involvement in organising and leading the event, Roy Crossley, Alan and Jeri Coates, County Moth Recorders for Co. Durham for arranging access and co-leading the visits to Middleton Quarry and Newham Bog, and Philip Winter for his assistance at Strensham Common.

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Adderstonlee Moss, Roxburghshire, 10–11 August 2002

Leader: Keith Bland. Adderstonlee Moss is a well-developed classic floating bog. A small raised dome bearing mature birch woodland with *Calluna* under-storey is surrounded by extensive willow-carr; the whole is floating on a body of water trapped in a depression in the higher reaches (230 m) of the Roxburghshire hills. The vegetated crust in the willow-carr is thin, so that trees uprooted by the wind leave circular expanses of dark “bottomless” water. As these grass over they can be very unnerving. It is not a place for the faint-hearted, so most of our time was spent on the outer periphery of the bog where it interfaces with patches of *Phragmites* reeds. The prime objective of the day was *Epione vespertaria* (Linn.), the Dark-bordered Beauty. This species was last recorded here in the early 1960s but has not been seen since in spite of regular searching. On this occasion also, our objective was elusive, but... next time!

The afternoon and evening were dominated by still, oppressive weather which threatened to break into a downpour at any moment. The foreboding of rain kept all

the insects (except the midges!) well hidden. Amongst the macrolepidoptera only the imagines of *Maniola jurtina* (Linn.) and *Perizoma didymata* (Linn.) were found and these were at rest, though the larvae of *Macrothylacia rubi* (Linn.) and *Ptilodon capucina* (Linn.) were also seen. Of the smaller moths only the cheeky grass-moth, *Agriphila straminella* (D. & S.) was everywhere, otherwise only an odd *Argyresthia goedartella* (Linn.) and *Plutella xylostella* (Linn.) could be raised. A few common leafminers added a few more species to the list.

As dusk fell and the generator burst into life, the weather became less oppressive and turned into a good night to "run a sheet". Many *Noctua pronuba* (Linn.), *Mythimna inpura* (Hübn.) and *Xestia sexstrigata* (Haw.) dominated the activity on the sheet. Smaller numbers of *Cerapteryx graminis* (Linn.), *Apanaea monoglypha* (Hufn.), *Celaena haworthii* (Curt.) and occasional specimens of *Brachylomia viniinalis* (Fab.), *Mesapamea secalis* (Linn.) (♂ genitalia checked) and *Autographa gamma* (Linn.) completed the noctuid line-up. Other than a dusk flight of *P. didymata*, geometrids were scarce; only odd individuals of *Xanthorhoe designata* (Hufn.), *Hydriomena furcata* (Thunb.) and *Colostygia pectinataria* (Knoch) showing themselves.

Of microlepidoptera, the sheet attracted *A. straminella* in abundance, with small numbers of *A. tristella* (D. & S.), *Catoptria margaritella* (D. & S.) and *P. xylostella* and singletons of *Dichrorampha montana* (Dup.), *Trachycera advenella* (Zinck.) and *Scoparia ambignalis* (Treit.)! More interestingly, half a dozen *Chilo phragmitella* (Hübn.) fluttered in; this species was first recorded at the moss in 1982 and it is rarely met with in Scotland. Three specimens of the lovely rose-coloured *Agonopterix angelicella* (Hübn.) were the highlight of the evening as they are the first records of the species from vc 80 (Roxburghshire).

Besides the moths coming to the sheet, a good assortment of caddisflies was also present. *Limnephilus marmoratus* Curt., *L. latius* Curt., *Platyganea varia* Fab., *Lepidostoma hirtum* (Fab.), *Glyphotaelius pellucidus* (Retz.) and *Drinsis annulatus* Steph. were all represented but the *Limnephilus* species far outnumbered the rest.

To finish on a non-entomological note: we were rather surprised to find a cluster of three birch leaves apparently infected with the fungus *Taphrina tosquinetii* Magn. I have only ever seen this fungus on alder previously.

Rendlesham & Tunstall Forests, East Suffolk, 10/11 August 2002

Leader: David Young – In fine, warm and sunny weather, and in sharp contrast to the rain apparently falling over the rest of the country, two members enjoyed a daytime walk through Rendlesham Forest. At first sight the forest appears to consist solely of closely planted blocks of conifers promising little of interest to the entomologist. However, closer inspection reveals some wide ridges, remnants of the heath lands which were typical of the area before the conifers were planted, damp valleys and open sand banks inhabited by many solitary bees and wasps. The sandy areas in this part of Suffolk support strong colonies of the Grayling *Hipparchia semele* (L.) which were seen in good numbers.

Four members gathered for the evening moth-trapping session. After an inspection of possible trapping sites in Rendlesham Forest it was decided to move to nearby Tunstall Forest to try and confirm the presence of *Dioryctria sylvestrella* (Ratz.). This species, which was not regarded as being a British species when Barry Goater wrote his *British Pyralid Moths* in 1986, was recorded during a BENHS field meetings at Tunstall Forest in 2001. During the past few years there have been several records of *D. sylvestrella* from the south-east and southern counties, which were thought to be of migrant origin.

The night of 10th August was dry but rather cool, certainly not ideal moth-trapping conditions. However, a few *D. sylvestrella* were recorded in traps located underneath a narrow belt of mature conifers which, in contrast to much of Tunstall Forest, survived the hurricane of 1987. With better weather forecast for the following night, a return visit was made on 11th August and the total of *D. sylvestrella* rose to at least 30. This number, coupled with the presence of the species in 2001, is strongly suggestive of a breeding colony being present in Tunstall Forest. Tony Pritchard (Suffolk county moth recorder), informed that the Suffolk Moth Group has recorded good numbers of *D. sylvestrella* from other sites in Suffolk during the year.

A total of 111 macro-Lepidoptera, and 18 Pyralidae were recorded over the two nights. Besides *D. sylvestrella* the most important or interesting records were: Tawny Wave *Scopula rubiginata* (Hufn.) (RDB); *Xestia rhomboida* (Esp.) (BAP species) with four specimens at m.v. or at burdock flowers and Reed Dagger *Sinysra albovenosa* (Goeze) (nationally scarce). Despite a high species count, many species were present only in small numbers, a common experience over much of the country during the past few years.

A full list of species recorded has been sent to Forest Enterprise, with thanks for their permission to record in these interesting sites.

Misson Carr, Nottinghamshire, 17 August 2002

Leaders: **Paul Waring (PW)** and **Sheila Wright (SW)**. This was the second BENHS field meeting at Misson Carr. The first, on 13 July 2002, is reported in Waring & Wright (2003), which includes an introduction to the history and features of the site and the previous entomological work which has taken place. After the cold night of the previous field meeting at this site, the weather was much more favourable for light-trapping this time, and a larger number of butterflies was seen during the day. The day was hot and sunny throughout, with temperatures exceeding 30°C. Perhaps it was too hot for some people. The leaders were joined at 11.00 h only by Jeremy Fraser (the site manager). Ten of us, all primarily interested in moths, assembled at 20.00 h for the night session. The night was hot and dry with a light breeze, some cloud and initially no moon, though a thin crescent moon appeared later in the night.

The meeting had three main entomological aims: to locate and mark out with tapes all stands of Common Meadow-rue *Thalictrum flavum* (L.), the sole larval foodplant for the nationally scarce Marsh Carpet *Perizoma sagittata* (Fabr.) which breeds on the site and to count the number of caterpillars we could find; to search for and set light-traps for second generation adults of the False Mocha *Cyclophora porata* (L.) and to conduct general recording to contribute to the species inventory for the site. A fourth aim was to assess the likely impact of various management possibilities and advise the Nottinghamshire Wildlife Trust (NWT) on the most favourable management for the known and potential entomological interest at Misson Carr.

As our first job, Sheila Wright, the Nottinghamshire County Moth Recorder, Jeremy Fraser and the leader located and roped off with high visibility tapes all four of the stands of Common Meadow Rue which we had previously found on the site so that none would be cut down during a ride cutting operation planned for later that month (Fig. 1). The caterpillars of the Marsh Carpet feed in July and August on the ripening seedheads, amongst which they are superbly camouflaged. If the plants are cut down and tidied up at this time, the larvae almost certainly perish. We found only four larvae on this date, one in the final instar and three in the penultimate, all within 1m of each other, on a waist-high Meadow-rue growing amongst Purple-loosestrife *Lythrum salicaria* L., Tufted Vetch *Vicia cracca* L., Meadow-sweet *Filipendula*



Fig. 1. Jeremy Fraser and Paul Waring roping off a stand of Common Meadow-rue *Thalictrum flavum*, the larval foodplant of the nationally scarce Marsh Carpet moth *Perizoma sagittata* so that it was not cut during mowing of rides while larvae were feeding. (17 August 2002)



Fig. 2. Sheila Wright and Jeremy Fraser by Common Meadow-rue. Sheila is holding a flowerhead on which there was a larva of the Marsh Carpet. (17 August 2002)

ulnaria (L.) Maxim. and Purple Small-reed *Calamagrostis canescens* (Wig.) Roth (Fig. 2). The larvae were only on one clump of the plant, and not on the largest, most open stand, so it would have been wrong to assume they were on all stands and just leave the largest uncut. Each larva was surrounded by three to five seed-capsules on which it had eaten away part of the wall, producing a large and easily seen hole. Some of the capsules or pods were brown, others green. The occupied plants were on parts of the ride which were in shade at mid-afternoon. We found very few such signs of feeding in the stand in the open unshaded position, and few large seed pods. One or two of these pods bore holes, so possibly there had been a few larvae, which had grown more rapidly in the warmer conditions and had now pupated. We also noted a marked difference between the state of flowering of Common Valerian *Valeriana officinalis* L. on the site. There was a large stand of Valerian in the open by the Meadow-rue and its seedheads were dried and brown and almost devoid of seeds while the flower-heads of other Valerian plants in more shaded rides were green and not yet fluffy. All were searched for larvae of the Valerian Pug *Eupithecia valeriauata* (Hübn.) but none was found.

Adults of the False Mocha were searched for near the oaks by the rides at dusk and by running light traps by the oaks, including one trap all night on the northernmost ride. Attention has been drawn to the need for a systematic national survey of the False Mocha, which feeds on oak leaves (see Waring, 2000a,b). Sheila recorded a singleton at Misson Carr on 30 June 2000 which might have been a wanderer. Our aim was to see if we could find evidence of a breeding population on the site, which contains both mature oak trees and smaller scrubby oaks, many of which could be lost during ride-widening operations unless marked for saving. On the field meeting on 13 July we had beaten the ride-side oaks for larvae without success (Waring & Wright, 2003). On 17 August, Robinson light traps were set up by the oaks, but no adult False Mocha were seen. However, the following week, on 24 August, PW led a BENHS meeting at Bernwood Forest, which is a known site for this moth. No False Mocha were seen there either, in spite of a turn-out of 18 people and the operation of 17 lights by oaks widely throughout the forest, some all night. This just shows that moth trapping can be a hit or miss operation and that negative results on a single night do not mean the moth is not there.

Regarding general site inventory work, this was a most productive meeting. In our wide exploration of the site by day for any additional stands of Meadow-rue, the following butterflies were seen: Small Skipper *Tlymelicus sylvestris* (Poda), Brimstone *Gonepteryx rhamni* (L.), Large White *Pieris brassicae* (L.), Green-veined White *P. napi* (L.), Common Blue *Polyommatus icarus* (Rott.), Red Admiral *Vauessa atalanta* (L.), Painted Lady *V. cardui* (L.), Small Tortoiseshell *Aglais urticae* (L.), Peacock *Inachis io* (L.), Speckled Wood *Pararge aegeria* (L.), Wall Brown *Lasiouuuata megera* (L.), Gatekeeper *Pyronia tithonus* (L.) and Meadow Brown *Mauiola jurtina* (L.).

We had three sightings of the Wall Brown – two of which were on the main ride running north–south up the western part of the reserve where there was some very dry bare earth, the third was along the farm track by the car park entrance.

All the oaks along the north ride were beaten, finishing at 14.30 h. This involved at least twelve trees, ranging from 2 m tall to substantial mature examples. No adult False Mocha were flushed and no late larvae of this species were seen. Caterpillars of other species recorded included the Pale Tussock *Calliteara pudibunda* (L.), one each (1–2 cm in length) from three separate oaks and one Buff-tip *Phalera bucephala* (L.) nearly 2 cm in length. A white boat-shaped cocoon of the Oak Nycteoline *Nycteola reveyana* (Scop.) was beaten from oak. An adult of the red and grey form

with black spots (*f. rosea*) emerged in the autumn, thus confirming the identity of the cocoon.

Dragonflies seen included the Black Darter *Sympetrum danae* (Sulzer) as well as the more numerous Common Darter *S. striolatum* (Charp.).

At 18.00 h an active Dotted Clay *Xestia baja* (D. & S.) flew onto the flower of a white umbellifer and was filmed on video-tape as it probed the flowers for nectar briefly before flying on.

The night was hot, dry, and muggy, gusty before dark but with only a light breeze afterwards, some cloud and no moon for the nocturnal session. PW operated a Robinson trap all night by the largest oak in the northern-most ride, at the eastern end, in the hope of capturing the False Mocha. This trap held a good catch of 246 macromoths of 36 species in the morning, but no False Mocha, and none was seen in any of the traps nor elsewhere on this field meeting. The Birch Mocha *Cyclophora albipunctata* (Hufn.) was on the wing and the individuals were in fresh condition, with five in this trap and two in a second Robinson trap operated by PW further along the same ride near other smaller oaks. Interestingly, neither of these traps recorded any Maiden's Blush *Cyclophora pimictaria* (L.), a species closely-related to the False Mocha, similarly dependent on oak but usually more numerous, and none was recorded by anyone else on this night. This second trap held 267 macromoths of 43 species, of which the most noteworthy species were three Scallop Shell *Rhemmaptera undulata* (L.) (also seen on the field meeting the previous month) and a worn Bordered Beauty *Epione repandaria* (Hufn.) from the sallow carr, and singletons of the reed-dependent Fen Wainscot *Arenostola phragmitidis* (Hbn.) and the pyralid *Chilo phragmitella* (Hbn.). It also attracted a Magpie moth *Abraxas grossulariata* (L.), one of two seen during this meeting and worth mentioning because the species appears to have been in a long-term decline in England since the 1960s. PW also deployed a Heath trap with a 6W actinic tube all night on a car battery by the reed-lined ditch with sallow and birch scrub on the southern boundary of the site. This trap did well, catching 138 macromoths of 31 species by dawn, including singletons of both the Fen Wainscot and the Twin-spotted Wainscot *Archamara geminipuncta* (Haw.) and a Pale Eggar *Trichiura crataegi* (L.). SW set up her light and sheet on the north-western corner of the open grassy area in the southeastern part of the reserve, amongst much grass and bedstraws *Galium* spp. and near a reedy area and some birch trees. This trap captured five Small Rufous *Coenobia rufa* (Haw.) which were not recorded in any of PW's three traps, nor by anyone else, and two individuals of the Twin-spotted Wainscot. Both the Twin-spotted Wainscot and the Small Rufous were particularly noteworthy moths for Nottinghamshire because both are known from only two other sites in the county. However, the best record of the night was yet to come – a single Waved Black *Parascotia fuliginaria* (L.) was recorded by Frank Botterill and Harry Beaumont at one of their two lights on the northern-most ride. This was the last moth to arrive as they began to pack up their equipment and is the first county record for Nottinghamshire. Ian Crackles had large numbers of other moths flying round his light on a tripod over a sheet when PW visited him in the night and everyone was seeing numbers of the Dotted Clay *Xestia baja* (D. & S.), but no Square-spotted Clay *X. rhomboidea* (Esp.), which was a target species we were hoping we might find.

Harry and Frank recorded a substantial list of 44 species of micromoths for the night, including 16 species of tortricoids and 14 species of pyralids, of which the following are considered local: *Elachista maculicerusella* Bru., *Helcystogramma rufescens* (Haw.), *Agapeta zoegana* (L.), *Aethes sineathumamiana* (Fabr.), *Apotomis semifasciana* (Haw.), *Endothenia quadrimaculana* (Haw.), *Epinotia nisella* (Clerck), *Dichrorampha simpliciana* (Haw.) and *Agriphila selasella* (Hbn.).

The leaders would like to thank all those who supported this meeting. We also thank Jeremy Fraser and Rob Atkinson of the Nottinghamshire Wildlife Trust, for inviting us to hold this field meeting, making the necessary arrangements and accompanying us in the field. A copy of the full list of species recorded has been deposited with Dr Sheila Wright, Curator of Natural History, Nottingham Museum, and County Moth Recorder for Nottinghamshire, and with the NWT.

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Pennington and Keyhaven Salt Marshes, Hampshire, 7th September 2002

Leader: Tony Pickles. It was disappointing that no member or friends attended this meeting for either the afternoon or evening sessions. The weather was not of the best, but not sufficiently inclement to deter the hardy. The leader contented himself with walking the area in the afternoon and noting several larvae of Star-wort *Cucullia asteris* (D. & S.) on flowers of Sea Aster.

In the evening a m.v. light was run for a comparatively short time, once it was clear that no-one was attending, and some thirty species of Lepidoptera were recorded before the leader sought solace in the nearby Gun Inn. The most interesting of the species seen were probably the Antler moth *Cerapteryx graminis* (L.), Hedge Rustic *Tholera cespitis* (D. & S.), Feathered Gothic *T. decimalis* Poda, Mathew's Wainscot *Mythimna favicolor* (Barr.) and September Thorn *Ennomos erosaria* (D. & S.). The leader extends his thanks to Leonard Mansbridge, who holds grazing rights in the area, for his kind co-operation.

Erratum

MANN, D. J. & TURNER, C. R. *Atrichopogon (Melochelea) winnertzi* Goetghebuer (Diptera: Ceratopogonidae) feeding on *Meloe violaceus* Marsham (Coleoptera: Meloidae). *British Journal of Entomology and Natural History* **16**: 7–9.

The following rectifies an error in the summary of the published records of *Atrichopogon* species feeding on *Meloe* beetles in Britain given in Mann & Turner (2003). Full references are listed in the original paper.

<i>Atrichopogon (Melochelea)</i> spp.	<i>Meloe</i> spp. attacked	Source
<i>A. (M) winnertzi</i> Goetghebuer	<i>M. violaceus</i> Marsham	Cooter, 1979 Mann & Turner, 2003
<i>A. (M) lucorum</i> (Meigen)	<i>M. proscarabaeus</i> Linnaeus	Blair, 1937, 1938 (as <i>meloesugans teste</i> Wirth, 1980)
	<i>M. violaceus</i> Marsham	Blair, 1937, 1938 (as <i>meloesugans teste</i> Wirth, 1980)

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