



ES 36 A

The Bulletin



of the Amateur Entomologists' Society

Volume 65 • Number 464

February 2006

THE NATURAL
HISTORY MUSEUM

- 7 MAR 2006

PRESENTED
ENTOMOLOGY LIBRARY



The Amateur Entomologists' Society



Founded in 1935

The AES • P.O. Box 8774 • London • SW7 5ZG



<http://www.amentsoc.org>

Officers of the Society

President: Mike Majerus

Secretary: Martin Hough

Treasurer: Peter May

Registrar: Nick Holford

Bulletin Editors: Peter Sutton & Phil Wilkins

General Editor: Fiona Merrion-Vass

Habitat Conservation Officer: Peter Sutton

Advertising Secretary: Peter Hodge

Exhibition Secretary: Wayne Jarvis

Youth Secretary: Kieren Pitts

ICN Editor: David Lonsdale

Wants & Exchange: Peter May

SUBSCRIPTIONS:

First subscriptions should be accompanied by an additional £2 entrance fee, except for Bug Club members under the age of 13 to which this charge does not apply.

Renewal charges

Ordinary	£17.50	Ordinary Overseas	£21.00
Bug Club (Junior)	£10.00	Bug Club (Junior) Overseas	£21.00
Family	£24.00	Family Overseas	£30.00

ADVERTISING RATES:

Rates for advertising in the body of the *Bulletin* are:

Full page £60, Half page £40, Quarter page £25.

Series discounts and insert charges are available from the Advertising Secretary on request.

NOTICE

It is to be distinctly understood that all views, opinions, or theories, expressed in the pages of this Journal are solely those of the author(s) concerned. All announcements of meetings, financial grants offered or sought, requests for help or information, are accepted as bona fide. Neither the Editor, the Officers and Council of the Society, nor its Trustees, can be held responsible for any loss, embarrassment or injury that might be sustained by reliance thereon.

Worldwide Butterflies

MOONLANDER MOTH TRAP

Completely New Principles

Major innovation – developed by Robert Goodden

Now NEW ELECTRICS

Available with

MERCURY VAPOUR or

Special new 12V SAFE and powerful
40W actinic lamp. Use ANYwhere



Moths enter from
BOTTOM of trap!

Benefits of observation
sheet as well as Trap.

Moths fly upwards and
cannot escape.

Use with mains or battery.

White top fluoresces
bright violet with UV.

Trap contents stay dry.

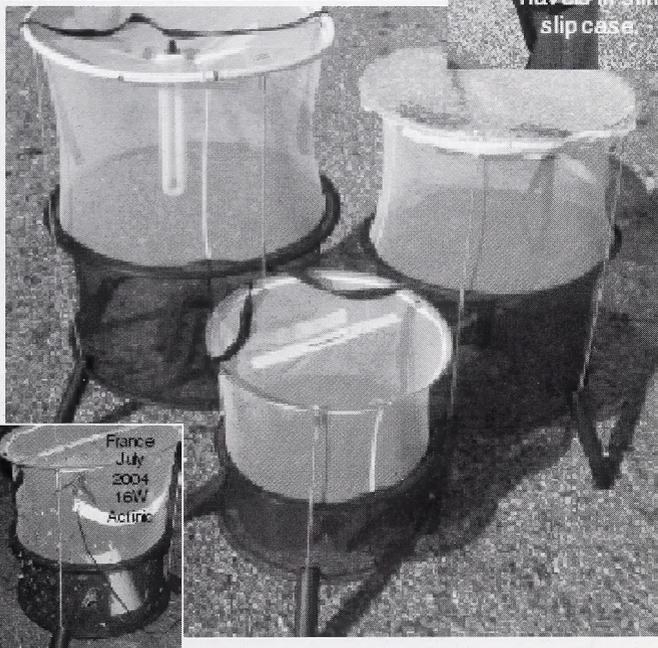
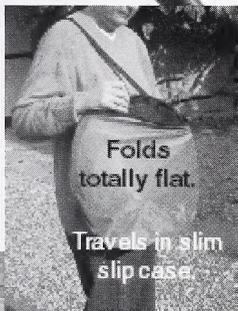
Hang or stand.

Sturdy anchors – withstands
most weather.

Three sizes – choose for
portability or volume.

Full details – also
investock specimens
and equipment on
www.wwb.co.uk

Please refer to website
www.wwb.co.uk
for full details and
prices



Worldwide Butterflies

PO Box 101 Liskeard PL14 3ZS

Tel 01579 384050

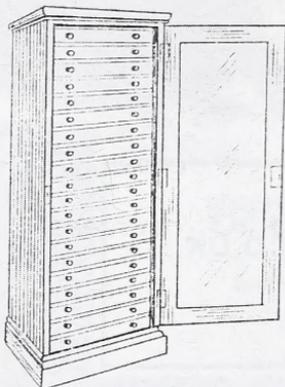
Fax 01579 384430

sales@wwb.co.uk

www.wwb.co.uk

ATROPOS ANTIQUES*

PURVEYORS OF FINE COLLECTOR'S CABINETS



*Many of you will have met us at the AES
London Fair where we regularly show
entomological cabinets for sale*

- We are specialist dealers in fine collector's cabinets.
- We can offer a choice of at least 30 cabinets, varying in purpose, construction, quality and price.
- We can supply both restored and un-restored cabinets and will undertake to restore and paper cabinets for clients.
- We are always interested in the purchase or exchange of cabinets, with or without a collection.
- Callers to our showrooms are always welcome by appointment.
- We offer a specialist collection and delivery service throughout the UK and have full expertise in the safe transportation of cabinets and collections.

George Morgan
97, West Street, Hartland, N. Devon EX39 6BQ
T: 01237-441205/984 M: 07973 302190
E-mail: george@atropos.wanadoo.co.uk

* We are an independent dealership of 30 years standing and have no association with any similarly named business.

A NEW BOOK FROM

Cravitz

Experience the lighter side of field entomology with Torben Larsen as he describes his experiences from around the world.



There must be a Hazard for every occasion?

£11.99 (inc. UK p&p) • **£13.99** (overseas)

ORDER YOUR COPY NOW FROM

Cravitz Printing Company Limited

1 Tower Hill, Brentwood, Essex CM14 4TA.

Tel: (01277) 224610 • Fax: (01277) 262815 • E-mail: CravitzPrinting@btconnect.com



Ian Johnson

Natural History Books

(Pemberley Books)

Specialist in *Entomology* and related subjects
Also *Zoology*, *Ornithology*, *Botany* etc.

- CATALOGUES – Second-hand, Antiquarian and New books – free catalogues available on request.
- SPECIALIST BOOKSHOP at Richings Park, Iver, just to the West of London – easy to reach by car or train. Visitors are welcome to visit and view our stock, but please telephone first to confirm opening times.
 - * *By car*: only 10 minutes drive from the M25 via the M4 (Junction 5), or M40 (Junction 1). 15 minutes from Heathrow Airport.
 - * *By train*: 20 minutes from London Paddington to Iver Station on the Paddington-Slough Thames Trains service (2 trains every hour). We are 1 minute's walk from Iver Station.
- WEBSITE – view our stock on our website: www.pembooks.demon.co.uk
- BOOKS BOUGHT – We are always interested in purchasing books in our specialist field, particularly antiquarian, academic and scholarly works on insects and other invertebrates.

18 BATHURST WALK, RICHINGS PARK, IVER, BUCKS SL0 9AZ

Tel: 01753 631114/Fax: 01753 631115 • e-mail: ij@pembooks.demon.co.uk



The AES BUG CLUB

Do you want to cuddle a Cockroach, stroke a Stick Insect or hug a Harvestman?

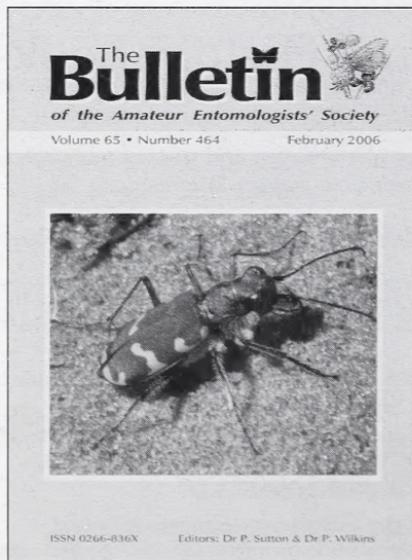
The AES Bug Club is for young people or the "young at heart" who find insects and other creepy crawlies interesting and even fascinating.

As the junior section of the AES we are devoted to promoting invertebrates to the younger generation who, after all, will be the entomologists of tomorrow!

You can help us in a number of ways, for example: by joining the Bug Club yourself, getting someone else to join the Bug Club, promoting the Bug Club and AES to your local school/Scout or Guide Group etc, running a Bug Club event or writing an article for our exciting newsletter. If you can do anything to help then please write to us: **AES Bug Club, PO Box 8774, London, SW7 5ZG.** Membership details can be found in the front of this Bulletin.



Bulletin Cover



Sefton speciality

The cover of the *Bulletin* shows a specimen of the rare and threatened Northern Dune Tiger Beetle, *Cicindela hybrida*, (RDB2, Vulnerable), which is now confined to a handful of colonies from Cumbria to south Lancashire on the northwest coast of England. (For more details and a distribution map for this species, see the article on British Tiger Beetles in *Bulletin* 434, pp. 21-35). The Northern Dune Tiger Beetle has suffered primarily from habitat loss through human activity, but can still be occasionally be found in good numbers where suitable habitat remains. This specimen shown was found hunting and flying actively on the Ainsdale Sands dune system on the Sefton Coast in August 2005.

Photograph: David Browne

Editorial

This, my final issue as editor, is devoted to the entomological fauna of Bushy Park in Middlesex. The more I have studied Bushy Park, the more I have been astonished by its importance in terms of its flora and fauna, and its social history which, in addition to its royal heritage, includes its role as the headquarters for the coordination of the D-Day landings. Regarding its royal heritage, I can remember offering my apologies to colleagues during a conference on saproxylic insects at the Royal Holloway in 2002, in order to race across country from Berkshire to Middlesex to get a picture of the Queen during her golden jubilee



Figure 1. The Royal Park Party. There was a fantastic atmosphere as HRH Queen charmed the crowds in Bushy Park during the Golden Jubilee tour in June 2002.



tour of Bushy Park (Figure 1), and complete the royal history for a forthcoming work, *The History and Natural History of Bushy Park*. The sheer volume of people present on that special day exemplified the problems faced by the Royal Parks authorities when attempting to accommodate the needs of thousands of visitors to the Park, while at the same time balancing the requirements of its nationally important flora and fauna. Fortunately, it appears that the pressure of public demands has not unduly affected Bushy Park's wildlife, and ironically, some species are, to a large extent, dependant on the public for maintaining important bare ground habitats. However, regarding Park management for the public, operations including the inappropriate removal and destruction of vital deadwood habitats (even during the current survey), through perceptions of public safety and 'tidiness', have undoubtedly had an impact on available habitat for many scarce and threatened species, although this situation, I understand, is now being addressed admirably by the Park's wildlife team.

Bushy Park has been described as the "Sleeping Beauty" of London's Royal Parks and it is hard to understand why so many entomologists have overlooked it. Until recently, much of its entomological fauna was simply unknown.

As I surveyed the fauna of Bushy Park, I documented all manner of observations, including the behaviour of the considerable number of non-native species that live in the Park. Whilst attending a lecture by Mike Salisbury, the producer of Sir David Attenborough's *Life in the Undergrowth*, at Cambridge University earlier this year, I was intrigued by a sequence showing the feeding activity of a Lantern Bug (Fulgoroidea), which taps into the sap of a tree with its sharp mouthparts. As it extracts protein from the sap, the excess sugary fluid is removed from its body with the aid of a terminal abdominal appendage, which flicks the droplets away from its body and so prevents an accumulation of sugary liquid, which may attract ants. (Remarkably, there is a moth that takes advantage of this activity and sits behind the bug, catching these flicked droplets on its coiled proboscis.)

It occurred to me that I had observed the same feeding activity whilst watching a species of Homopteran bug in Bushy Park, the Rhododendron Leafhopper, *Graphocephala fennabi*, or, as it is known in its native North America, the Candy-striped Leafhopper¹. Two adults were lined up, one behind the other on a leaf stem, and had tapped

¹ I have given several talks on the fauna of Bushy Park, and recalled an embarrassing moment regarding the above observation whilst addressing the Twickenham RSPB group last year. Unbeknown to me, on the other side of this particular Rhododendron bush were two topless ladies, who were singularly unimpressed by my explanation, having questioned me as I appeared from behind the bush, camera in hand.

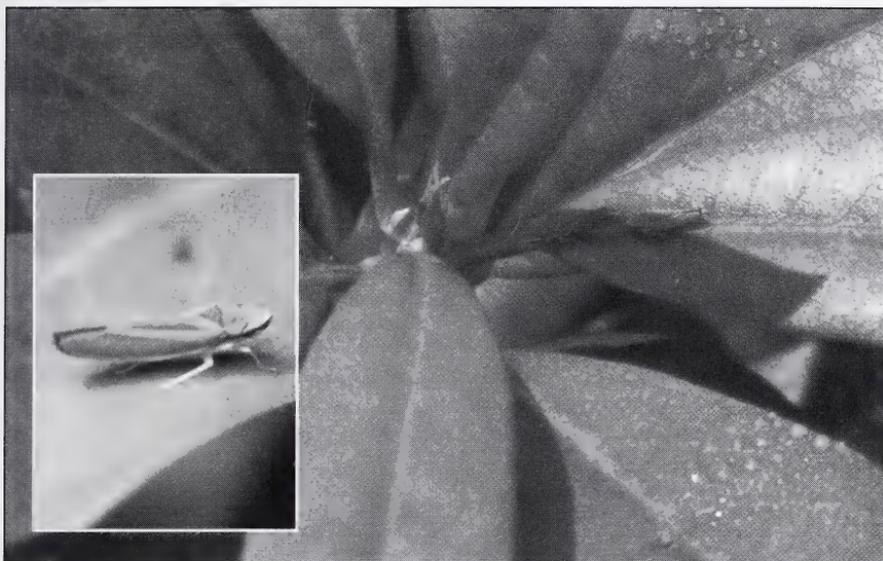


Figure 2. Two Rhododendron or Candy-striped Leafhoppers ejecting fluid while sap-feeding.

into the flowing sap of a Rhododendron bush in the Woodland Gardens. I was amazed, firstly, by the quantities of liquid that were being expelled by each insect, and secondly, that the droplets were being flicked rhythmically away from the insects, like pulsating garden sprinklers. These droplets of sugary fluid were collecting a fair distance from the insects, with one leafhopper flicking droplets to the left, and the other flicking them to the right, as shown in Figure 2.

Regarding my departure from this post, I would like to thank all who have helped to oil the wheels along the way, particularly Phil Wilkins, all at Cravitz Printing Co. Ltd, and Nick Holford. Particular thanks also go to those members whose articles I have had the privilege of processing for the *Bulletin*. Regarding my successor, I would like to welcome Martin Hough to the post and wish him a thoroughly prosperous and enjoyable term in office.

As a final thought, I have pondered the fact that, if I had been given a pound for every editorial gaff that I had made during my few years as editor, I would surely have acquired enough folding material to take up residence under the table at my local hostelry for several weeks to come. That said, as I amble back to the clubhouse to hang up my bat, I hope that my innings has been of some small worth. My very best wishes to you all.

Peter Sutton



AES RES
YORK 8th April
 2006
 Exhibition



AES/RES Exhibition

York Racecourse 8th April 2006

by Malcolm Simpson (4859)

Harvest Lodge, Foxenfields, Abbots Ripton, Cambridgeshire, PE28 2PW.

This new exciting exhibition, organized in conjunction with The Royal Entomological Society, is almost upon us. We look forward to seeing as many of you who can attend and please bring your friends as there will be something of interest for everyone. Members exhibits will be on display for you to enjoy and a good number of dealers will be in attendance to supply your entomological requirements.

The exhibition also provides members with the opportunity to dispose of surplus books, specimens and equipment. Table spaces are available for as little as £14 and details of these are available from Wayne Jarvis.

If you have only a small number of surplus items these can be sold for you at the exhibition on the Society's 'Wants and Exchange' table, with a small donation from the proceeds going to either Society of your choice. All you have to do is clearly mark the item or items with the price you want and we will offer them for sale on your behalf.

This is a great opportunity for you to clear your unwanted items and at the same time assist your Society financially.

I shall be organizing the 'Wants and Exchange' table and I look forward to meeting you on the day and helping you to dispose of your surplus material. If in the meantime you need clarification on any point please do not hesitate to contact me.

Remember, if you want the Exhibition to become an annual event, then you must support it – it is your exhibition.



The history of entomological recording in Bushy Park, Middlesex: a personal perspective

by Dr Peter G. Sutton (7388)

AES Habitat Conservation Officer, 2 Fir Tree Close, Flitwick, Beds. MK45 1NZ.

In 1999, I began to search available literature for records made previously by other entomologists in Bushy Park. It did not take long to reach the conclusion that, with the notable exception of the aculeate Hymenoptera, almost nothing had been published about the entomological fauna of this remarkable site. I can remember thinking at the time, having found a considerable number of noteworthy species that year, "Why has nothing been written about this place?!"

The lack of available literature was exemplified by the Invertebrate Site Register for Bushy Park (ISR database, 1991) held by English Nature, which contained only four literature references, all of which related to the aculeate Hymenoptera of Bushy Park: Felton (1967), Guichard (1972), and Yeo, (1955 and 1957). The ISR provided details of four RDB3 (Rare) species and 15 Nationally Scarce species of aculeate Hymenoptera¹.

To my knowledge, the only other published entomological records for Bushy Park were: Cooter, (1965) describing the presence of the subterranean ground beetle, *Laemostenus terricola*; Ollevant and Felton, (1964) listing the presence of aculeates in general collecting notes; and Townsend, (1982) describing the occurrence of the Stripe-winged Grasshopper, *Stenobothrus lineatus* in Bushy Park.

By chance, and while discussing the discovery of an unusual ladybird² with Peter Hodge, I learnt that he had made three visits to Bushy Park in August and September 1992 to evaluate its invertebrate interest, culminating in the production of a very useful report (Hodge, 1992). The report was supplemented by records from two previous visits by the author in August 1986 and October 1988, and also contained additional records collated from the observations of several other entomologists. The report listed two RDB1 species (although one, *Pandivirilia (Psilocephala) melaleuca* remains unconfirmed),

¹ Surprisingly, in spite of the obvious value of the site for aculeates, and the fact that there was clearly an ongoing continuity of veteran deadwood habitat (and all that it entailed), in 1991, Bushy Park's designated ISR status was given as a lowly and somewhat inappropriate "D".

² This ladybird, which was found in the Canal Plantation (07.vi.00; Sutton, 2002a), turned out to be the recent colonist, the Bryony Ladybird, *Epilachna (Henosepilachna) argus*. At the time, it was believed to be the first record for Middlesex. However Prance (2001) revealed that he had found a specimen almost three weeks earlier (20.v.00) at Sunbury-on Thames, and a subsequent note (Sutton, 2002b) showed that the first Middlesex record was in fact recorded by Mr. James Ranger, who discovered this species at Kempton Park in May 1999, two years after its first discovery in the U.K. by Alysia Menzies at a garden in West Molesey in Surrey (Menzies and Spooner, 2000).



including the only modern (1986) record for the endangered carabid, *Dromius quadrisignatus*, and 16 nationally scarce species. It also indicated that Bushy Park had much to offer, particularly with regard to the possible dead wood fauna likely to be found in its veteran tree habitats. However, the report goes on to remark: "it is quite safe to state that it (Bushy Park) is unlikely to compare favourably with Richmond Park".

In 2000, an updated ISR (2000) was kindly provided by English Nature, and reflected the work of Peter Hodge. It also provided several records from other recorders (D. Lott, I. Menzies, and D. Hackett). The report listed the RDB1 and now BAP Priority species, *Dromius quadrisignatus*, the same four RDB3 aculeates, the thirty previously known Nationally Scarce species, and usefully, seventy Local species. The majority of these Local species came from the now dated surveys of aculeate Hymenoptera by Yeo, Felton and Guichard. Virtually all of the remainder came from Peter Hodge's report.

Regarding my own observations in Bushy Park, I was keen to inform the appropriate body, and discuss the presence of a number of scarce and threatened species. In 2000 I made contact with the Royal Parks Wildlife Group and was invited to attend one of their meetings at the Stockyard premises in Bushy Park. I discussed my observations at the meeting and an official permit³ was arranged to allow general access to previously inaccessible areas of the Park, and to allow for the collection of species to confirm identification where necessary.

By the beginning of 2003, I had accumulated an extensive collection of slides documenting the wildlife of Bushy Park. Among these photographs were the spectacular metallic green and red jewel wasp, *Hedychrum niemelai* (RDB3), and the digger wasp, *Cerceris rhyvensis*, which I had observed catching a bee⁴. During a discussion with David Baldock regarding these findings, we decided to continue the work of the three hymenopterists, Yeo, Felton and Guichard, and undertake a survey of the aculeate Hymenoptera of Bushy Park. This survey culminated in a paper (Sutton and Baldock, 2003), which used the complete historical list of these previous recorders to place the modern list of aculeate Hymenoptera into perspective. It also highlighted the importance of Bushy Park's BAP Priority Habitats (Lowland Dry Acid Grassland and Lowland Woodland Pasture Parkland) in the context of the national resource. The 2003 paper offered a possible explanation for the observed species richness in Bushy Park, in terms of its close

³ A permit is required from The Royal Parks authorities before survey work can be undertaken.

⁴ Both observations are recorded in Plates 1 and 2 respectively of the article by Sutton and Baldock (2003). (Unfortunately, the demand for this issue (No. 451) has meant that it is now almost completely out of stock.)



proximity of a number of important wildlife sites (including Richmond Park NNR and Wimbledon Common) within a comparatively small area of west London, which was referred to as the “Ham Radius”, and the “unique combination of climatic, geographical and ecological factors” (per Peter Harvey) that have enhanced the biodiversity of the Thames Terrace invertebrate fauna across this region.

By late summer 2003, and after some intense recording, it was apparent that Bushy Park (unlike Hampstead Heath, a formerly excellent site for aculeates that had progressively lost its species richness as site quality, for a variety of reasons, had diminished) was still a site of considerable importance for aculeate Hymenoptera. Moreover, it was clear that in addition to the Red Data Book and Nationally Scarce species that were still present, the number of species in Bushy Park had clearly increased owing to the arrival of new species *e.g.* the Bee Wolf, *Philanthus triangulum*.

In September 2003, I was again invited to attend a Royal Parks Wildlife Group meeting and provided an update of progress regarding the Hymenoptera survey and other aspects of Bushy Park’s natural history. It was becoming clear that Bushy Park was a site of national importance.

During the course of this ongoing survey, several more additions to entomological literature were made. On one occasion (25.iv.04) whilst recording near a drainage ditch, I found that a small gathering of Snakes-head Fritillaries, *Fritillaria meleagris*, which had been deliberately planted in the adjacent flood meadow, had attracted the attentions of the Lily Beetle, *Lilioceris lili*, sparking a debate about the threat to our native populations of this rare plant from this destructive species (Sutton, 2004a).

Regarding the orthopteran fauna of Bushy Park, several observations were made including: the discovery of the Lesser Marsh Grasshopper, *Chorthippus albomarginatus*, in Bushy Park (which coincided with its first appearance at the well recorded Wandle Meadow Reserve at Merton in Surrey in 2003) (Sutton, 2003); the continuing presence of the Stripe-winged Grasshopper, *Stenobothrus lineatus*, (and the Long-winged Cone-head, *Conocephalus discolor*, for which there had been no previous records in Bushy Park), and the observation of sustained flight for the macropterous form of Roesel’s Bush-cricket, *Metrioptera roeselii* f. *diluta* (Sutton, 2004b). The regular predation of Roesel’s Bush-crickets by Kestrels in Bushy Park was also reported (in Widgery, 2001).

In 2004, a concerted effort to record early season aculeates was made, thus building up a more detailed picture of the complex aculeate communities that exist in Bushy Park.



Later in the year, Dr Jonty Denton undertook a survey of the terrestrial invertebrates, and David Leeming investigated the aquatic invertebrates. These surveys, together with surveys of: grassland and woodland plant communities (Land Use Consultants – LUC); aquatic plants (LUC); Water Vole (LUC); reptiles and amphibians (LUC and David Leeming); and bats (Dr Paula Cox and the London Bat Conservation Trust), which were mainly carried out in July 2004, were collated to form the LUC report. This report concluded that there were, to date, 28 Red Data Book species of invertebrate residing in Bushy Park.

In 2003 we described Bushy Park as “the forgotten Royal Park” (Sutton and Baldock, *loc. cit.*), and it was stated that: “In *London's Natural History* (Fitter, 1953), Bushy Park is mentioned only for its famous avenue of Horse Chestnut trees planted by Sir Christopher Wren, and *Wildlife in the Royal Parks* (Simms, 1974) provides but the briefest details of non-avian fauna to be found in the Park.” Prior to that, Bushy Park had not been recognized by Castell (1947) during an evaluation of sites of wildlife conservation importance in the London region, and since then, it has essentially (with the notable exception of the three hymenopterists described) been overlooked by entomologists for half a century.

In contrast, Bushy Park has now been included in the Mayor of London's Biodiversity Strategy (2002): *Connecting with London's Nature*, and appears prominently on the map of Greater London as a *Site of Importance for Nature Conservation*.

The content of the additional articles in this journal is testimony to the national (and for the saproxylic invertebrates, international) importance of Bushy Park, in terms of the array of habitats that it provides, and the corresponding richness of its invertebrate fauna.

References

- Castell, C.P., (1947). Nature conservation in the London area. *The London Naturalist*, **26**, pp. 17-41.
- Cooter, J., (1965). *Laemostenus terricola* Herbst. in Middlesex. *Bull. Amat. Ent. Soc.*, **24**, p.32.
- Felton, J.C., (1967). Notes on the Hymenoptera of the Bushey Park Area, Middlesex. *The London Naturalist*, **46**, pp. 105-109.
- Fitter, R.S.R., (1945). *London's Natural History*; 282 pp., London: HMSO.
- Guichard, K.M., (1972). The Aculeate Fauna of Bushey Park – 1971 additions and further records including a note on *Mimesa bruxellensis*. *Entomologist's Gazette*, **23**, pp. 243-247.
- Hodge, P.J., (1992). *A Preliminary Survey of the Insects of Bushey Park*, pp. 1-21. Privately commissioned report.



- Invertebrate Site Register database: Bushy Park, Middlesex (Grid reference: TQ 1570, information updated in 1991, and 2000), Site number 36 in unpublished ISR report number **43**, English Nature, Peterborough.
- Mayor of London, (2002), *Connecting with London's Nature. The Mayor's Biodiversity Strategy*. Greater London Authority.
- Menzies, I.S. and Spooner, B.M., (2000), *Henosepilachna argus* (Geoffroy) (Coccinellidae, Epilachninae), a phytophagous ladybird new to the U.K., breeding at Molesey, Surrey. *The Coleopterist*, **9**, pp. 1-4.
- Ollevant, D. and Felton, J.C., (1964), Collecting notes – August 1964, *Bull. Amat. Ent. Soc.*, **23**, pp. 77-80.
- Prance, D.A., (2001), *Henosepilachna argus* (Geoffroy) (Coccinellidae), in Middlesex. *The Coleopterist*, **10**, p.4.
- Shirt, D.B. (Ed.), (1987), *British Red Data Books: 2. Insects*. xlv + 402 pp. Nature Conservancy Council, Peterborough.
- Simms, E., (1974), *Wildlife in the Royal Parks*, 47 pp., London: HMSO.
- Sutton, P.G., (2002a), The Bryony Ladybird *Epilachna argus* (Geoffroy, 1785), a recent UK colonist, *Bull. Amat. Ent. Soc.*, **61**, (No 443), pp. 161-164.
- Sutton, P.G., (2002b), New records of the ladybird, *Epilachna argus* (Geoffroy, 1785), in Middlesex, *Bull. Amat. Ent. Soc.*, **61**, (No 444), pp. 183-184.
- Sutton, P.G., (2003), British Wildlife Report: Grasshoppers and relatives, *British Wildlife*, **14** (No. 5), pp. 358-359.
- Sutton, P.G. and Baldock, D., (2003), The Aculeate Hymenopteran Fauna of Bushy Park, Middlesex, *Bull. Amat. Ent. Soc.*, **62**, (No 451), pp. 216-239.
- Sutton, P.G., (2004a), Are native British populations of the Snake's-head Fritillary *Fritillaria meleagris* threatened by the Lily Beetle *Lilioceris lili*?, *Bull. Amat. Ent. Soc.*, **63**, (No 454), pp. 113-114.
- Sutton, P.G., (2004b), British Wildlife Report: Grasshoppers and relatives, *British Wildlife*, **16** (No. 1), pp. 54-56.
- Townsend, B.C., (1982), The Stripe-winged Grasshopper *Stenobothrus lineatus* (Panzer) in Bushy Park. *London Naturalist*, **61**, p.64.
- Widgery, J., (2001), Kestrels feeding on Orthoptera, *Orthoptera Recording Scheme for Britain and Ireland – Newsletter* **27**, p. 10.
- Yeo, P.F., (1955), *Microdynerus exilis* (Herrich-Schaeffer) (Hym. Vespidae) in Middlesex and Kent, *The Entomologist*, **88**, p. 66.
- Yeo, P.F., (1957), Bees and Wasps in Bushy Park and at Hampton Hill, Middlesex, *The London Naturalist*, **36**, pp. 16-24.





The Larger Brachycera and Conopidae of Bushy Park, Middlesex

David Baldock

BWARS Coordinator, Nightingales, Haslemere Road, Milford, Surrey, GU8 5BN.

Dr Jonty Denton (12500)

Pentire, 29 Yarnbams Close, Four Marks, Hants, GU34 5DH. email:jontydenton@aol.com

Dr Peter G. Sutton (7388)

AES Habitat Conservation Officer, 2 Fir Tree Close, Flitwick, Beds. MK45 1NZ.

Introduction

The Larger Brachycera (Soldierflies and their Allies) is, arguably, the most popular group of flies to be studied after the Syrphidae (Hoverflies).

The term, Larger Brachycera, provides a somewhat arbitrary umbrella for the Families: Acroceridae (Hunch-backed Flies), Asilidae (Robberflies), Athericidae (Water-Snipeflies), Bombyliidae (Bee-flies), Rhagionidae (Snipe-flies), Scenopinidae (Windowflies), Stratiomyidae (Soldierflies), Tabanidae (Horseflies), Therevidae (Stiletto-flies), Xylomyidae (Wood Soldierflies), and Xylophagidae (Awl-flies).

Like the Hoverflies, the Soldierflies and their Allies count among their number some very attractive species. Some of these are truly impressive, like the magnificent Hornet Robberfly, *Asilus crabroniformis*, our largest Robberfly, and the so-called Ornate Brigadier, *Odontomyia ornata*, a rare and colourful Soldierfly confined to freshwater grazing marshes in the British Isles.

In spite of this, the group, as a whole, remains comparatively under-recorded, and there are a number of reasons for this.

Many species have short emergence times, which require entomologists to have an accurate knowledge of their life histories to ensure that they are in the right place at the right time. This is easier said than done for those species whose life histories are still poorly known.

The recorder must then contend with the fact that the adults of many species are difficult to find, because unlike the Hoverflies, they rarely visit flowers, reflecting the fascinating and often extraordinary nature of their biology and ecology. Those species that can be found nectaring at flowers include, of course, the Bee-flies (e.g. *Bombylius major*, Plate 1), some Soldierflies and male Horseflies, but it is interesting to note that, as far as is known, the nectar-feeding members of the Larger Brachycera, unlike the Hoverflies, cannot digest pollen to obtain protein (Stubbs and Drake, 2001).



Until recently, there was a lack of available keys for some groups, making the identification of species in notoriously difficult Families such as the Tabanidae problematical. Information regarding the distribution of many species was limited or unavailable.

This situation changed with the publication of the *Provisional Atlas of the Larger Brachycera* (Drake, 1991), *British Soldierflies and their Allies* (Stubbs and Drake, 2001), which contains a wealth of knowledge regarding these species including keys for adults and larvae, and the progression of knowledge facilitated by the Larger Brachycera Recording Group (which produces a newsletter).

Collecting

Specimens may be actively collected using hand-held nets, and again, a knowledge of which species can be located at flowers, basking on foliage, are likely to be found in highly localized swarms, or can be found visiting water and wet mud, may lead to a profitable visit to a site.

Alternatively, there are two traps, water traps and malaise traps, which are very useful for building up knowledge of the Dipteran fauna of sites. These and other trapping methods are described in Stubbs and Drake (2001, *loc. cit.*).

Methods used to record specimens in Bushy Park included the use of the above two traps, manual capture using nets, and where identification was unambiguous, photography of specimens *in situ*.

In recent years, recording the presence of species that might otherwise have remained undetected has been greatly facilitated by the development of methods to locate their larvae. Indeed, some species have only been recorded in Britain as larvae. In addition to knowing how to search for larvae in various habitats, from mud and sediment sieving, to moss picking and algal mat lifting, one method that has been described as "a major breakthrough in finding both aquatic and terrestrial species" has been the use of grapefruit skins as a lure (Stubbs, 1987). These are apparently very attractive to the larvae of the Stratiomyidae, some of which, *e.g.* the larvae of *Stratiomys singularior* (Plate 1), according to Rozkosny (1982) have attained lengths of up to 62 mm.

The Larger Brachycera and Conopidae of Bushy Park

To date, and for reasons described above, there have been relatively very few published lists of Larger Brachycera for sites in Britain, although this situation is now changing as a result of the renewed interest in this group generated by recent publications.



Table 1. The larger Brachycera of Bushy Park, Middlesex

Stratiomyidae					
Species	Conservation status	Distribution	Abundance	Recorder	Date found
<i>Beris chalybeata</i>	None	Universal	Commonly found	J.S. Denton	28/07/2004
<i>Beris geniculata</i>	None	Universal	Commonly found	J.S. Denton	28/07/2004
<i>Beris morrisii</i>	None	Southern, Widespread	Frequently found. Damp woodland margins.	D.W. Baldock	15/05/2004 15/06/2004
<i>Beris vallata</i>	None	Universal	Commonly found in a variety of habitats	D.W. Baldock	15/06/2004
<i>Chloromyia formosa</i>	None	Universal	Commonly found. Breeds in rotting vegetation..	D.W. Baldock	15/06/2004
<i>Chorixops nagatamii</i>	None	Southern, Restricted	Infrequently found. Newly described species (1979).	P.G. Sutton	06/06/2000
<i>Chorixops tibialis</i>	None	Southern, Widespread	Frequently found in woodland rides and scrub-edge	D.W. Baldock	15/07/2004
<i>Microchrysa pollita</i>	None	Universal	Commonly found. Breeds in rotting vegetation.	D.W. Baldock	15/08/2004
<i>Oxycera morrisii</i>	Nationally Scarce RDB2 (Drake, 1991)	Widespread	Infrequently found in seepages and marshes	D.W. Baldock	15/05/2004 15/07/2004
<i>Oxycera rara</i>	None	Southern Widespread	Infrequently found. The larvae are semi-aquatic in wet grassland and at the edges of water bodies.	J.S. Denton	28/07/2004
<i>Oxycera trilineata</i>	None	Universal	Frequently found. The larvae are aquatic in a variety of wetland habitats, including brackish ones.	J.S. Denton	28/07/2004
<i>Pachygaster atra</i>	None	Southern, Widespread	Frequently found. The larvae develop in rotting vegetation.	D.W. Baldock	15/06/2004 15/08/2004
<i>Pachygaster singularator</i>	None	Southern, Restricted	Frequently found. The larvae develop in rotting vegetation.	D.W. Baldock	15/06/2004 15/08/2004
<i>Sargus bipunctatus</i>	None	Universal	Frequently found. A species of woodland margins. Larvae live in rotting vegetation	D.W. Baldock	15/08/2004 10/09/2004
<i>Stratiomys singularator</i>	Nationally Scarce	Southern, Widespread	Locally frequently found. Associated with brackish ditches, hence usually coastal.	D.W. Baldock	11/07/2003
<i>Stratiomys poliamida</i>	Nationally Scarce	Southern, Widespread	Infrequently found. The larvae are associated with the edges of streams and ponds. Appears to have become more frequent in recent years.	J.S. Denton	28/07/2004
<i>Vanomyia tenuicornis</i>	Nationally Scarce	Southern, Restricted	Locally frequent. The larvae breed in the wet mud at the base of vegetation in marshes and wet fields.	J.S. Denton	30/07/2004
Xylomyiidae					
Species	Conservation status	Distribution	Abundance	Recorder	Date found
<i>Salva marginata</i>	RDB2 (Drake, 1991)	Southern, Restricted	Infrequently found. This species has been recorded from malaise traps set in Richmond Park and Kew Gardens (DWTB)	D.W. Baldock	15/06/2004 15/07/2004
Bombyliidae					
Species	Conservation status	Distribution	Abundance	Recorder	Date found
<i>Bombylus major</i>	None	Universal	Commonly found	P.G. Sutton	28/04/2002

**Tabanidae**

Species	Conservation status	Distribution	Abundance	Recorder	Date found
<i>Chrysops caecutiens</i>	None	Universal.	Commonly found. Associated with wet woodlands. Commoner in England and Wales than <i>C. relictus</i> .	D.W. Baldoock P.G. Sutton	15/08/2004 03/07/2001
<i>Chrysops relictus</i>	None	Universal.	Frequently found. Associated with wet woodlands. Commoner in Scotland than <i>C. caecutiens</i> .	J.S. Denton	28/07/2004
<i>Haematopota pluvialis</i>	None	Universal.	Commonly found. The larvae live in mud.	D.W. Baldoock	11/07/2003 15/06/2004
<i>Tabanus bromius</i>	None	Southern. Restricted.	Infrequently found. Woodland and damp meadows.	D.W. Baldoock P.G. Sutton	07/2003; 08/2004 03/07/2001

Asilidae

Species	Conservation status	Distribution	Abundance	Recorder	Date found
<i>Dioctria atricapilla</i>	None	Southern. Widespread.	Commonly found. Dry, grassy areas and heaths.	D.W. Baldoock	15/06/2004
<i>Dioctria baumhaueri</i>	None	Southern. Widespread.	Commonly found. Dry, grassy areas and heaths at the edge of woodland.	J.S. Denton	28/07/2004
<i>Dioctria rufipes</i>	None	Universal	Frequently found.	D.W. Baldoock P.G. Sutton	15/05/2004 20/05/04
<i>Leptogaster cylindrica</i>	None	Southern. Widespread.	Frequently found in long grass.	D.W. Baldoock	15/06/2004
<i>Machimus atricapillus</i>	None	Southern. Widespread.	Commonly found. Dry grasslands and scrub.	D.W. Baldoock	14/08/2003 15/06/2004
<i>Machimus cingulatus</i>	None	Southern. Widespread.	Commonly found south of London, infrequent elsewhere. Dry grasslands, heaths and scrub.	D.W. Baldoock	14/08/2003 15/07/2004
<i>Neotamias cyanurus</i>	None	Universal	Infrequently found. Associated with woodland edges and open woodland, especially oak.	J.S. Denton	15/08/2004

Therevidae

Species	Conservation status	Distribution	Abundance	Recorder	Date found
<i>Thereva nobilitata</i>	None	Universal.	Frequently found. The commonest Therevid fly, often associated with dry grasslands. The larva lives in loose soil.	D.W. Baldoock	11/07/2003

Rhagionidae

Species	Conservation status	Distribution	Abundance	Recorder	Date found
<i>Rhagio lineola</i>	None	Universal.	Commonly found.	D.W. Baldoock	14/08/2003
<i>Rhagio scolopaceus</i>	None	Universal	Commonly found.	D.W. Baldoock	15/06/2004

Acroceridae

Species	Conservation status	Distribution	Abundance	Recorder	Date found
<i>Acrocer orbiculata</i>	None	Southern. Widespread.	Infrequently found although occasionally locally common, possibly due to mass emergence. The larva is a parasite of spiders.	J.S. Denton	15/08/2004



Fortunately, for comparison purposes regarding the Bushy Park fauna, we have been lucky enough to benefit from the work of Roger Morris, who has provided details of the Surrey fauna (Morris, 2000), including that of Mitcham Common and other sites in Surrey, (Morris, 2003, 2004), some of which are similar in nature (*i.e.* acid grassland on Thames Terrace gravels) to Bushy Park. David Baldock has also provided lists of records resulting from his surveys of Kew Gardens, Richmond Park and other Surrey sites.

In accordance with Morris's work, we have also provided the lists of Conopidae from Bushy Park and other sites, which, although still under-recorded at present, (*e.g.* to date, only three species of Conopidae have been recorded from Bushy Park: *Conops quadrifasciatus* (Plate 4), *Sicus ferrugineus*, and *Physocephalus rufipes*), will benefit from future surveys by those willing to search for these species.

34 species of Larger Brachycera were recorded in Bushy Park between 2003 and 2004, and these are summarized in Table 1.

Plate 1 shows the Robberfly, *Dioctria rufipes* with prey, *Chloromyia formosa*, which was recorded in early June near the Waterhouse Pond; the Deer-fly, *Chrysops caecutiens*, with its stunning iridescent eyes; the Horse-fly, *Tabanus bromius*, (which can be a persistent and painful nuisance to humans in hot weather!); the Bee-fly, *Bombylius major*, a common sight on Primroses along the wooded areas of the Longford River in April and May; and the impressive larva of a *Stratiomys* species. One *Stratiomys* species, the so-called Flecked General, *Stratiomys singularior*, is of interest because, in accordance with Bratton's observations (1995), it does not appear to require brackish water sites in Bushy Park. This species, which appears to be increasing its range in Britain, exploits a wider range of habitats on the Continent, and may be benefiting from the relaxation of its habitat requirements in response to climate change.

A comparison of the number of species of Larger Brachycera found in Bushy Park with those of Surrey sites (Table 2) shows that Bushy Park is well represented by this group. (Although there appears to be a correlation between species-richness and acid grassland, it should be remembered that other habitats present in Bushy Park, *e.g.* freshwater habitats and dead wood resource, will also have a bearing on the number of species present.)

Table 3 provides a summary of the number of species represented in each Family for the Larger Brachycera and Conopidae of Bushy Park and six Surrey Sites.

**Table 2.** Number of species of Larger Brachycera recorded from Bushy Park and Surrey Sites.

Site	Habitat	Brachycera	Conopidae
RHS Wisley	Acid grassland	43	13
Mitcham Common	Acid grassland	34	7
(Bushy Park, Middlesex)	Acid grassland	34	3
Milford garden	Country garden	32	11
Elstead, Thundry Meadows	River meadows	32	3
Kew Gardens	Acid grassland	30	11
Richmond Park	Acid grassland	26	4
Thursley Common	Heathland	25	7
Elstead, Somerset Bridge	Seepage, river meadow	21	1
Mare Hill Common	Heathland	20	6
Ash Ranges	Heathland	17	7
Bagmoor Common	Damp heathland	17	5
Chobham Common	Heathland	15	9

Table 3. A comparison of the Larger Brachycera and Conopidae of Bushy Park with the known fauna Surrey sites.

Family	Number of spp. (UK)	Number of spp. (Surrey)	Mitcham Common	RHS Wisley	Kew Gardens	Somerset Bridge	Thundry Meadows	Richmond Park	Bushy Park
Xylophagidae	3	1	0	0	0	0	0	1	0
Rhagionidae	15	11	3	5	2	4	3	5	2
Tabanidae	30	14	1	8	0	5	9	1	4
Xylomyiidae	3	2	1	1	0	0	0	1	1
Stratiomyidae	48	32	16	17	21	7	7	9	17
Acroceridae	3	2	2	0	0	0	0	0	1
Bombyliidae	9	2	1	1	1	0	2	0	1
Scenopinidae	2	1	0	0	0	0	0	0	0
Therevidae	14	6	2	2	1	1	1	2	1
Asilidae	29	20	8	9	5	3	9	7	7
Athericidae	3	2	0	0	0	1	1	0	0
Total	159	93	34	43	30	21	32	26	34
Conopidae	24	21	7	14	11	1	3	4	3
Overall Total	183	114	41	57	41	22	35	30	37



Conclusions

Regarding the future recording of Larger Brachycera and Conopidae in Bushy Park¹, the Park provides an opportunity to observe some of our superb Dipteran fauna, e.g. the Soldierflies, *Stratiomys singularior* and *S. potamida*, and also add to the current list of species, particularly the Conopidae. (The Syrphidae should also be studied and may offer some pleasant surprises. For instance, in addition to other bee-mimics, a possible (unconfirmed) late season specimen of the rare rot-hole specialist, *Pocota personata*, (for which there are old records from sites close to Richmond Park) was observed by P. Sutton near the Willow Plantation on 11.vii.04). The RDB1 therevid, *Pandivirilia (Psilocephala) melaleuca*, a species for which modern records have only been forthcoming from the Windsor area of Berkshire (Stubbs and Drake, 2001), may also have been recorded from Bushy Park. Peter Hodge (1992) reported that: "a larva of what was thought to be this species was collected from dry frass and wood mould in a cavity in a large fallen Oak by Professor J.A.Owen. Unfortunately the adult failed to emerge and therefore this record should be regarded as provisional."

To date, 34 species of Larger Brachycera, representing more than one fifth of the British fauna, have been recorded from Bushy Park in a comparatively short space of time and by recorders who were primarily searching for aculeate Hymenoptera and Coleoptera.

In recent years the list of Larger Brachycera and Conopidae for Surrey, one of the best recorded counties in Britain, has increased from 99 (Morris, 2000) to its current total of 114, and it is clear that there is still scope for additional work at many sites, particularly Richmond Park NNR. It is likely that work undertaken in Bushy Park will be of considerable interest regarding both the comparison of fauna with its prestigious neighbour, Richmond Park, and the provision of a representative County list of Larger Brachycera and Conopidae for Middlesex.

The importance of recording the Larger Brachycera for conservation purposes should not be underestimated. To quote from Stubbs and Drake (*loc. cit.*): "Here we have one of the highest concentrations of Red Data Book, nationally scarce and declining species among the British insects. This comes about because of their very specialized life styles and their requirement for habitat niches which are especially vulnerable to deterioration or loss."

¹ A permit is required to undertake field work in Bushy Park, and may be requested from: The Royal Parks, White Lodge, The Stockyard, Bushy Park, Hampton Court Road, Middlesex TW12 2EJ.



It is clear that the specific habitat niches occupied by many of the Larger Brachycera make these species particularly useful indicators of site quality.

The assemblage of Larger Brachycera observed during this survey demonstrates the value of Bushy Park in terms of the variety of important habitats that it provides.

References

- Bratton, J., (1995), *Stratiomys singularior* not restricted to saline localities. *Larger Brachycera Recording Scheme Newsletter*, **No. 13**, pp. 1-2.
- Drake, C.M., (1997), *Provisional Atlas of the Larger Brachycera (Diptera) of Britain and Ireland*, p.1-131, Huntingdon: Biological Records Centre.
- Hodge, P.J., (1992), *A Preliminary Survey of the Insects of Bushy Park*, pp. 1-21, Privately commissioned report.
- Morris, R.K.A., (2000), A provisional checklist of the larger Brachycera and Conopidae (Diptera) for vice-county 17, Surrey, *The London Naturalist*, **79**, pp. 143-159.
- Morris, R.K.A., (2003), The larger Brachycera, Syrphidae and Conopidae (Diptera) of Mitcham Common, *The London Naturalist*, **82**, pp. 173-186.
- Morris, R.K.A., (2004), The larger Brachycera, Syrphidae and Conopidae (Diptera) of Mitcham Common – some corrections and revisions, *The London Naturalist*, **83**, pp. 159-160.
- Rozkosny, R., (1982), A biosystematic study of the European Stratiomyidae (Diptera). Volume 1. Introduction, Beridinae, Sarginae and Stratiomyinae. *Series Ent.* **21**, W. Junk, The Hague.
- Stubbs, A.E., (1987), A stampede of strat larvae - to grapefruit skins. *Larger Brachycera Recording Scheme Newsletter*, **No. 4**, pp. 4-5.
- Stubbs, A.E. and Drake, M., (2001), *British Soldierflies and their Allies*, p. 1-512, British Entomological and Natural History Society, London.





The Saproxyllic Coleoptera of Bushy Park, Middlesex

by Dr Jonty Denton (12500)

Pentire, 29 Yarnbams Close, Four Marks, Hampshire, GU34 5DH. email:jontydenton@aol.com

Introduction

In the 21st Century it is both amazing and worrying to find a site of such importance so close to the capital, and yet so poorly known, and without any statutory protection for its wildlife.

The dead wood (saproxyllic) beetle assemblage found in Bushy Park is described, and compared with others both locally and nationally.

Study area

Bushy Park (TQ1569) lies in a loop of the Thames in Middlesex. Richmond Park is 2 km to the east over the river, and the Esher Commons lie 2 km to the south. The park covers some 450 hectares of flat ground on free draining Thames gravels. Deer are allowed to graze over most of the site, which is open parkland with scattered trees and abundant avenues mainly of Lime trees, with the notable avenue of Horse Chestnut trees. Several enclosures where deer are excluded support more diverse ground floras, with more nectar sources for flying beetles. Ivy is also more abundant away from the deer. The western part of the site consists of paddocks and meadows with species rich hedgerows (with Elm) and scattered veteran trees. Most of the important records come from the veteran Oaks, which are particularly frequent in the south half of the Park. Lime is also abundant and planted in regimented avenues along the north-south road. Beech is scarce and many of the larger trees have died in recent years. Hawthorn is also frequent across the site, but many trees are dead or dying, possibly as a result of attack by *Agrilus sinuatus*.

Methods

In addition to standard field methods of beating, sweeping etc., subterranean traps of a similar design described by Owen (1997) were used.

Some funnel traps were made by inverting the spout end of two-litre plastic drinks bottles partly filled with a mixture of cider, apple juice and sweet vinegar, and buried at the base of trees with several small openings (<1cm) around the buried part and the original opening open at the surface.



A flight interception trap was run in the Water Gardens in late summer, and two malaise traps were also employed.

Measuring the quality of the saproxylic beetle fauna

The list of saproxylic beetles is shown in Appendix 1. In all, 193 qualifying species have been found in the period since 1980.

Revised Index of Ecological Continuity (rIEC)

The IEC method of measuring the quality of saproxylic coleopteran fauna was developed by Harding & Alexander (1994), using the scores assigned in Harding & Rose (1986). Alexander (2004) has refined this method using data collected over the past decade or so. This has resulted in some minor modification of the original list of qualifying species. The qualifying species and their allocated scores are shown in column three of Appendix 1.

Species Quality Index

The Species Quality Score (SQS) and Species Quality Index (SQI) provide a different way of comparing sites. Fowles *et al* (1999) assigned quality scores to native saproxylic Coleoptera, ranging from one for common species, to 32 for Red Data Book taxa. The SQS is produced by adding together the assigned scores for the species recorded from a site. The SQI is then calculated by dividing the SQS by the total number of species and multiplying by 100.

Results

The dead wood beetle fauna present on Bushy Park is clearly of National importance and is at present (based on the revised IEC of 100), the 8th richest site (for which scores have been calculated) in Britain (Alexander, 2004). It is clearly the most important site in Middlesex, and Greater London.

Some of the rarest species were found breeding in relatively young Oaks, supporting the view that rare species are less demanding at sites with abundant old trees (Skidmore, 2003).

One recently deceased Oak (over 150 years old) yielded 52 qualifying species, which gave a SQI of 683 and IEC of 42. These included *Elater ferrugineus*, which was breeding in wood mould and red rotten heartwood beneath the nest of an Egyptian Goose, *Alopochen aegyptiacus*, which contained addled eggs and down. The same cavity, which was 1.5m above ground had also been used by



Little Owls, *Athene noctua*, and I removed the remains of over fifty adult *Lucanus cervus*, as well fragments of several adult *Geotrupes* (probably *stercorarius*), which were presumably brought to the tree from the surrounding park and deposited in pellet form.

Site	rIEC
Windsor Great Park & Forest	249
New Forest	194
Richmond Park	130
Moccas Park	125
Bredon Hill	120
Sherwood Forest	100
Epping Forest	100
Bushy Park	100*
Esher Commons	96
Ashtead Common	90
Burnham Beeches	85
Hatfield Forest	78
Hatchlands Park	74

Table 1. The top 15 British ancient broadleaf woodland sites ranked according to the revised IEC (Alexander 2004).

SITE	No. species	SQS	SQI	rIEC
RICHMOND PARK	247	1592	644	138
EPPING FOREST	257	1563	608	100
BUSHY PARK	193*	1124*	582*	100*
ESHER COMMONS	235	1169	497.4	96
ASHTOAD COMMON	221	1292	585	90
BOX HILL	226	1193	528	53

Table 2. Dead wood sites in London District ranked according to revised IEC.

*Note, although *Gnorimus variabilis* is the likely candidate for the red heart rot galleries observed in Oak, the presence of an extant colony of this secretive species (as for the possible colony at Parham in West Sussex, Alexander, 2004) has yet to be confirmed.



Two nearby trees of similar age, were being attacked by the Shipyard beetle, *Lymexylon navale*, which proved to be widespread in the Park. These appear to be the first records for this beetle in VC21.

Other new County records included the following: *Abraeus granulum*, a small hister found under Beech bark; the myrmecophilous rove beetle, *Euryusa sinuata* which is invariably found with the Bi-colored Tree Ant, *Lasius brunneus*; *Trinodes hirtus*, a dermestid beetle which develops in the old webs of spiders under the bark of old Oaks; *Uleiota planata*, a very distinctive flat beetle (see Plate 7 for this and other saproxylic species); *Corticaria alleni*, a small Cryptophagid beetle associated with fungoid wood; and *Abdera flexuosa*, a distinctively marked Melandryid beetle which develops in *Inonotus radiatus*, a bracket fungi on Alder.

Gnorimus variabilis appeared to be breeding inside the red rotten heart of a dead but standing veteran Oak with extensive galleries occurring a metre above the base of the tree. *Ampedus cardinalis* was also breeding in the red rot in this part of the tree. In contrast the larvae of the Rose Chafer, *Cetonia aurata*, were locally abundant in damp soil and frass at the base of Oak and Beech, in the later case in soil upon which a large bracket fungi had fallen and begun to decay.

Mycetophagus quadriguttatus was found amongst dead but still green leaves in the nest of a grey squirrel inside a cavity in a large Horse Chestnut in the Water Gardens.

In addition to the taxa qualifying for inclusion in the IEC calculations, several important records of other saproxylic species were made, which include the following:

Nathrius brevipennis, I beat a single male of the diminutive longhorn from the one of the largest veteran parkland Oaks south of the Diana Fountain on the 11th July 2004.

On the 28th June 2004, an adult *Eulagius filiformis* was taken in flight near the Pheasantry. This appears to be the first record for Middlesex and Greater London. It occurs widely in the Reading area where it was first discovered (Harrison, 1996), and also occurred over the Thames in Esher in 2004 (Denton, 2005). On the same day an *Agrius sulcicollis* alighted on my arm, and one other was beaten from a large Oak near the Diana Fountain car park. Another recent arrival in Britain the tiny Elm Bark Beetle, *Scolytus pygmaeus*, was breeding in Elms in a hedgerow in the Brewery Fields.



Discussion

It is pleasing to see the number of outstanding sites for dead wood Coleoptera steadily growing, and it is clear that there are still many more nationally important sites, which have yet to be studied fully. It is likely that the list saproxylic fauna, and corresponding indices (SQS, SQI, IEC) for Bushy Park will continue to increase (e.g. the presence of *Lasius brunneus* in such numbers suggests that associated species such as *Scaptia testaceus* will almost certainly be present at the site). It is also worth mentioning that a very eminent invertebrate ecologist (who shall remain anonymous), on hearing of my findings at Bushy, admitted that he had '*driven through it lots of times and didn't think it looked very promising!*' A salutary lesson that one should always keep an open mind!

Acknowledgements

Thanks to Nigel Reeve, and Ray Brodie of Royal Parks for supporting survey work. Also to Peter Hodge, Derek Lott and Peter Sutton for allowing me to include their records.

References

- Alexander, K.N.A., (1996), Value of veteran trees for wildlife: saproxylic invertebrates. In: C. Reid, Management of veteran trees on National Nature Reserves. In: H.J Read (ed.) *Pollard and Veteran Tree Management II*. Corporation of London.
- Alexander, K.N.A., (2004), Revision of the index of Ecological Continuity as used for saproxylic beetles. *English Nature Research Report Number 574*. English Nature. Peterborough.
- Alexander, K.N.A., (2004b.), *Gnorimus variabilis* (Linnaeus) (Scarabaeidae) in West Sussex, *The Coleopterist*, **13** (part 3), pp. 92-93.
- Denton, J., (2005), *The Beetles of Surrey. A checklist*. Surrey Wildlife Trust. Pirbright.
- Fowles, A.P., Alexander, K.N.A. & Key, R.S., (1999), The saproxylic index: evaluating wooded habitats for the conservation of dead wood Coleoptera. *The Coleopterist*, **8**, pp. 121- 141.
- Harding, P.T. & Alexander, K.N.A., (1994), The use of saproxylic invertebrates in the selection and evaluation of areas of relic forest in pasture woodlands. *Br.J.Ent.Nat.Hist.*, **7** (Suppl.1), pp. 21-26.
- Harding, P.T. & Rose, F., (1986), *Pasture Woodlands in Lowland Britain*. Monks Wood. Institute of Terrestrial Ecology.
- Harrison, T.D., (1996), *Eulagius filicornis* (Reitter) (Mycetophagidae) apparently established in Britain. *The Coleopterist*, **4**, pp. 65-69.
- Skidmore, P., (2003), Saproxylic insect Survey of the Virginia Water and Bishopgate areas of Windsor Park, 2002-3. *English Nature Research Reports No. 514*. EN. Peterborough.

**APPENDIX 1**

Saproxyllic Coleoptera used to calculate species quality score and index for Bushy Park

**= new Vice-county record

Species	rIEC grade	SQS
Histeridae		
<i>Plegaderus dissectus</i> (Erichson)	2	8
<i>Abraeus globosus</i> (Hoffmann)		4
<i>Abraeus granulum</i> (Erichson) **	3	8
<i>Paromalus flavicornis</i> (Herbst)		2
Ptilidae		
<i>Nossidium pilosellum</i> (Marsham)		8
<i>Penidium turgidum</i> (Thomson, C.G.)	2	16
<i>Ptinella aptera</i> (Guerin-Meneville)		2
<i>Ptinella cavelli</i> (Broun)		0
Leiodidae		
<i>Anisotoma humeralis</i> (Fabricius)		2
Scydmaenidae		
<i>Scydmaenus rufus</i> (Mueller & Kunze)	3	24
Scaphidiidae		
<i>Scaphidium 4-maculatum</i> (Olivier)		2
<i>Scaphisoma agaricum</i> (Linnaeus)		2
Staphylinidae		
<i>Dropephylla toptera</i> (Stephens)		1
<i>Dropephylla vilis</i> (Erichson)		1
<i>Hapalarea pygmaea</i> (Paykull)		2
<i>Phloeocharis subtilissima</i> (Mannerheim)		2
<i>Atrecus affinis</i> (Paykull)		1
<i>Bisnius subuliformis</i> (Gravenhorst)		2
<i>Gabrius splendidulus</i> (Gravenhorst)		1
<i>Quedius brevicornis</i> (Thomson)		8
<i>Quedius truncicola</i> (Fairmaire & Laboulbenelle)	3	8
<i>Hypogyra angularis</i> (Ganglbauer)	2	16
<i>Gyropbaena angustata</i> (Stephens)		8
<i>Gyropbaena latissima</i> (Stephens)		2
<i>Gyropbaena minima</i> (Erichson)		2
<i>Anomognathus cuspidatus</i> (Erichson)		2
<i>Euryusa sinuata</i> (Erichson)**	2	24
<i>Bolitochara lucida</i> (Gravenhorst)		2
<i>Leptusa fumida</i> (Kraatz)		1
<i>Dinaraea aequata</i> (Erichson)		1
<i>Atheta liturata</i> (Stephens)		2
<i>Phloeopora testacea</i> (Mannerheim)		1
<i>Haploglossa marginalis</i> (Gravenhorst) (recorded by Derek Lott in 1986)		8



Species	rIEC grade	SQS
Pselaphidae		
<i>Bibloporus bicolor</i> (Denny)		2
<i>Euplectus fauveli</i> (Guillebeau)		8
<i>Euplectus infirmus</i> (Raffray)		2
<i>Euplectus piceus</i> (Mortschulsky)		2
Lucanidae		
<i>Lucanus cervus</i> (Linnaeus)		8
<i>Dorcus parallelipipedis</i> (Linnaeus)		2
<i>Sinodendron cylindricum</i> (Linnaeus)		2
Scarabaeidae		
<i>Gnorimus variabilis</i> (Linnaeus) **	1	32
Scirtidae		
<i>Prionocyphon serricornis</i> (Müller)	3	8
Buprestidae		
<i>Agrilus biguttatus</i> (Fabricius)		4
<i>Agrilus laticornis</i> (Illiger)		8
<i>Agrilus sinuatus</i> (Olivier)		4
<i>Agrilus sulcicollis</i> (Lacordaire)		0
Elateridae		
<i>Ampedus cardinalis</i> (Schiodte)	1	32
<i>Procræus tibialis</i> (Boisduval & Lacordaire)	1	16
<i>Melanotus villosus</i> (Fourcroy)		1
<i>Stenogostus rhombeus</i> (Olivier)	3	4
<i>Elater ferrugineus</i> (Linnaeus)	1	32
<i>Denticollis linearis</i> (Linnaeus)		1
Eumenidae		
<i>Melasis buprestoides</i> (Linnaeus)	3	4
<i>Hylis olexai</i> (Palm)		24
Cantharidae		
<i>Malthinus flaveolus</i> (Herbst)		1
<i>Malthinus frontalis</i> (Marsham)		8
<i>Malthinus seriepunctatus</i> (Kiesenwetter)		2
<i>Malthodes marginatus</i> (Latreille)		1
<i>Malthodes minimus</i> (Kiesenwetter)		1
Lycidae		
<i>Platycis minuta</i> (Fabricius)	3	8
Dermestidae		
<i>Ctesias serra</i> (Fabricius)		4
<i>Megatoma undata</i> (Linnaeus)		8
<i>Trinodes birtus</i> (Fabricius) **	1	24
Anobiidae		
<i>Grynobius planus</i> (Fabricius)		2
<i>Ocbina ptinoides</i> (Marsham)		2
<i>Xestobium rufovillosum</i> (Degeer)	3	4
<i>Hemicoelus fulvicornis</i> (Sturm)		1
<i>Anobium inexpectatum</i> (Lohse)		8

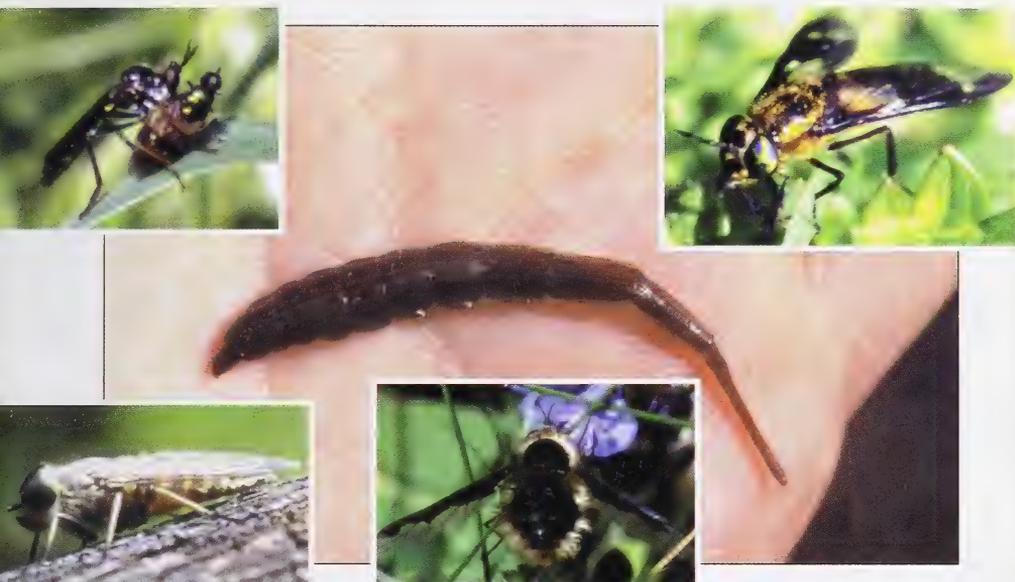


Plate 1. Larger Brachycera in Bushy Park. Main picture. The large aquatic larva of a *Stratiomys* sp. can reach over 40 mm in length. Clockwise from top left: *Dioctria rufipes* with a captured specimen of *Chloromyia formosa*; the deer-fly *Chrysops caecutiens*; Bee-fly *Bombylius major*; and the horse-fly *Tabanus bromius*.
Photos: Peter Sutton



Plate 2. Spring Aculeates. Main picture: The frost covered Yellow Meadow Ant *Lasius flavus* mounds give way to a fiesta of aculeate activity in Spring. Clockwise from top left: Tawny Mining Bee *Andrena fulva*; *Andrena cineraria*; *Nomada latburiana*; and a *Sphecodes* sp. emerging from its nest burrow.
Photos: Peter Sutton



Plate 3. Grassland life. Main picture: Butterflies nectaring at thistle. Clockwise from top left: Stripe-winged, Lesser Marsh and Field (purple form) Grasshoppers; Roesel's Bushcricket (macropterous form, f. *diluta*); Common Green Grasshopper. Photos: Peter Sutton



Plate 4. Diary Notes. Main picture: Long Water Scorpion *Ranatra linearis*. Clockwise from top left: *Conops quadrifasciata*; Bryony Ladybird *Epilachna argus*; Banded Demoiselle *Calopteryx splendens*; Blue-tailed Damselfly *Ischnura elegans* f. *rufescens-obsolata*; *Phyllobrotica quadrimaculata*; *Hedychridium coriaceum*. Photos: Peter Sutton



Plate 5. Larger Scarabaeidae in Bushy Park. Main picture: Female Stag Beetle *Lucanus cervus*. Clockwise from top left: Cockchafer *Melolontha melolontha*; *Hoplia phtlanibus*; Summer Chafer *Ampimallon solstitialis*; Rose Chafer *Cetonia aurata*. Photos: Peter Sutton



Plate 6. SQI Heaven. Main picture: Parkland veteran tree habitats. Clockwise from top right: Oak Jewel Beetle *Agrilus biguttatus*; *Elater ferrugineus* (RDB1); *Quedius truncicola* (IEC=3); Fly Bug *Reduvius personatus*; *Denticollis linearis*; *Tillus elongatus* (IEC=3); Shipyard Beetle *Lymexylon navale* (RDB2)
Photos: Peter Sutton



Plate 7. Saproxylic Beetles. Clockwise from top left: *Colydium elongatum*; *Uleiota planata*; *Maltobodes frontalis*; and *Cicones undatus*
Photos: Jonty Denton

Plate 8. Fly Bug *Reduvius personatus* nymphs. Left to right: Now you see me, now you don't!
Photos: Jonty Denton





Species	rIEC grade	SQS
<i>Anobium punctatum</i> (Degeer)		1
<i>Ptilinus pectinicornis</i> (Linnaeus)		1
<i>Dorcatoma chrysomelina</i> (Sturm)	3	4
<i>Dorcatoma flavicornis</i> (Fabricius)	3	8
<i>Dorcatoma serra</i> (Panzer)	2	16
<i>Anitys rubens</i> (Hoffmann)	2	8
Phloiophilidae		
<i>Phloiophilus edwardsi</i> (Stephens)	3	8
Cleridae		
<i>Tillus elongatus</i> (Linnaeus)	3	8
<i>Opilo mollis</i> (Linnaeus)	3	8
<i>Thanasimus formicarius</i> (Linnaeus)	3	4
Melyridae		
<i>Dasytes aeratus</i> (Stephens)		2
<i>Malachius bipustulatus</i> (Linnaeus)		1
<i>Anthocomus fasciatus</i> (Linnaeus)		4
Lymexylidae		
<i>Lymexylon navale</i> (Linnaeus) **	2	32
Nitidulidae		
<i>Carpophilus sexpustulatus</i> (Fabricius)	3	8
<i>Epuraea fuscicollis</i> (Stephens)		8
<i>Epuraea guttata</i> (Olivier)		8
<i>Epuraea marsueli</i> (Reitter)		1
<i>Epuraea pallescens</i> (Stephens)		2
<i>Epuraea silacea</i> (Herbst)		1
<i>Soronia punctatissima</i> (Illiger)		2
<i>Cryptarcha strigata</i> (Fabricius)		8
<i>Glischrochilus quadriguttatus</i> (Fabricius)		2
Rhizophagidae		
<i>Rhizophagus bipustulata</i> (Fabricius)		1
<i>Rhizophagus dispar</i> (Dispar)		1
Sphindidae		
<i>Sphindus dubius</i> (Gyllenhal)		8
<i>Aspidiphorus orbiculatus</i> (Gyllenhal)		2
Cucujidae		
<i>Uleiota planata</i> (Linnaeus) **	2	16
<i>Cryptolestes duplicatus</i> (Waltl)		2
<i>Notolaemus unifasciatus</i> (Latreille)	2	16
Silvanidae		
<i>Silvanus bidentatus</i> (Fabricius)	3	8
<i>Silvanus unidentatus</i> (Olivier)	3	4
Cryptophagidae		
<i>Henoticus serratus</i> (Gyllenhal)		2
<i>Cryptophagus dentatus</i> (Herbst)		1
<i>Cryptophagus ruficornis</i> (Stephens)		8
Biphyllidae		
<i>Biphyllus lunatus</i> (Fabricius)	3	4



Species	rIEC grade	SQS
Erotylidae		
<i>Triplax aenea</i> (Schaller)	3	2
<i>Dacne bipustulata</i> (Thunberg)		2
<i>Dacne rufifrons</i> (Fabricius)		2
Endomychidae		
<i>Myctaea birta</i> (Marsham)		2
Cerylonidae		
<i>Cerylon ferrugineum</i> (Stephens)		2
<i>Cerylon histeroideus</i> (Fabricius)		4
Corylophidae		
<i>Orthoperus mundus</i> (Matthews)		4
Latridiidae		
<i>Enicmus brevicornis</i> (Mannerheim)	3	8
<i>Enicmus rugosus</i> (Herbst)		8
<i>Enicmus testaceus</i> (Stephens)		2
<i>Corticaria alleni</i> (Johnson) **	3	8
Ciidae		
<i>Octotemnus glabriculus</i> (Gyllenhal)		1
<i>Sulcacis affinis</i> (Gyllenhal)		2
<i>Cis boleti</i> (Scopoli)		1
<i>Cis festivus</i> (Panzer)		2
<i>Cis hispidus</i> (Paykull)		4
<i>Cis nitidus</i> (Fabricius)		2
<i>Cis pygmaeus</i> (Marsham)		2
<i>Cis setiger</i> (Mellie)		2
<i>Cis vestitus</i> (Mellie)		2
<i>Ennearthron cornutum</i> (Gyllenhal)		2
Mycetophagidae		
<i>Pseudotriphyllus suturalis</i> (Fabricius)	3	4
<i>Triphyllus bicolor</i> (Fabricius)	2	4
<i>Litargus connexus</i> (Fourcroy)		2
<i>Mycetophagus atomarius</i> (Fabricius)	3	2
<i>Mycetophagus multipunctatus</i> Fabricius		2
<i>Mycetophagus piceus</i> (Fabricius)	2	4
<i>Mycetophagus quadriguttatus</i> (Müller)	2	16
<i>Mycetophagus quadripustulata</i> (Linnaeus)		2
<i>Eulagius filicornis</i> (Reitter) **		0
Colydiidae		
<i>Synchita humeralis</i> (Fabricius)	3	8
<i>Synchita seperanda</i> (Reitter)	3	24
<i>Colydium elongatum</i> (Fabricius)		16
<i>Bitoma crenata</i> (Fabricius)	3	4
Bothrideidae		
<i>Oxylaemus variolosus</i> (Dufour)	2	24
Tetratomidae		
<i>Tetratoma fungorum</i> (Fabricius)		2



Species	rIEC grade	SQS
Salpingidae		
<i>Lissodema quadripustulata</i> (Marsham)	3	8
<i>Vincenzellus ruficollis</i> (Panzer)		2
<i>Rhinosimus planirostris</i> (Fabricius)		1
Tenebrionidae		
<i>Eledona agricola</i> (Herbst)	3	4
<i>Prionychus ater</i> (Fabricius)	3	8
Pyrochroidae		
<i>Pyrochroa serraticornis</i> (Scopoli)		1
<i>Pyrochroa coccinea</i> (Linnaeus)	3	4
Melandryidae		
<i>Orchesia micans</i> (Panzer)		4
<i>Orchesia minor</i> (Walker)		8
<i>Orchesia undulata</i> (Kraatz)	3	4
<i>Anisoxya fuscata</i> (Illiger)	3	16
<i>Abdera biflexuosa</i> (Curtis)	3	8
<i>Abdera flexuosa</i> (Paykull) **		8
<i>Abdera quadrifasciata</i> (Curtis)	1	16
<i>Phloiotrya vaudoueri</i> Mulsant	2	8
<i>Melandrya caraboides</i> (Linnaeus)	3	4
<i>Conopalpus testaceus</i> (Olivier)	3	8
Scraptidae		
<i>Anaspis frontalis</i> (Linnaeus)		1
<i>Anaspis humeralis</i> (Fabricius)		2
<i>Anaspis lurida</i> (Stephens)		2
<i>Anaspis pulicaria</i> (Costa)		1
<i>Anaspis rufilabris</i> (Gyllenhal)		1
Mordellidae		
<i>Tomoxia bucephala</i> (Costa)	3	16
<i>Mordellochroa abdominalis</i> (Fabricius)		4
<i>Mordellistena neuwaldeggiana</i> (Panzer)	3	16
Oedemeridae		
<i>Ischnomera cyanea</i> (Fabricius)	3	8
Aderidae		
<i>Aderus oculus</i> (Paykull)	3	8
Cerambycidae		
<i>Prionus coriarius</i> (Linnaeus)	3	16
<i>Rhagium mordax</i> (Degeer)		1
<i>Grammoptera ruficornis</i> (Fabricius)		1
<i>Alosterna tabacicolor</i> (Degeer)		2
<i>Leptura maculata</i> (Poda)		1
<i>Leptura melanura</i> (Linnaeus)		2
<i>Nathrius brevipennis</i> (Mulsant)		0
<i>Aromia moschata</i> (Linnaeus)		8
<i>Phymatodes testacea</i> (Linnaeus)	3	4
<i>Clytus arietus</i> (Linnaeus)		1



Species	rIEC grade	SQS
<i>Leiopus nebulosus</i> (Linnaeus)		2
<i>Pogonocheirus hispidus</i> (Linnaeus)		2
Curculionidae		
<i>Magdalis armigera</i> (Fourcroy)		2
<i>Magdalis cerasi</i> (Linnaeus)		4
<i>Phloeophagus lignarius</i> (Marsham)		2
Scolytinae		
<i>Scolytus intricatus</i> (Ratzeburg)		2
<i>Scolytus multistriatus</i> (Marsham)		1
<i>Scolytus pygmaeus</i> (Fabricius)		0
<i>Scolytus rugulosus</i> (Müller)		2
<i>Scolytus scolytus</i> (Fabricius)		2
<i>Hylesinus varius</i> (Fabricius)		2
<i>Drycoetinus villosus</i> (Fabricius)		2
<i>Ernoporus fagi</i> (Fabricius)	3	8
<i>Trypodendron domesticum</i> (Linnaeus)	3	2
<i>Xyleborus dispar</i> (Fabricius)	3	8
<i>Xyleborus dryographus</i> (Ratzeburg)	3	8
<i>Xyleborus saxeseni</i> (Patzburg)	3	4
Platypodidae		
<i>Platypus cylindrus</i> (Fabricius)	3	8
Total qualifying species		193
SQS all records		1124
SQI all records		582.4
Revised IEC all records	100	

Other Invertebrates

The Fly Bug, *Reduvius personatus*, was very abundant under loose bark, and is amongst the most cryptic of insects, especially as a nymph when it cakes itself with dust and debris (see Plate 8). It was found in two trees with the Silverfish, *Lepisma saccharina*, which, like the Fly Bug, is mostly associated with buildings.

Other highlights included the cave spider, *Meta menardi*, taken inside a large hollow Beech, which shattered in a July storm. This is the first modern record from Middlesex.

The spectacular sawfly, *Xiphydria longicollis* (Geoffroy) was in Sycamore boughs felled in the Water Gardens.

Non-saproxyllic species which are still very much Parkland beasts include the dung beetle, *Aphodius zenkeri*, which prefers deer dung in woodlands.

The ladybird, *Nephus 4-maculata*, was also recorded from Ivy.



Additions to the list of Aculeate Hymenoptera for Bushy Park, Middlesex

David Baldock

BWARDS Coordinator, Nightingales, Haslemere Road, Milford, Surrey, GU8 5BN

Dr Peter G. Sutton (7388)

AES Habitat Conservation Officer, 2 Fir Tree Close, Flitwick, Beds. MK45 1NZ.

Introduction

In a previous article the history of hymenopteran recording in Bushy Park, Middlesex, was described, and a list of aculeates discovered by the respective recorders, representing just over half a century of recording effort between 1948 and 2003 was provided (Sutton and Baldock, 2003).

Prior to the survey conducted by Sutton and Baldock in 2003, a total of 102 aculeates had been found in Bushy Park by Yeo (1957), Felton (1967) and Guichard (1972), (although the list for the area surrounding Bushy Park included an additional 20 or so species).

The 2003 survey by Sutton and Baldock produced some surprising results. Of the 102 aculeates that had been previously recorded from Bushy Park, only 39 species had been rediscovered, but remarkably, a total of 46 species new to the Park had been recorded (including Peter Hodge's record of *Crossocerus styrius*), bringing the combined list of species recorded to date to 148. Since it was highly unlikely that the likes of Yeo and Guichard would have missed the presence of distinctive species such as *Hedychridium roseum*, *Hedychrum niemelai* (Figure 1) and *Astata boops*, it was clear that these species, like others including the well-documented Bee Wolf, *Philanthus triangulum*, had arrived since Guichard's survey in 1971. It was also clear that many species had been missed because much of the 2003 survey had been conducted late in the season.

In 2004 the survey was continued, with an emphasis on recording early season aculeates (some of which are shown in Plate 2). Table 1 provides a list of species that represent new records for Bushy Park, and also species that have been re-recorded since the surveys conducted by Yeo, Felton and Guichard.

During the 2003-2004 survey, 169 species of aculeate Hymenoptera were recorded in Bushy Park. To date, 172 species have been recorded from Richmond Park NNR, but interestingly, the Species Quality Score (SQS) for Richmond Park (4.93) is less than that observed for Bushy



Park (5.34). In comparison with Surrey sites, the high species score (801) for Bushy Park is surpassed only by a handful of species-rich heathland sites, which represent some of the best sites for aculeates in the British Isles. The aculeate hymenopteran fauna of Bushy Park will be critically compared with a number of other relevant sites in a forthcoming paper.

Acknowledgements

Sincere thanks to: Nigel Reeve, Ray Brodie and the Royal Parks Authority for continuing provision of annual permits to work in the Park, Mike Edwards for kind provision of species accounts, and Jonty Denton for providing additional records.

References

- Felton, J.C., (1967), Notes on the Hymenoptera of the Bushey Park Area, Middlesex, *The London Naturalist*, **46**, pp. 105-109.
- Guichard, K.M., (1972), The Aculeate Fauna of Bushey Park – 1971 additions and further records including a note on *Mimesa bruxellensis*, *Entomologist's Gazette*, **23**, pp. 243-247.
- Sutton, P.G. and Baldock, D., (2003), The Aculeate Hymenopteran Fauna of Bushy Park, Middlesex, *Bull. Amat. Ent. Soc.*, **62**, (No 451), pp. 216-239.
- Yeo, P.F., (1957), Bees and Wasps in Bushy Park and at Hampton Hill, Middlesex, *The London Naturalist*, **36**, pp. 16-24.



Figure 1. Recent arrival? The RDB3 jewel wasp, *Hedychrum niemelai*



Additions to the list of Aculeate Hymenopteran Fauna of Bushy Park (including recently rediscovered species)

CHRYSIDIDAE JEWEL OR RUBY-TAILED WASPS

Species	Conservation status	Distribution	Abundance	Yeo 1957	Felton 1967	Guichard 1972	B & S 2003	B & S 2004
<i>Chrysis impressa</i>	None	Universal.	Commonly found. Associated with eumenid wasps of the genus <i>Aristocratus</i> .		New species 1x, 2004	Guichard 1972	B & S 2003	B & S 2004
<i>Pseudomalus auratus</i>	None	Southern Widespread.	Frequently found, particularly from reared nests. Parasitises stem nesting aculeates.		New species 2004			+
<i>Cleptus nitidulus</i>	Nationally Scarce ^a	Southern Widespread	Rarely found. A parasitoid of sawfly cocoons.		New species 20 vi. 04			+

TIPHIIDAE

Species	Conservation status	Distribution	Abundance	Yeo 1957	Felton 1967	Guichard 1972	B & S 2003	B & S 2004
<i>Tiphia femorata</i>	None	Southern Restricted	Locally common. Sandy places. Parasitises larvae of scarabaeid beetles.			Guichard 1972	B & S 2003	B & S 2004

FORMICIDAE ANTS

Species	Conservation status	Distribution	Abundance	Yeo 1957	Felton 1967	Guichard 1972	B & S 2003	B & S 2004
<i>Lepiothorax nylanderi</i>	None	Southern Restricted	Local. Nests in dead wood.			New species 2004	B & S 2003	B & S 2004
<i>Formica fusca</i>	None	Universal	Commonly found in many habitats, but largely replaced by <i>F. lemnae</i> towards the north.			New species 2004		Jonny Denton 2004

POMPILOIDAE SPIDER-HUNTING WASPS

Species	Conservation status	Distribution	Abundance	Yeo 1957	Felton 1967	Guichard 1972	B & S 2003	B & S 2004
<i>Aganoides cruceiellus</i>	None	Southern Restricted	Infrequently found. A species of cracks and crevices, such as upturned roof-plates. Cavity nesting.	+		Guichard 1972	B & S 2003	B & S 2004
<i>Callidarius fasciatus</i>	None	Southern Widespread	Thought to be uncommon generally although taken regularly in malaise traps in sandy-clay woodland and heaths. Males are often the commonest pompilid in such traps. Ground nesting.			New species 2004		+
<i>Arachnospila anceps</i>	None	Universal	Commonly found. Ground nesting.			New species 20 vi. 04		+
<i>Dipogon subintermedius</i>	None	Universal	Infrequently found. A species of dead timber in hedgerows and woodland edges. Cavity nesting.			New species 15 vi. 04		+


POMPIDIDAE. SPIDER-HUNTING WASPS CONTINUED...

<i>Dipogon variegatus</i>	None	Universal	Infrequently found. Known to nest in empty snail shells. Cavity nesting.	New species 06.vi.04	+
<i>Arachnospila spissa</i>	None	Universal	Commonly found in a variety of habitats, especially woodland edge. Ground nesting.	New species 2004	+
<i>Prionemis cordibata</i>	Nationally Scarce b	Southern Widespread	Infrequent. A species of rides in mature broadleaf woodland, occasionally coppice. Ground nesting.	New species 2004	+
<i>Prionemis femica</i>	None	Universal	Commonly found. Ground nesting. Often found in wet places.	New species 2004	+
<i>Prionemis thalinala</i>	Nationally Scarce b	Southern Widespread	Infrequently found. Ground nesting.	New species Early vii.04	Jonny Denton 2004
<i>Prionemis perturbator</i>	None	Universal	Frequently found. Particularly associated with woodland. A spring species. Ground nesting.	+	+

VESPIDAE. SOCIAL AND MASON WASPS

Species	Conservation status	Distribution	Abundance	Yeo 1957	Felton 1967	Guichard 1972	B & S 2003	B & S 2004
<i>Symmorphus gracilis</i>	None	Southern Widespread	Infrequently found. It preys on the larvae of the beetles <i>Chrysomela populi</i> and <i>Cionus hortulianus</i> .		New species 22.vi.04			+

SPHECIDAE. DIGGER WASPS

Species	Conservation status	Distribution	Abundance	Yeo 1957	Felton 1967	Guichard 1972	B & S 2003	B & S 2004
<i>Crabro cribrarius</i>	None	Universal	Locally frequent in sandy localities. Preys on flies. Ground nesting.					+
<i>Crabro pellaris</i>	None	Universal	Locally common in sandy localities. Preys on flies. Ground nesting.	+		+		+
<i>Crossocerus annulipes</i>	None	Universal	Locally common. Preys on Homopteran bugs. Nests in dead wood.	+				+
<i>Crossocerus capitatus</i>	None	Universal	Very rarely found. Nests in pith of living stems e.g. ash, hunts small flies			+		+
<i>Crossocerus cetratus</i>	None	Southern Widespread	Locally frequent. Dead-wood nesting. A species of mature woodland.			New species 15.vi.04		+
<i>Crossocerus distinguendus</i>	Nationally Scarce a	Southern Restricted	Locally frequent. A species which is expanding its range.			New species 06.vi.04		+
<i>Crossocerus elongatulus</i>	None	Universal	Widespread, nesting in dead wood and the ground.			New species 13.vii.04		+
<i>Crossocerus nigrinus</i>	None	Widespread.	Abundance: Locally frequent. Dead wood-nesting, a species of mature woodland.			+	New species 2004	+
<i>Entomognathus brevis</i>	Local	Southern Widespread	Commonly found in sandy places. Preys on small leaf-beetles (Chrysomellidae). Ground nesting.	+				+



COLLETINAE MINING BEES

Species	Conservation status	Distribution	Abundance	Yeo 1957	Felton 1967	Guchard 1972	B & S 2003	B & S 2004
<i>Colletes smithi</i>	None	Southern Widespread	Usually infrequently found. Ground nesting. Oligolectic on Asteraceae.		New species 11.vii.04			
<i>Hylaeus confusus</i>	None	Universal	Commonly found. Polylectic. Cavity nesting.		New species 2004			

ANDRENINAE MINING BEES

Species	Conservation status	Distribution	Abundance	Yeo 1957	Felton 1967	Guchard 1972	B & S 2003	B & S 2004
<i>Andrena barbiflora</i>	None	Universal	Locally common in sandy localities. Polylectic.		New species 17.iv.04			
<i>Andrena hians</i>	Nationally Scarce b	Southern Restricted	Frequently found. Seems to prefer sandy soils. Polylectic.		New species 16.iv.04			
<i>Andrena chrysoceles</i>	None	Southern Widespread	Commonly found. Especially associated with clay woodlands. Polylectic. Ground nesting.		New species 16.v.04			
<i>Andrena cuneata</i>	None	Universal	Frequently found. It makes large colonies. Polylectic.		New species 16.iv.04			
<i>Andrena denticulata</i>	None	Universal	A species of open woodland and grasslands. Oligolectic on Asteraceae and strongly associated with yellow flowers within this plant group.					
<i>Andrena flavipes</i>	None	Southern Restricted	Commonly found. Forms very large colonies, especially in bare ground. Polylectic. Ground nesting.	+				
<i>Andrena foveola</i>	RDBA	Southern Restricted	Frequently found. Oligolectic, utilises White Thymus, <i>Thymus creticus</i> , as its sole pollen source. Most often associated with sandy soils, nests in hard ground such as on tracks.	+				
<i>Andrena fulva</i>	None	Southern Widespread	Locally common, often in woodlands and gardens. Polylectic.		+			
<i>Andrena haemorrhoa</i>	None	Universal	Commonly found. Females nest singly but males often congregate on blackthorn and hawthorn blossoms. Polylectic. Ground nesting.		+			
<i>Andrena labialis</i>	None	Southern Widespread	Local species of old meadows. Oligolectic on flowers of Fabaceae.			New species 06.vi.04		
<i>Andrena labiata</i>	Nationally Scarce a	Southern Restricted	Locally frequent. Old meadowland and heathly grassland species. Polylectic, although it is often found associated with the flowers of Germander-Speedwell, <i>Veronica chamaedrys</i> .			New species 06.vi.04		
<i>Andrena minima</i>	None	Universal	Commonly found. Polylectic. Ground nesting.			New species 16.iv.04		
<i>Andrena nigroaenea</i>	None	Universal	Commonly found. Polylectic. Ground nesting.	+				



ANDRENINAE MINING BEES continued...

Species	Conservation status	Distribution	Abundance	Yeo 1957	Felton 1967	Guichard 1972	B & S 2003	B & S 2004
<i>Andrena nitida</i>	None	Southern Widespread	Commonly found. A species of meadows. Polylectic. Ground nesting.			New species 17.vi.04		+
<i>Andrena ovalata</i>	None	Southern Widespread	Frequently seen. Shows a preference for light soils. Polylectic.			New species 11.vii.04		J.Denton 2004
<i>Andrena scotica</i>	None	Universal	Commonly found. Several females may share a common burrow entrance. Polylectic.			+		+
<i>Andrena semilaevis</i>	None	Universal	Commonly found. Polylectic.			New species 20.vi.04		+
<i>Andrena subopaca</i>	None	Universal	Commonly found, especially in clay woodlands. Polylectic. Ground nesting.					+
<i>Andrena synaldis</i>	None	Universal	Infrequently found. Associated with open woodlands and woodland edges. Local Polylectic.	+				+
<i>Panurgus calcaratus</i>	None	Southern Widespread	Locally frequent. Oligolectic, associated with yellow flowered Asteraceae (composites). Ground nesting.			New species 16.v.04		+

HALICTINAE MINING BEES

Species	Conservation status	Distribution	Abundance	Yeo 1957	Felton 1967	Guichard 1972	B & S 2003	B & S 2004
<i>Lastiglossum larvatre</i>	None	Southern Widespread	Infrequently found. Polylectic. Ground nesting.	+				+
<i>Lastiglossum melachurum</i>	Nationally Scarce a	Southern Restricted	Forms large colonies. Formerly, a largely coastal species. Increased its range during the 1990s. Polylectic.	+				+
<i>Lastiglossum minutissimum</i>	None	Southern Restricted	Locally common. Associated with sandy places. Polylectic.	+				+
<i>Lastiglossum punctatissimum</i>	None	Southern Widespread	Commonly found. Sandy places. Polylectic.	+				+
<i>Lastiglossum smeathmanellum</i>	None	Southern Widespread	Locally common, especially associated with coastal sites. Polylectic. Ground nesting with an apparent preference for vertical faces.			New species 16.v.04		+
<i>Lastiglossum zonulus</i>	None	Southern Restricted	Locally frequent. Polylectic. Ground nesting.			New species 11.vii.04		+
<i>Sphexodes crassus</i>	Nationally Scarce b	Southern Widespread	Infrequently found. Is difficult to separate from closely related species. It could well be more widespread than previously thought. Cleptoparasitic on <i>Lastiglossum</i> sp.			New species 16.v.04		+
<i>Sphexodes ephippius</i>	None	Southern Widespread	Commonly found. Cleptoparasitic on <i>Lastiglossum</i> sp.				+	+
<i>Sphexodes geoffrellus</i>	None	Universal	Commonly found. Cleptoparasitic on <i>Lastiglossum</i> sp.			New species 16.v.04		+
<i>Sphexodes miniatius</i>	Nationally Scarce b	Southern Restricted	Infrequently found. A heathland bee associated with very dry, light sandy habitats. Cleptoparasitic on <i>Lastiglossum</i> sp.			New species 2004		+
<i>Sphexodes niger</i>	RDB3	Southern Restricted	A cleptoparasitic species of herb-rich, established grasslands. Its probable host, <i>Lastiglossum morio</i> , is a very common and widely distributed bee.			New species 22.vii.04		+
<i>Sphexodes pellucidus</i>	None	Universal	Commonly found in sandy situations where its host, <i>Andrena barbibris</i> , occurs.			+		+



MELITTINAE

Species	Conservation status	Distribution	Abundance	Yeo 1957	Felton 1967	Guehard 1972	B & S 2003	B & S 2004
<i>Melitta haemorrhoidalis</i>	p Nationally Scarce b	Southern Widespread	Infrequently found. Oligolectic. Associated with Harebell, <i>Campanula rotundifolia</i> , or Nettle-leaved Bellflower, <i>Campanula trachelium</i> . Ground nesting.			+	Ray Ulfon 1990's	+

MEGACHILINAE

Species	Conservation status	Distribution	Abundance	Yeo 1957	Felton 1967	Guehard 1972	B & S 2003	B & S 2004
<i>Chelostoma flavissimum</i>	None	Southern Widespread	Was considered very common by early collectors, now decidedly infrequent. Woodland and gardens. Oligolectic on butterflies, <i>Panurginus</i> sp. Cavity nesting.	+				+
<i>Osmia rufa</i>	None	Universal	Locally common. Cavity nesting. Polylectic.			New species 16.v.04		+
<i>Stelis breviscula</i>	RDB3	Southern Restricted	Rarely found. A recently-discovered species in Britain. It is cleptoparasitic on <i>Hertades truncorum</i> , itself an uncommon bee.			New species 19.vii.04		+

ANTHOPHORINAE

Species	Conservation status	Distribution	Abundance	Yeo 1957	Felton 1967	Guehard (1972)	B & S 2003	B & S 2004
<i>Anthophora plumipes</i>	None	Southern Widespread	Widespread and common. Nests in the ground or cliffs and walls.			New species 16.iv.04		+
<i>Anthophora barcata</i>	None	Southern Widespread	Infrequently found. Associated with habitats. Nests in dead wood.			+		+
<i>Nomada fabriciana</i>	None	Universal	Commonly found. Parasitises several <i>Andrena</i> species. Ground nesting.			New species 16.vi.04		+
<i>Nomada flava</i>	None	Southern Widespread	Commonly found. Parasitises several <i>Andrena</i> species. Ground nesting.			New species 17.iv.04		+
<i>Nomada flavipicta</i>	Nationally Scarce b	Southern Widespread	Infrequently found. A cleptoparasite of <i>Melitta</i> bees.					+
<i>Nomada fulvicornis</i>	RDB3	Southern Restricted	Infrequently found. Predominantly a heathland bee, as are its host species, <i>Andrena himaculata</i> and <i>A. tibialis</i> .			+		+
<i>Nomada luthbariana</i>	RDB3	Southern Widespread	This species has had a marked resurgence and is now frequently found with large aggregations of its host, <i>Andrena cineraria</i> .			New species 17.iv.04		+
<i>Nomada ruficornis</i>	None	Universal	Frequently found. Cleptoparasite of <i>Andrena haemorrhoa</i> .			New species 16.v.04		+
<i>Nomada rufipes</i>	None	Universal	Commonly found, usually on heathland. Parasitises <i>A. dentitellata</i> and <i>A. fuscipes</i> .			New species 2004		Jointly Described 2004



Diary Notes: Bushy Park, Middlesex (1999-2005)

by Dr Peter G. Sutton (7388)

AES Habitat Conservation Officer, 2 Fir Tree Close, Flitwick, Beds. MK45 1NZ.

Introduction

For a number of years, I have studied the natural history of Bushy Park (Figure 1), with a particular interest in its entomological fauna. I first visited Bushy Park on a hot day in May 1999, during a lunch break from my work at the Laboratory of the Government Chemist, which is adjacent to the Park and the National Physics Laboratory (NPL). I was immediately struck by the diversity of habitats in the Park and the corresponding richness of life that it harboured. On that day, and within, literally, several yards of entering the Coleshill Road Gate, I observed a number of damselflies and beetles on the nettles and lush vegetation that smothered the small stream to my right. A few steps later, a rotting log by the path to my left produced, among other species, three adult Lesser Stag Beetles, *Dorcus parallelipedus*, and the perfect inaugural papered orb of a social (*Vespula* sp.) wasp nest that I returned later to photograph. After that visit, Bushy Park became an almost daily focus of interest, and I began to record and photograph its wildlife. Within a few weeks, I had photographed Stag Beetles, *Lucanus cervus*, and the Rose Chafer, *Cetonia aurata* (both Plate 5), and what was apparently the first record of a Great Crested Newt, *Triturus cristatus*, in Bushy Park. Several recollections from diaries made between 1999 and 2005 are provided below.

Searching for spring aculeates

There is something special about being in Bushy Park on the cusp of spring, which is characterized by an irresistible air of expectancy. Ancient Oaks that may have given shade to one or more of the procession of British monarchs who have graced the Park, once more prepare their veteran boughs for the lemon-greenness that will burst forth from their buds, and birdsong echoes around the Park, from the raucous yaffling call of the Green Woodpecker that mocks the demise of winter, to the melodious rapture of songbirds that celebrate the newfound warmth of the sun. Among the Yellow Meadow Ant mounds, the first notes of what will become summer's glorious crescendo of aculeate activity begin to play, and small heaps of fresh sandy soil, appear on the bare paths as the burrows of spring pollinators open for business.



Saturday the 17th April 2004 was a pleasantly warm spring morning. I arrived at the car park on Upper Lodge Road opposite Bushy House and walked to the Canal Plantation. The aquatic life of the pond was briefly sampled and the decaying leaves below the surface were teeming with crustaceans, including Water Hog Louse, *Asellus aquaticus*, and Freshwater Shrimps, *Gammarus* sp., and corixids, which probably accounted for the large populations of fish and amphibians in the water body. On this occasion there were plenty of Smooth Newts, *Triturus vulgaris*, Common Frog, *Rana temporaria*, spawn and tadpoles, and the Three-spined Sticklebacks, *Gasterosteus aculeatus*, were in full breeding colours. On previous visits to the Canal Plantation I had observed a Fox that used to sleep in the afternoons in a clearing below the Lombardy Poplars, and Mandarin Ducks that were occasionally harried by the bold Carp that milled about under the surface. (These Carp were recently netted to reduce their impact on invertebrate and amphibian populations.)

The Yellow Meadow Ant mounds to the west of the enclosure known as Broom Clumps were alive with aculeate activity. Large bumblebees were emerging from their nests hidden beneath the mossy grass and the mounds, which were now covered in tiny spring flowers, spread before me like a parade of elaborately iced cakes.

I returned to the ant mounds a week later (25.iv.04), and was surprised to find that although it was unseasonably hot, there was very little aculeate activity. I noticed several specimens of the finely patterned click beetle, *Prosternon tessellatum*, flying above the mounds, and also a number of colourful *Nomada* and *Sphecodes* sp. of bee flying among the Stitchwort and Speedwell flowers. The frenetic activity of a fairly large red and black spider-hunting wasp was met with a quick sweep of the net to observe this species. I examined the specimen through the net at what I thought was a safe distance, but an unfeasibly long sting shot out through the fine mesh and jabbed into my finger like a white-hot needle, delivering an injection of instant fire. For a few seconds, a searing pain cramped the finger that had been so effectively punished, but remarkably, it subsided within half a minute, with no noticeable after effects.

Along the banks of the Longford River near the Willow Plantation, the Primroses played host to a number of bee-mimicking flies, including *Volucella bombylans* and the Beefly, *Bombylius major*. Two Grass Snakes were seen swimming in the wildlife ponds near the Education Centre, and many Slender Ground-hoppers, *Tetrix subulata*, were found in damp areas around these ponds.



Nearby, on the path between the iron bridge and the Duke's Head Passage Gate, White Bryony was beginning to flower. In May and June this plant is pollinated by the rare bee, *Andrena florea*, (RDB3), which has long been known from the Park. A recent development regarding this species has been the appearance of the Bryony Ladybird, *Epilachna argus*, which, in May 2003, was observed in some numbers feeding on these plants. Whether their impact on the plant and its pollinator in Bushy Park will be significant, has yet to be seen.

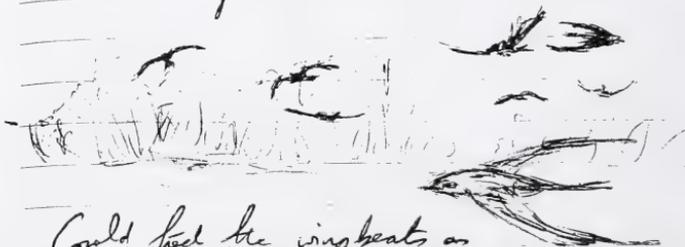
Grasshopper country

The beginning of July opens another chapter in the wildlife year of Bushy Park, heralded by the song of its orthopteran fauna. In July 2000, the Roesel's Bush-crickets, *Metrioptera roeselii*, had developed early, and adults could be heard singing in the large prairie-like expanses of long grass, which was already developing a straw-yellow crown. On the 5th of July 2000, I witnessed a breathtaking aerobatic display above the singing bush-crickets that I had not seen before, or since. At midday it was very hot and humid, and a flock of perhaps 30-40 Swifts were flying low at great speed above the grassland, catching insects, and on occasion, flew so close to me that I could feel the beat of their wings, as per the entry below.

Bushy Park Continued.

05/07/00 → Many *M. roeselii* singing.

flock of
30-40 low flying swifts, catching
insects over grass. v. humil.



Could feel the wingbeats as
the swifts flew within a few feet
of me at incredible speed, taking
insects from just above the humid
grassland.



The Roesel's Bush-crickets were a source of food for young Kestrels¹, and I regularly observed them perched on the low branches of Hawthorn trees, waiting to drop down into the grass to catch these sizeable insects. Whilst looking for Roesel's Bush-crickets on one occasion, I became aware of a looming shadow above me that immediately halted the song of the cricket that I had been observing. "Lost something have we Sir?" came the voice from above, and I turned around to find two members of the Royal Park's Constabulary silhouetted against the azure blue sky. I explained that I was looking for bush-crickets. "Of course you are Sir" the constable replied, appearing to discretely fumble for handcuffs whilst maintaining calm eye contact. Suddenly, his colleague, who had maintained a quiet presence behind him burst into life. "I can see one!" she said, pointing to the finely marked cricket among the grass stems. "Ah yes", replied the constable, his voice and raised eyebrow now hinting at a degree of interest. By this time a small crowd of interested onlookers had gathered on a nearby path, but the situation was now firmly under control, and satisfied that I represented no danger to the public, I was allowed to continue with my observations.

That month, grassland butterflies were everywhere, and it was a good year for beetles, including, *Galeruca tanacetii*, which seemed to be on every path in the Park, the longhorns, *Anoplodera livida* and *Grammoptera ruficornis*, the uncommon *Phyllobrotica quadrimaculata* (Plate 4) which was found on its foodplant at the edge of the Heron Pond, and the chafer, *Hoplia philanthus* (Plate 5). This latter species was often seen flying in early afternoon, and when observed at the right aspect, revealed a sky blue pearlescence on its underside, not unreminiscent of that shown by its dazzling European cousin, *Hoplia caerulea*.

The unmistakable wheezing song of the Stripe-winged Grasshopper, *Stenobothrus lineatus*, (Plate 3) marked the edges of the grassland in certain areas of the Park, and a good colony was found between the Heron Pond and the Leg-of-Mutton Pond. The first colony of Lesser Marsh Grasshopper, *Chorthippus albomarginatus*, was also found here in 2003 (Sutton, 2003). Surprisingly, the Long-winged Cone-head,

¹ Whilst discussing the remote possibility of finding the grey form of the Wartbiter *Decticus verrucivorus*, with John Shaughnessy at the annual Orthopterists meeting in 2002, I recalled my observations regarding the predation of bush-crickets by Kestrels to him. John informed me that the grey form had not been seen for many years, and that the last recorded observation came from the remains of a Kestrel kill. He also revealed that some Kestrels, which appeared to have specialized on *Tettigonia* and *Decticus*, were very good at snatching specimens from the top of vegetation. In fact, predation by Kestrels has been a big problem regarding both the conservation of the remaining handful of extant British colonies of this handsome bush-cricket, and the introduction of colonies to new (and former) sites through the species recovery programme.



Conocephalus discolor, which was present in grassland habitats across the Park in 1999, had not previously been reported from the Park, and is likely to have arrived after 1990.

Sand bank aculeates

Near the Warren Plantation (23.vii.04) the steep sides of one bare path that had been a blank canvas a few months previously, had now become a honeycombed metropolis of aculeate activity. The unmistakable high-pitched hum of the bee, *Anthophora bimaculata*, a species with incredible turquoise-blue eyes, betrayed its presence above the innumerable burrows, and three beautiful species of jewel wasp were busy shadowing the activities of their respective hosts.

On a bare path near the Leg-of-Mutton Pond I stopped to observe one of these jewel wasps and came across the unlikely looking yellow form of the Blue-tailed Damselfly, *Ischnura elegans* f. *rufescens-obsolata* (formerly *infuscans-obsolata*), at rest on the sun-bleached grass (Plate 4). I had seen and photographed the various colour forms (violet, green, reddish-pink and blue) of this species on the river near Sandy Lane Gate, where the Chinese Mitten Crabs congregate to begin their exodus from fresh to estuarine water in spring, but prior to finding this form, I had not appreciated the sequential nature of certain colour forms, which is explained in Brooks and Lewington (2004). In this case, f. *rufescens-obsolata* begins adult life as the reddish-pink f. *rufescens*.

On one of the banks I saw the sphecid wasp, *Oxybelus uniglumis* plunge into the sandy soil, and having located what appeared to be a colony, I tried to get a photograph of an adult. This species preys on flies and returns to its hidden nest burrow with the fly impaled on its sting. Unfortunately, this task was made all the more difficult because the wasp hides the entrance to its burrow, and the speed with which it arrives, uncovers the burrow and plunges inside, fly in tow, all occurs within a matter of seconds. I found myself waiting for an adult to arrive, then waiting for its head to disappear, (moving in before this resulted in the wasps rapid exit) and trying to focus to get a picture. In Figure 2, it is just possible to



Figure 2. *Oxybelus uniglumis* with prey.



see the spotted abdomen of the wasp on the left, and the large impaled fly being dragged into the burrow behind it, on the right.

Oak wood days

Sunday the 6th of June 2004 turned out to be a particularly productive and enjoyable day for the observation of insects in Bushy Park. The Common Green Grasshoppers, *Omocestus viridulus*, (Plate 3) were already in song, quietly clicking like sewing machines in lush grass that grew amongst the Bracken. A few Skylarks were singing high above as I observed the metallic green jewel wasp, *Trichrysis cyanea*, on a fallen Hawthorn tree on my way to the Warren Plantation. At once, my eye caught sight of a larger metallic bronze-green species as it flew towards me and landed on a branch. It was the beautiful Oak Jewel Beetle, *Agrius biguttatus* (formerly *pannonicus*) (Plate 6). Formerly an extreme rarity confined to a few ancient woodland refugia in southern England, this exquisite species had been, on occasion, considered to be on the verge of extinction in Britain, and was still regarded to be a vulnerable (RDB2) species worthy of protection in 1987 (Shirt, 1987). Indeed, in 1957, A.A. Allen wrote, (of its presence at Bishop's Wood, Batchwood in Herts.), "...unless early action is taken to preserve what is left of this historic locality, the loss to our fauna of this handsome insect, the largest of our few indigenous Buprestids...can hardly be long delayed²." However, for reasons that probably, collectively, involve the creation of habitat through storm damage and Oak die-back disease (Alexander, 2003), and climate change, this species has recently spread across south-east England, and has apparently become almost common in some areas (Alexander, *ibid.*). Its current status is Nationally Scarce A (found in 30 or fewer 10 km squares) although this may need to be revised, and remarkably, it is no longer considered to have any value as an indicator of ecological continuity (IEC = 0, Alexander, 2004). I first encountered this species while walking through woodland on the outskirts of Crawley in West Sussex in 1997. I had always recognized the rarity of this species, and had read the accounts of its discovery at Windsor Park in 1972 (A.A. Allen, 1973), Windsor Forest in 1984 (Godfrey, 1987) and Hampstead Heath in 1984 (Foster, 1987). Consequently, I was stunned to find this flashing blue-green jewel alighting on my arm, and stared at it in disbelief. My second encounter was in Bushy Park on a hot day in June (29.vi.03) when an adult male flew onto the bark of an Oak tree in the Warren Plantation, and subsequently, I have found several specimens flying in fine weather.

² This is far from being the only premature prediction regarding the declining fortunes of certain members of our native fauna. In 1949, one of our most celebrated London naturalists, Richard Fitter, (regarding the Heron) stated that: "It can be asserted with a fair degree of certainty that neither the Heron or the Spoonbill will ever again breed in London outside the Zoo."



I walked into the Warren Plantation, and was immediately greeted by the loud shrieking of Ring-necked Parakeets that were busy rearing their young in the tree cavities above. At the base of one Oak tree, I found a specimen of the clerid beetle, *Tillus elongatus* (Plate 6), a saproxylic species that is a good indicator of ancient woodland habitat. The remains of a horde of Stag Beetles were found next to a log, and on the log were several specimens of another saproxylic species, *Bitoma crenata*, a tiny but distinctive species which has red banding on its elytra.

After the heat of my exertions photographing a variety of species in the Park, I decided to get a cup of tea from the kiosk in the car park next to the Model Boating Pool, and I walked around the Pool to sit under a large Willow tree near the Heron Pond.

As I sat watching some young Egyptian Geese being shepherded by attentive parents, I caught sight of what looked like a very thin praying mantis as it whirred past my ear, its wings held at an angle above its body. It landed on the still, mirrored surface of the pond, where it wrestled with the mercurial plane in its bid to trade realms, and seek the sanctuary of the pondweed below. It was a specimen of the Long Water Scorpion, *Ranatra linearis*, and in all probability, the largest I had ever seen. Immediately, polystyrene cup still in hand, I balanced on one elbow and reached from the bank to pluck the insect from the reflections. The large female specimen (which is life-size in Plate 4), attracted the attention of several families who had observed the capture, and their inquisitive children, wide-eyed and open mouthed, questioned me about this impressive aquatic assassin for just enough time to allow my tea to go cold.

Another impressive bug that can be found in Bushy Park is the Fly Bug, *Reduvius personatus* (Plate 6). This species is also known as the Masked Hunter on account of its superbly camouflaged predatory nymphs (see Plate 8). The Fly Bug is usually found in hollow trees but is not averse to living alongside humans in buildings if the opportunity arises. It will bite if handled and its rostrum can pierce the skin with ease, but it is, apparently, harmless¹. However, having been bitten by the diminutive nymph of the Common Flower Bug, *Anthocoris nemorum*, whose toxic saliva caused a small, acutely irritating and weeping wound for several days, and knowing that its colourful

¹ The Fly Bug is closely related to another Reduviid, the so-called the "Kissing Bug" of Latin America, which, like the Fly Bug, will inhabit human dwellings in the absence of its natural habitat. This species gets its name because it prefers to target the soft skin around the sides of the mouth when it bites humans, and is a vector for *Trypanosoma cruzi*, the flagellate protozoan that causes Chagas disease. Charles Darwin was believed to have suffered from this disease, having been bitten by one of these triatomine bugs during his famous visits to South America on the *Beagle*. He was plagued by many undiagnosed health problems in later life, which were similar to those suffered by patients afflicted with chronic Chagas disease.



European cousin, *Rhinocoris iracundus*, has a bite that is as painful as a wasp sting, I chose not to handle this species when I took its photograph!

The living Hawthorns

At the end of Ash Walk between the Woodland Gardens, the Longford River (which now becomes the Queen's River, and is only several feet wide at this point) flows under a small hump back bridge known as Red Brick Bridge. Before the river leaves the Gardens, its well-reeded margins hold populations of various insects, including reed beetles (*Donacia* sp.) and the Banded Demoiselle, *Calopteryx splendens* (Plate 4). A quiet approach will allow the observation of some very large Chub swimming in the shade of the trees next to the bridge, where dappled sunlight will occasionally reveal their huge netted backs.

Nearby are a number of Hawthorns, some of which are dead but still standing. These Hawthorns are alive with activity, and the burrows, which long since produced the beetles that probably led to the demise of the tree now provide homes for a myriad of aculeates.

The first time I found these trees I could not believe the number of solitary wasps and bees using the holes. It was on these Hawthorns that the Ichneumon wasp, *Epbialtes manifestator*, (*Bulletin* 463 cover picture) was photographed drilling to locate the burrow of a wood nesting aculeate.

On one of the trunks, I observed the spider hunting sphecid wasp, *Trypoxylon figulus*, returning to its burrow with a white spider (Figure 3)

I remember the day well, for the sheer number of aculeates that I had seen, and also for a less satisfactory reason. After another fiercely hot day, I had all but run out of food and drink, and I was looking forward to the mouth-watering tang that a bite from the solitary apple that remained in my bag would provide. After a fruitless search, it slowly dawned on me that the commotion I had heard earlier, a squabble between two crows that had occurred close by as my camera clicked quietly above the spider carrying *Trypoxylon* wasp, concerned the fate of that apple, a fact betrayed by the few remaining ant-tended fragments left in the grass, that had browned in the late afternoon sun.

Nevertheless, it had been another halcyon day in Bushy Park, and it left me with the belief that the Park still had many more secrets left to reveal.



Figure 3. *Trypoxylon figulus* with spider prey at burrow entrance.



Figure 4. The Warren Plantation. The bare sandy paths in the foreground become a hotbed of aculeate activity from spring onwards.

Acknowledgements

Sincere thanks to: David Baldock and Dr Mark Shaw. Nigel Reeve. Ray Brodie and Royal Parks Wildlife Group. the Royal Parks Authority for continuing provision of annual permits to work in the Park. and kind permission to use the map (Crown copyright) shown in Figure 1. Peter Hodge, Jonty Denton, and Mike Edwards.

References

- Allen. A.A..(1973). *Agrilus biguttatus* F. (Col: Buprestidae) at Windsor: with some account of its history in Britain, *Entomologist's Record*, **85**, pp. 12-14.
- Allen. A.A.. (1988). Notes on *Agrilus pannonicus* Pill. & Mitt. (Col: Buprestidae) in 1985. *Entomologists Record*, **100**, pp. 25-28.
- Alexander. K.N.A.. (2004). Revision of the Index of Ecological Continuity as used for Saproxyllic Insects, *English Nature Reports No. 574*, 1-60 pp., English Nature, Peterborough.
- Alexander. K.N.A.. (Ed.) (2003). *Provisional Atlas of the Cantharoidea and Buprestoidea of Britain and Ireland*, Huntingdon: Biological Records Centre.
- Brooks. S. and Lewington. R.. (2004). *A Field Guide to the Dragonflies and Damselflies of Great Britain and Ireland*, 1-138 pp., British Wildlife Publishing, Dorset.
- Foster. A.P.. (1987). *Agrilus pannonicus* (Piller and Mitterpacher. 1783) (Col.. Buprestidae) and other noteworthy insects recorded from Hampstead Heath in 1984. *Entomologist's Record*, **99**, pp. 153-155.
- Fowles, A.P., Alexander, K.N.A. & Key, R.S. (1999), The saproxyllic index: evaluating wooded habitats for the conservation of dead wood Coleoptera. *The Coleopterist*, **8** (Part 3), pp. 121- 141.
- Godfrey. A.R.. (1987). *Agrilus pannonicus* (Pill. And Mitt.) (Col.. Buprestidae) in Windsor. *Entomologist's Monthly Magazine*, **123**, p. 40.
- Shirt, D.B. (Ed.), (1987), *British Red Data Books: 2. Insects*. xliv + 402 pp. Nature Conservancy Council, Peterborough.



From The Registrar

Data Protection Act – In order to fulfil the requirements of this act I must advise members annually of the details held on the computer database and the use made of them.

Currently the information we hold comprises – name, address, telephone number, email address, date of birth, interests, payments made, and membership category. Additional information is held regarding mailing details, correspondence, invoices, receipts etc. If any member objects to these details being held, would they please get in touch with me.

The information is used for the following purposes:-

- To prepare mailing labels for the *Bulletin* and *Bug Club Newsletter*. Also labels for other mailings and correspondence as required.
- For the preparation of statistics for use by the Council.
- The publication of Membership Lists. These will only include details of name, address, interests, and, in the case of Junior Members, the Membership Class. Please note that telephone numbers and e-mail addresses are ONLY passed on to Council and Committee members when a specific request is made. Such details are not passed to other members. **Individual members may request specific lists**, such as names and addresses of members in a specific area, with or without interests included. A minimum charge of £1.50 is made to cover the additional costs of stationery and postage involved.

Please note that:-

- I am unable to give out member details over the telephone.
- I never divulge phone numbers without the individual member's express permission, except to Council members for use on Society business.
- I do not give member details to non-members without the individual member's express permission.

Membership List – I would like to produce one, and it would be easy to do. There are constraints upon it from two sources:-

1. Production costs – it would cost well over £2,000.00 to produce and the Society does not have that level of funds to spare.



2. Data Protection Legislation means that every member must give their written consent before their details may be included in the list. (Please note that this applies only to a published list, not a private list requested by an individual member.) It is for this reason as well that I do not produce any electronic lists (except pdf files).

I do produce a photocopy list, as an A5 booklet, for use by Council Members only and for archive purposes, every two years. These are destroyed when a new one is produced. The actual production is easy, apart from cost and the legal implications.

A published list would include an alphabetical list of names, addresses and up to three interest categories (space prevents the inclusion of more). Also it would include a list of members' names under specific interests, and members' names in individual countries and UK counties. (It is for the latter reason that county name is always included in the address, despite it not being essential in most cases, though it may be stripped off when producing mailing labels). The restriction to only three named interests is to make the interest lists manageable, since these will help members communicate with others of similar **main** interest areas. I must emphasise that the **ONLY** reasons a list has not been produced in the past have been cost and now the law.

Change of Address – the mailing labels are produced a month in advance in order to notify the printer the number of each publication that need be printed and to allow sufficient time for the envelopes to be prepared. (This is a more tedious task than previously because there are at least three different categories of mailing – **Bulletin** alone, **Bulletin** plus **Bug Club Magazine** together (for family membership), and **Bug Club Magazine** alone. These are further separated into Overseas and UK.) This can mean that if I am notified of the change of address **AFTER** the mailing labels are produced, then the mailing will go to the previous address and there is **no way of preventing this**. It also means that if a redirected envelope is used to notify change of address, by the time I receive it via the PO Box, which can take up to four weeks, or even more, the next mailing label will also have been produced for the previous address! It is therefore in members' interests **to notify me as to the new address, and the date for which it becomes effective, as soon as possible after the details are known to the member**. Members may notify me directly to my home address, if they wish – Nick Holford, 8 Ruddle Way, LANGHAM Rutland, LE15 7NZ (Tel. – 01572 723532). I can also be contacted by email (aesregistrar@btinternet.com). In notifying change of address,



please be certain to include your membership number, which is printed after the name on the mailing label. This makes finding your record much easier.

First names – I am trying to make communications more personal by using first names. This is already done in most cases. Please try to remember to write it onto the renewal slip before sending it in.

Payment by cheque – when paying by cheque, if the member's family name is different from that on the cheque, please write the member's name on the back as this helps considerably when checking that payments have been entered correctly. It would be helpful if the membership number was written on the back as a matter of course. PLEASE do not staple cheques to the form, these require a considerable amount of time to remove, and when dealing with about 1400 cheques in the space of two months, any saving in time is a great boon! Thank you.

Nick Holford, Registrar

A NOTE FOR YOUR DIARY

MOLE VALLEY COUNCIL

Sunday 25th June 2006

**River Mole Local Nature Reserve
Leatherhead
Surrey**

This is a public event to celebrate the opening of this new reserve along the river Mole from Fetcham Splash to Thorncroft. AES Councillors will be present and hope to organise some entomological events, including perhaps moth trapping after dark. The Royal Entomological Society hopes to list this event as part of National Insect Week. Details from Rod (tel. 01306 879247 or e-mail rod.shaw@molevalley.gov.uk)

PRACTICAL HINTS FOR THE FIELD LEPIDOPTERIST by J.W. Tutt

Written at the turn of the century, this book has been reprinted because it still represents the most comprehensive field guide covering both macro and micro lepidoptera. £ 22.80

AN INDEX TO THE MODERN NAMES FOR USE WITH J W TUTTS PRACTICAL HINTS FOR THE FIELD LEPIDOPTERIST by B.O.C. Gardiner

A valuable cross referencing guide between the scientific and English names used in the early 1900's and the present time £ 4.00

A LEPIDOPTERISTS HANDBOOK by R. Dickson

A practical book on the breeding, collecting, storing, conservation and photography of Lepidoptera. £ 7.70

A GUIDE TO MOTH TRAPS AND THEIR USE

by R. Fry and P. Waring

A concise guide on the type/construction of moth traps available in the UK, their use and limitations in the field £ 5.20

BREEDING THE BRITISH BUTTERFLIES

by P.W. Cribb

A practical handbook covering all aspects of butterfly breeding, including general techniques, equipment plus hints on how to breed British butterflies £ 4.10

AN AMATEURS GUIDE TO THE STUDY OF THE GENITALIA OF LEPIDOPTERA (16pp.)

. £ 2.40

BUTTERFLIES OF CYPRUS 1998

Observations of 44 species of butterflies found on the island during 1998, including notes on each species £ 3.75

A SILKMOTH REARER'S HANDBOOK

by B.O.C. Gardiner

This completely revised 3rd Edition looks at the study, breeding and systematic of the worlds silk moths. Includes 32 pages of colour plates (74 colour photographs of larvae and adult moths) 26 pages of black and white plates, numerous figures £ 14.70

KILLING, SETTING AND STORING BUTTERFLIES AND MOTHS (19 pages)

. £ 3.00

THE STUDY OF STONEFLIES, MAYFLIES AND CADDIS FLIES

A comprehensive guide to collecting and studying the biology and ecology of these aquatic insects £ 3.60

THE HYMENOPTERISTS HANDBOOK

by Dr. C. Betts et al.

A completely revised 2nd Edition dealing with their family history, classification and structures; natural history; studying; collecting; breeding; attracting and preserving Hymenoptera £ 9.25

REVISED FLIGHT TABLES FOR THE HYMENOPTERA

Illustrates wherever possible, times, locations, flower visits and some indications for distribution and abundance of Hymenoptera £ 2.55

REARING PARASITIC HYMENOPTERA by M. Shaw

This booklet provides details on the general biology of parasitic wasps, rearing principles, efficient rearing practices and detailed methods on how to deal with adult wasps £ 4.60

HOST PLANTS OF BRITISH BEETLES

Supplement to 3rd edition of the Coleopterist's Handbook listing a wide range of plants in alphabetical order, together with the beetle species which have been recorded as being associated with them £ 2.55

A DIPTERIST'S HANDBOOK

by A.E. Stubbs, P.J. Chandler and others

A practical handbook for the beginner and initiated on collecting, breeding and studying two-winged flies, includes a detailed chapter on larval stages, with an illustrated key to families £ 10.75

REARING AND STUDYING STICK AND LEAF-INSECTS

by P. D. Brock

This new book is especially intended for beginners, although also suitable for experienced phasmid enthusiasts. It is one of few rearing guides that feature the majority of culture stocks available with 22 species in detail. The informative text is complemented by 8 colour plates, 14 black and white plates and 29 figures £ 8.50

THE AMAZING WORLD OF STICK AND LEAF-INSECTS

by P. D. Brock

A superb comprehensive guide for all those intrigued by these groups of insects. Topics covered in detail include life history, development and behaviour, defence, enemies, collecting, breeding and much more. Part 3 outlines the major known species around the world on a regional basis, plus a section on fossils is also included. £ 15.20

REARING CRICKETS IN THE CLASSROOM

(12 pages, 2 plates) £ 2.00

SOME BRITISH MOTHS REVIEWED

Aid to identification of some of the more difficult species reprinted from Amateur Entomologist Vol. 5 (1941) and a guide for the critical species of Lepidoptera from Entomologists Gazette 1969-72, (64 pages, 6 plates). £ 3.50

LARVAL FOODPLANTS OF THE BUTTERFLIES OF GREAT BRITAIN AND IRELAND

by P. May. A comprehensive compilation of the known larval foodplants of our native and immigrant butterflies. Also including *How to Encourage Butterflies to Live in Your Garden* by the late Peter Cribb. 62 pages (2003) £ 5.75

COLLECTING LACEWINGS £ 1.90

COLLECTING HET-BUGS £ 1.10

COLLECTING CLEARWINGS £ 0.90

ALL MAJOR CREDIT CARDS ACCEPTED

All the above publications sent post free to U.K. addresses. Outside U.K. please add 10% to order value for postage by surface mail. For postage by air-mail outside Europe please add 30% to order value.

Please allow 28 days delivery.

Please make all cheques/postal orders payable to 'AES Publications' and send to:
AES Publications, 1 Tower Hill, Brentwood, Essex CM14 4TA.
Telephone 01277 224610 • Fax: 01277 262815 • E-mail: aespublications@btconnect.com

AURELIAN BOOKS

DAVID DUNBAR

Butterflies, Moths and Entomology

View stock on-line at www.booksatpbfa.com

(Click on sellers and search Aurelian Books)

- Antiquarian, out-of-print and new reference books -
- Butterflies, moths, dragonflies, beetles and other insects -
 - British Isles, Europe and rest of the World -
 - Free book finding search service -
 - Catalogues available on request -
 - Browse our stock - by prior appointment -
- Collections and good individual books and journals bought -

Phone, fax, e-mail or snail-mail for all enquiries
which are always welcome

31 LLANVANOR ROAD, LONDON NW2 2AR
(Telephone and fax) 020 8455 9612 e-mail: dgldunbar@aol.com

Midlands Entomological Fair — Kettering —

The Above Fair, due to held on Sunday 2nd April 2006 has been cancelled, owing to the retirement of the organisers, Jack and Sue Harris. We would like to thank all visitors and exhibitors for their support in the twenty-seven or so years the Fair has operated in Leicester and Kettering and hope they will keep the provincial flag flying by supporting the AES/RES Fair in York.

Cheerio! it's been a lot of fun.

Jack, Sue and David Harris

STOP PRESS:

It has been announced that members of the ELG will run the Fair on Sunday 2nd April 2006, 10.30am at the Kettering Leisure Village

AES RES yORK 8th april 2006 Exhibition

Building on the huge success of the AES Annual Exhibition in London the AES/RES have decided to organise a similar event in York

Saturday 8th April 2006

10.30am - 4.30pm

York Racecourse
York

- ★ Many varied dealers
- ★ Caterpillars and Butterflies
- ★ Praying Mantids
- ★ Exotic Pets
- ★ Bug Pottery and Toys
- ★ Antique Boxes and Cabinets
- ★ Insect Identification Guide
- ★ Join Clubs and Societies
- ★ Rare and Recent Books
- ★ Meet other enthusiasts
- ★ Stick insects
- ★ Tarantulas and Scorpions
- ★ Nets, Traps and Equipment
- ★ Netting and Cages
- ★ Mounted Specimens
- ★ Leading Insect Artists



For further details contact the AES at:
PO Box 8774, London SW7 5ZG or alternatively visit the Society's Website at

<http://www.amentsoc.org>

or use the link from RES site

www.royensoc.co.uk

York has many attractions on offer – information is available from your local Tourist Information office.

York Racecourse has good communications with the rest of the UK and within the city:-

By Road – there is an outer ring bypass with the A64 to the south and east and the A1237 to the west and north. The A64 joins with the A1 at junction 45. The A59 leaves the A1 at junction 47 and meets with the A1237. There is ample free car parking available on the approach road (Knavesmire Road), though some places require a bit of a walk to the racecourse. Adjacent grass car-parking areas should be available as well. The Racecourse is to the south of the city, and is best approached from the A64, there being no need to drive through the city.

By Rail – York is on the eastern main line, with GNER trains between Kings Cross and Scotland, and Virgin trains between Euston and Scotland. The journey time on GNER from King's Cross to York is only 2 hours.

By Foot it takes about 20-30 minutes to walk from the station to the Racecourse (we did time it!)

Number 11 (Indigo Line) bus can be boarded at the station. This stops right by the Racecourse. Buses run half hourly.

Local Taxi firms are:-

Ace – 01904 638888

Station Taxis – 01904 623332

Streamline – 01904 638833

Local Taxis – 01904 641341

There are ample **cashpoints** in the city. The nearest ones to the Racecourse (in areas are about 5 mins drive) are:-

to the south of the Racecourse:-

TESCO, Askham Bar, Tadcaster Road, YORK.

Just before TESCO is Knavesmire Service Station.

to the north, further into town:-

Going into the city on Bishopthorpe Road there are two more cashpoints.

York Racecourse **Website** –

www.yorkracecourse.co.uk

There are café facilities on site and ample toilets!



The Bulletin

of the Amateur Entomologists' Society

Volume 65 • Number 464

February 2006

CONTENTS

Editorial	1
Simpson, M. AES/RES York Exhibition.....	4
Sutton, P. G. The history of entomological recording in Bushy Park, Middlesex: a personal perspective	5
Baldock, D., Denton, J. & Sutton, P. G. The larger Brachycera and Conopidae of Bushy Park, Middlesex.....	10
Denton, J. The Saproxylic Coleoptera of Bushy Park, Middlesex.....	18
Baldock, D. & Sutton, P. G. Additions to the list of Aculeate Hymenoptera for Bushy Park, Middlesex.....	29
Sutton, P. G. Diary Notes: Bushy Park, Middlesex (1999-2005).....	37
From the Registrar	47



Wren's candles. Sir Christopher Wren's famous avenue of Horse Chestnut trees provides an exquisite spectacle when flowering in May. This mile-long display extends from Teddington Gate, past the famous Diana fountain (originally commissioned by Charles I, and moved from Hampton Court to its present position in Bushy Park in 1713), to the Hampton Court Gate. The importance of old Horse Chestnut trees in terms of their value for invertebrates, particularly for species associated with sap runs, is now being realized.

S. 36 A

The Bulletin



of the Amateur Entomologists' Society

Volume 65 • Number 465

April 2006
THE NATIONAL
HISTORY MUSEUM
- 2 MAY 2006
PRESENTED TO
ENTOMOLOGY LIBRARY



ISSN 0266-836X

Editors: Dr P. Wilkins & M. Hough

The Amateur Entomologists' Society



Founded in 1935

The AES • P.O. Box 8774 • London • SW7 5ZG



<http://www.amentsoc.org>

Officers of the Society

President: Mike Majerus

Secretary: Martin Hough

Treasurer: Peter May

Registrar: Nick Holford

Bulletin Editors: Peter Sutton & Phil Wilkins

General Editor: Fiona Merrion-Vass

Habitat Conservation Officer: Peter Sutton

Advertising Secretary: Peter Hodge

Exhibition Secretary: Wayne Jarvis

Youth Secretary: Kieren Pitts

ICN Editor: David Lonsdale

Wants & Exchange: Peter May

SUBSCRIPTIONS:

First subscriptions should be accompanied by an additional £2 entrance fee, except for Bug Club members under the age of 13 to which this charge does not apply.

Renewal charges

Ordinary	£17.50	Ordinary Overseas	£21.00
Bug Club (Junior)	£10.00	Bug Club (Junior) Overseas	£21.00
Family	£24.00	Family Overseas	£30.00

ADVERTISING RATES:

Rates for advertising in the body of the *Bulletin* are:

Full page £60, Half page £40, Quarter page £25.

Series discounts and insert charges are available from the Advertising Secretary on request.

NOTICE

It is to be distinctly understood that all views, opinions, or theories, expressed in the pages of this Journal are solely those of the author(s) concerned. All announcements of meetings, financial grants offered or sought, requests for help or information, are accepted as bona fide. Neither the Editor, the Officers and Council of the Society, nor its Trustees, can be held responsible for any loss, embarrassment or injury that might be sustained by reliance thereon.

Worldwide Butterflies

MOONLANDER MOTH TRAP

Completely New Principles

al innovation – developed by Robert Goodden

Now NEW ELECTRICS

Available with

MERCURY VAPOUR or

Special new 12V SAFE and powerful
40W actinic lamp. Use ANYwhere



Moths enter from
BOTTOM of trap!

Benefits of observation
sheet as well as Trap.

Moths fly upwards and
cannot escape.

Use with mains or battery.

White top fluoresces
right violet with UV.

Trap contents stay dry.

Hang or stand.

anchors – withstands
most weather.

Three sizes – choose for
portability or volume.

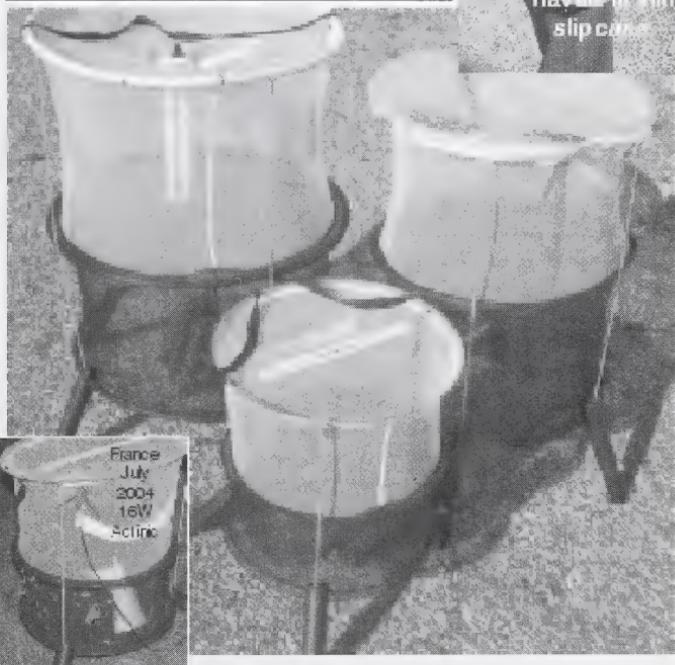
Full details – also
restock specimens
and equipment on
www.wwb.co.uk

Please refer to website
www.wwb.co.uk
for full details and
prices



Folds
totally flat.

Travels in slim
slip case



Worldwide Butterflies

PO Box 101 Liskeard PL14 3ZS

Tel 01579 384050

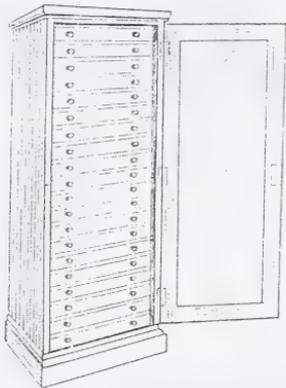
Fax 01579 384430

sales@wwb.co.uk

www.wwb.co.uk

ATROPOS ANTIQUES*

PURVEYORS OF FINE COLLECTOR'S CABINETS



*Many of you will have met us at the AES
London Fair where we regularly show
entomological cabinets for sale*

- We are specialist dealers in fine collector's cabinets.
- We can offer a choice of at least 30 cabinets, varying in purpose, construction, quality and price.
- We can supply both restored and un-restored cabinets and will undertake to restore and paper cabinets for clients.
- We are always interested in the purchase or exchange of cabinets, with or without a collection.
- Callers to our showrooms are always welcome by appointment.
- We offer a specialist collection and delivery service throughout the UK and have full expertise in the safe transportation of cabinets and collections.

George Morgan

97, West Street, Hartland, N. Devon EX39 6BQ

T: 01237-441205/984 M: 07973 302190

E-mail: george@atropos.wanadoo.co.uk

A NEW BOOK FROM

Cravitz

Experience the lighter side
of field entomology with
Torben Larsen as he
describes his experiences
from around the world.



There must be a Hazard for every occasion?

£11.99 (inc. UK p&p) • **£13.99** (overseas)

ORDER YOUR COPY NOW FROM

Cravitz Printing Company Limited

1 Tower Hill, Brentwood, Essex CM14 4TA.

Tel: (01277) 224610 • Fax: (01277) 262815 • E-mail: CravitzPrinting@btconnect.com



Ian Johnson

Natural History Books

(Pemberley Books)

Specialist in *Entomology* and related subjects
Also *Zoology*, *Ornithology*, *Botany* etc.

- CATALOGUES – Second-hand, Antiquarian and New books – free catalogues available on request.
- SPECIALIST BOOKSHOP at Richings Park, Iver, just to the West of London – easy to reach by car or train. Visitors are welcome to visit and view our stock, but please telephone first to confirm opening times.
 - * *By car*: only 10 minutes drive from the M25 via the M4 (Junction 5), or M40 (Junction 1). 15 minutes from Heathrow Airport.
 - * *By train*: 20 minutes from London Paddington to Iver Station on the Paddington-Slough Thames Trains service (2 trains every hour). We are 1 minute's walk from Iver Station.
- WEBSITE – view our stock on our website: www.pembooks.demon.co.uk
- BOOKS BOUGHT – We are always interested in purchasing books in our specialist field, particularly antiquarian, academic and scholarly works on insects and other invertebrates.

18 BATHURST WALK, RICHINGS PARK, IVER, BUCKS SL0 9AZ

Tel: 01753 631114 / Fax: 01753 631115 • e-mail: ij@pembooks.demon.co.uk



The AES BUG CLUB



Do you want to cuddle a Cockroach, stroke a Stick Insect or hug a Harvestman?

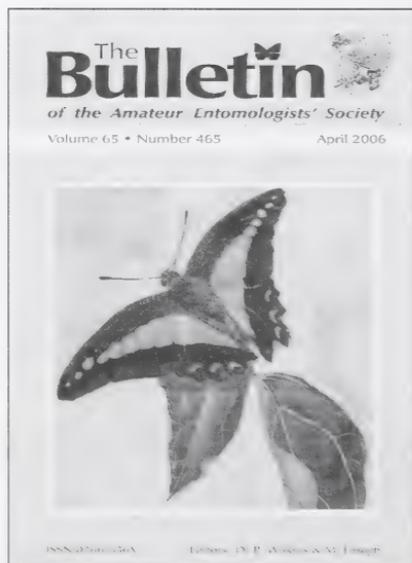
The AES Bug Club is for young people or the "young at heart" who find insects and other creepy crawlies interesting and even fascinating.

As the junior section of the AES we are devoted to promoting invertebrates to the younger generation who, after all, will be the entomologists of tomorrow!

You can help us in a number of ways, for example: by joining the Bug Club yourself, getting someone else to join the Bug Club, promoting the Bug Club and AES to your local school/Scout or Guide Group etc. running a Bug Club event or writing an article for our exciting newsletter. If you can do anything to help then please write to us: **AES Bug Club, PO Box 8774, London, SW7 5ZG.** Membership details can be found in the front of this Bulletin.



Bulletin Cover



The cover of the *Bulletin* shows the Australian butterfly *Graphium sarpedon choredon*. It is taken from an original painting by Stuart Cole from a specimen found at Cremorne Point, Sydney. This butterfly (a member of the family Papilionidae) is known as the Blue Triangle or Common Bluebottle. This subspecies is found in eastern Australia, though the species is widely distributed through Asia. It lays its eggs on a wide range of trees and shrubs. The adults are up to 7cm across.

From an original painting by Stuart Cole

THE NATURAL HISTORICAL MUSEUM
- 2 MAY 2006
ED LIBRARY

The Bulletin

of the Amateur Entomologists' Society

Volume 65 • Number 465

April 2006

Editorial

I had originally intended to have this *Bulletin* ready in time for the AES/RES Northern Exhibition in York, but there always seems more work than time available. So, instead you should be reading this having, hopefully, enjoyed the first Exhibition in the north and helped to make it a success.

This issue is something of a Southern Hemisphere special. I have been storing the colour section for a while now, in preparation. I have been able to couple the articles (and plates) with some interesting book reviews. Please let me know if this experiment into non-British fauna has been worthwhile. Also contact me if there are other 'special issues' you would like to see.

In addition to 'foreign' insects, there are some important British topics in this issue of the *Bulletin*. Amongst these there are details of the work towards the forthcoming Hoverfly Atlas. I hope AES members will support this work by submitting records.

As Peter Sutton mentioned in the last issue of the *Bulletin*, he has retired from editing. I am sure all members will join me in thanking him for his excellent work. Next issue will be Martin Hough's first as editor.

Have a good season and keep the feedback and articles coming!

Phil Wilkins

AES Publications

As from 1st May 2006 all AES and RES members will qualify for a discount on AES and RES Publications. For example the new Coleopterist's Handbook which retails at £54 (inc. p&p) can be obtained by members for £39.

Please note that only one of each publication may be purchased by members at the discounted price.



Preservation of endangered butterfly species

by Dave McDermott

LepSoc Public Relations,

39 Norman Drive, Northcliff Ext 9, Johannesburg 2195, Gauteng, South Africa.

A Focus for the Lepidopterists' Society of Africa

For the past 22 years, the Lepidopterists' Society of Africa (LepSoc) has provided a forum and mechanism for serving the interests of both professional and amateur lepidopterists with the overriding objective of significantly contributing to the overall knowledge of the habitats, distribution and life cycles of the fascinating Lepidoptera group of insects.

The society was formed in 1983 by a small group of butterfly and moth enthusiasts in the southern African region and over the years has grown in strength and stature. Today LepSoc draws its membership from across the African continent, as well as from as far afield as the Americas, Europe, Asia, the Far East and Australia.

During this time, the society and its members have built up a vast and invaluable store of knowledge about butterflies and moths. This is aided by a software program called LepiDops for entering data about Lepidoptera as well as an overall database management program for the collation of all the data called LepiBase. Both programs were developed by a dedicated member of LepSoc.

A major objective of LepSoc is the continuation and extension of a programme of co-operation and knowledge sharing with conservation authorities and the database plays a critical role in this.

The society is also committed to playing a role in the education of communities to appreciate the importance of preserving natural habitats, without which certain species of very localised distribution such as the Brenton Blue (*Orachrysops niobe*) may easily become extinct. LepSoc's wish is that generations to come will also be able to observe and enjoy the rich diversity of Africa's Lepidoptera.

The society has a number of broad aims and objectives, including:

Ongoing assessment and monitoring of the region's Lepidoptera

Taxonomic studies

Discovery, recording and illustration of life histories

Monitoring of threatened populations of Lepidoptera

Representing the interests of Lepidopterists in the region



Assistance with conservation strategies for threatened species and co-operation with conservation authorities

Raising general awareness of the importance of Lepidoptera as biodiversity indicator species and the education of communities

There has been remarkable success in achieving these objectives and this success could not be better illustrated by the fact that LepSoc has been the driving force behind the establishment of four reserves for rare or threatened butterfly species in South Africa. These are the Ruimsig Butterfly Reserve in Roodepoort near Johannesburg, the Alice Glockner Nature Reserve at Heidelberg near Johannesburg; the Brenton Blue Butterfly Reserve at Brenton-on-Sea near Knysna in the Southern Cape and the Butterfly Valley Reserve at Coega near Port Elizabeth in the Eastern Cape.

These reserves ensure protection of five rare and localised species whose habitats are restricted in terms of the availability of both the larval foodplant and particular ant species that play a critical role in the life cycle of each of the butterflies. These habitats have been threatened, hence the campaigns to establish the Reserves.

The Ruimsig Butterfly Reserve protects the Roodepoort Copper butterfly *Aloeides dentatis*; Alice Glockner Nature Reserve the Heidelberg Copper, *Chrysoritis aureus*; Brenton Blue Butterfly Reserve the Brenton Blue, *Orachrysops niobe*; and Butterfly Valley protects two species, Clark's Copper *Aloeides clarki* and the Wineland Blue, *Lepidochrysops bacchus*.

LepSoc is also regularly involved in surveys to establish checklists of the Lepidoptera present in nature reserves, natural heritage sites and areas of conservation significance, as well as for private and commercial landowners who wish to preserve biodiversity.

Monitoring of Lepidoptera populations is another activity of the society. A good example involves the only known South African population of the rare Lycaenid, *Erikssonina acraeina*, in the Waterberg region north of Pretoria. The butterfly has not been seen for several years. LepSoc members are actively assisting the new private landowner in ongoing attempts to relocate and preserve the colony.

LepSoc has encouraged and assisted with the publication of a number of checklists, journals and books on Lepidoptera over the past decade, the latest being *The Butterflies of Zambia* by A. Heath, M. A. Newport and D. Hancock. LepSoc publishes a journal, *Metamorphosis* (ISSN 1018-6490), four times a year. Readers are presented with a blend of scientific papers and articles of general interest about members'



experiences with Lepidoptera. LepSoc members receive free copies of Metamorphosis.

The Lepidopterists' Society of Africa is open to all people interested in the study and conservation of Lepidoptera. There is no geographical limit to membership. For more information about the society, such as membership categories and fees, visit the website: www.lepsoc.org.za

People wishing to join LepSoc should contact: Dave McDermott, LepSoc Public Relations, 39 Norman Drive, Northcliff Ext 9, Johannesburg 2195, Gauteng, South Africa. Tel: +27 11 478-2055 or +27 82 608-0019 or email: dave@copywise.co.za



An Interesting Hibernation and Roosting Site

by Jan Koryszko (6089)

3 Dudley Place, Meir, Stoke-on-Trent, Staffordshire, ST3 7AY.

In recent years, the Tawny Pinion *Lithophane semibrunnea*, Haworth and the Pale Pinion *L. hepatica*, Clerck have been new arrivals to my part of Staffordshire – here in the Meir. These two species are far from common throughout the county. However, they do seem to be extending their range, since they first arrived in the 1980s.

In the past three years I have found these two species roosting and hibernating among a pile of old plastic and clay flower pots in the corner of my garden. These are stacked upside-down, so the moths seem to get under them for cover. No doubt they get in through some of the cracks in the pots.

I have also found the Herald *Scoliopteryx libatrix*, Linnaeus and Angle Shades *Phlogophora meticulosa*, Linnaeus amongst flower pots. Ladybirds and lacewings use these hibernation sites. I notice the garden Hedgehog tries to turn the pots over to look for food. No doubt he sometimes finds rich pickings. Maybe these flower pots provide insulation and shelter for these insects. However, predators must take their toll during the autumn and winter.



Old Notes: Australian Insects

by Stuart Cole (10159)

21 Wensleydale Gardens, Hampton, Middlesex TW12 2LU

stuart.cole@odpm.gsi.gov.uk

I was recently reading through some of my old notebooks on insects and other natural history and thought that some items from when I lived in Australia around 35 years ago would be worth amalgamating into an article, or two, for the *Bulletin*. The insects of Australia are particularly interesting for their mixture of forms derived from the ancient Gondwanan/Antarctic fauna, with close affinities with temperate South America and New Zealand, and tropical taxa from the more recent, post Tertiary, invasion of species from south-east Asia via New Guinea. I spent three and a half years in the country between 1968 and 1972. Most of that time was spent in Sydney but I made several journeys by car to northern New South Wales and Queensland. I have also included an account of insects encountered over the seas to the north and west of Australia.

Part 1: Sydney

Despite being Australia's largest and oldest city, Sydney, with a warm temperate climate, has a rich and varied insect fauna. This is thanks, in part, to protection of the vegetation along much of the foreshore on the north side of the huge marine inlet that forms Port Jackson (or Sydney Harbour, as it is more popularly called). Most of the bays and the sandstone peninsulas of the north shore have a fringe of natural or semi-natural vegetation. A few of the peninsulas and headlands (eg Bradley's Head) are completely covered with woodland dominated by gum trees (*Eucalyptus* spp.) and the related *Angophora costata*. These areas are now encompassed under the designation of Sydney Harbour National Park. Others, like Cremorne Point, where I lived, are typical suburbia, occupied by houses, blocks of flats and gardens but have a narrow border of parkland of mixed native vegetation and invasive naturalised plants (notably *Lantana camara*, *Ligustrum ovalifolium* (privet) and an *Ipomoea* sp. (morning glory)), running down to the harbour waters. These reserves of vegetation in the harbour suburbs seemed to have a greater profusion of insects than most of the great expanses of eucalyptus forest and heathland that surrounds the city. Also, I found many native plants in the woodlands around the harbour that I never met with in the surrounding countryside. This, I suspect may be because the bushfires that sweep through the countryside in



some years have reduced animal and plant diversity there whereas the vegetation of the harbourside rarely suffers the devastation of fires. Although fire is a natural feature of Australian forests, fires occur more frequently now due to vandalism or carelessness.

Moths, beetles and orthopterous insects are represented in great variety in Sydney and the Yellow-winged Locust (*Gastrimargus musicus*), the beetle *Chauliognathus lugubris*, the Bogong Moth (*Agrotis infusa*) and cup moths of the genus *Doratifera* were among species that sometimes occurred in great numbers at the time I lived there.

Cicadas were the insects that most imposed themselves on one's attention. They were large, numerous and extremely noisy. They were also an important source of food for the introduced House Sparrows, often seen tackling cicadas almost as big as themselves, and the native crow-like Currawongs. The bright green *Cyclochila australasiae* was the cicada of street trees and often present in gardens and the grating calls of the male *Cyclochila* were probably the loudest insect sound that I have heard anywhere. The biggest cicada species was the velvety, purple-brown, *Thopha saccata* with a 12.5 cm wingspan and found in woodland on the reserves. During the summer of 1969/70 *Psaltoda moerens*, a black cicada with red eyes, emerged in huge numbers on Cremorne Point with hundreds of these insects spread over the trunks of some Eucalyptus trees.

Among other Homoptera were the curious big sluggish female mealybugs of the genera *Callipappus* and *Monophlebus*. These, soft, wingless, elongate-oval creatures 2.5 to 4 cms long, live on gum trees but were sometimes met with crawling slowly along paths. The rather elegant winged males of *Callipappus* are called bird of paradise flies from their pink wings and the long tuft of pure white filaments at the end of the abdomen. Mealybugs and scale insects (Coccoidea) are outstandingly well represented in Australia with 729 species and the giants of the family are Australian. Some Australian coccids of the endemic Apiomorphae also form the world's largest insect galls. One species in the Sydney area was *Apiomorpha pileata* the galls of which, found on wattles, differ in shape according to the sex of the insect inside. Those of the female being large and oval while those of the males are much smaller and urn-shaped.

The Orthoptera are represented on the North Shore by a wealth of crickets, bush crickets, mole crickets and grasshoppers. The Yellow-winged Locust (*Gastrimargus musicus*), one of 43 species in a mostly African genus, was the most conspicuous of the grasshoppers and



abundant in grassy and waste places. As might be expected for a member of the Locustini, it is sometimes migratory and I have encountered individuals over the sea 200 miles from land to the north of Australia. Black field crickets (*Teleogryllus* spp.) were common everywhere, chirping in suburban streets at night. There was also a fair variety of stick-insects and mantids, although the only phasmid that I identified was the slender brown 17.5 cm long *Ctenomorpha chronos* common on Eucalyptus and the only mantid identified with certainty was *Orthodera ministralis*.

Australia has a rich and interesting assemblage of cockroaches with 534 described species. In Sydney the most frequently encountered native species was the semi-social wood eating cockroach *Panesthia australis*. It is a large sturdy black insect found in groups in rotting logs and stumps. One interesting aspect of their behaviour is that the adults develop wings but they co-operate in chewing each other's wings off; wings presumably are a hindrance in their habitat. Another common cockroach was *Laxta granicollis*. In this the oval shaped females are flattened, wingless and rather resemble trilobites, spending the day beneath stones and logs in woodland while the active winged males live in the leaf litter. Two commonly seen introduced cockroaches were *Blattella germanica* in buildings and *Periplaneta americana* on the streets at night.

Lemon trees are a common feature of suburban gardens in Sydney and they are the favoured food of two native insects: the swallowtail butterfly *Papilio aegaeus* and the tessaratomid bug *Musgravea sulciventris*. As an adult, the latter is a broad uniformly dark brown shield bug 2.5 cm long. The larvae, which are gregarious, are at first green, turning to orange in later instars. Adults and young exude a strong smelling liquid when picked up, the scent resembling the crushed leaves of the lemon trees.

The caterpillar of *Papilio aegaeus* also gives off a strong citrus-like odour. The species is the largest Australian butterfly outside of the Queensland rain forests, the females having a wingspan of over 11 cm. As this was my first time outside Europe, I was amazed to see such big butterflies flying about in the street outside the front door. Of the 17 species of swallowtail in Australia, the only other one that I saw in Sydney was the Kite Swallowtail (*Graphium sarpedon*) whose black wings are crossed with a band of turquoise. This is a widespread insect whose distribution extends to India and in Australia is represented by the sub-species *choredon*. Its usual habitat is humid forest but has established itself in Sydney since its caterpillars developed a liking for the leaves of the introduced Camphor Laurel.



Amongst other butterflies on the North Shore were *Junonia villida*: the black and creamy-white *Polyura sempronius* of the Charaxini, found once when I came across a group clustered on the branches of a small tree; *Vanessa kersbawi* which resembles the familiar Painted Lady and was formerly treated as a sub species of *V. cardui*; *Vanessa itea*; *Hypolimnas bolina*, a tropical and subtropical species that very occasionally turned up, and the Monarch (*Danaus plexippus*) which has spread across the Pacific Ocean from North America and has been breeding in the Sydney region for around 130 years. The Monarch was only able to establish itself in Australia after the introduction of foodplants of the Asclepiadaceae. In the woodland of Bradley's Head the most common butterfly was *Heteronympha merope* of the Satyrinae. The female of this species, with her golden-brown and black wings, is more strikingly coloured than the male. Unlike other groups of Australian butterflies, the Satyrinae are most diverse in the cooler south east of the country and in the Great Dividing Range. The number of species of butterfly in Australia, at 401, is actually comparatively poor for such a large area and 60% of them are confined to the rainforests of Queensland.

There are more than 10,000 described species of moths in Australia and among them are some magnificent insects including the world's biggest moths. The saturniid Hercules Moth (*Coscinocera hercules*) has the largest wings of any insect and the cossid *Endoxyla cinerea* is the moth with the heaviest body. The latter occurs in Sydney, but rarely. The body of the female *E. cinerea* can weigh up to 30 grammes and she has a wingspan of 10 inches. The caterpillars of this genus are the famous witchitty grubs.

The caterpillars of some moth species in Sydney occurred at times in such numbers that they defoliated whole trees. One of these was the Gum Emperor Moth (*Opodiphthera eucalypti*). In March 1972 I came upon three trees and several saplings of *Lophostemon conferta* (a relative of *Eucalyptus*) almost completely defoliated by *O. eucalypti* caterpillars. On one near leafless tree some of the larvae were flaccid and were either starving or, more probably, diseased (the viral disease Nuclear Polyhedrosis commonly affects moth larvae in Sydney when present in large concentrations) but others had reached maturity and had pupated in tough golden-brown cocoons attached to the trunk. The nine species of *Opodiphthera*, all confined to Australia, were formerly included in the widespread silk moth genus *Antheraea*, two species of which are naturalised in Europe.

One summer, some eucalyptus trees on Cremorne Point were completely stripped of their leaves by multitudes of caterpillars of a



limacodid moth of the genus *Doratifera*. These caterpillars were typical of the family, being rather broad and slug-like in form, each end of the body being enlarged so that the middle is concave (hence one of the common names for them is saddle-backs). The pro-legs are absent or vestigial. Like other species of *Doratifera* they are armed with envenomating spines set in pairs of tubercles or verrucae. Normally the spines are hidden within the tubercles but if the caterpillar is disturbed these are inflated and the spines are thrust out into a round spray so that they resemble tiny sea anemones. Another common species of the genus, *Doratifera vulnerans* has particularly colourful caterpillars that also feed on *Eucalyptus* as well as other Myrtaceae such as *Lophostemon* and *Callistemon* (Bottlebrush). They are pale blue-grey, marked with bright orange, yellow and blue and the eight tubercles are red. I once felt the effectiveness of the spines of this species when my arm brushed against a caterpillar feeding on a Bottlebrush. The acute burning pain was followed by a rash that persisted for three weeks. The oval brown cocoons of *Doratifera* rather resemble the seed capsules of *Eucalyptus* but, at first, the outer fabric of the cocoon is transparent and the caterpillar inside can be clearly seen revolving in a viscous liquid. After a few hours the cocoon darkens and becomes opaque.

One moth species that occurred in great numbers as an adult was the undistinguished looking grey Bogong Moth (*Agrotis infusa*). It is migratory and in the spring the moths fly south from the hot inland grasslands of northern New South Wales and south Queensland where they breed, to the heights of the Great Dividing Range to spend the summer in alpine caves. The moths can appear suddenly in enormous congregations in Sydney when swarms are blown off course by westerly winds. In the spring of 1969 multitudes settled on Cremorne Point where every bush, when touched, produced an explosion of moths flying out from the foliage. The scarlet flowers of Bottlebrush bushes in the streets were crowded with feeding clusters of Bogong Moths. After two days they had virtually all disappeared but some remained for a few more days hiding in crevices in bark on tree trunks and beneath loose bark. At about the same time the previous year, I saw many thousands of these moths washed up along the shoreline of the beaches (eg at Manly) facing the Pacific Ocean after the swarms must have been blown out to sea. Very few among these millions survive long enough to complete the return journey back to the grasslands.

In April 1971, after being away for a few weeks, I came back to find my flat had an infestation of the introduced Indian Meal Moth (*Plodia*



interpunctella). The caterpillars were present in almost every container of dried foodstuffs e.g. spaghetti, brown rice, wholemeal flour, Cayenne pepper, coffee, nuts, black sugar etc. Interestingly, white rice and white flour were untouched, although they were equally accessible, so these health conscious insects must be able to detect the lower nutritional value of refined food products. Other unwelcome insect guests in the flat, which was on the top floor of an old house, were fleas of the Brush-tail Possum. A family of possums lived in the roof, entering the flat in the evenings through a hole in the wall. I was happy to have their company but their companions (which would be of the genus *Choristopsylla*) were sometimes all too numerous.

The beetle *Chauliognathus lugubris* (Cantharidae) sometimes occurred in enormous numbers. In October 1971, the air over Cremorne Point swarmed with flying *Chauliognathus* drifting in the hot air while a couple of miles away in north Sydney I found hundreds on a few plants of the common harbourside bush *Kunzea ambigua*. Some were feeding at the flowers but most were simply gathered in heaps on the branches. In the countryside around the city the beetles were present in much greater concentrations. On just one group of shrubby eucalypts that I examined in the Royal National Park just south of the city, there must have been hundreds of thousands massed on the foliage, the branches bending under their weight. None of the beetles were mating nor were they feeding on the plants. In January 1972 I found similar gatherings in forest 90 miles to the south of Sydney. I do not know how often such population explosions occur, but, during the three other summers spent in Sydney, *C. lugubris* was just a fairly common beetle.

Chafers were a very numerous group of beetles, represented by diurnal Rutelinae and Cetoniinae and the mainly nocturnal Melolonthinae. Most conspicuous of the rutelines were the several species of *Anoplognathus*, commonly called Christmas Beetles as they were much in evidence around that season of the year, though I believe they are not so abundant now. The most numerous on the North Shore was the shiny green *A. viriditarsus* in which the males are 3 cm long and are immediately distinguished from the females by the shovel shaped extension at the front of the head. Common cetoniinae were *Polystigma punctata* (yellow with black spots), the handsome *Diaphonia dorsalis* (fawn brown and black), and the colourful *Eupoecila australasiae* (red and black with yellow markings).

The only dung beetle that I came across in Sydney was *Aulacopris reichei* (Scarabaeinae), not uncommon on Cremorne Point where it fed



on dog excrement. I have heard that in recent years, some councils in Australia have released the smaller, but more prolific, African dung beetle *Onthophagus depressus* into their neighbourhoods to perform this useful service.

The odd looking stag beetle *Rhyssonotus nebulosus* was commonly seen in flight at dusk. The elytra are dark olive-green with very variable purple markings; in the male the straight mandibles have a large tooth on the outer edge and the small teeth on the inner edge are hidden under a dense fringe of golden hair. The beautiful metallic green stag beetles of the genus *Lamprima* were much less often found. Both these genera of stag beetles have their origins in the Gondwanan fauna and their closest relatives are in South America. Another particularly attractive beetle, common on wattles (*Acacia* spp.) in and around Sydney, was the Diamond Weevil (*Chrysolophus spectabilis*). This reaches 2 cm in length, its black integument is sprinkled with patches of bright green scales. Another distinctive weevil encountered was *Acantholophus spinosus*, a long legged ground-dwelling insect covered with blunt spines. Among other common weevils was a *Rhinotia* sp. of the Belidae, a family confined to Australia, New Zealand and the Neotropical region. I found surprisingly few Carabidae or Staphylinidae in Sydney. Amongst the latter family, one conspicuous species was the common *Creophilus erythrocephalus*. This is black with a red or orange head and is attracted to bones in garbage.

The only social wasp that I ever found in Sydney was *Polistes humilis* which constructs its small nests in bushes and under the eaves of houses. Since the 1970s, the common European wasp *Vespula germanica* has apparently become firmly established in Sydney. It was first recorded in Tasmania around 1955, then on the Australian mainland (in Melbourne) in 1977 and has now spread as far as southern Queensland. Our other common social wasp, *V. vulgaris*, was introduced into Australia (also at Melbourne) before *V. germanica* but it has not thrived like the latter, remaining confined to temperate south Victoria, so perhaps it is less able to adapt to a warmer climate. Both these wasps are also naturalised in New Zealand as is *Polistes humilis* (along with many other Australian insects). Apparently, in the warmer climate of Australia, colonies of *Vespula germanica* do not die out each year and an individual colony may continue to enlarge over several years, the nests reaching a great size containing up to 100,000 workers. Another familiar European social insect in Sydney was the Honey Bee (*Apis mellifera*). This has been present in Australia since around 1840 and was the only social bee that I noticed in the Sydney area (all native



social bees belong to the Meliponinae, commonly called sweat bees or stingless bees).

The most conspicuous of the numerous ants of the North Shore of the Harbour were the Bulldog Ants (*Myrmecia* spp.) of the Myrmeciinae, an archaic subfamily of 87 species confined (with the exception of one species in New Caledonia) to Australia. They are amongst the largest of ants, the workers of some species reaching an inch in length, aggressive and armed with long toothed jaws and a powerful sting. Colonies are small, usually just a few hundred individuals living underground. The blue-black *Myrmecia tarsata* was frequent on Cremorne Point while the orange-red *M. gulosa* preferred the native woodland of Bradley's Head. A smaller species of the genus, the red and black *M. nigrocincta*, common in gardens as well as on reserves, is unusual in that it moves by hopping from leaf to leaf when travelling over vegetation and, when alarmed on the ground, moves along in a series of little leaps.

Just to the north of Sydney there is a large area of heathland and forest forming the Ku-Ring-Gai Chase National Park. The heathland of the Hawksbury Sandstone soil here is dominated by shrubs of the Myrtaceae and Proteaceae whose leaves are typically leathery and quite small. The forest, mostly confined to the valleys, is dry-sclerophyll formed of *Eucalyptus* species with small trees and tall shrubs, including yellow-flowered wattles (*Acacia* spp.) beneath. When I first visited the reserve in January 1969, it had recently been devastated by bushfires that had swept through New South Wales. Although it was just three months after the fires the trees were already green with foliage but the trunks everywhere were charred by fire. There was little visible animal life; hardly a bird was seen or heard, and the insects in evidence were of groups in which some stage of their lives would be spent in situations where they would be protected against the fires, e.g. cicadas, ants, dragonflies, cockroaches.

Three years later, in the spring and summer of 1971-72, there was still little recovery in the vertebrate populations as far as I could see: even birds were still scarce, those most often seen being honeyeaters flitting between the trees. Neither were insects generally abundant. The centres of insect activity were the bushes of *Angophora cordifolia* one of the larger shrubs of the heathland. This has leathery leaves and masses of white flowers that open in late spring around December. What was puzzling was that, with rare exceptions, only those *Angophora* bushes growing at the roadside flowered. The flowers have a wide disk-shaped receptacle sticky with nectar and have a powerful



scent. They attracted insects in large numbers like no other flowers, not even those of the related eucalypts which were visited only by abundant workers of the dolichoderine ant *Iridomyrmex detectus*.

The most numerous visitors to the *Angophora* flowers were workers of *Iridomyrmex* and the naturalised Honey Bee. Other Hymenoptera were various solitary bees, including the metallic green carpenter bee *Leistes aerata*, and wasps of various families, mainly Scoliidae and Tiphidae in the subfamily Thynninae. The Thynninae, in which the females are all wingless, are almost confined to the southern hemisphere and most diverse in Australia. I saw only one species of the Parasitica, that was the odd looking cockroach-egg parasite *Evania longigena* which has a disproportionately small triangular-shaped abdomen. Flies and beetles were also numerous on *Angophora* flowers. None of the former were identified, though one particularly common large black species was certainly a tachinid. Among the beetles there were *Chauliognathus lugubris*; many small Mordellidae; several kinds of Buprestidae, especially *Stigmodera* spp. one of which, the 2.5 cm. long *S. macularia*, has yellow elytra decorated with multitudes of small sunken dark blue spots; the metallic green *Aythysius viridis* and the black *Tanychilus splendens* of the Alleculinae; four species of Cleridae; the cetoniine chafers *Polystigma punctata* and *Eupoecila australasiae* and the wasp-mimicking longhorns *Hesthesis ferruginea* and *H. acutipennis*. Beetles of the genus *Hesthesis* are notable for their very short elytra, shorter than those of a typical staphylinid, which exposes the wings since they do not fold them beneath the elytra. *H. ferruginea* is a particularly fine species, 3 cms long, golden-yellow with band of dark brown on the abdomen. The only Lepidoptera seen to visit the flowers were the occasional day flying moth of the genus *Amata* (Syntominiinae), possibly *A. huebneri*.

The long-legged, orange-red scorpion-flies *Harpobittacus tillyardi* (Mecoptera – Bittacidae) that roam the heathland preying on other insects, hunted around the flowers of the *Angophora*. I saw three *Harpobittacus* with prey (a fly, a moth and a bee) which they captured and carried off by grasping them in the prehensile tarsus of one rear leg. The big wingless diurnal cockroach *Polyzosteria limbata* was sometimes encountered wandering over the foliage of these bushes and other vegetation.





Wild about South African Game Farms

by David Haggett (5109)

c/o MKI (South Africa) (Pty) Ltd, Postnet Suite 247, Private Bag X31, Saxonworld 2132, Johannesburg, RSA

About a year ago I was fortunate enough to buy 250 acres of bushveld, about 90km north of Johannesburg, South Africa. This was an existing game farm, which is basically an area left in its natural state (or left to revert to its natural state after cattle farming) protected by a 2.1m high game fence. The animal population consists of impala, kudu, nyala, wildebeest, giraffe, blesbok plus various animals that drift through despite the fencing e.g. tortoise, jackal, porcupine, caracal, rodents of many sorts, etc.

The vegetation is a mixed bag of acacia thorn trees, grassland and a local deciduous tree of the *Combretum* group. Mixed in with this are various aloes, bushes and sundry plants that await identification.

Aside from the cuddly inhabitants, there is a vast array of insects. I am still a long way from even starting to understand what is living on and visiting the farm, as we ourselves mainly only visit at weekends. Fruit traps have shown some nice *Charaxes* (which have proven relatively easy to rear). The 40°C summer temperatures do not lend themselves to hurtling around the bush chasing anything, particularly after stern warnings about the thriving snake population. (We have seen several very large rock pythons and regrettably have had to kill a Mozambique Spitting Cobra in the living room due to the close proximity of children camping.)

The house lights bring in myriads of bugs of all sizes. There are many types of praying mantis, all waiting to be looked at more carefully and identified, that enjoy the feasting opportunities that this brings. Ant lions abound.

The larger moths are superb. I can find as many as five species of hawk moth in my actinic trap on one night. A resident scorpion also enjoys the catch from time to time and when it is dark I let him have first pick (as if I had a choice!)

I have tried rearing several species of hawk moth with varying success. The most successful and interesting species to date is the Arrow Sphinx *Lophostephus dumolini* which has white larvae covered in black spines, as well as a bifurcated horn (Plate 6). These grew to an immense size, larger than any larvae I have seen in Asia or Africa. They were stocky and well over 6" long when eating; even longer when stretching to another branch. The moths are reputed to be the



biggest hawk moths in Africa. They fed on *Dombeya rotundifolia* but the books say they also feed on *Hibiscus* – but be warned, they are big because they eat a lot! But well worth the effort to see giant white hawk moth larvae covered in black spines.

The Saturniidae are the largest and most spectacular of the moth population, as one would expect. I have found six species to date and have reared three of these.

Probably the most exciting has been the African Moon moth *Argema mimosae*, which comes regularly to the house lights but not the trap (Plate 5). The larvae are quite easy to rear through to cocoon stage and the moths mate readily. So far I have managed to rear reasonable numbers and when the sleeves get a bit full, let some 'escape' so that the native population is protected. To keep the stock fresh I introduce wild moths for mating.

The day time temperature range during spring and summer is vast – from 20°C in early September, down to freezing in November and back up to 40°C by February. In early November this range of temperatures was achieved in less than a week and it led to the deaths of many animals in the surrounding area including three of our kudu. This shows that the larvae are probably a lot more hardy than one may initially think. Humidity could be an issue in the UK – it is dry here. From April to about November there is virtually no rain. We have had about 600mm from November to April.

Clearly life will be interesting from an entomological point of view on the farm and it is truly sad that I need to spend my week days at the office to pay for the privilege!





HBRG Website (Highland Biological Recording Group)

by Jimmy McKellar (11402)

24 Scorguie Gardens, Inverness, Highland IV3 8SS.

As a committee member of the above group I thought it would be a good idea to let the AES members know a little bit about us. Quoting from our website we do the following:

- stimulate public interest and involvement in biological recording;
- collect data on Highland wildlife through surveys;
- publish the results in an annual newsletter and special publications;
- maintain a directory of local specialists and recorders;
- transfer data to and from National Recording Schemes.

All of this is voluntary and our members have a very wide range of interests. Individuals are welcome to request information on their chosen subject and often it is a case of starting from a blank sheet and discovering details as one goes.

The website has information on the following surveys at present:

- Solitary aculeates;
- The Bee-fly *Bombylius major*;
- Conopid Flies - Highland Distribution;
- Mammal Atlas;
- The spider *Nuctenea umbratica*;
- The New Zealand Flatworm *Arthurdendyus triangulatus*
- The alga *Trentepoblia aurea*
- Syrphids, or Hoverflies;
- Lichens *Solorina crocea*

The surveys change each year but some run over several years gathering a lot of data and widening our knowledge of the subject. We naturally welcome records from any naturalists who visit the Highlands and would actively encourage visitors to Scotland.

There is also a web forum: The Highland Biological Recording Group Web Forum. This can be accessed from a link on the website. address: <http://www.hbrg.org.uk>



Geographic Variations

by David Haggett (5109)

c/o MKI (South Africa) (Pty) Ltd, Postnet Suite 247, Private Bag X31, Saxonworld 2132, Johannesburg, RSA

I was interested to read the article by Darren Jeacock on setting butterflies in the April 2005 AES *Bulletin*. His article put me in mind of several tips I have been given as I have travelled around the world. It would appear that each country has, over time, grown some excellent ideas but that these good ideas often stay put. I shall pass on three that I have seen over the years.

In South Africa butterfly net handles have traditionally been made of short lengths of aluminium that are carried as a bundle and when needed are hastily screwed together. This is fine for the lazy or disinterested butterfly lurking around a low flower head but does not satisfy the urgent need one finds when confronted with a startling metallic green *Euphaedra* sitting nervously on a leaf two metres away in the Nigerian forest. At which point an idea from Asia comes in handy.

In Malaysia I used to carry a two-metre length of bamboo, with the butterfly net bound to the end. Hurling through the thick jungle in pursuit of some cunning *Amathusia* would often result in a torn net and a rude word. Using a shorter handle would leave me for hours frustrated at the bottom of a flowering tree while some much sought after *Papilio* dined smugly above, safe in its distance. I quickly realised that I was pretty much alone when it came to using fixed net handles. The other collectors used fishing rods. In Malaysia it is an easy matter to find extendable fishing handles that can go out as far as four metres. By taking out the thinnest extensions and replacing them with a short wooden rod, the butterfly net can be fixed to the fishing rod. This now provides a net handle that will cope with the short range parry and thrust of close encounters, while making it possible to snatch the high flyer at over three metres. I have tried a four-metre fibre glass rod extension but the weight of the net made it more comical than useful as it flopped from one side to the other, more or less out of control.

These adapted fishing rods became popular with some of the South African collectors and I was asked to bring back several fishing rods from the UK on my business trips. I gained some kudos (and some stunning Cameroon butterflies) for the idea but it wasn't mine.

Malaysia has a few nice *Charaxes* and some excellent fruit loving nymphalids. Following the local wisdom and directions, I made fruit



traps out of old cylindrical net rearing cages, with a suspended plywood base for the rotten fruit. The success was reasonable in Malaysia but very limited in South Africa. Butterflies would go in but would then quickly exit at my approach. In Africa, the sight of things like *Euxanthe wakefieldi* supping the bait and then calmly walking to the edge and escaping while I was a few metres away was terrible. When a *Charaxes protoctlea azota* did the same thing a matter of minutes later, I sought help. I recalled that many times in Langkawi I had seen prized *Euthalia* sitting near the traps but not in them. I now realised that they had enjoyed their visits to Café Haggett, dined well and were then basking before flitting off.

South Africans are excellent trap makers. The problem with the Malaysia traps was that they were too wide and too short, typical rearing cage dimensions. The gap at the bottom between the wire and the plywood base was also too big. The African traps tend to be well over a metre long and about 30cm diameter. The gap between base and trap should be no more than 2cm and probably less. Even the massive East African *Charaxes* have no problems getting in – they lean over sideways. Once inside the trap they find the net too narrow to go for sightseeing flights and tend to stay put, satiated on the alcohol content of the rotten fruit. A return trip to Malaysia proved that the SA design was much improved.

Back to Darren's article on freezers: another South African gem I picked up is to store all of your catch in the freezer. As far as it is possible to do, subject to location and domestic freedom, any butterflies that are caught get pinched in the field and then go straight into the freezer. Some hotels provide mini bars, others are happy to store sealed envelopes in the freezer so long as you don't tell them what is in the offending package. That is down to your conscience. The freezer provides a humane way to kill the insect and removes the need for killing jars or hypodermics while travelling. If the insects are safely kept in the bottom of the freezer they can stay there for many years and come out as fresh as the day they were caught for setting.

There is one caveat – do not use the normal papers to store them. Everyone I have collected with in South Africa uses the plastic coin envelopes you can get from the banks. These can be sealed by simply pressing the top edge and once the butterfly is inside, it will not be damaged by rough paper or dry out. Drying out is the biggest problem of storing in the freezer. How you overcome defrosting day or the worried glances from visitors when they find your stash of dead bugs next to the ice cream is your problem.



None of the ideas above are mine. It is equally possible that you are already familiar with them. However each location, due to its particular topography, culture and insect population, does have a different way of doing some things. Many African collectors still use the sloping setting boards of old; pins vary in style and length from one place to the next. Data requirements vary: in the UK a place name is normally quite enough but in remote regions of the African bush a GPS co-ordinate is the only way to locate the same place with any hope at all.

I have been very fortunate to have lived in a range of countries and have benefited and enjoyed learning the different 'cultures'. I would encourage anyone who travels to look up a fellow bug fiend and watch how he does things – and then fearlessly plagiarise.



***Cimbex connatus* (Schrank) (Hymenoptera: Cimbicidae) in North Hampshire**

by Wendy & Jonty Denton

Kingsmead, Wield Road, Medstead, Hampshire, GU34 5NJ, UK.

Following on from the recent captures of this splendid sawfly in Devon (Henwood & Walters, 2004), we can add Hampshire, in particular North Hampshire (VC12) to the list of counties for this insect. On the 8th June 2005, WD placed a headless, but still respiring adult on JD's desk.

"Thought this might be of interest!"

"Certainly is, JD replied with wide-eyes, *it's new for Hants. Bet you got it at Sainsbury's by any chance?*"

"Yes, how on earth did you know?"

"Elementary my dear Wendy, *it's got Italian Alders, and this beast likes supermarkets!*"

Sure enough it was found in the Altön branch car-park (SU 7139), close to Italian Alders *A. cordata* planted approximately 15 years ago. Despite searching we have not found any more adults or larvae.

Rather macabrely the poor beast lasted for over 48 hours without its head!

Reference

Henwood, B. & Walters, J., (2004), The sawfly *Cimbex connatus* (Schrank) (Hymenoptera: Cimbicidae) in Devon. *Bulletin of the Amateur Entomologist's Society*, **63**, pp.152-3.



Hoverfly Atlas 2010

by Roger K.A. Morris

7 Vine Street, Stamford, Lincolnshire PE9 1QE.

roger.morris@dsl.pipex.com

and Stuart G. Ball

255 Eastfield Road, Peterborough PE1 4BH.

stuart.ball@dsl.pipex.com

Background

Five years ago, the first comprehensive atlas of hoverflies of Britain was published (Ball & Morris, 2000). It was based upon some 375,000 records covering 2,361 10km squares (82.5%) out of a possible 2,862 squares containing some land. As with all recording schemes there is a fine balance to be struck between the maps depicting the true distribution of the subject or the distribution of recorders. On the whole, the Hoverfly Recording Scheme achieved representative distribution of individual species. Coverage in England and Wales was good, but in Scotland it was much poorer because of datasets that were (and continue to be) unavailable to us. Even so, the maps were an important stage in the development of our knowledge of British hoverflies.

Since the atlas was published we have embarked on a variety of related projects, including a mark-recapture study of hoverfly populations in a Northamptonshire woodland (Ball & Morris 2003), and evaluation of changes in the distribution of two species of *Volucella* (Morris & Ball, 2004 a & b). Using the data, we have also evaluated the impact of climate change on hoverfly phenology and abundance (unpublished). These projects have shown how useful data collected on an ad-hoc basis from a range of sources can be.

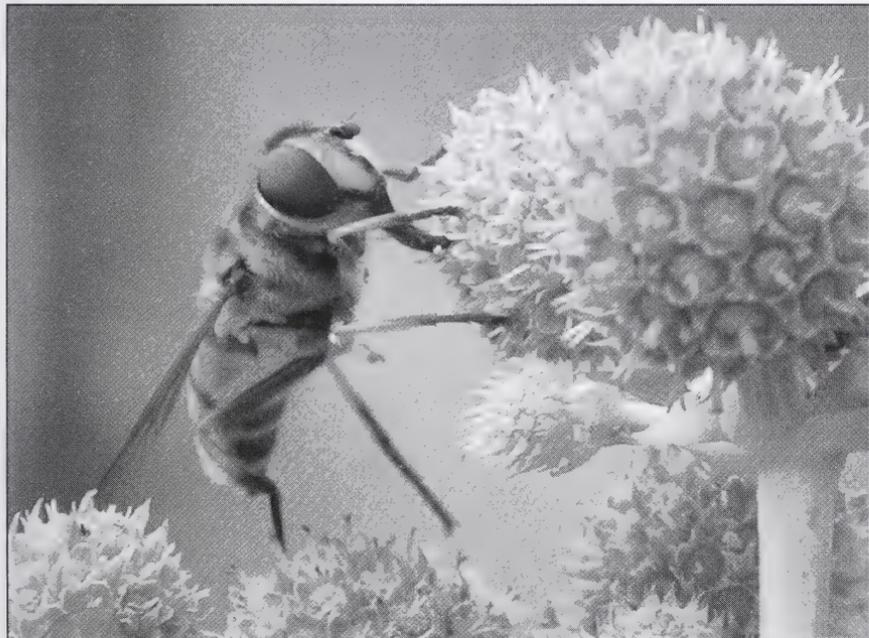
Once the hoverfly atlas was published there was a significant decline in new data coming into the scheme, which is unsurprising given that recorders will generally only make an effort when a defined output is proposed. We have therefore given considerable thought about the direction that the recording scheme should take: there is a variety of options but we have concluded that there are good grounds for embarking upon a new atlas project. What might such a project deliver?

Atlas 2010

In the past five years, technology has progressed immensely. The internet has become a powerful tool for disseminating information and

for collecting new information. The Recording Scheme now has its own website www.hoverfly.org.uk which has been under development since spring 2005. It provides an opportunity for visitors to examine individual species maps (place the cursor over a square and a box will tell you the date of the last record and the 10k grid reference). It is also possible to download past issues of the hoverfly newsletter and to look up references to hoverfly articles within the newsletter; visitors can also post photographs on the site, visit the chat room, access news items and download an up-to-date checklist. Today, we can accept new data and update the maps within a matter of days – so recorders can see how their contributions have changed the maps. We have further plans for the website including the development of on-line data submission and interactive tracking of hoverfly distribution such as, for example following the first dates for observations of spring species, and perhaps tracking the influx of hoverflies during the mid-summer mass-migrations.

Computing power is such that we can now produce a very different set of maps for a new atlas, ranging from simple coloured maps to predictions of where hoverflies might occur in the future. Printing



Myathropa florea

Photo: Nigel Jones (www.insectpix.net)



technology is also cheaper, meaning that a much more comprehensive project might be published including perhaps coloured maps showing the different date classes for records. We have therefore set ourselves the target of assembling a bigger dataset with a view to producing a more comprehensive atlas in 2010: surely we can assemble 600,000 records by 2009!

Progress so far

This last year we have worked to clear the backlog of data that has arrived since 1997 (when we stopped data collection and concentrated on writing the atlas). This has yielded 85,000 records, 70% of which have arrived in machine-readable form. We have also worked to clear the backlog of data assembled by Dipterists Forum on the annual summer field meetings, which usually generate a good number of



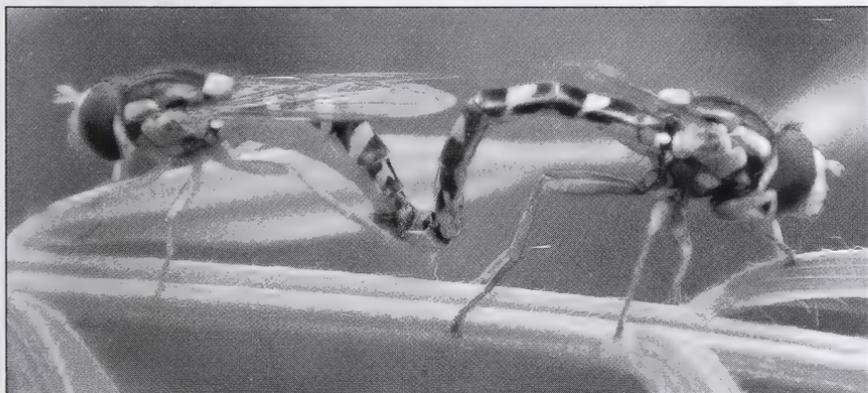
Chrysotoxum bicinctum

Photo: Nigel Jones (www.insectpix.net)

hoverfly records. Other work we plan to take on is the computerisation of the 30+ years of data that Alan Stubbs has amassed during fieldwork. We hope that these projects will fill some of the gaps in distribution and will ensure that the dataset is as comprehensive as possible.

Even with this emphasis on clearing up the historic dataset, we know that there is a need for as much recent data as possible. Some parts of Scotland and Wales are poorly recorded and will only be improved by additional recording; we have therefore started to visit these areas. In 2004 we made an exploratory weekend trip to central Wales that filled in eight previously un-recorded squares and added records for a further eight squares. This visit yielded over 250 records and showed that flying visits could be an effective means of gap-filling (Morris, 2005a). In 2005 Roger made three visits to southern and western Scotland with the same objective in mind (Morris 2005b & c); and yielded some 600 records for over 40 10km squares, many of which did not have previous records. Further visits are planned for 2006-2009 with the intention that the majority of gaps are filled in before the next atlas is produced.

Although we are committed to generating as many new records as possible through our own efforts, we cannot hope to achieve the standard of atlas that we aspire to without the help of a band of diligent recorders. There are around 25 individuals who regularly contribute records and recent analysis of the numbers of records contributed by individual recorders makes interesting reading. For example, ten recorders have contributed 30% of the entire database, and 50% of the data come from just 25 recorders. The remaining 50% of data were



Sphaerophoria scripta

Photo: Nigel Jones (www.insectpix.net)



provided by around 1,000 contributors, many of whom would have visited otherwise unrecorded parts of the country. Clearly, we need to galvanise a similar army to update the atlas. We are therefore working on the production of a simplified guide to garden hoverflies and a guide to explain some of the more difficult aspects of hoverfly identification. A guide to the identification of *Volucella* will appear in the spring of 2006 in *British Wildlife* (Ball & Morris in press) and we hope that this will stimulate further interest. Meanwhile, potential recorders who are unsure about hoverfly identification might welcome some tips.

Submitting records to the hoverfly recording scheme

We are keen to encourage recorders to adopt otherwise poorly recorded squares: do you live in one or have you a favoured site that lies within a poorly recorded square? Even if your square is well recorded, new records are always welcome.

Some hoverflies are relatively simple to identify – for example the marmalade hoverfly *Episyrphus balteatus* a medium-sized orange and black-banded fly, the Heineken fly *Rhingia campestris* with its distinctive



“snout” and red abdomen, and the great pied hoverfly *Volucella pellucens*. Gardeners might be familiar with the greater bulb fly *Merodon equestris* or perhaps the giants of the hoverfly world *Volucella inanis* and *Volucella zonaria*. Records of these species are always welcome. Some species can be identified from photographs, so we may be able to help with identifications of some of the more commonly encountered species. Unfortunately, there are many hoverflies that require more careful examination and cannot be identified from pictures alone. We are happy to help with identification of specimens – pinned or unpinned (send them to Roger).

The ‘Heineken’ Hoverfly *Rhingia campestris*
Photo: Nigel Jones (www.insectpix.net)



Plate 1. *Charaxes guderiana* (Blue-spangled Emperor) was only recently found to occur in South Africa. This male was the first – discovered by members of LepSoc in November 2003 in a small patch of *Brachystegia* woodland in the northern Limpopo Province. The butterfly is common in Zimbabwe and other countries further north.

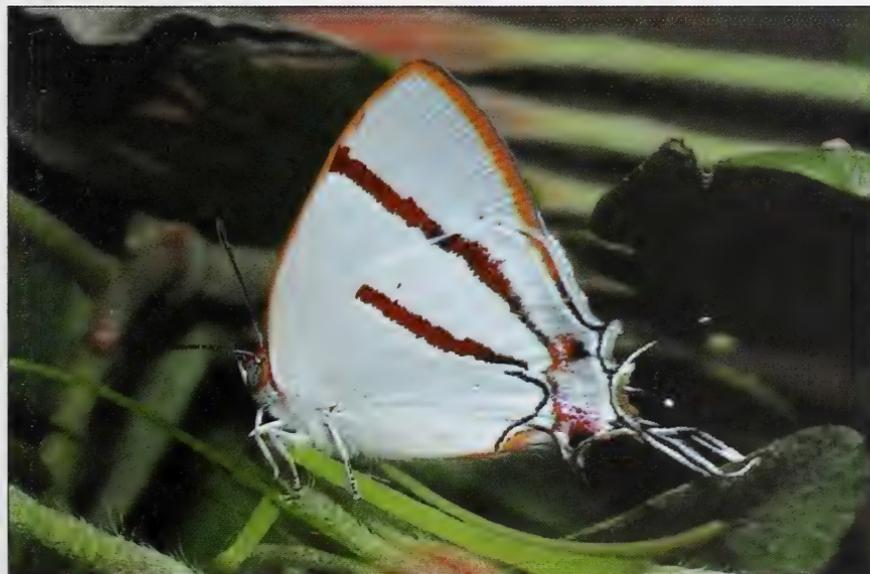


Plate 2. The stunning underside of a freshly emerged male *Iolais sidus* (Red-line Sapphire). With a metallic powder blue upperside it is one of the most attractive Lycaenids occurring in South Africa.
Photos: Dave McDermott



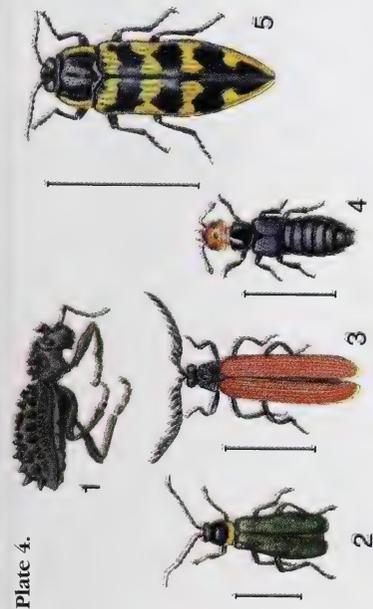
Plate 3. Moth caterpillars from North Shore, Sydney.

Top: *Psillogramma menepbron* (Sphingidae)

Right: *Doratifera vulnerans* (Limacodidae) with cocoon on Eucalyptus



Plate 4.



Beetles from the North Shore of Sydney Harbour.

1. *Acantholophus spinosus* (Curculionidae);
2. *Chautilognathus lugubris* (Cantharidae);
3. *Porrostoma rhipidium* (Lycidae);
4. *Creopbilus erythrocephalus* (Staphylinidae);
5. *Cyria imperialis* (Buprestidae)



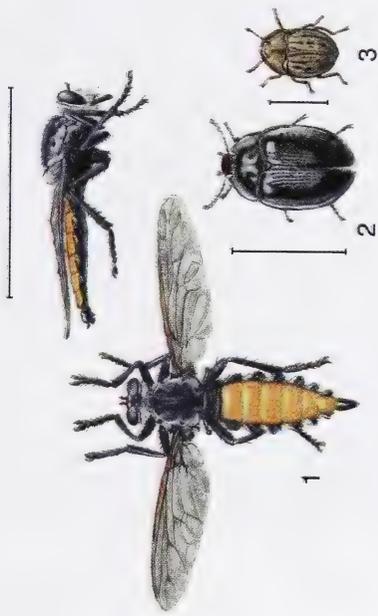
Beetles from eastern New South Wales.

1. *Rhyssonotus nebulosus* (Lucanidae) male, Sirius Cove, Sydney;
2. *Hesbthesis ferruginea* (Cerambycidae) Ku-Ring-Gai Chase;
3. *Pamborus alternans* (Carabidae) Dorrigo Plateau.



Beetles from forest in east New South Wales.

1. *Agrionome spinicollis* (Cerambycidae) Wingham;
2. *Chrysolophus spectabilis* (Curculionidae) Ku-Ring-Gai Chase;
3. *Zopherostis georgeti* (Zopheridae) Dorrigo Plateau;
4. *Hyperion schroeteri* (Carabidae) Taree



Insects from Lake Cowal, New South Wales.

1. *Blepharotes cortareus* (Asilidae) Female;
2. *Pterobelaesus planus* (Tenebrionidae);
3. *Heleatus tuberculatus* (Tenebrionidae)

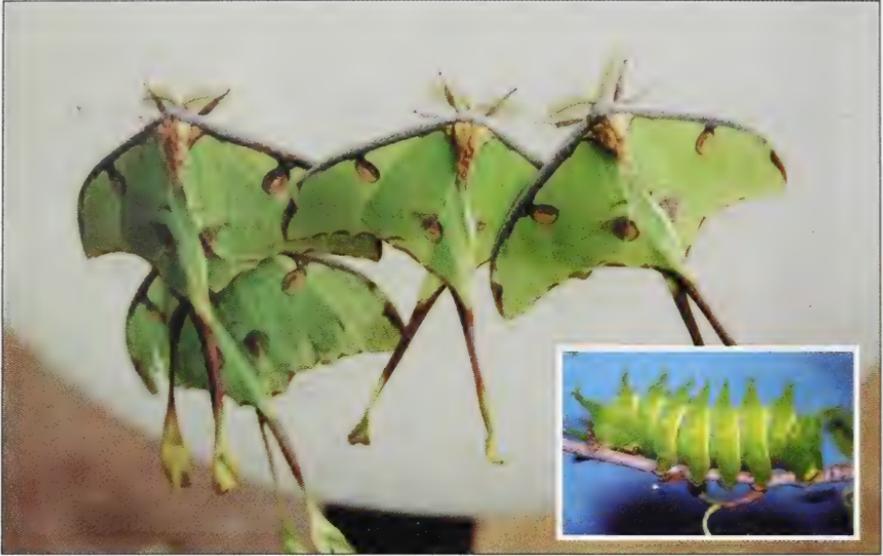


Plate 5. A wonderful sight to find in the morning. There were 13 Moon Moths (*Argema mimosae*) on this lamp in total. The larvae are common in our garden but very hard to spot.

Photos: David Haggett



Plate 6. Not only unusual with its many spines but also the largest Spangid larvae to be found in Africa. *Lophostephus dumolini* has a prodigious appetite. Photos: David Haggett



When submitting records, please bear in mind that we do query records of the more difficult species and may ask to see a voucher specimen. Data supplied in machine-readable form is most readily absorbed into the database, and we often get asked how those data should be presented. We therefore suggest that the columns are set up as follows:

Site Name	Vice County	Grid reference (or postcode if a garden)	Species	Date	Number of Sex – m or f	individuals (optional but helpful)	Notes e.g. flowers visited
-----------	-------------	--	---------	------	------------------------	------------------------------------	----------------------------

As an alternative, we can take data as a list of species for a particular site on a particular day – this is relatively easy for us to enter. What is more difficult is a list of sites for a species – it is much more time-consuming and prone to errors.

Related activities

The Hoverfly Recording Scheme is one of a suite of recording schemes that fall under the umbrella of Dipterists Forum www.dipteristsforum.org.uk, which is affiliated to the British Entomological and Natural History Society. The Forum runs regular field meetings, including a week-long residential summer field meeting and shorter meetings in the spring and autumn (see website for 2006 venues and dates). The field meetings, whilst primarily aimed at dipterists do also attract a range of other entomologists, especially Coleopterists and Hymenopterists. All are welcome – we accommodate the expert and the novice equally happily. In addition, an annual general meeting and weekend identification workshop complete the portfolio of meetings.

References

- Ball, S G, & Morris, R K A 2000. Provisional atlas of British hoverflies. Biological Records Centre, Huntingdon.
- Ball, S G, & Morris, R K A 2004. A mark-release-recapture study of *Volucella bombylans* (Linnaeus, 1758), *V. inflata* (Fabricius, 1794) and *V. pellucens* (Linnaeus, 1758) (Diptera: Syrphidae). UK. *Dipterists Digest* (Second Series) **10**(2): 73-83.
- Ball, S.G. & Morris, R.K.A., (in press). Britain's biggest hoverflies – the genus *Volucella*. *British Wildlife* (2006).
- Morris, R K A, & Ball, S G 2004a. The changing Distribution of *Volucella inanis* (L.) (Diptera: Syrphidae). *British Journal of Entomology and Natural History* **16**: 221-228.
- Morris, R K A, & Ball, S G 2004b. Sixty years of *Volucella zonaria* (Poda) (Diptera: Syrphidae) in Britain. *British Journal of Entomology and Natural History* **17**: 217- 227.
- Morris, R., 2005a. Square-bashing in mid-Wales in August 2004. *Hoverfly Newsletter* **39**: 8-10.
- Morris, R., 2005b. Diary of a square-basher: the Scottish Borders in late May. *Hoverfly Newsletter* **40**: 7-9.
- Morris, R., 2005c. Diary of a square-basher: the Trossachs & Mull of Kintyre. *Hoverfly Newsletter* **40**: 9-12.



Mauritius and its Butterflies

by Rob Parker (5247)

66 Cornfield Road, Bury St. Edmunds, Suffolk IP33 3BN.

Everyone knows Mauritius as the island that had the Dodo until the arrival of European settlers, and some will know that Gerald Durrell paid a visit to conserve the endemic pink pigeons and golden bats. Since then, the island has surrendered its economy to tourism, and so it was that my wife and I found ourselves fancying ten days on a tropical island.

We went (1-10 Nov, 2005) at relatively short notice, so my entomological preparations were less than thorough until my good friend Eddie John put a copy of *The Butterflies of Mauritius* into my hands. Isolated from mainland Africa, some 1350 km beyond Madagascar, it is unsurprising that the butterfly fauna is impoverished, but includes a high proportion of interesting endemics. The paper in question, Davis & Barnes, 1991, answered my prayers just a week before we flew out. It is the work of Matthew Barnes, FRES and Peter Davis, who lived on the island from 1976 to 1980. They provide an annotated checklist of all species ever recorded from the island, with three plates of miniaturised colour illustrations as an aid to identification. The wonders of modern communications allowed me an email exchange with the author in the days before we went.

The Mauritius list, at 37 species, is short but surprisingly varied, with an odd mix of African species, migrants like the Plain tiger and Short-tailed blue, nine endemics and a handful of oddities quite unfamiliar to me. Only 25 of these are at all common and likely to be seen by the ordinary visitor. The remainder are said to be either casuals, extinct, nearly extinct, or only recently established. Armed with this knowledge and a digital camera, we embarked for the twelve-hour overnight flight with Air Mauritius.

From the delightfully named Sir Seewoosagur Ramgoolam airport to our hotel at the northern tip was a diagonal across the island, a drive of just an hour and a half, during which we saw unexpected extremes of weather – from fog and rain to clear tropical skies, and a great diversity of lifestyle – from mosques and Hindu temples to luxury hotels. The difference between wealth and reality was clear, as was the extent to which the natural ecosystems had been bulldozed away to make way for sugar cane plantations. We took a late afternoon stroll along the beach, and the first butterfly we saw was a tiny blue that flopped, exhausted, on to the wet sand, from where I was able to pick it up and



identify it as *Leptotes pirithous*, Lang's short-tailed blue, a butterfly I know from the Mediterranean. Soon after, I was delighted to find 15 of them roosting on one branch of a shrub at the roadside. They proved to be the most abundant butterfly on the wing during our stay. We saw clouds of them everywhere, and the more scarce blues were able to lurk undetected amongst them.

The following morning we took a walk along the coast road, and soon saw an orange fritillary – this was easy to identify, since the only fritillary on the island is *Phalanta phalantha*, an Oriental and African species which I had never seen before. Amongst the scrub, we noticed what looked from a distance rather like small Clouded Yellows. They are actually in the genus *Eurema*, and two are found on Mauritius. On inspection, all that we saw were *Eurema floricola*, which has a black border to the upper surface of its forewing, but not to its hindwing. The underside was pale, with small flecks reminiscent of a Brimstone moth. It should have been accompanied in the same habitat by its cousin, which *does* have a broad black border to both wings, and looks exactly like a miniature male *Colias*, but despite keen observation, this never put in an appearance. As it got warmer, we felt a need to sit on the beach to take in the glorious colours of the sea, the breakers on the coral reef and the distinctive shape of the Coin de Mire island offshore. Just as I was feeling guilty about curtailing my butterflying, the distinctive form of *Papilio demodocus*, the Citrus swallowtail, drifted past. We had arrived!

We made good use of cheap local buses to get around, and explore further afield, enjoying a walk north of Goodlands, where we saw our first *Junonia rhadama* at ankle level. Superficially like a small Purple Emperor, it settled at the roadside, offering a good view of its purple upper surfaces. It was a perfect specimen, but it stayed put for less time than it took to get the camera into action, and flitted off amongst a tangle of brambles. Believed to be an introduction, *J. rhadama* is said to be common, but we must have been ahead of its main flight period. We did see it again, but that first glorious view was never repeated.

Every morning breakfast around the pool was a delight, as we were joined by so many cheeky songbirds. Red-whiskered bulbuls would swoop down and settle on the rim of a glass to drink the orange juice, red Cardinals took the place of sparrows as crumb scavengers and Indian Mynahs would fluff up their feathers and call out for more bread. Yellow serins joined this fray, and later we found them weaving their amazing nests in trees nearby. They seemed to favour leafless trees, and there would be 20 or 30 coconut-sized nests dangling



precariously in one tree. The insistent wind brought many of them tumbling down before any eggs had been laid.

By now, I was getting to grips with the blues, eight species in all, although there was sufficient wind to make it difficult to spot "the odd one out" amongst a flurry of *L. pirthous*. After a clear sighting of *Lampides boeticus*, the familiar Long-tailed blue, I saw another that looked too large, with twisted tails. It was several days before one sat obligingly still, so that I could confirm that it was indeed *Virachola antalus*, an African butterfly new to me. Also present was the diminutive *Zizeeria knysna*, familiar to me from Cyprus (as *Z. karsandra*) and *Zizula hylax*, which was even smaller. Neither of these have any orange on the underside, but I kept seeing some that did, and eventually realised that this was *Zizina antanossa*. Taxonomists seem to favour the Zs when it comes to naming tiny blues!

The Botanic Gardens in the village of Pamplemousses has a well-deserved reputation for its palm collection, and an amazing variety of alien trees, not to mention its much-photographed water-lilies, so we decided to spend a whole day there. During the guided tour I spotted two black umbrellas high in a tree. They seemed to be far too big to be bats, but Mauritius fruit bats they were. When the guide told us that they shoot them, I assumed it was because they are considered pests, but I later discovered that they get eaten! Another large black flying object was one of the "blue" swallowtails, *Papilio manlius*, which flew around a clump of bamboo, passing under our noses several times. I sought out another shady glade with bamboo in search of a particular Satyrid, and was pleased to find half a dozen *Henotesia narcissus*, a sort of "Mauritius gatekeeper". Until this moment, we had not seen a single skipper, though there are five species on the list, three of them rather unusual. In full sun, in a more formal part of the garden, I suddenly got lucky. Something a bit eggar-like whizzed about my ears and settled on the blossom of a nearby tree until I got close, then it shot out and landed on some lantana flowering in a bed. I managed a decent view, and it was certainly a female *Eagris sabadius*, larger than any European skipper, though not enormous by African standards. On the same lantana, I later photographed another species of blue, *Cacyreus darius* I think, though mine was not as boldly marked as the illustration in the paper.

Evenings were a time to relax on the patio before dinner, and we had a share of wildlife there too. Shortly after dusk, tiny geckos would emerge from cracks in the woodwork and the housing of the light on the porch. At six-forty five, a small mammal would streak along the



frame of the french window. By the last evening, we had got him trained to stop for a snack of crumbs whilst I tried to figure out whether he was a mouse or a shrew. Under the larger ceiling of the outdoor ping-pong zone, we counted 31 pinkish geckos one evening. Curiously, we did not see any moths at night. The one Noctuid I spotted was being eaten by a bird in daylight.

Big whitish butterflies seen at a distance were obviously *Catopsilia* of some sort, but there were two species on the list, both with distinct male/female differences and a second female form, making six variants to be found. After a while, I realised that I was seeing only male *Catopsilia florella*, the African migrant – no females, no variation at all. They were not all that easy to net, but after a couple of days spent chasing them, I had not found anything else. Perhaps it was the time of the season, but the males were both fresh and worn, so the reason is not entirely clear.

The underwater world was wonderful. From the glass-bottomed boat over the reef, schnorkelling from a catamaran amongst a myriad of colourful tropical fish and down to “Captain Nemo’s Undersea Walk”, we saw plenty to distract us from Lepidoptera. The undersea walk was particularly memorable, and allowed us to walk with weight belts and divers’ helmets with air lines, in about four metres of water, at the edge of the reef, hand feeding large tropical fish.

The town of Curepipe, pronounced Cue-pip, has the crater of an extinct volcano in one of its residential suburbs, and nearby lies another botanic garden. In the scruffy hinterland behind the public paths, we found a wild grassy zone in partial shade, and here we had our best sightings of *Melanitis leda*, a large Satyrid which looks a bit like a giant Meadow brown, but behaved in a much more reclusive manner, flitting powerfully out of the undergrowth and disappearing somewhere at ground level. We got four such glimpses, but no proper look. I believe it rests in trees, moving only when disturbed, and this was certainly the case a couple of days later, when I saw one fly out of a garden shrub being pruned with a machete.

The most natural part of the island is the Riviere Noire nature reserve in the southwest. This is where Gerald Durrell went to start the captive breeding programme for pink pigeons, and where I wanted to find what I called the Mauritius glider. It is very like the Hungarian glider (*Neptis rivularis*) but the white bands are replaced by gingery brown. We started at the top of the reserve at Le Petrin and I was pleased to find a photograph of the butterfly on display in the visitor centre. The warden told me it had been taken nearby, although it was not as



common as it had once been. It was hot, and there was very little flying as we set off along the trail at the top of the gorge. When we came into the shade of a forest ride, suddenly there were hundreds of the gatekeeper-like butterfly we had seen earlier, and my wife said that its colouration was all too similar to that of our quarry. I responded by saying that a glider would be seen at head height, flying with the elegance of a White Admiral, and not messing about in the grass like *H. narcissus*. Just minutes later something detached itself from a branch above our heads and gave a demonstration of precisely that. We lost it for a few minutes, but when it returned, it helpfully settled at shoulder height, sunned itself until I had a good photograph, and then half closed its wings so that I could get the undersides too. I suppose I was childishly delighted to have found this rather special endemic – probably my best memory of Mauritius.

We stopped at the tourist viewpoint overlooking the gorges and waterfall, where the vista included a soaring pair of the elegant white long-tailed Tropicbird, *Phaethon lepturus*, known locally as the Pailleen-Queue, and adopted by Air Mauritius as its symbol. As well as a family of wild monkeys, we also added a dark skipper, *Borbo borbonica*, which resembles the Millet skipper, which I know from Cyprus.

A walk down the beach towards the resort of Grand Baie brought our first glimpse of *Danaus chrysippus*, the Plain tiger, and this was confirmed later in Grand Baie, when one flew three laps around my knees. Although it did not stop, I saw enough to be sure that this was a rather small (island form) of *D. chrysippus*, and not its mimic *Hypolimnas misippus*, which is also found on the island (but not by me). The beach was also the place where I found the larvae of a day-flying moth that I called the gold & crimson spotted footman. Whenever something at a distance looked a bit like a small White, it turned out to be one of these very attractive moths. A shrub that I could not identify growing at the edge of the sand was host to dozens of the moths and their browsing offspring. Quite often the wildlife was not intimidated by human presence, and a heron on the beach let us walk past it at a distance of three metres without flinching. It was an odd heron, with very short legs, so it became “the legless heron” (*Butorides striatus*, when I looked it up).

We saw plenty of lizards, some very long-legged, with a prehistoric appearance, but a good turn of speed across the open bundu. Once, looking up into a tall shrub, we saw a bright green plastic lizard with pink spots on its back. At least, it looked plastic, and yet it was not in a



joke situation, and no-one could have perched it at that angle. Eventually, I disturbed it, and it ran round to the other side of the branch. It was probably a day gecko, and although these are found on the other side of the island, they are described as very rare - certainly it was a bizarre creature.

Our ten day holiday was thus a naturalist's delight, and I was particularly pleased to have found 19 of the 25 butterflies on the reasonably possible list. I could never have identified them had it not been for Matthew Barnes' paper. It was windier than I had expected, and rain was frequent, but short-lived. The weather in paradise might be better, and there ought to be more species, so our search continues ...

References

- Davis P.M.H., & Barnes M.J.C., 1991. The Butterflies of Mauritius. *Journal of Research on the Lepidoptera* 30(3- 4): 145-161.
- Durrell, G.,1977. "Golden Bats & Pink Pigeons". Collins.



Staffordshire Humming-bird Hawkmoths

by Jan Koryszko (6089)

3 Dudley Place, Meir, Stoke-on-Trent, Staffordshire ST3 7AY.

During mid-June to mid-July 2005 in the Potteries, Stoke-on-Trent, Staffordshire, we experienced a large number of Humming-bird Hawkmoths (*Macroglossum stellatarum* Linn.) in gardens, parks, and in the shopping centres of towns. The local newspaper published a number of sightings by its readers proving that these migrant moths had been seen all over Staffordshire and the surrounding areas. The first sighting for the Meir area where I live came from the garden of Mr Richard Heath on 22nd June 2005, followed by two sightings in my garden on 3rd and 7th July 2005. Other sightings came from neighbours in the area. By mid to late July the mini-migration was over. The weather conditions over this period were favourable. Odd reports came in August and early September - no doubt other parts of the country had similar observations.

A most interesting record of Humming-bird Hawkmoth came from The Lizard Peninsula, Cornwall on 9th September 2005. This was taken in a light trap during the evening, these moths are not often taken in light traps.



Field Meeting in Suffolk – 27th August 2005

by Rob Parker (5247)

66 Cornfield Road, Bury St. Edmunds, Suffolk IP33 3BN.

AES field meetings are few and far between, so when one was arranged in Suffolk it was an opportunity to seize. Little Blakenham lies in the Gipping Valley, and the three acre site is the private estate of Phil Wilkins (Yes, your council member and *Bulletin* editor). One attraction of the visit was the chance to be shown a few of the less familiar Orders.

27th August was warm and still. Although it was rather late in the season for butterflies, it offered good prospects for damp meadow insects in general. It was nice to see members of The Bug Club who had travelled from London and one member of the Suffolk Naturalists' Society. Inviting local societies to participate in such events seems a good way to extend AES influence.

We started with a look at the results of the previous night's moth trapping. A wide variety of species from several families made an attractive selection for identification by the Bug Club members. Whilst at this task, an old oak log used as a doorstep for the barn was noticed to be riddled with solitary wasp burrows, currently in use by *Ectemnius* sp. Some fly corpses littered the entrances to the holes. Moving into the old paddock to join the three Dexter cattle grazing there, we found ourselves searching cow pats for dungflies (few) and a surprising number of beetles from the tiny, but attractive *Sphaeridium scaraboeides* to its big cousin *Geotrupes* sp.

A Speckled Bush Cricket began a goodly range of Orthoptera, including Meadow grasshoppers, Common Field grasshoppers and Long-winged cone-heads, followed, as we moved into the damper grassland, by Slender Groundhoppers and then excellent views of both male and female Rosel's bush crickets. Watercourses provided water mint with plenty of Mint moths *Pyrausta aurata*. They also offered pond-dipping opportunities for the Bug Club, whilst the adults looked out across the reedbeds to see Brown Hawkers, one Southern Hawker and more numerous Migrant Hawkers as well as an abundance of Common Darters. Although we did not see any Red-eyed damselflies, Phil told us that they live in the adjacent Suffolk Waterpark, and can often be found roosting on his bramble in the early part of their season. This is not the place that most of us would look for this species, which is usually spotted resting on the leaves of water-lillies.

By now, we had seen Large and Green-veined Whites, a late Meadow Brown and a couple of Speckled Woods, and a walk through the



vegetable garden – organic these past ten years or more. Here the brussels sprouts and nasturtiums played host to the larvae of Small and Large Whites, the latter accompanied by the cocoons of the *Apanteles* wasp that is their regular parasite. Several Rove beetles, including the distinctive Devil's Coach-horse, prompted me to think that this small patch was home to a diverse range of invertebrates, many more than would be expected in the surrounding agricultural land.

Another creature that was a joy to watch was the young human – a small tribe of tomorrow's entomologists learning their field craft, using sharp eyes and nimble fingers to scoop insects from the undergrowth. Nice that the AES is doing its bit to educate and encourage.

Editor's Note: A full species list with scientific names of species found can be obtained from the Editor



An interesting colour form of Bee moth at light

by Jan Koryszko (6089)

3 Dudley Place, Meir, Stoke-on-Trent, Staffordshire ST3 7AY.

On the evening of 18th June 2005, in the company of R. H. Heath and Derek Heath, we set a light trap up in Derek's garden. The night was warm and sticky. Derek lives only a mile away from my house in the Meir. The catch was quite good. At around midnight, close to a dozen moths of the pyralid (Bee Moth, *Aphomia sociella* Linn.) came to light. Males and females of this moth are sexually dimorphic in appearance and this species is becoming much more widespread in Staffordshire with the larva living in nests of bees (*Bombus* spp.) and wasps (*Vespula* spp.). They favour nests which are above ground and when present, larva are extremely abundant. They feed at first on old cells and debris in the nest and later attack the comb and the brood itself, often riddling the nest with silk-lined tunnels. The tough, brown, papery cocoons are often formed in masses in these tunnels where they hibernate, pupating in the spring. See *British Pyralid Moths. A guide to their identification* by Barry Goater (Harley Books, 1986).

We examined all the Bee Moths and we found a very interesting female, the forewing was tinged with light green and with traces of light green with the typical pale fuscous darker towards the the apex of the hindwing. We had not seen one like this before. We released all the moths after examination. I wonder whether this colour form may be due to the larval conditions in the bee or wasp nest?



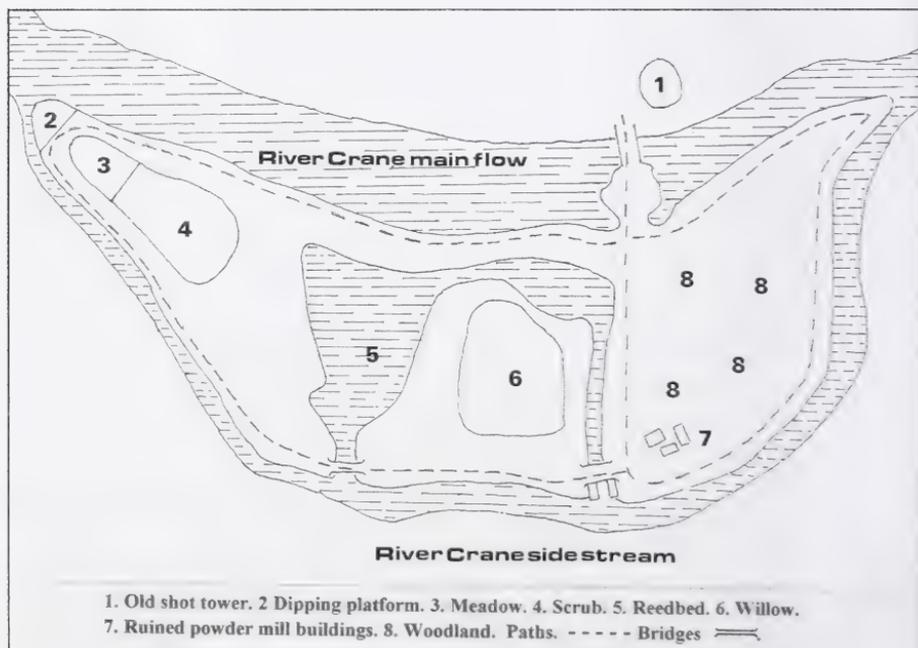
Carabus granulatus Linnaeus 1758. Middlesex site of the late Peter Cribb's beetles identified

by Keith C. Lewis (3680)

Top Flat, 108 Park View Road, Welling, Kent, DA16 1SJ.

Readers may recall my notes to the *Bulletin* volume 64, number 462, pages 217-218, concerning a number of *Carabus granulatus* beetles collected by workmen while clearing dead and moribund trees and scrub along a stretch of the river Crane during 1964. The beetles had been given to Cribb over a period of a few days in tins that he had supplied. When my above notes were published in the *Bulletin* I was unable to say for certain if the site I had drawn in my map was correct but I am now convinced, due to a letter from Paul Mabbott, that Crane Park and the River Crane is the site from which the beetles were found although Cribb's house was always only approximate.

The two records sent to me from Paul are (1) Jon Cooter, 1964, and labelled Crane Park, (2) an anonymous collector labelled Crane River, 1964, submitted by Martin Luff. Paul suspects the latter record is a Peter Cribb record?





Cribb could have collected *Carabus granulatus* beetles along some other part of the river Crane but the site shown in my map suggests to me that the area was subject to flooding during the winter and Crane Park/River definitely identified. I have also received, 13th February a letter from Dr Gerald Legg, Keeper of Natural Sciences at the Hove Museum, Brighton, in reply to a request to look at Cribb's *Carabus granulatus* held in the museum. He kindly informed me that one beetle only is marked "Crane Park, Middlesex, February 1964; Cribb, and M. (R?), Hornwork", this latter name could have been the name of the council Foreman that Peter Cribb gave his collecting tins to. This latter record confirms to me that Crane Park was indeed the site of *C. granulatus*. The only other mystery is what happened to the rest of the beetles captured in February 1964, they could be in your collection or museum?

The Crane Park, Island Nature Reserve, and visitor centre at Whitton is managed by the London Wildlife Trust. To contact them the phone number on their web page is incorrect and should read 020 8755 2339, or go to their website at <http://wildcrane.users.btopenworld.com/>

I am informed that L.W.T. may look over the site this year 2006 to see if any *Carabus granulatus* beetles can still be found.

Acknowledgements

I would like to thank Paul Mabbott for the two 1964 *Carabus granulatus* records from Crane Park and Crane River site and Dr Gerald Legg, Keeper of Natural Sciences, Booth Museum, Brighton for looking at H. J. Cribb's *Carabus granulatus* specimens for me.

References

- Lewis, Keith, C. *The Bulletin* 2005, volume 64, number 642, pages 217-218.
Cribb, Peter, W. *The Bulletin* 1964, volume 23, number 264, pages 85-86.
Jurgen Trautner and Katrin Geigenmuller. 1987. *Tiger Beetles, Ground Beetles*. Published by Josef Margraf.
The Booth Museum, 194 Dyke Road, Brighton, East Sussex, BN1 5AA.





Locations of *Urocerus gigas* Linnaeus. Hymenoptera, Siricidae. *Sirex gigas* in old Literature. The Great Horntail Woodwasp

by Keith C. Lewis 3680

Top Flat, 108 Park View Road, Welling, Kent, DA16 1SF.

The female *Urocerus gigas*, 24-44mm in length, is among one of the largest of the woodwasps found in Europe, Asia and temperate North Africa. The male is much smaller, 12-32mm, and is not so often seen as it frequents the tops of trees coming down rarely or to mate. The female, see watercolour 1, is on the wing from July to October approximately, and can often be found drilling into moribund pine trees, or logs of recently felled timber. When depositing her fifty to one hundred eggs laid in small batches the ovipositor drills into the wood to a depth of some five to ten mm, the larvae taking about two to three years to develop below the wood surface. A good line illustration of this insect can be found on page eleven of the AES *Hymenopterist's Handbook*, volume seven, although one should note that the arrow pointing to the compound eye is incorrectly placed and is in fact pointing to the yellow patch on the head just behind the compound eye.



Urocerus gigas L.
The Giant Horntail Wood Wasp



Records

Date.	Location Habitat where stated.	Approx map ref.	Collector/Determiner	Sex.
00.07.1887	Enfield, Middlesex. from timber yard nearby?	TQ3194.	Sykes H. D.	Not known.
30.07.1888	Petersfield, Hampshire. Telegraph posts.	SU7423.	Bull H. E. U.	Not known.
00.07.1888	Berkhamstead, Hertfordshire. on larch log.	SP9707.	Carrington J. T.	Female.
00.00.1919	Dead near the Strand, Westminster, London.	Unknown.	Ash D. V.	Not known.
00.00.1919	Reigate, Surrey.	TQ2551.	Young A. E.	Not known.
00.06.1919	Hook, Surrey.	TQ1865.	Box L. A.	Female.
00.07.1919	Twickenham. Alighted on lady's skirt.	TQ1673.	Curwen B. E.	Not known.
09.06.1928	Camberley, Surrey. Ovipositor in larch log.	SU8861.	Green E. E.	Female.
00.00.1930	Oxshott, Surrey.	TQ2461.	Not known.	Not known.
00.00.1947	Aishlt, Somerset.	ST3916.	Wild E. H.	Not known.
27.06.1952	Stanham, Norfolk.	TG3724.	Gardner A. E.	Not known.
00.09.1952	Colchester, Essex.	TL9825.	Blaxil A. D.	Not known.
18.10.1954	Wisley, Surrey.	TQ0758.	Classsey E. W.	Not known.
00.06.1960?	Windsor, town. Seen flying at a bus stop.	5119576.	Allen A. A.	Female.
03.08.1961	Bexleyheath, Kent. Flying low in garden.	TQ4476.	Lewis K. C.	Female.
20.06.1965	Joydens Wood, Kent. Ovipositor in pine log. -	TQ501715.	Lewis K. C.	Female.
00.00.1991	Wisley, Surrey.	TQ0758.	Haistead A. J.	Female.
29.07.1991	Wisley, Surrey.	TQ0758.	Halstead A. J.	Male.
22.05.1992	Reading, Ten miles south of Emergence holes.	Unknown.	Baker B. R.	Not known.
16.08.1992	Mickleham, Surrey.	TQ0753.	Majerus M. E. N.	Female.
07.06.1993	Wisley, Surrey. See notes (1).	TQ0758.	Halstead A. J.	Female.
03.05.1997	Bix Bottom, Oxfordshire. See note (4)	SU720879	Sims L. K.	Larvae?
16.08.1997	Danson Park, Welling Kent. See note (2)	TQ4675	Lewis, K. C.	Female.
07.08.2005	Dartford Heath, Kent. in garden. See note (3).	TQ5174	Williams T. J.	Female.

Notes

(1) and (3). The Wisley and Dartford Heath records were of a woodwasp flying low over the ground over which pine wood chips had been laid as a mulch.

(2). Danson Park record was of a woodwasp flying low over unknown wood chips, due to rotting. They had been used to fill and soak up water from a large puddle on a path.

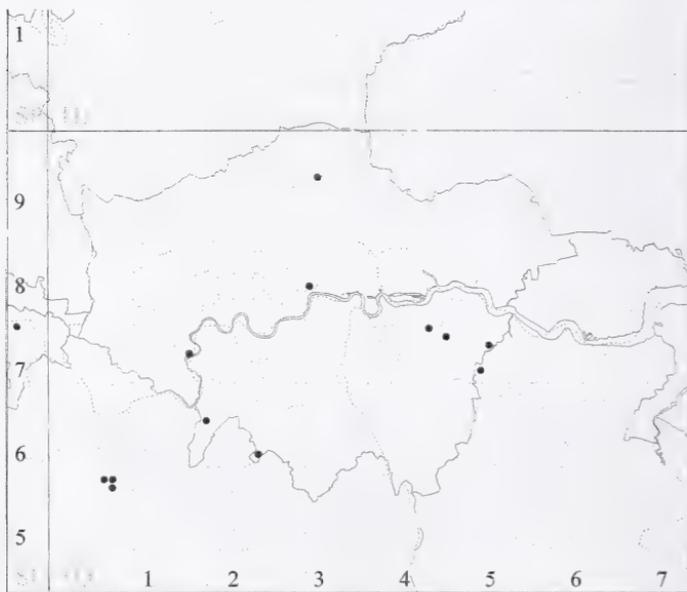
(4). Although no woodwasps were seen its main host-parasite *Rhyssa persuasoria* L was observed, both males and females, the later drilling into the wooden fencing.



The only woodwasp to be captured by the writer was caught in Joydens Wood, Bexley, Kent, a large area of mixed pine trees. The wasp was netted in the act of drilling into a very large Scots pine log that was devoid of bark and had been cut and left in the same position some five years previously.

The pine timber was found to be extremely hard even after being exposed to the weather for so many years, and was due, I think, to its position at the top of a steep slope on well-drained earth of the Blackheath Beds that consists of sand/earth and pebbles and at times fossil Eocene shell.

I would be most interested to receive any new or old records from British Isles only from ABS members or any other societies that may read my notes. Only the map of Greater London has been produced, map 1.



Urocerus gigas. (The Greater Horntail Wasp in Greater London. Map 1)

References

- Betts C. 1986. *The Hymenopterist's Handbook*, Volume 7. Published by the Amateur Entomologist' Society, Second edition 1986. pages 22, 33, 75.
- Bull H. E. U. 1888. *The Entomologist*, Volume 21, page 235.
- Halsted A. J. 1994. *British Entomological and Natural History Society*, Volume 7, page 28.
- Jenner J. H. A. 1888. *The Entomologist*, Volume 21, page 214.
- Sykes H. D. 1888. *The Entomologist*, Volume 21, page 323.
- Zahradnic Jiri. 1977. *A Field Guide in Colour to Insects*, page 216.



Moths recorded 30 April – 3 May 2004, Langenfeld suburbs, Dusseldorf, Germany

by Paul Waring (4220)

Windmill View, 1366 Lincoln Road, Werrington, Peterborough, PE4 6LS.

The main aim of this short note is to encourage members to take a light-trap and report their results on any trip they make to foreign parts, no matter how brief. The information is always needed in the preparation of accurate distribution maps and may be of use in other ways. A second aim is to remind members of the existence of SEL (Societas Europaea Lepidopterologica – the European Lepidopterists' Society), through which they can find out about the Lepidoptera and the activities of lepidopterists in other European countries (see www.socourlep.org).

A family visit to friends in Langenfeld, Dusseldorf, on the first May Bank Holiday weekend of 2004 provided me with the opportunity to find out how light-trapping in a suburban German garden compared with my garden in Peterborough at roughly equivalent latitude. So my trusty "Waring Tropical" trap (see Waring, 1999, *Bull. AES* **58**: 103-105) was slipped into the family luggage between a couple of shirts. Our friends' garden is one of many similar ones on a housing estate established about twenty years ago. As in British suburbs, the plot is small and mainly lawn, with shrubbery and herbaceous borders. The majority of the plants were also familiar from British gardens, but much greater use was made of flowering shrubs such that these were the predominant feature. This is in marked contrast to the more open lawns with flower borders in British housing estates established in the same era. On our visit purple-flowered lilacs were in full bloom and no more than a day or two ahead of those in my garden, as were various types of apple tree. Common Hawthorn *Crataegus monogyna* was just coming into bloom, as around Peterborough, and Swifts *Apus apus* had just arrived and were calling loudly as they raced up the roads. The leaves on the oaks, beech, hornbeam and limes in the area were just about fully expanded and our friends said this had all taken place in the last two weeks, as at Peterborough. The trees in their garden comprised a cherry, some apple trees, some small exotic conifers and there was much Ivy *Hedera helix* around the lawn. So what would the garden produce, and would there be any unfamiliar species over the four days we were there? The answer was that all the moths seen in the light trap were old friends and the catches were small and about the same size as in Peterborough at this time. The most unusual species



Moths	30 April	1 May	2 May
Maiden's Blush <i>Cyclophora pendularia</i>	—	1	—
Garden Carpet <i>Xanthorhoe fluctuata</i>	—	1	—
Brindled Pug <i>Eupithecia abbreviata</i>	—	1	—
Pale Mottled Willow <i>Paradrina clavipalpis</i>	—	1	—
Muslin Moth <i>Diaphora mendica</i>	—	—	2

was a fresh Dewick's Plusia *Macdunnoughia confusa* found at rest on a garden wall while returning from a walk on the Sunday morning (3 May). This is a rare immigrant to Britain. For the record, the catches are tabulated above. At present, I do not know the extent to which light-trapping and other moth recording has taken place in Langenfeld previously, but I would hope to be able to find out through contacts in SEL. I ran a light-trap in the same garden on a single night in 1994, en route to the Czech Republic to attend an SEL Congress (see Waring & Thomas, 1995, *Bull. AES* 54: 66-76) but I caught only a short list of unremarkable species, all of which are also resident in Britain. Obviously with more trapping and larger sample sizes, I would hope to detect a number of species which have not been recorded in the British Isles. I shall certainly take the trap if I have further opportunities to visit. Incidentally, the only species of butterfly I saw in Langenfeld during the four-day visit in 2004 was the Small White *Pieris rapae*, of which a number were noted during several walks through gardens, parks and along hedgerows in the area.

I would like to thank for their hospitality our friends and hosts Anne and Paul Abrams, who live in Seidenweber Str., 40764 Langenfeld, the address at which the moths were recorded.

Moths recorded in actinic light-trap in small garden in Langenfeld, Dusseldorf, Germany, 30 April-2 May 2004.





A few notes of items of interest from a week's holiday in Jersey, August 2005

by J.R. Beaumont (7331)

26 Hawkroyd Bank Road, Netherton, HUDDERSFIELD, West Yorkshire, HD4 7JW.

I like Jersey. Just when you think there is nothing new after 30 years of light trapping, it is like a breath of fresh air. Everyone should go to Jersey at least once – it is like the Isle of Wight but with an exotic twist.

I was driving along the road listening to BBC Radio Jersey when suddenly life got interesting. A gentleman was talking about the pheromone trapping program on Jersey. He said “Green plastic traps had been placed around the coasts in order to attract male Gypsy Moths. Last year [= 2004], these traps had caught about 10,000 Gypsy Moths. This year [= 2005] we are trying something different. We are filling traps with powder containing female hormone and letting the males go. The idea is that the males will be attracted to the traps and become dusted with the powder when they visit them. Then the hope is that the female Gypsy Moths will not find a mate because all of the males will be chasing the males that have been contaminated by the powder containing female hormone.”

After I had listened to this program, I was amazed at the numbers of Gypsy Moths stated and wondered how they had got to Jersey? According to Skinner (*Moths of the British Isles*) female Gypsy Moths do not fly!

Other items of interest included a Chocolate-tip Moth on my hotel room window and a Humming Bird Hawk Moth sunning itself on a wall at 9.45a.m. Also, large numbers of Black Arches were seen at House Lights.

Reference

Skinner, Bernard, *Colour Identification Guide to Moths of the British Isles*, published by Viking





Book Reviews

New Naturalist Bumblebees

Ted Benton, 2006. 580 pp., 246 figures (mostly colour photographs). ISBN 0 00 717450 0 (Hardback) 0 00 717451 9 (Paperback). Published by Harper Collins, London. Price: £45 (Hardback), £25 (Paperback). Available from most booksellers.

This book is a major work however you look at it. It is the latest in the ever-popular New Naturalist series from Collins. Despite being long, thoroughly researched and scientifically rigorous, it is eminently readable. It is one of those books that is a pleasure to review. There have been several recent popular guides to bumblebees. This is the book for those who want to take their interest in these hymenopterans that bit further.

The book starts with a general overview and introduction. I found this to be the weakest part of the book – so do not be put off the rest if you do not like this chapter. It does, however, help to put bumblebees into context.

After the introduction, the author leads you through various fascinating aspects of bumblebee lives, highlighting what we know, what we can infer from studies of other insects (notably honey bees) and the vast amount of behaviour, etc that is still a mystery. There are chapters on the life cycle and colony dynamics, psychology (closer to physiology really), cuckoo bees, predators parasites and lodgers, foraging, identification, species descriptions and conservation. The species descriptions include up-to-date dot maps of British and Irish distributions.

I thought I knew a fair bit about bumblebees, but I was constantly learning new information from this book. A superb feature of the book is the way that general features of the genus are set out first and then the author explores how individual species differ. As you read the book, you realise that the bees you observe, which only seem to vary by markings actually have profoundly different biologies and niches. It also helps to explain why some species are faring better than others. The section on conservation is well thought out and balanced.



Whilst the book is not intended to be a 'field guide' – it is too bulky (and you would not want to dirty your copy in the field), it has an excellent section on identification. There are some sensible approaches to separating the difficult species set out in such a way that you cannot really go wrong.

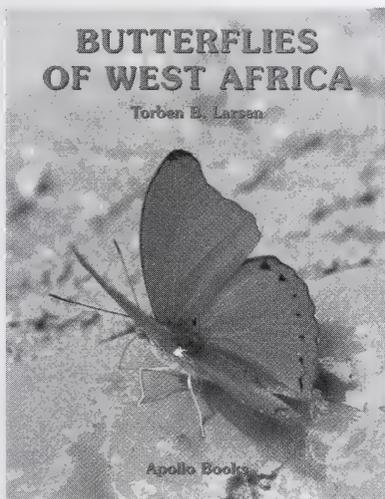
There are so many pieces to this book that would be enough to recommend it on their own merit – Ted Benton's excellent colour photos, a sensible identification guide, an overview of interactions within the colony (amongst bumblebees and their 'guests'), a conservation overview, the list goes on. Put all these elements together and the result is a book that every entomologist simply has to own.

Phil Wilkins



Butterflies of West Africa

Torben B. Larsen, 2005. Presented in a two volume set; Text volume: 595 pp., single colour plate and innumerable b&w illustrations; Plate volume: 270 pp., 125 colour plates. Both volumes hardback with 'wipe-clean' finish, 285 mm x 210 mm. ISBN 87-88757-43-9. Price: DKK 1280 (approx. GBP 116) excluding postage. Available from the publisher: Apollo Books, Kirkeby Sand 19, DK 5771 Stenstrup, Denmark. Phone: ++45 62263737, Fax: ++45 62263780. E-mail : apollobooks@vip.cybercity.dk Website: www.apollobooks.com



Just occasionally, books appear that are destined to become 'definitive' reference works to a particular country or group of countries. *Butterflies of West Africa* is such a book. It is not quite a lifetime's work, but it *is* the result of many visits to various African countries since the author's initial trip in 1967, which implanted a desire to discover more about the Continent's butterflies. Yet this aim was to remain unfulfilled for many years, as published works on the butterflies of several of the Middle East countries intervened and delayed serious



research for the West Africa book, which finally began in earnest in 1993. More than ten years work, and an estimated 5,000 km walking the forests of West Africa, have produced a book to treasure. Countries defined as being in West Africa are "... the fifteen countries that stretch from Senegal and Mauritania on the Atlantic to Nigeria and Niger in the east, touching also on the extreme western parts of Cameroun (Mauritania, The Gambia, Senegal, Guinea-Bissau, Mali, Guinea, Sierra Leone, Liberia, Burkina Faso, Côte d'Ivoire, Ghana, Togo, Bénin, Nigeria and Niger."

Approximately 1,450 species are illustrated and discussed. Of course, with so many species to illustrate and comment upon, the book is anything but a field guide. Furthermore, the weight of nearly 900 pages, plus substantial covers, points to the volumes being left on the shelf rather than accompanying an expedition to Africa – unless portage is part of the holiday package! But, levity aside, this is a very serious work further enhancing the reputation of a well respected author. In common, I imagine, with most *Bulletin* readers this reviewer has no experience of the butterflies of West Africa (my time in the Continent extends to little more than a four-month stay in Johannesburg – a city known more for its reputation than its entomological appeal), so comments will be confined to the general rather than the specific.

The choice of two volumes is an astute one, arising out of consultation with many interested parties. Every species is allocated a unique reference number common to both volumes – so, with both volumes open at a specific species number, it is an easy matter to compare, say, a written description of a species in Volume 1 with its corresponding photograph in Volume 2.

Text volume

Text is arranged in two columns, enabling comfortably easy reading and fast scanning to salient points. This is essential, for the book is exhaustive in its detail – with many pages (text volume) having no illustrations. Print quality (choice and clarity of type-face and quality of colour plates) is excellent and I question only the quality of reproduction of the Vegetation Map of Africa which, on my copy at least, shows somewhat less than crisp text.

An introductory section of 31 pages provides a most readable and interesting insight into *World Butterflies and Africa*, *African Butterflies and their Worldwide affinities*, *Broad African Butterfly Biogeography*, *History of Butterfly Collecting in Africa*, *The Sylvan and Open*



Formations of Carcasson, Migration, Threats and Extinction and, finally, *Conservation*.

The Systematic Part follows, with an introduction explaining how each of the species is treated (Identification characters, comments on Subspecies, Habits, Early stages and Distribution) and further sections listing abbreviations used throughout the book and finishing with a detailed gazetteer – the reading of which quickly affirms the author's extensive knowledge of the countries of West Africa. However, these last two sections are somewhat 'lost' in a wealth of text, rather than placed towards the front (or end) of the book, but at least their headings are clearly listed in the Contents table, so can be quickly found as necessary. The section concludes with a list of Afrotropical butterfly genera and their broad geographical ranges.

Page 71 leads into a further 475 pages of species' descriptions preceded by (often detailed) comments on Family, Subfamily, Tribe and Genus. In general, four to six species are discussed per page opening so, with few photographs used in this volume, much space is devoted to descriptions of each of the species. Where necessary, illustrations of a particular species' wing markings or genitalia assist with identification. Those familiar with Torben Larsen's style will not be surprised at the entertaining, yet authoritative, descriptions. It is unusual in such comprehensive reference books to encounter such an approach – but it works. Of the 1478 species listed, 18 are dealt with in an Appendix, which takes the form of a paper by Steve Collins and Torben Larsen entitled '*New species and subspecies of African Butterflies*'. The treatment of these species follows the now familiar format used throughout the book.

The text volume is completed by an extensive bibliography section, which includes no fewer than 16 pages of references (though not all are cited in the book) and an index of scientific names.

Plate volume

Most of the species described in the text volume are illustrated; exceptions are specimens in a condition too poor for useful photography, or where the text informs that identification can only be confirmed by genitalia examination. Butterflies are shown at natural size, though larger species are illustrated with the right-hand sets of wings only, in order to conserve space. Undersides are included where they are necessary to assist identification. The volume concludes with an index to the plates which, in common with the text volume, are indexed by the species' number, not by page number.



This is not only a major work, it is a fairly affordable major work – thanks to a degree of sponsorship and to the fact that the author did much of the basic work himself, including photography and arrangement of 3,900 butterflies on 125 plates. Despite not being a field guide, this book will appeal to a wide audience, because it is written in typical Larsen style which effortlessly blends the anecdotal with the scientific. *Butterflies of Kenya and their Natural History*, an earlier book by Torben Larsen, became so eagerly sought after that copies are now very difficult to obtain (at the time of writing, the largest internet bookshop has a small accumulation of outstanding orders). The Kenya book helped to define guidelines for conservation and ecological studies for that country, and it is to be expected that *Butterflies of West Africa* will assist the undertaking of similar projects throughout the 15 countries of the region.

Torben Larsen and Apollo Books are to be congratulated on the production of another significant contribution to the world of entomology.

Eddie John (7937)



Ants of Surrey

by John Pontin, published by Surrey Wildlife Trust October 2005, 88 pp., 16 colour plates. Hard cover ,14.00 (plus ,2.40 postage & packing). ISBN 0-9526065-9-3. Available from Atlas Sales, Surrey Wildlife Trust, School Lane, Pirbright, Woking, Surrey. GU24 0JN. Tel: 01483 488055; website www.surreywildlifetrust.co.uk

This is the latest addition to the acclaimed Surrey Wildlife Atlas series, which admirably embodies the British tradition of publishing records and field notes on particular plant and animal groups at a county level. Like some of the other invertebrate groups covered in the series, ants are geographically represented by a small enough number of species (thirty in this south-eastern English county) to allow each species to be covered in some detail. Thus, most of the ants of Surrey are shown in a set of excellent colour plates, some of which show diagnostic features for identification. There is also a clear and well-illustrated key for identifying the workers of all the Surrey species. Also, eleven of the twelve species that occur in the British Isles but not in Surrey are briefly described with the aid of useful diagnostic notes. The book will therefore be of considerable interest far beyond the borders of Surrey.



Ants of Surrey



JOHN PONTIN

Like others in the series, the book includes two major sections: an introduction and then a series of accounts of individual species. There are also appendices, showing details of notable sites within Surrey, a glossary and a bibliography. The book includes indexes of species of ant and of other invertebrate taxa, including scientific and English names but, like its housemates in the Atlas series, it lacks a subject-index.

The introduction includes a good deal of general information about ants, including the main features of their biology, their associations with plants and with other invertebrates (including myrmecophilous species), their habitats and geological associations and their conservation. Among the myrmecophilous insects, the hoverfly *Microdon analis* is of particular interest in that it appears to be specifically associated with a species of ant, *Lasius platyborax*, which was formerly not recognised as being distinct from the very similar *L. niger*.

The account of each species includes a county distribution map, showing the 2 x 2 km tetrads in which the species has been recorded. There are also headed statements about the status of the species in Surrey and the body length of the workers but, in a slight departure from the recent house-style, there are no headings stating the number of recorded tetrads, the habitat-type or the national status of the species. The following text provides very useful information about the habitat of the species, together with a note about its British distribution.

In some cases, the author draws attention to the need for new information about the biology of ants. For example, he states that little is known about the food sources of the tree-dwelling ant *Lasius brunneus*, except that it is often associated with the aphid *Stomaphis* spp., which occurs on tree bark. This statement is undoubtedly true but the author may have been unaware of a small piece of information that has perhaps been published too obscurely to have come to his attention. This was an observation of *L. brunneus* in Surrey, gathering



honeydew from aphids lined up on ivy shoots on a cedar tree in which the ants were nesting (Lonsdale, 1998).

Conservation figures prominently in the book. The development of new roads and houses, as mentioned by Cedric Collingwood in the Foreword, is a major cause of habitat loss, but extinctions are occurring also within ostensibly protected areas. For example, the author describes the extinction of the Nationally Notable species *Myrmica schencki* at Chobham Common due to trampling by cattle, which were intended to be a tool of conservation. On a more positive note, he describes species recovery work for *Formica rufibarbis*, whose known UK population is confined to four nests in Surrey. He comments that, as the rarity of an ant species is measured by the number of queens, *F. rufibarbis* might be the rarest land animal in the UK. He highlights the importance of pioneer heathland for various ant species and argues in favour of burning, which has helped to maintain this habitat on the Surrey rifle ranges. He warns, however, that fire can wipe out colonies of shallow-nested species such as *Tapinoma erraticum*. In his view, another valuable feature of the rifle ranges is that they are protected from public access, which he considers to have been a major factor in extinctions of species at sites close to large human populations.

As there are only recorded thirty species of ant in Surrey, it is perhaps not surprising that this book is shorter than its excellent predecessors on ladybirds (with forty-one species in Surrey) and on shield bugs and their allies (with fifty species in Surrey). The book is, however, disproportionately shorter, partly because its accounts of individual species are less lavishly furnished with descriptions of studies and research projects. These accounts are, however, supported by a wealth of data from the author's own research and are extremely informative. Another reason for the brevity of the book is that the author's style, although easily readable, is very concise. Thus the book is good value for money, even though its price is only a little lower than that of its latest predecessor, which has 192 pages.

Reference

- Lonsdale, D. (1998). Field meeting report (Nonsuch Open Space) In: *Invertebrate Conservation News* 27, Amateur Entomologists' Society.

David Lonsdale

AURELIAN BOOKS

DAVID DUNBAR

Butterflies, Moths and Entomology

View stock on-line at www.booksatpbfa.com

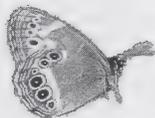
(Click on sellers and search Aurelian Books)

- Antiquarian, out-of-print and new reference books -
- Butterflies, moths, dragonflies, beetles and other insects -
 - British Isles, Europe and rest of the World -
 - Free book finding search service -
 - Catalogues available on request -
 - Browse our stock - by prior appointment -
- Collections and good individual books and journals bought -

Phone, fax, e-mail or snail-mail for all enquiries
which are always welcome

31 LLANVANOR ROAD, LONDON NW2 2AR

(Telephone and fax) 020 8455 9612 e-mail: dgldunbar@aol.com



www.Lopinga.com *Buy online*

☎ 01 799 599 643 or post to Lopinga Books Ltd, 23 Tye Green,
Wimbish, CB10 2XE **All orders are sent post-free**

Booksellers: we accept trade orders online

The Moths of Essex

£19.75

The Butterflies of
Essex £18.50

The Bumblebees of
Essex £18.50

Wild Essex £12.75

Flora of Essex
£25.00



Your County from the Air £18.00

An aerial photographic map
for the whole of any Eng-
lish County. See every field,
hedge, wood and nature re-
serve. CD for Windows PCs.
Ideal for biological recording.

Fingringhoe Wick Nature Res. →



Butterflies of Europe £25.00

Identifying Butterflies is easy!

The best ever field guide to every species in Europe: **over 1300 full-colour photographs** plus diagrams and maps make it possible to identify every butterfly while it is still alive and unharmed

AES Publications

Amateur
Entomologists' Society

PRACTICAL HINTS FOR THE FIELD LEPIDOPTERIST by J.W. Tutt

Written at the turn of the century, this book has been reprinted because it still represents the most comprehensive field guide covering both macro and micro lepidoptera. £ 22.80

AN INDEX TO THE MODERN NAMES FOR USE WITH J W TUTTS PRACTICAL HINTS FOR THE FIELD LEPIDOPTERIST by B.O.C. Gardiner

A valuable cross referencing guide between the scientific and English names used in the early 1900's and the present time £ 4.00

A LEPIDOPTERISTS HANDBOOK by R. Dickson

A practical book on the breeding, collecting, storing, conservation and photography of Lepidoptera. £ 7.70

A GUIDE TO MOTH TRAPS AND THEIR USE

by R. Fry and P. Waring

A concise guide on the type/construction of moth traps available in the UK, their use and limitations in the field £ 5.20

BREEDING THE BRITISH BUTTERFLIES

by P.W. Cribb

A practical handbook covering all aspects of butterfly breeding, including general techniques, equipment plus hints on how to breed British butterflies £ 4.10

AN AMATEURS GUIDE TO THE STUDY OF THE GENITALIA OF LEPIDOPTERA (16pp.) £ 2.40

BUTTERFLIES OF CYPRUS 1998

Observations of 44 species of butterflies found on the island during 1998, including notes on each species £ 3.75

A SILKMOTH REARER'S HANDBOOK

by B.O.C. Gardiner

This completely revised 3rd Edition looks at the study, breeding and systematic of the world's silk moths. Includes 32 pages of colour plates (74 colour photographs of larvae and adult moths) 26 pages of black and white plates, numerous figures £ 14.70

THE STUDY OF STONEFLIES, MAYFLIES AND CADDIS FLIES

A comprehensive guide to collecting and studying the biology and ecology of these aquatic insects £ 3.60

THE HYMENOPTERISTS HANDBOOK

by Dr. C. Betts et al.

A completely revised 2nd Edition dealing with their family history, classification and structures; natural history; studying; collecting; breeding; attracting and preserving Hymenoptera £ 9.25

REVISED FLIGHT TABLES FOR THE HYMENOPTERA

Illustrates wherever possible, times, locations, flower visits and some indications for distribution and abundance of Hymenoptera £ 2.55

REARING PARASITIC HYMENOPTERA by M. Shaw

This booklet provides details on the general biology of parasitic wasps, rearing principles, efficient rearing practices and detailed methods on how to deal with adult wasps £ 4.60

HOST PLANTS OF BRITISH BEETLES

Supplement to 3rd edition of the Coleopterist's Handbook listing a wide range of plants in alphabetical order, together with the beetle species which have been recorded as being associated with them £ 2.55

A DIPTERIST'S HANDBOOK

by A.E. Stubbs, P.J. Chandler and others

A practical handbook for the beginner and initiated on collecting, breeding and studying two-winged flies, includes a detailed chapter on larval stages, with an illustrated key to families £ 10.75

REARING AND STUDYING STICK AND LEAF-INSECTS

by P. D. Brock

This new book is especially intended for beginners, although also suitable for experienced phasmid enthusiasts. It is one of few rearing guides that feature the majority of culture stocks available with 22 species in detail. The informative text is complemented by 8 colour plates, 14 black and white plates and 29 figures £ 8.50

THE AMAZING WORLD OF STICK AND LEAF-INSECTS

by P. D. Brock

A superb comprehensive guide for all those intrigued by these groups of insects. Topics covered in detail include life history, development and behaviour, defence, enemies, collecting, breeding and much more. Part 3 outlines the major known species around the world on a regional basis, plus a section on fossils is also included. £ 15.20

REARING CRICKETS IN THE CLASSROOM

(12 pages, 2 plates) £ 2.00

SOME BRITISH MOTHS REVIEWED

Aid to identification of some of the more difficult species reprinted from Amateur Entomologist Vol. 5 (1941) and a guide for the critical species of Lepidoptera from Entomologists Gazette 1969-72, (64 pages, 6 plates). £ 3.50

LARVAL FOODPLANTS OF THE BUTTERFLIES OF GREAT BRITAIN AND IRELAND

by P. May. A comprehensive compilation of the known larval foodplants of our native and immigrant butterflies. Also including *How to Encourage Butterflies to Live in Your Garden* by the late Peter Cribb. 62 pages (2003) £ 5.75

COLLECTING LACEWINGS £ 1.90

COLLECTING HET-BUGS £ 1.10

COLLECTING CLEARWINGS £ 0.90

ALL MAJOR CREDIT CARDS ACCEPTED

All the above publications sent post free to U.K. addresses. Outside U.K. please add 10% to order value for postage by surface mail. For postage by air-mail outside Europe please add 30% to order value.
Please allow 28 days delivery.

Please make all cheques/postal orders payable to 'AES Publications' and send to:

AES Publications, 1 Tower Hill, Brentwood, Essex CM14 4TA.

Telephone 01277 224610 • Fax: 01277 262815 • E-mail: aespublishings@btconnect.com



PRESS RELEASE

April 2006

Harley Books are delighted to announce the sale of their series, *The Moths and Butterflies of Great Britain and Ireland*, to Apollo Books Aps, Kirkeby Sand 19, DK-5771 Stenstrup, Denmark; Tel. 00 45 62 26 37 37; Fax. 00 45 62 26 37 80; email: apollobooks@vip.cybercity.dk; website: www.apollobooks.com.

With three of the ten volumes yet to be published – Vols 5, 6 and 8 – Apollo Books, who are leading publishers of multi-volume works on European and world entomology, plan to complete the series. Dr K.P. Bland, Pelham-Clinton Curatorial Fellow at the National Museums of Scotland, Edinburgh, an associate editor and a contributing author to two volumes in the series, has been appointed editor.

All standing orders are being passed to Apollo Books and henceforward all matters relating to sales of this work, including orders for published volumes, should be referred to them. Apollo Books will continue to use Harley Books' distributors and therefore British orders will be despatched from the UK.

Orders for all Harley Books' other titles should continue to be sent to Harley Books.

Available now from

AES Publications

Members
Price
£39.00*

A COLEOPTERIST'S HANDBOOK

Fourth edition (almost) fully revised.
Edited by J. Cooter & M.V.L. Barclay



One of the Society's best selling publications, the *Coleopterist's Handbook*, is now available as a new and expanded fourth edition. It includes several new chapters and 32 pages of colour plates and in addition the text has mostly been re-written or fully revised and expanded. 'Almost' has been included (above) for the sole reason that only two pages of text from the third (1991) edition have not been revised. Nomenclature has been brought inline with current use, collecting/curatorial methods reflect best practice and plant/beetle and beetle/plant lists are included together.

Production of the *Handbook* has been overseen by two of Britain's leading entomologists who are also amongst the impressive list of contributing specialist authors. Recent additions to the British fauna, modern and traditional techniques are included. The user will appreciate all advice and comment given in the book is based upon collective years of practical experience of both curatorial methods and field craft; beetle family chapters have each been written by an internationally recognised authority.

The Society has sold copies of the third edition world wide, an indication of the value and use of the *Coleopterist's Handbook*; the new edition has been eagerly awaited, don't delay, order your copy today.

* Retail Price £54.00 (inc. p.&p.). Members price restricted to one copy per member.



Saturday, 29th April, 2006

**at the Royal Entomological Society
41 Queen's Gate, London SW7 5HR**

This year the AES Members' Day and AGM is being held at the Royal Entomological Society, Queen's Gate, London.

PROGRAMME

- 10.30 am** Doors open and members sign in. Tea and coffee and other refreshments will be available. Coats may be left in an unsupervised cloakroom area at your own risk – the AES will not accept liability in the case of a problem occurring.
- 11.00 am** Welcoming address followed by first lecture.
- 12 noon** The Annual General Meeting will take place. Nominations for the election to the Societies Council or as a serving officer of the Society should be forwarded to the Secretary along with the names of two nominators who should be members of the Society.
- The winners of the Cribb and Hammond awards will be announced and presented with their prizes.
- The AGM will be followed by a break for lunch.
- 2.00 pm** The second lecture.
- 3.00 pm** The final lecture.
- 4.00 pm** Final questions and discussion.
- Members' Day will end between 4.00-4.30 pm

Lectures will be given by Maxwell Barclay, Darren Mann
and Ms Remy Ware (of the Harlequin Ladybird Research Project)

The RES is in close proximity to the Natural History Museum so you may combine your day with a visit to both the AGM and museum.

The RES have no restaurant but there are many restaurants and pubs, cafés and sandwich bars close by in Kensington (especially around South Kensington tube station).

Unfortunately there are no facilities to enable us to run separate events for Bug Club members but this is a great opportunity for them to visit the Natural History Museum!

Members will be able to view the various AES publications currently available and place an order.

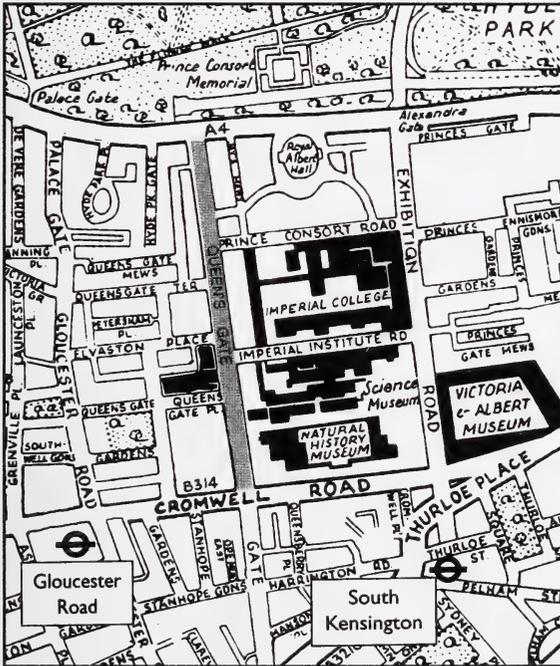
AES AGM and Members' Day – 2006

Saturday, 29th April, 2006

at the Royal Entomological Society

41 Queen's Gate, London SW7 5HR

How to get there . . .



ROYAL ENTOMOLOGICAL SOCIETY

Bus Routes

9, 10, 49, 70, 207

Underground

Gloucester Road and South Kensington stations.
Piccadilly, District and Circle lines serve both stations.

British Rail

Easy access from all major stations.

The Bulletin

of the Amateur Entomologists' Society

Volume 65 • Number 465

April 2006

CONTENTS

Editorial	51
McDermott, D. Preservation of endangered butterfly species.....	52
Koryszko, J. An Interesting Hibernation and Roosting Site	54
Cole, S. Old Notes: Australian Insects.....	55
Haggett, D. Wild about South African Game Farms	64
McKellar, J. HBRG Website (Highland Biological Recording Group)	66
Haggett, D. Geographic Variations	67
Denton, W. & J. <i>Cimbex connatus</i> (Schrank) (Hymenoptera: Cimbicidae) in North Hampshire.....	69
Morris, R.K.A. & Ball, S.G. Hoverfly Atlas 2010.....	70
Parker, R. Mauritius and its Butterflies	76
Koryszko, J. Staffordshire Humming-bird Hawkmoths	81
Parker, R. Field Meeting in Suffolk – 27th August 2005.....	82
Koryszko, J. An interesting colour form of Bee moth at light	83
Lewis, K.C. <i>Carabus granulatus</i> Linnaeus 1758. Middlesex site of the late Peter Cribb's beetles identified	84
Lewis, K.C. Locations of <i>Urocerus gigas</i> Linnaeus. Hymenoptera, Siricidae., <i>Sirex gigas</i> in old Literature. The Great Horntail Woodwasp.....	86
Waring, P. Moths recorded 30 April – 3 May 2004, Langenfeld suburbs, Dusseldorf, Germany	89
Beaumont, J.R. A few notes of items of interest from a week's holiday in Jersey, August 2005.....	91
Book Reviews	92

S. 36 A

The Bulletin



of the Amateur Entomologists' Society

Volume 65 • Number 466

June 2006

THE NATIONAL
HISTORY MUSEUM
04 JUL 2006
PRESENTED
ENTOMOLOGY LIBRARY



ISSN 0266-836X

Editors: Dr P. Wilkins & M. Hough

The Amateur Entomologists' Society



Founded in 1935

The AES • P.O. Box 8774 • London • SW7 5ZG



<http://www.amentsoc.org>

Officers of the Society

President: Mike Majerus

Secretary: Ray Crisp

Treasurer: Peter May

Registrar: Nick Holford

Bulletin Editors: Phil Wilkins & Martin Hough

General Editor: Fiona Merrion-Vass

Habitat Conservation Officer: Peter Sutton

Advertising Secretary: Peter Hodge

Exhibition Secretary: Wayne Jarvis

Youth Secretary: Kieren Pitts

ICN Editor: David Lonsdale

Wants & Exchange: Peter May

SUBSCRIPTIONS:

First subscriptions should be accompanied by an additional £2 entrance fee, except for Bug Club members under the age of 13 to which this charge does not apply.

Renewal charges

Ordinary	£17.50	Ordinary Overseas	£21.00
Bug Club (Junior)	£10.00	Bug Club (Junior) Overseas	£21.00
Family	£24.00	Family Overseas	£30.00

ADVERTISING RATES:

Rates for advertising in the body of the *Bulletin* are:

Full page £60, Half page £40, Quarter page £25.

Series discounts and insert charges are available from the Advertising Secretary on request.

NOTICE

It is to be distinctly understood that all views, opinions, or theories, expressed in the pages of this Journal are solely those of the author(s) concerned. All announcements of meetings, financial grants offered or sought, requests for help or information, are accepted as bona fide. Neither the Editor, the Officers and Council of the Society, nor its Trustees, can be held responsible for any loss, embarrassment or injury that might be sustained by reliance thereon.

Worldwide Butterflies

MOONLANDER MOTH TRAP

Completely New Principles

cal innovation – developed by Robert Goodden

Now NEW ELECTRICS

Available with

MERCURY VAPOUR or

Special new 12V SAFE and powerful
40W actinic lamp. Use ANYwhere



Moths enter from
BOTTOM of trap!

Benefits of observation
heat as well as Trap.

Moths fly upwards and
cannot escape.

Use with mains or battery.

White top flouresces
right violet with UV.

Trap contents stay dry.

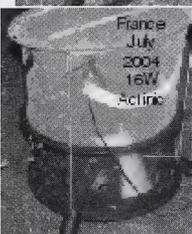
Hang or stand.

Anchors – withstands
most weather.

Three sizes – choose for
portability or volume.

Full details – also
vestock specimens
and equipment on
www.wwb.co.uk

Please refer to website
www.wwb.co.uk
for full details and
prices



Worldwide Butterflies

PO Box 101 Liskeard PL14 3ZS

Tel 01579 384050

Fax 01579 384430

sales@wwb.co.uk

www.wwb.co.uk

ATROPOS ANTIQUES*

PURVEYORS OF FINE COLLECTOR'S CABINETS



*Many of you will have met us at the AES
London Fair where we regularly show
entomological cabinets for sale*

- We are specialist dealers in fine collector's cabinets.
- We can offer a choice of at least 30 cabinets, varying in purpose, construction, quality and price.
- We can supply both restored and un-restored cabinets and will undertake to restore and paper cabinets for clients.
- We are always interested in the purchase or exchange of cabinets, with or without a collection.
- Callers to our showrooms are always welcome by appointment.
- We offer a specialist collection and delivery service throughout the UK and have full expertise in the safe transportation of cabinets and collections.

George Morgan

97, West Street, Hartland, N. Devon EX39 6BQ

T: 01237-441205/984 M: 07973 302190

E-mail: george@atropos.wanadoo.co.uk

A NEW BOOK FROM

Cravitz

Experience the lighter side
of field entomology with
Torben Larsen as he
describes his experiences
from around the world.



There must be a Hazard for every occasion?

£11.99 (inc. UK p&p) • £13.99 (overseas)

ORDER YOUR COPY NOW FROM

Cravitz Printing Company Limited

1 Tower Hill, Brentwood, Essex CM14 4TA.

Tel: (01277) 224610 • Fax: (01277) 262815 • E-mail: CravitzPrinting@btconnect.com



Ian Johnson Natural History Books

(Pemberley Books)

Specialist in *Entomology* and related subjects
Also *Zoology, Ornithology, Botany* etc.

- CATALOGUES – Second-hand, Antiquarian and New books – free catalogues available on request.
- SPECIALIST BOOKSHOP at Richings Park, Iver, just to the West of London – easy to reach by car or train. Visitors are welcome to visit and view our stock, but please telephone first to confirm opening times.
 - * *By car*: only 10 minutes drive from the M25 via the M4 (Junction 5), or M40 (Junction 1). 15 minutes from Heathrow Airport.
 - * *By train*: 20 minutes from London Paddington to Iver Station on the Paddington-Slough *Thames Trains* service (2 trains every hour). We are 1 minute's walk from Iver Station.
- WEBSITE – view our stock on our website: www.pembooks.demon.co.uk
- BOOKS BOUGHT – We are always interested in purchasing books in our specialist field, particularly antiquarian, academic and scholarly works on insects and other invertebrates.

18 BATHURST WALK, RICHINGS PARK, IVER, BUCKS SL0 9AZ

Tel: 01753 631114 / Fax: 01753 631115 • e-mail: ij@pembooks.demon.co.uk



The AES BUG CLUB



Do you want to cuddle a Cockroach, stroke a Stick Insect or hug a Harvestman?

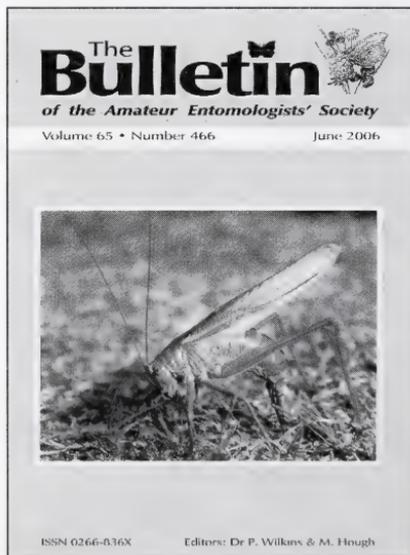
The AES Bug Club is for young people or the "young at heart" who find insects and other creepy crawlies interesting and even fascinating.

As the junior section of the AES we are devoted to promoting invertebrates to the younger generation who, after all, will be the entomologists of tomorrow!

You can help us in a number of ways, for example: by joining the Bug Club yourself, getting someone else to join the Bug Club, promoting the Bug Club and AES to your local school/Scout or Guide Group etc, running a Bug Club event or writing an article for our exciting newsletter. If you can do anything to help then please write to us: **AES Bug Club, PO Box 8774, London, SW7 5ZG.** Membership details can be found in the front of this Bulletin.



Bulletin Cover



The cover of the *Bulletin* shows *Tettigonia viridissima*, the Great Green Bush-cricket.

It is a large, green bush-cricket, the males are 40-50mm in length, whereas at 42-54mm the females are slightly longer. The eyes are green and the wings are long and very well developed. The wing-span is usually more than 70mm. There is a brown stripe dorsally on the head and pronotum and it appears as if this stripe divides into two and passes back dorsally along the abdomen. The stripe here is actually along the hind margin of each fore-wing, so the continuation is an illusion. It is found throughout much of Europe. In Britain it is found mainly in the southern half of England and Wales. It occurs in scrub and other wasteland and sometimes in gardens.

Photo – Norman Patten

Details Nick Holford

The **Bulletin**

of the Amateur Entomologists' Society

THE NATURAL
HISTORY MUSEUM

04 JUL 2006

PRESENTED
ENTOMOLOGY LIBRARY

Volume 65 • Number 466

June 2006

Editorial

It is daunting to take over editorship of this *Bulletin* from such an outstanding predecessor as Dr Peter Sutton. Fortunately he has promised to be on hand to assist me in my efforts: and my co-editor Phil Wilkins will also keep a kindly eye to ensure that the standard remains as high as it has been in recent years. But Peter could write superb articles himself, drawing upon his professional expertise. Phil, too, is able to enhance the *Bulletin* through his artistic skills and specialist knowledge. I on the other hand am a mere entomological hobbyist, although as a professional librarian I am no stranger to the world of publishing and its requirements. I will therefore do my best to ensure that the quality remains as high as possible, although I am very dependent upon the contributors for the value of the content. Save your *Bulletin* – keep those articles flowing in, please, to the usual address – AES *Bulletin*, P.O. Box 8774, London SW7 5ZG.

Martin Hough

Creating a 'Buzz'
about Insects



www.nationalinsectweek.co.uk



York Exhibition 2006 – Final Report

The first joint Entomological Exhibition organised by the Amateur Entomologists' Society and the Royal Entomological Society was held at York Race Course, in the southern suburbs of York, on Saturday 8th April 2006. This event, which was organised along similar lines to the AES exhibition that has been run on the first Saturday of October in London for many years, is the first of its kind held in the North of England. The day was more or less dry, with an occasional shower. We used the ground floor only for this first venture: the upper floors will allow expansion in future years. The venue has been booked provisionally for the 14th April 2007.

On the day, Hugh Loxdale (President of the RES), and Mike Majerus (President of the AES), presided over the exhibition: one of the first manifestations of the new co-operation between these two entomological societies, and visited by over eight hundred people.

A committee of several AES and RES people got together under the chairmanship of the AES Exhibition Secretary, Wayne Jarvis. A site visit in October 2005 assessed its suitability and then various plans were prepared to meet the many requirements of the event. Traders were approached – and approached us – dealers and some of the main names amongst Entomological Traders, such as **Watkins and Doncaster** and **Pemberley Books**, decided to support us. Slowly, the number of traders grew, as did the number of helpers. In the end, more than 50 traders came to the event to show and sell books, equipment, livestock and specimens. Also present was an array of conservation groups, natural history societies and survey groups promoting their activities. The National Insect Week stand, under the guidance of its co-ordinator, Professor Chris Haines, and the AES Bug Club stand, manned by its co-organiser Dafydd Lewis, engendered considerable interest. Perhaps the only disappointing feature of the event was the rather small number of exhibits from individual entomologists on show, although for a first event this probably was a respectable number.

Advertising was carried out by the RES PR agents, Cicada, who are based locally in Harrogate. Wayne designed a poster that went into papers with an overall home circulation of about 250,000. The event was on BBC Radio York several times during the morning. The result of all this was that the gate was about 800; very promising for the future.

In the end we had more willing helpers than we have ever had at Kempton. This enabled us to staff all the various security aspects of



the event more than adequately. It would be safe to say that the work of the helpers made a considerable contribution to the smooth running of the event, and we are very grateful to them all – for volunteering, for turning up and for working so willingly. Also, I believe they had a very enjoyable day. Particular thanks are due to June Beeson, Elena Lazzara and Berit Pedersen from the RES Office staff who volunteered to come and help and did great work in the rather cold ticket booth!

The overall feeling from members of the public, traders, exhibitors and organisers was that the exhibition was a great success for a first go, and that it had been well worth attending. Recurring comments from visitors were along two lines. Firstly, that they had never had anything like this in the north before, and secondly, that it was about time something was done to meet their needs and interests. The AES Registrar has received a few written comments as follows:-

“Congratulations on an excellent first Exhibition. The organisation and hard work that had gone into it paid off.”

“I thoroughly enjoyed the meeting and was more than pleased at the interest in my display. I was very surprised at how few people there I knew.”

“Congratulations for making it all run so smoothly, I am pleased that I was involved and thoroughly enjoyed it. I hope that it will run on an annual basis.”

“I personally found the show very interesting. I would class it as a success.”

“Thanks for all your hard work, resulting in an excellent day. I am sure the show will go from strength to strength. My only criticism is the length of the A1!”

“We really enjoyed the event, and did well on the trader side of things. I spoke to most traders and only one gave negative feedback that they had not done much business. All of the rest were surprised and very pleased at the attendance level (which for a first show was good) and were very surprised that more people attended than were at the Kettering show on 2nd April, and that is a well established show. Keep up the good work.”

“Although the York attendance was quite a bit less than at Kempton, we enjoyed ourselves very much as there was less crush.”

A suggestion received was that the show needs to be 4-6 weeks later for food plants etc. However, we must remember that the people



organising the show are entomologists as well and it would be too much to expect them to give up their hobby time at the best time of year. Also, from the traders point of view, they want to sell their stock early in order to use less time and resources looking after it during the beginning of the growing season. Our general feeling is that April is a good month for the show as the best compromise.

I think these comments summarise it – the show was a great success for a first time event and could form the basis of a very important annual event. Whilst it was led by the AES, because of their experience in this type of event, I know that the RES people involved would like to take a more active role, now they have experienced what the event means and how it runs.

As President of the AES, I wish to thank all those who worked so hard to put on the event, particularly Wayne Jarvis (AES) and Julie North (RES) as organisers for the two societies. Over 40 people helped man the venue, sell tickets and steward through the day. Many of these were members of the societies, but especial thanks are due to Gordon Port and a team of local students who offered their services. Special thanks also go to Wayne Jarvis and Nick Holford for trouble-shooting all day and to Kevin Wilson for finding the venue, which proved to be pleasantly spacious, easy to reach by both train and car, and of course is set against the dramatic back-drop of the race course. Finally, I wish to thank the York Race Committee for their help, and BBC Radio York for their coverage of the exhibition.

It is hoped that this event in the North will become a regular feature of the entomological calendar.

Conclusion

The show was very successful as a first time event and formed a good basis for future development of the event.

It showed both societies in a good light in their working together – which needs to be built on in the future.

It showed a need, and a desire, for such an event in the north of Britain.

Currently it appears that it will need bailing out by about £3,000.00 – spread between the two societies. Again, for a first event, with a variety of start-up costs, that represents good value.

Michael Majerus, President, AES



Exhibit Reports

edited by Nick Holford, AES Registrar

There were 15 exhibits in all, which is good for a first show, though we would have liked more – perhaps next time! The exhibits were interesting and varied and sparked a lot of discussion – a measure of their success. Of these, 7 have produced reports and these are printed below.

Nests and set adults of some social wasps and bees

Dr. Michael Archer – FRES (0050)

Nest materials from seven species of social wasps and bees were exhibited with set adults (usually a queen, worker and male) of some of these species as follows:

The Hornet (*Vespa crabro*) with adults.

The Super wasp (*Dolichovespula media*) with adults.

The Tree wasp (*D. sylvestris*) with adults.

Norwegian wasps (*D. norvegica*) with adults.

The Common Carder Bumblebee (*Bombus pascuorum*) with adults.

Early Nesting Bumblebee (*B. pratorum*) with adults.

The Honeybee (*Apis mellifera*) with an adult worker and male.

An exhibit including a copulating queen and male of the German wasp (*Paravespula germanica*) was also shown.

The many people looking at the exhibit were able to handle the nest materials and discuss with me their experiences with social wasps and bees.

Harlequin Ladybird – *Harmonia axyridis*

Peter Brown

The Harlequin ladybird, *Harmonia axyridis*, is an alien coccinellid that arrived in the UK in 2004 and that we believe poses a serious threat to native ladybirds and some other insect groups. The Harlequin Ladybird Survey was launched in 2005 and collects records of *H. axyridis* from the public, largely via a special website with the facility for on-line recording. A second website is used for the on-line recording of the other 25 ladybird species in the UK. We aim to encourage interest in



ladybirds and specifically to increase recording of the group, which historically has been surprisingly under-recorded. Our exhibit describes the ecology of the Harlequin ladybird and where it came from, and explains the threat that the species poses, as well as offering information on the ecology and identification of the native ladybird species.

Peter Brown

*Ladybird Survey Project Officer, Biological Records Centre,
CEH Monks Wood, ABBOTS RIPTON, Huntingdon, PE28 2LS
Tel. – 01487 772408 www.harlequin-survey.org www.ladybird-survey.org*

Some Yorkshire Diptera found during 2005

Roy Crossley, FRES (0478)

Specimens shown were:

Tipula peliostigma from ancient hedge in wet hay meadow, second Yorkshire record (first in 1941).

Sphegina sibirica taken by side of upland course of R.Nidd at Lofthouse – new to Yorkshire.

Sphaerophoria scripta a dark male with a normal colour specimen for comparison.

Machimus cingulatus taken in an area of upland bogs in a moorland clough at an altitude of about 200m. In Yorkshire this species is more usually associated with lowland heath.

Some noteworthy Diptera from the Lower Derwent Valley NNR

Roy Crossley – FRES (0478)

The varied habitats of the Lower Derwent Valley NNR (south-east of York), support a wide range of Diptera, some of which are nationally or regionally scarce. This exhibit represents a small fraction of the total and is the result of surveys going back as far as 1987". Specimens shown were:

Tipula nigra

Dolichopus cilifemoratus

Dolichopus phaeopus

Rhambomyia physoprocta

Antichaeta obliviosa

Dioxyna bidentis



Fig trees and fig wasps

Steve Compton – FRES

University of Leeds, Faculty of Biological Sciences.

This exhibit displayed living plants and insects from the University Experimental Gardens in Leeds. It aimed to illustrate the complex life cycles of fig wasps, their extreme sexual dimorphism and their interdependency with fig trees. Along with examples of the diversity of fig trees (six different species were on display), live fig wasps from the South East Asian *Ficus montana* were available to examine under a microscope. Children seemed to particularly enjoy opening the figs to release the small swarm of tiny insects inside.

Simpson Collection of Entomological Memorabilia

Malcolm Simpson (AES 4859)

Photographs of several pieces of old and interesting collecting equipment from the Simpson Collection of Entomological Memorabilia.

Recording Britain's Fleas – Siphonaptera of Great Britain & Ireland

Bob George – AES (1402)

The collection of fleas has never been a foremost activity of professional entomologists. Almost all collecting or recording has been done by amateurs, with professionals doing some as a side-line. Yet everyone can add records to at least a few of the distribution maps, if only by getting specimens from their pet cats and dogs, or from the nests of house martins or house sparrows on or in their homes, or from nest boxes to which they may have access.

As examples, flea specimens can be gathered by:-

Mammalogists:

Vole nests	up to 14 species or sub-species
Shrew nests	up to 5 species and sub-species
Badger	1 species
Grey Squirrel	2 species
Bats	2 species
Rabbit	1 species
Hedgehog	1 species



Ornithologists:

House martin nests	up to 5 species
Sand martin nests	2 species
Feral pigeon nests	1 species
Nest boxes generally	2 species
Ground nests	generally up to 4 species

By County, the league table of recorded species so far is:

Hertfordshire	44
Gloucestershire	43
Oxfordshire	39
Cambridgeshire	39
Glamorgan	37

Down to:

Flint	7
Kirkcudbright	7
Selkirk	7

Ireland

(with a smaller fauna and much more incomplete recording) has:

Cork	26
------	----

Down to:

Kildare	2
---------	---

A flea collecting sheet is available if required.

Finally, I will willingly identify any quantity of specimens of British or Irish. However, they must be accompanied by data on source, place, date and collector, together with return postage if the specimens are required.

Contact: - Bob George, 54 Richmond Park Avenue, Bournemouth, Dorset, BH8 9DR. (Telephone: 01202 515238)

Low Wood Quarry – Investigation and Conservation

David Grange – AES (4151)

I first ran the Heath Trap on this site about 20 years ago. The first photographs were taken in 1988. I ran the trap intermittently for about nine years. The property changed hands to the present owners and within a couple of years I was given permission by them to take the dogs and walk the quarry for scientific purposes.

From this point in time, I have been treating the site as a small (private) nature reserve and covering all insect orders.



To this end I have had to ask members of different organisations to help me by viewing and identifying different orders. Slowly I am increasing my time on site as I have stopped working full-time and am nearing full-time retirement. I should be able to spend at least one full day a week working on site.

Some European Butterflies

Malcolm Simpson – AES (4859)

A small collection of European butterflies mostly taken by L.G.Higgins.

Twelve species of Coleoptera collected in Sussex and Kent during 2004 and 2005

Peter J. Hodge – AES (5335)

Twelve species of Coleoptera collected in Sussex and Kent during 2004 and 2005, including a rove beetle not previously recorded from the British Isles were exhibited.

New vice county records are marked with an asterisk (*).

Acilius canaliculatus (Nicolai) (Dytiscidae), St. Dunstan's Farm, Heathfield, E. Sussex, TQ608197, female in pond, 8.x.2004 and Combe Haven Level, Crowhurst, E. Sussex, TQ754106, female in recently excavated peaty pool, 8.ix.2005.

Hydrochus ignicollis (Motschulsky) (Hydrochidae), Railway Land LNR, Lewes, E. Sussex, TQ423097, male in marsh ditch, 7.x.2005, new record for the lower Ouse valley.

Enochrus nigritus (Sharp) (Hydrophilidae), Moneypenny Pits, East Guldeford, E. Sussex, TQ945208, in disused gravel-pit, 2.vi.2004.

**Astrapaesus ulmi* Rossi (Staphylinidae), Newhaven, E. Sussex, TQ449001, male under stone at base of chalk cliffs, 16.v.2004, a native of southern Europe (another male was found in May 2005 by D. Hance: paper in prep.)

Hylecoetus dermestoides (Linnaeus) (Lymexylidae), Snipe Bog, Burton Park, W. Sussex, TQ971178, female flying in afternoon sunshine, 26.v.2005.

Mordellistena nanuloides Ermisch (Mordellidae), Oare near Faversham, E. Kent, TR008630, several on Sea Wormwood *Artemisia maritima* growing on the sea wall, 29.vi.2004.



- **Meloe rugosus* Marsham (Meloidae), Castle Hill, Newhaven, E. Sussex, TV445999, male crawling amongst long grass on cliff-top, 25.iii.2005, first discovered at this site by D. Bangs in 2004.
- **Sitona cinerascens* Fahraeus (Curculionidae), Cuckmere Haven, E. Sussex, TV519976, female swept from a small area of saltmarsh adjacent to a grassy area close to the shingle beach, 17.viii.2005. The host plant, said to be *Lotus tenuis*, has been recorded from this site.
- Bagous puncticollis* Boheman (Curculionidae), East Guldeford Level, Rye, E. Sussex, TQ955217, male in marsh ditch, 2.vi.2004 and Broomhill Level, Camber, E. Sussex, TQ966197, male in marsh ditch, 5.vi.2004.
- **Mecinus janthinus* Germar (Curculionidae), Brickfield Meadow, Fairwarp, E. Sussex, TQ473264, one swept in flowery grassland, 16.v.2005.
- **Rhambhus subaeneus* Illiger (Curculionidae), Colhook Common near Petworth, W. Sussex, SU964272, several on leaves of wild apple, 22.v.2005.
- **Xyloterus signatus* (Fabricius) (Curculionidae), Sparite Wet Hole near Parham, W. Sussex, 13.viii.2004, one crawling on stump of recently felled birch tree, TQ054155.

Two species of Tephritidae (Diptera) collected in Sussex during 2005

Peter J. Hodge – AES (5335)

Two species of Tephritidae collected in Sussex during 2005 were exhibited.

Campiglossa malaris Séguéy, Kidbrook Meadow, Forest Row, E. Sussex, TQ410339, several swept off Hoary Ragwort *Senecio erucifolius*, 26.vii.2005, until recently only recorded from East Kent in the British Isles.

Tephritis divisa Rondani, The Brooks, North Bersted near Bognor Regis, W. Sussex, TQ937013, 13.viii.2005, Railway Land LNR, Lewes, East Sussex, TQ421099, 13.ix.2005 and TQ420100, 20.ix.2005 and Pannel Valley Nature Reserve, Icklesham, East Sussex, TQ888155, 10.x.2005, all swept off flowering plants of Bristly Ox-tongue *Picris echioides*, a south European species not previously recorded from the British Isles.



Four species of Heteroptera collected in Sussex and Kent during 2005

Peter J. Hodge – AES (5335)

Four species of Heteroptera collected in Sussex and Kent during 2005, including a mirid new to the British Isles, were exhibited.

Note – new vice county records are marked with an asterisk (*).

**Eurydema ornatum* (Linnaeus) (Pentatomidae), Peacehaven, E. Sussex, TQ414017, in MV light trap (C. R. Pratt), 13.x.2003, a recent colonist in Britain

**Macrotylus borvathi* (?) (Miridae), Queenborough, E. Kent, TQ916717, 22.vii.2005, many on *Ballota nigra* growing amongst long grass, new to the British Isles

**Agnocoris reclairi* (Wagner) (Miridae), Rye Harbour, E. Sussex, TQ928192, one swept off Ragwort *Senecio jacobaea* growing beside Castle Water, 9.viii.2005, associated with White Willow *Salix alba*

Lygus pratensis (Linnaeus) (Miridae), Pannel Valley Nature Reserve, E. Sussex, TQ882152, 10.x.2005, swept from marsh vegetation in *Phragmites* reed-bed, a RDB3 species now apparently rather common in south-east England.

Pleasley Pit Nature Study Group

Caron Stubbs – AES (12580)

The group was set up in January 2000 to study, maintain and record all aspects of wildlife on the former site of Pleasley Colliery, covering an area of approximately 150 acres. From the initial 12 local enthusiasts that started the group, we now total over 100 members.

Bird watching was the main objective in the early days, but the recording of Butterflies (24 species so far), Dragonflies and Damselflies (18 species), and Moths (over 120) are some of the activities we now undertake. 162 species of birds and 17 species of mammals recorded have also been fed into local and national databases.

Other insects and spiders are slowly being recorded along with fungi and flowers, especially orchids. As well as recording we also manage and maintain the site along with Derbyshire Countryside Services. We also attend open days, fetes and specialist events taking with us display boards promoting our wonderful site.

Further details may be obtained from the secretary E-mail; loz.brooks1@btinternet.com Loz Brooks.



Some Odonata Exuviae

Brian Lucas – AES (3711)

<i>Aeshna cyanea</i>	Dorsal and ventral views and mask.
<i>Aeshna grandis</i> and <i>Aeshna mixta</i>	Showing the size difference
<i>Aeshna isosceles</i>	Dorsal and ventral views and mask.
<i>Aeshna juncea</i>	Dorsal view and mask.
<i>Aeshna mixta</i>	Dorsal and ventral views and mask.
<i>Anax imperator</i>	Dorsal view and mask. This species is the largest of the British dragonflies.
<i>Cordulagaster boltonii</i>	Dorsal and ventral views. The female has a long ovipositor making this our longest species.
<i>Libellula depressa</i>	Dorsal and ventral views.
<i>Libellula quadrimaculata</i>	Dorsal and ventral views.
<i>Sympetrum danae</i> and <i>Sympetrum striolatum</i>	Showing the size difference.

Afrotropical Savanna Pierids

Dr William R. Wooff – FRES (1834)

The vast majority of savannah-inhabiting white butterflies (Pieridae) are members of only two genera *Belenois* and *Colotis*. About 25 members of the former have been recorded in this Region, but these include a few confined to forest habitats. As a group their appearance is rather uniform and clearly recognisable – in marked contrast to the more numerous (>40 spp.) *Colotis* which display a wide range of colour and form plus, in some, marked sexual/seasonal dimorphism.

The preferred larval food of most *Belenois* and *Colotis* are the leaves of herbs, shrubs and small trees belonging to the Capparidaceae (the Mediterranean *Capparis spinosa* is the source of the capers and caper berries we eat), while a few utilise those of *Salvadora persica* Salvadoraceae – a fairly small tree whose twigs are widely used as toothbrushes.

Card-Mounts

At the beginning of a study of these butterflies, in Uganda, trying to form a reference collection had its problems. Netting, killing and



papering was easy but subsequently relaxing, setting, storing and identifying set-specimens, while living permanently under bush conditions, soon proved to be completely impractical.

Fortunately, a chance meeting with two German entomologists, in 1959, provided a possible solution. Their entire reference collection was contained in only three, or possibly four, card-index boxes! As soon as a specimen, intended for the collection, was completely dry the wings were snipped off and then mounted on a white card, using self-adhesive, transparent film. One pair showing the upper surface, the other the under. Full details of where, when and how this butterfly was caught together with a brief, but adequate, description of the habitat, were then written on the card. It was also allocated a semi-arbitrary index number – subsequently used in field notes. Bodies, minus wings, were re-papered and labelled with the appropriate index number. Drawings of any genitalia-preparations, made after their return to Giessen University, would be mounted on the back of the relevant card, which would then display everything needed to be known about that particular specimen.

Despite not knowing how long card mounts would survive, it was decided to adopt this method. While on home-leave, in 1960, trials were carried out to determine the most appropriate materials available. Both the cards and film selected are still being successfully used:

CARD – Tullis Russell & Co Ltd's 'Ivorex' Smooth Super White 340g/m² printed, with boxes for wings and all relevant information and cut to size (4"11 O2mmx6"/1 52mm) by Wheatsheaf Press, Wilmslow

FILM – Frisk Products USA Inc's transparent gloss self-adhesive

Initial reservations about card-mount survival were fortunately unnecessary. There is no obvious deterioration in specimens mounted in 1960. A limiting factor, in the use of this technique, is however that adhesive film must not be applied direct to wings with iridescent colours i.e. most Lycaenids, many Nymphalids but fortunately very few Pierids e.g. *Colotis regina*. Double-mounting is required – the left-hand pair of wings are placed with the under-surface onto the adhesive side of the film, the upper surface is then covered with a piece of compatible non-adhesive film, having an adequate overlap. After being pressed into place excess film is removed, with a pair of fine scissors, to within a couple of mm or so of the edge of the wings, which are then mounted in the normal way.

All too often the only example caught of some species is too raggy for a cabinet specimen. With a bit of practice, it can however be made into a perfectly adequate card-mount.



On digging for moth pupae, as featured on BBC Radio 4, 20 February 2006

by Paul Waring (AES 4220)

1366 Lincoln Road, Werrington, Peterborough, Cambridgeshire PE4 6LS.

Pupa digging was the subject for consideration on 8 February 2006 when I was joined by ten children from Werrington Primary School, Peterborough, and some friends of mine, for a session on digging for pupae which was featured in the programme *Nature* for BBC Radio 4 on 20 February. Pupa digging has a long history. It really became established and well-known in entomological circles as the result of a booklet on the subject by the Rev Joseph Green, published in 1857. I find the booklet, which was reprinted in 1979, invaluable in giving ecological notes for some species and tips on finding them. One can only envy the Reverend's life-style for he says "I seldom let anything like a fine day pass without taking a good walk into the country, trowel in hand." He points out that pupae may be found all year but that autumn is the best time because numbers are depleted by predators as the winter progresses. However, delightfully he says "And if I return home in January with only two pupae, instead of the eight which I might very probably have taken in October, then I am quite satisfied." Of another occasion he reports finding just three pupae, all of the Clouded Drab *Orthosia incerta*, from the bases of fifteen fine old timber-oaks in a meadow by parkland in two hours of digging; indication of a level of success with which I am too familiar! Such low rates of return are unlikely to be much encouragement to present-day moth enthusiasts who are used to obtaining such species in dozens at light-traps, sometimes in a single night. Indeed, it appears to me that most of us only practice pupa-digging as an occasional novelty. To further persuade us, Reverend Green reported that occasionally he found much larger caches of pupae, results that are amusingly discussed in evident disbelief by "The Old Moth-hunter" P. B. M. Allan, in *A Moth-hunter's Gossip* (1947). However, an entomological friend of mine, Dr David Barbour, has warned me against dismissing high numbers lightly. For many years he has engaged in one of the greatest uses of pupa-digging: namely, to obtain advance indication for the following season of the likelihood of outbreaks or plagues of moths which are forest pests. If there are high densities of pupae below the crop-trees, spraying with insecticides or use of biological control agents can be arranged for some months later to intercept the progeny as young caterpillars before they do their damage. In his work David has also found pupae in



densities approaching those reported by Reverend Green. I have yet to hit such jack-pot numbers but for my own purposes I still rate pupa-digging as a means of obtaining females of the Lime Hawk-moth *Mimas tiliae*, Poplar Hawk-moth *Laotboe populi* and occasional Eyed Hawk-moths

Smerinthus ocellata for attracting males, mating and breeding. These are best found by digging around the bases of limes, poplars and willows in parklands and avenues (with permission), rather than inside stands or plantations of such trees. Light-traps tend to capture mainly males of these impressive moths which I regularly use and breed for public displays, lectures and events. Anyhow, stimulated by live pupae of the Lime Hawk-moth, Pine Hawk-moth *Hyloicus pinastri* and Emperor moth *Saturnia pavonia* which I had brought along, the children got to work with trowels around the bases of a few trees of willow and birch growing in a corner of the school grounds maintained as a special conservation area for wildlife. The result: in half an hour of inexperienced digging, much excitement and gathering around to examine each capture, ten children found more larvae than live pupae, the total score being two small pupae from which the moths had already emerged, a fragment of a third pupa and single half-grown larvae of the Angle Shades moth *Phlogophora meticulosa* and Lesser Broad-bordered Yellow Underwing *Noctua janthe*. The larvae were found at the base of low plants growing around the tree-roots, along with a small selection of beetles, centipedes, slugs and other invertebrates, all of which were released by the children after gleeful inspection.

The radio programme also allowed us to consider very briefly the ways in which moths feature in human cultures around the world, a topic which could easily merit a programme in its own right. My friend Tausif Khan brought along her insights into her culture in Pakistan where she reports that the behaviour of the moth to a flame is a commonly used analogy for a lover pursuing a relationship in which he



Figure 1. The pupils gather around a base of a tree to hear Paul explain where to dig for pupa.



will have no success and may get burned. Moths and butterflies, for which Tausif had separate words in Punjabi, have also inspired artists in Pakistan, as all over the world, and in particular they are frequently used as the basis for patterns in the embroidery which decorates local and traditional clothing. While describing this into the microphone, Tausif, with the first plunge of her trowel into the ground, unearthed a fully grown caterpillar of the Large Yellow



Figure 2. Digging eagerly for their first pupa!

Underwing *Noctua pronuba*, the largest caterpillar of the day at about 4cm in length! The night before, another friend, Sonu Pradhan, had immediately recognised my cocoons of the Emperor moth because she was familiar with the cocoons of silk-worms in her native country of Nepal, where she sees silk production practised as a cottage industry. Indeed her father has a tree of a suitable foodplant in his garden in Kathmandu and the silk-moth breeders collect leaves from it, with his permission, to feed their caterpillars. I have encountered moths, butterflies, caterpillars and even pupae featuring in folklore, religions, arts, crafts and music in the most unlikely places around the world, being always on the look-out for such instances. I am continuing to investigate the influence, significance and cultural value of the Lepidoptera in these subject areas throughout the world in my post as Reader at Writtle College, Essex. Hopefully some of the children from the session on digging for pupae will remember featuring on the radio and will develop more of an interest in moths in their own lives. I plan further mothing events with this school in the future. I would like to thank Paul Evans, Grant Sonnix and Brett Westwood of the BBC Natural History Unit for inviting me and my pupa-diggers onto the programme. They advise me that it has an audience of about one million listeners, so perhaps some will be sufficiently intrigued to find out more about digging for pupae and get more involved with moths also.





Letter from Spain – first of a series

by David Keen (3309)

Calle Casto Bancalero 11, 41650 El Saucejo, Sevilla, Spain.

Having moved to Spain at the end of 2004 I thought members might be interested in reading about some of the observations made during my last year living in Banbury, Oxfordshire.

Early Wasp - *Vespula vulgaris* Linnaeus. Whilst clearing out the house on 11 February, prior to placing it on the market. I noticed a queen wasp flying in the sunshine in the south facing front garden. As I kept an eye on it, I saw it fly in through the open front door and up the stairs. I managed to follow its flight into one of our bedrooms. After boxing it to check the identity, I duly released it back into the garden.

Snakes in the hedge. Whilst walking along the towpath of the Oxford Canal just south of Banbury during the morning of 23 April I heard something move in the hedge that forms the boundary between the towpath and the golf course beyond. I was particularly curious as the hedge was over eight feet high and the noise was coming from a spot about six feet above the ground. On closer examination I was surprised to come face to face with not one, but two Grass Snakes. They were both entwined in the hedge and enjoying the warm sunshine. I cannot recall ever seeing Grass Snakes so far above ground. A little further along the canal I disturbed another Grass Snake on the towpath – it slithered away into the hedge. Yet further on I observed another one in the hedge – about four feet off the ground.

Shieldbugs in the garden. 2004 was a good year for Shieldbugs, judging by the numbers seen in my Banbury garden. The fence at the bottom of the garden faces south. Immediately behind the fence is a hawthorn bush and on our side we have various shrubs including honeysuckle and clematis which have established themselves in a cherry tree. During April and May, I observed odd specimens of the Hawthorn Shieldbug, *Acanthosoma haemorrhoidale* (Linnaeus) together with plenty of the Green Shieldbug, *Palomena prasina* (Linnaeus) and the Squashbug, *Coreus marginatus* (Linnaeus). The last named was by far the commonest with as many as 15 specimens being seen on one branch of clematis on 10 May. On 6 May three mating pairs of *Palomena prasina* were sunning themselves on a small sprig of cherry.



Fly removed from Spider's Web. On 13 July I was walking along a path through a garden centre not far from Ryton-on-Dunsmore in Warwickshire. A wasp was seen in a spider's web and whilst I would not normally give such a thing a second glance, something did not seem to be quite right. When I had a closer look I saw what was clearly a worker Common Wasp, *Vespula vulgaris* Linnaeus. It had not been caught in the web, so what was it doing there? The spider had obviously caught quite a large fly in its web and had succeeded in wrapping it up in a silken cocoon. I was amazed to see that the wasp was actually using its jaws to cut the cocooned fly out of the web. This action was observed for a period of several minutes during which time the wasp appeared to be trying to unwrap the cocoon. Whilst it gave up on this task, it did manage to remove it from the web and was last seen flying off with its bounty.

Lily Beetle in Wiltshire. Further to previous articles in the *Bulletin* about the Lily Beetle *Lilioceris lili* written by Jan Koryszko, Peter Sutton and myself, I observed an adult beetle on ornamental lilies in the gardens of Malmesbury Abbey, Wiltshire on 27 July.

Green-veined Whites take the water. On the morning of 28 July I visited Mill Dene Gardens in Chipping Campden, Gloucestershire. Within the gardens is a lawn situated below a dry stone wall which is at the foot of a sloping flower bed. The wall is about two feet high and there are two wet areas at its foot where water seeps out on to the lawn. Green-veined White Butterflies, *Pieris napi* Linnaeus were seen gathering at the edge of the damp patches. In fact I saw 20 to 30 specimens on the patches when I was there. I can confirm that they were all *P. napi* – no *P. rapae* or any other species were seen at the patches. According to the owner of the gardens, this habit is seen frequently throughout the summer months.

Red Underwing dead in the river. On 31 July my wife Wendy and I were walking along the towpath of the Oxford Canal south of Banbury. We reached the spot where the Soar Brook river flows through the canal from east to west and runs on its way over a weir on the west bank of the canal. The towpath runs up a slight incline and over a bridge above the river. Below the weir is a small pool which I assume is formed when the river floods. Wendy was looking over the parapet of the bridge when she called me over and pointed out a "beautiful butterfly" in the pool. At once I realised that we were not looking at a butterfly but at a moth that was floating upside down on the surface of



the water. Closer examination revealed that it was a Red Underwing moth *Catocala nupta* Linnaeus. After some effort I managed to scale the parapet and reach the edge of the pool below. With the aid of a suitable stick I dragged the moth to the bank and picked it out of the water. It was dead, presumed drowned, but in very good condition. Members who know me will be aware that I am not a lepidopterist, but a general entomologist. However, this was the first *C. nupta* that I had seen in the wild since one was found in the cycle sheds at Hinchley Wood School in Surrey during 1955.

Another Red Underwing. Bearing in mind the above note, you can imagine my surprise when another specimen of *C. nupta* flew into the lounge of my house in Banbury during the late evening of 8 August. After not having seen one for almost 50 years two appeared in a little over a week.

Missing Dragonflies. On 21 August I revisited two of my favourite sites from the 1950s and 1960s. During those two decades I regularly cycled to Esher Common and Headley Heath from my parents' home in Thames Ditton – all in Surrey. On any sunny day in the summer you would see hundreds of dragonflies on Esher Common and only the very occasional one on Headley Heath. Although 21 August was a beautiful sunny day I only saw three dragonflies on Esher Common. There were two *Sympetrum scoticum* (Leach), including one emerging on an oak tree trunk seven feet above ground, and one male *Sympetrum striolatum* (Charp.). There was not one damselfly to be seen. From Esher Common I drove to Headley Heath and during my stroll across the heath I saw several *S. striolatum*, *Aesbna mixta* Latr. and *A. cyanea* Muller; at least 15 specimens in total. (I hope to write more detailed articles about these two locations in the future).

Silver-spotted Skipper. *Hesperia comma* Linnaeus on Headley Heath. During the 1950s and 1960s I regularly visited Headley Heath in Surrey but have to say that I never saw one of these butterflies there. However, on a return visit on 21 August 2004 I was surprised to see that there is a thriving colony on a north facing grassy slope. It was the commonest species of butterfly on the day of my visit, even outnumbering the Meadow Brown.

Cone-head in Oxfordshire. During the very warm afternoon of 9 September I parked the car by the Oxford Canal between Banbury and



Oxford and spent a very pleasant couple of hours wandering along the towpath. On my return to the car I was walking with the canal to my left and rough grassland to my right. A wire fence on one metre high wood posts formed the boundary between the towpath and the grassland. The setting sun was shining on the far side of the posts from the towpath. As one does, I had a casual look on one or two posts and saw nothing. A little further on and I looked at more posts, disturbing a green cricket which disappeared in a flash. Acting more slowly I checked the next post and there, basking in the sun, was a fine female specimen of the Long-winged Cone-head, *Conocephalus discolor* (Thunberg). On checking the posts over the following 100 metre stretch of the fence I saw another three specimens – all female. By this time the sun had slipped further towards the horizon and was no longer shining on the posts so no further specimens were seen. It seemed from this visit that there is an established colony at this location but I was unable to return to that part of the canal before leaving the country.

Humming-bird Hawk in dead leaves. On the afternoon of 15 September I was walking across the lawn in the garden of our Banbury home and passed the Victoria plum tree. After a dry spell all the leaves were dead and of a brown colour. On the end of a branch at about head height I saw a slight movement. Closer examination revealed a Humming-bird Hawk, *Macroglossum stellatarum* Linnaeus, resting among a clump of dead leaves. Had it not been for its sudden movement I would never have noticed it. Shortly afterwards there was a violent gust of wind that shook a lot of leaves from the tree, at which point I saw the moth fly off into the distance.

References

- Keen, D. (2002) The Lily Beetle reaches Banbury. *Bulletin of the Amateur Entomologists' Society*, **61**(445): 241.
- , (2003) the Lily Beetle now recorded in Staffordshire and Cheshire. *Bulletin of the Amateur Entomologists' Society*, **62**(450): 195.
- , (2004) A further Note and Records of the Continued Spread of the Lily Beetle in Britain. *Bulletin of the Amateur Entomologists' Society*, **63**(454): 111.
- Marshall, J A & Haes, E C M (1988) *Grasshoppers and Allied Insects of Great Britain and Ireland*. Harley Books.
- Southwood, T.R.E. & Leston, D. (1959). *Land and Water Bugs of the British Isles*. Warne.
- Sutton, P.G. (2004). Are native British populations of the Snake-head Fritillary *Pritillaria meleagris* threatened by the Lily Beetle *Liliodactylus lili*? *Bulletin of the Amateur Entomologists' Society*, **63**(454): 113.



Fleas on a Chilean Puda, *Puda puda* (Molinia 1782), Mammalia, Cervidae

by R. S. George (1402), F.L.S., F.R.E.S.

54 Richmond Park Avenue, Bournemouth, Dorset, BH8 9DR.

According to my dictionary, the Puda is "a small South American deer, about 30cm high with spiky antlers". I received three fleas collected from the skin of an adult female Chilean Puda, *Puda puda*, at a post mortem examination. The fleas are two males and one female *Archaeopsylla E. erinacei* (Bouché), the European hedgehog flea, and the Puda had been a long term resident at Twycross Zoo, Atherstone, Warwickshire, SP3 0QT. Clearly the fleas were casuals, very much so. Firstly, fleas are not, in Britain, parasites of deer and, in so far as I am aware, these are the first from a Puda from anywhere. Secondly, hedgehogs are, within the mammalian classification structure, so far removed from deer that any association between the two species must be considered as extremely unlikely. When handling a live hedgehog fleas often get onto the handler and usually run around at speed and depart in a very short time. Therefore I assume that the Puda was in contact either with a live hedgehog or nest material very shortly before it died.

It is very pleasant to receive a surprising little package like this one and I am very grateful to Mr Mark Stidworthy if the International Zoo Veterinary Group, Keighly, for sending me the specimen. After receiving my determination, he sent a sackful of Puda bedding but it was flea-less.





Testing the new "Moonlander" design of light-trap

by Paul Waring (4220)

1336 Lincoln Road, Werrington, Peterborough, Cambridgeshire, PE4 6LS.

Some readers will have seen photographs and adverts in the AES *Bulletin* and elsewhere for the new "Moonlander" design of light-trap now being supplied by Worldwide Butterflies Ltd. Here are some test results in which I compared the design with a more conventional arrangement of the equipment. The two most novel features of the Moonlander design are that the entrance funnel to the trap is at the base and the light is within the body of the trap. By turning the trap up-side down it is an easy matter to operate the trap in the more conventional arrangement, with entrance funnel at the top and light mounted in the funnel. In my tests the trap was operated in both set-ups alternately over five pairs of nights in August and September 2005, with the results summarised in the accompanying Table. This shows that in the "entrance at base, light in trap" set-up the trap caught roughly half as many moths (48%) as in the conventional arrangement, sometimes less, based on a comparison of the geometric means of the respective catches. It also tended to catch somewhat fewer species (67% on average), although at the time of year of the tests, the reduction in species is probably less marked than would be expected in mid-summer, when a much larger number of species is on the wing. One species in particular, the Large Yellow Underwing *Noctua pronuba*, appeared to be much less successful in entering the trap and being captured in the "entrance at base" arrangement, with the catch of this species sometimes reduced by 65%, as can be seen in the Table. The catches of the Moonlander included a range of noctuids as well as geometrids and other families, suggesting that most of the species normally expected at light-traps will find their way in, they simply do so in smaller numbers. I conclude that purchasers of the Moonlander trap will increase their catches by turning their traps upside down and operating them in the conventional arrangement with light at the top, above the entrance funnel, a result not unexpected from accepted light-trapping theory. Operated this way this highly portable trap will become an even more effective one.

Note that in the comparison tests a coin was flipped to decide whether the pair of nights would begin by operation of the trap in conventional or novel mode, rather than always starting with one design and possibly introducing a bias. The catches of moths were dispersed back into the habitat and released into the cover of vegetation



Moonlander trap operating as designed, with entrance funnel at base and light within trap.



Moonlander trap operated as designed, with entrance funnel at base and light within trap. Both photos show the traps exactly as operated in the testing experiment and were taken during it.



Sites & dates of tests in 2005	Catches of moths	Individuals		Species		Large Yellow Underwing		Weather comments	Dusk temp °C	Min temp °C
	Entrance of light-trap	At top	At base	At top	At base	At top	At base			
Linford Road/Narrow Lane, Poulner, Ringwood, Hampshire	August 10	82	-	28	-	35	-	Calm, clear, dry, dew	17	12
	August 11	70	-	24	-	26	-	"	16	11
	August 12	-	37	-	19	-	8	"	15	9
	August 13	89	-	18	-	55	-	"	17	12
1366 Lincoln Road, Werrington, Peterborough, VC Northants.	August 15	25	-	9	-	5	-	"	16	8
	August 16	-	14	-	9	-	3	"	16	10
	August 17	36	-	13	-	9	-	"	16	10
	August 21	-	14	-	9	-	2	"	18	10
13 Lakeside Road, Kirkcaldy, Fife	August 23	16	-	7	-	8	-	Rain in night. Overcast & windy at dawn.	-	-
	August 24	-	5	-	2	-	4	Dry, clear sky with half moon at midnight.	-	-
1366 Lincoln Road, Peterborough VC Northants.	Sept. 9	-	28	-	11	-	8	Cloudy, calm humid, some rain after hot day	20	17
	Sept. 10	39	-	11	-	21	-	Wet day and night and cooler.	16	15
Arithmetic mean catches		41	20	12	10	20	5			
Geometric mean catches		33	16	12	8	11.5	4.5			

Tests of the trap were conducted over five pairs of nights in August and September 2005.



at least 30m from the trap after counting in the morning. The comparisons were performed on consecutive nights to try and obtain nights which were most closely comparable in terms of weather and the moths flying on the night. If more traps and time had been available, comparative tests using more than one trap per night could be performed over a greater range of nights during the year, but I suspect from these clear results that the overall conclusions will be the same. For more sophisticated methods of trap comparison which attempt to separate variation due to trap design from other causes of variation in the data such as the weather, see Waring (1980, *Ent. Rec.* **92**: 283-289, A comparison of the Heath and Robinson M.V. moth traps) and Fry & Waring (2001, AES, *A guide to moth traps and their use*).

It is worth reporting that on one of the three nights in my garden in Peterborough when I operated the trap with the entrance at the base, I was pleased to find two Old Lady moths *Mormo maura* in the catch in the morning. Capturing one Old Lady moth in a light-trap is an uncommon event but, in my experience, trapping two in the same night is most unusual. That said, I did have two in a standard-pattern Robinson trap fitted with a 125W MB/U bulb operated at the same site on 30 August 2005, so this result may be more a reflection that the Old Lady was in greater numbers in 2005 than usual, rather than a reflection on some design aspect of the Moonlander trap.

I would like to thank Robert Goodden for kindly supplying a "Moonlander" trap for me to examine, following on from our discussions at its effective launch at the AES annual exhibition in 2004, and the Centre for Environment and Rural Affairs, Writtle College, for support in writing up the results as part of my post as Reader.





Old Notes: Australian Insects

by Stuart Cole (10159)

21 Wensleydale Gardens, Hampton, Middlesex TW12 2LU.

E-mail: stuart.cole@odpm.gsi.gov.uk

Part 2: Northern New South Wales and Queensland

The natural vegetation of most of the coastal plain and eastern slopes of the Great Dividing Range that runs the length of east Australia is Eucalyptus forest. Over the whole area, stretching a distance of more than 2000 miles, the composite species of this genus of 400 or so change with altitude, latitude etc, with usually one or two species dominating locally. There is heavier forest, wet sclerophyll or rainforest, on the tablelands of the Dividing Range and higher rainfall areas of the coast.

Like dry-sclerophyll forest, wet-sclerophyll is dominated by Eucalyptus but is more picturesque. The trees are much taller (one species, *Eucalyptus regnans*, from south-east Australia is the second tallest of the world's trees, growing to more than 300 feet in height) and often have an understory of elegant tree ferns and sometimes cycads. During a trip to northern New South Wales in November 1970 I stopped at one stretch of wet-sclerophyll forest at Barrington Tops, 130 miles north of Sydney. Here, in addition to tree ferns, the understory included various shrubs and small trees (*Hicksbeachia*, *Citriobates*, *Callicoma*, *Ficus* etc) and the aroid herb *Alocasia* with its giant triangular leaves. Some trees carried the epiphytic Stag's Horn Fern (*Platyserium bifurcatum*).

It rained most of the day that I spent here, and hardly an insect was seen other than those beneath logs and under loose bark. Beneath the bark were beetles of the *Lycidae*, little orange beetles of the genus *Inopeplus* (Salpingidae), various earwigs, cockroaches, paper-thin bugs of the Aradidae and colonies of the metallic blue ant *Rhytidoponera chalybea*. On a branch above me a bird wrestled with a great winged phasmid which the bird eventually dropped and the insect fell to my feet. It was a female of *Tropidoderus childrenii*, broad bodied for a stick insect, the abdomen almost 2.5cm thick, and with broad fan-shaped wings spanning 19cm. A storm broke in the late morning, rain fell heavily through the afternoon and the black leeches that lived in the leaf litter came out in force. The wet also brought the red and black crayfish *Euastacus spinifera* out onto the tracks. At 22 to 25cm long and armed with big pincers they were like lobsters and it was strange to see them wandering around the forest. In the late evening the huge ground



beetle *Hyperion schroetteni* emerged from rotten logs. These elongate, parallel-sided black insects reach 7.5cm and with their large mandibles they are formidable looking creatures. Another insect encountered at night was the moth *Ophideres fullonica* (Noctuidae). One flew in through the window of the car, attracted by the smell of ripe bananas that were lying on the front seat. The moth immediately settled on one of the fruit, pierced its skin with its stout haustellum and began feeding. I had never come across *O. fullonica* before or since, but it is widely distributed across the warmer parts of the Old World and apparently it is considered a pest in some regions for the adults' habit of damaging fruit crops. The Australian rainforests survive in fragments scattered along the eastern fringe of the continent. Though small in total area, they display great variety, from cool temperate rainforest in Tasmania and Victoria to tropical in north Queensland, from lowland on the Pacific coast to montane in the Dividing Range. Because they contain elements of the old Gondwanan flora many of the forest reserves have been designated World Heritage Sites. Travelling northwards towards Queensland from Sydney, a particularly fine example of montane subtropical rainforest is met with in the Dorrigo National Park. The Dorrigo Plateau, reaching 3,000 feet altitude, was once covered with rainforest but was cleared, I think early last century, to provide cattle pasture. Just a few hundred protected acres of forest survive on the rim of the plateau but it is the most impressive piece of primary rainforest that I saw in Australia. It is notable for the high proportion of huge trees of several species amongst which are the Giant Stinging Tree (*Dendrocnide excelsa*) and strangler figs such as *Ficus watkinsiana*. Trunks of the stinging tree reach a diameter of around 14 or 15 feet and a height of 130 feet. *Dendrocnide* is related to the humble stinging nettle and a north Queensland species, *D. moroides*, is reputed to have the most painful, indeed potentially fatal, stinging hairs of any plant. As I know from experience the leaves are definitely to be avoided when walking through these forests.

In rotting logs and stumps at Dorrigo beetles of the Passalidae were abundant, and I found some dark brown weevils, *Poropterus parryi*, that resembled little bits of dead wood. Several kinds of ant were present in logs, among them *Rhytidoponera chalybea*, and also spiny springtails of the genus *Ceratrimeria*. Beneath the logs the ground beetle *Pamborus alternans* was common. This is similar in form to the familiar genus *Carabus* but belongs to the tribe *Pamborini* confined to Australia and New Zealand. When picked up *Pamborus* would squirt a powerfully foul smelling liquid from several places on the abdomen up to a



distance of five inches. There were quite a variety of other invertebrates under logs: big black pill millipedes of the Sphaerotheriidae: several kinds of centipede, large red velvet mites, orange ribbon-worms and planarians. On a tree trunk I found *Zopherosis georgei*, a beetle of the small family Zopheridae allied to the Tenebrionidae and an inhabitant of humid montane forests. It was 2.5cm long, dark brown with a somewhat flattened shape and very hard knobbly elytra and pronotum.

Of the coastal rainforest of northern New South Wales virtually nothing remains, having been replaced by pastureland, banana plantations, sugarcane etc. Some small remnants of forest have been preserved and residual rainforest vegetation survives along streams and roadsides. A few hundred acres of sub tropical rainforest covers a slope at the edge of the Pacific Ocean on Broken Head near the resort of Byron Bay. There were no trees of large size here and this was probably secondary forest. The only trees I could identify were Hoop Pine (*Araucaria cunninghamiana*) and the Piccabeen Palm (*Archontophoenix cunninghamiana*) which were both exceptional in being the only conifer and palm tree. The outstanding insect here was the birdwing butterfly *Ornithoptera priamus richmondiae*, the smallest and most southerly of the five Australian subspecies of *O. priamus*. (Some taxonomists consider that two of these subspecies, *richmondiae* and *euphorion*, should be raised to full species). In the late afternoon male birdwings sailed back and forth along the road through the reserve, stopping now and again to feed at the flowers of Lantana bushes. They did not perch on the flowers but fed while fluttering briefly before each flower, on wings of velvety black and shimmering green. Three of the much bigger females were seen flapping low over the ground in the interior and never at the flowers. The upperside of the wings of the female is dull brown, black and white but, like the male, she has a bright yellow abdomen with black spots along the sides and both have a collar of crimson at the front of the pronotum.

Just before the New South Wales Queensland border I stopped for a night in a wooded valley at the foot of the McPherson Range of hills. Here, in an overhang at the bottom of a steep bank, I discovered the luminous larvae of little keroplatid gnats of the genus *Arachnocampa*. The groups of larvae had their snares of silk threads suspended beneath them, each thread covered with droplets of sticky mucus which trap tiny insects attracted to the light. There were just a few dozens of *Arachnocampa* here but there are caves in both Australia and New Zealand that contain such vast numbers of them that they are a lucrative tourist attraction. The fragile insects forming the Keroplatidae



are related to the fungus gnats of the Mycetophilidae and were formerly included in that family.

I returned to Sydney down the drier western side of the Divide where the forest of smaller eucalypt species were often mixed with conifers of the genus *Callitris* (cyprus-pine). Beyond the Divide, towards the interior there is mallee or grassland then eventually desert. I never managed to reach the true desert areas, as I never had a vehicle that I could trust not to break down, but several grassland localities were visited briefly. One of these was around Lake Cowal, 210 miles inland and quite typical of Australian grassland. The almost flat expanse of grass was dotted with trees of the genera *Casuarina*, *Acacia*, *Geijera*, *Brachychiton* and *Callitris*. One insect which was all too numerous, as it is in other grasslands of Australia, was the infamous Bush Fly (*Musca vetustissima*), the insect that supposedly gave rise to the invention of the hat with corks suspended around the brim. It breeds in cattle dung and is one reason why many kinds of foreign dung beetles, mainly African, have been introduced into Australia. Although there are a great many species of dung beetles indigenous to Australia (e.g. the genus *Onthophagus* alone numbers 200 species), they are not up to the job of swiftly disposing of the great amounts of cattle dung deposited daily on Australian pastures.

At Lake Cowal, a variety of large robber flies (*Asilidae*) were very conspicuous, particularly the magnificent *Blepharotes coriarius*. The dusky wings of this insect span 7.2cm and the orange abdomen is decorated with tufts of white and black hair along the sides. The loud buzz as they swept past me sounded more like that of a beetle than a fly. At dusk the *Blepharotes* went to roost on the branches of shrubs from where I could pick them up by hand, they making no attempt to escape. A species of white pierid butterfly gathered on some of these same bushes during the day time. Tenebrionid beetles of the endemic Australian tribe *Heleaini* were frequent beneath bits of wood. These are characteristic of dry country and some, commonly called pie-dish beetles, have flanges to the elytra and pronotum that make them almost circular in shape. The three species that I found were *Pterobelaeus striatopunctatus* (most numerous), *P. planus* and *Helaeus tuberculatus*.

In April and May, 1971 I drove up the Queensland coast from Brisbane in an old Holden station wagon that also served as a camper van. The road north of the city first passes through several hundred miles of country where much of the Eucalyptus forest has been replaced by pasture or other agricultural use. The first place I stopped for the night was at Gin Gin where I camped in a roadside strip of light



Eucalyptus woodland. At sunrise the air was surprisingly cold and the ground cover of grass heavily saturated with dew. I discovered that many insects had gathered under the trees for the night and were clinging to the grass heads and stems. There were dragonflies, metallic green flies which I think were Tachinidae, bugs of the family Lygaeidae, and various Hymenoptera including sand wasps (*Ammophila* or a related genus), ichneumon-flies and braconid wasps. The sand wasps and some of the other Hymenopterans were locked tightly onto the stems with their mandibles. All the insects were immobilised by the damp and chill air except for the dragonflies which were able to fly up as soon as I approached them.

One hundred and forty miles to the north-west of Gin Gin the main coast road crosses the Tropic of Capricorn at the town of Rockhampton. The sparsely inhabited country immediately to the north of the tropic is flat to gently undulating and again, mostly cleared of the forest that must have once covered it. For what the land was cleared in this area was not apparent at the time since it was not being used for crops or pasture. A few scattered Bottle Trees (*Brachychiton rupestre*) were left standing, perhaps because of their curious appearance. Like the better known Baobabs, the trunk of the bottle tree is markedly swollen and barrel-shaped for water storing capacity in response to semi-arid conditions. There were also some sad-looking prickly pear plants (*Opuntia* spp.) here and there, relics of a time when great swathes of Queensland were smothered by these cacti until they were virtually eliminated by the larvae of the South American pyralid moth *Cactoblastis cactorum*.

The generally low level of the plain is broken by the Broadsound Range. The vegetation of these hills appeared to be undisturbed, probably because of their infertility. The grass covered stony ground was lightly wooded with small Eucalyptus trees. In one place there was a quite extensive mixed community of grass trees (*Xanthorrhoea* sp.) and cycads with some of the plants reaching ten feet in height. On a previous visit here in September 1970, some of the grass trees sported a tall spike of myriad tiny white flowers at which honeyeaters (birds of the *Meliphagidae*) and swallowtail butterflies were feeding. Shy parties of Great Grey Kangaroos were occasionally glimpsed through the trees.

I stopped in the Broadsound for a night, parked beside a pool several yards across with a gravel bed. Its waters teemed with aquatic invertebrates. During the early hours of the night my torch revealed a number of crayfish (*Parastacidae*) and many shrimps in the water around the rim of the pool, their eyes reflecting bright red in the light.



Notonectid bugs (water boatmen) were active just under the water surface and many whirligig beetles (*Gyrinidae*) drifted about on it dodging bugs of the Gerridae and a couple of spiders, the eyes of the latter glowing green in the torchlight. Some larger insects visible in the depths were a water scorpion (*Ranatra* sp.) and a water beetle of the genus *Cybister*. Australia has several species of both these cosmopolitan genera. There were also some very big frog tadpoles. The night was clear but not cold and at first light the water of the pool was still warm. The crayfish had all concealed themselves but the shrimps were still lingering at the water's edge. As the day warmed up the gyirinids started whirling frantically about in their hundreds.

This was a remarkable abundance of aquatic life in a pool that would be dry for most of the year. In September the previous year I found it almost completely dry with just a damp patch on the gravel bed. Now the pool was nearly full but the water was already rapidly evaporating. When I stopped here again less than two weeks later, the level had dropped by 12 inches, 40% of its depth.

The first tracts of humid forest that I stopped at within the tropic were on the coast at Proserpine and on the nearby Whitsunday Islands a few miles offshore. I stayed a couple of days on Hook Island, which at eight miles across, is one of the largest of the Whitsundays. The island is almost entirely covered with forest in which the principal tree is *Araucaria cunninghamii*. Most of the animal life seemed to be concentrated around the visitor accommodation and camp site in a little bay facing Whitsunday Island. Flocks of Shining Starlings nested in a tree behind the beach and flocks of Black Fruit Bats roosted in a neighbouring tree while Scrubfowls and three to four foot long Lace Monitor Lizards scavenged for food beneath, the lizards raiding unguarded tents. A family of remarkably tame Bush Stone-curlews nested next to the shower room. These strange, long legged birds with large unblinking eyes stood like statues for hours at a time unperturbed by the human activity around them.

A very large species of grasshopper was gathered in numbers on the shrubs planted around the buildings and several other kinds of grasshopper were found in the vicinity. The big black and yellow carpenter bee *Xylocopa aruana* was numerous at flowers of these shrubs, sometimes in company with the related *Lestis aerata*. A few moths and other insects came to light, among them two individuals of the dynastine beetle *Xylotrupes gideon*. This bulky black insect reaches 6 cms. in length and has a large forward pointing bifurcated horn on the pronotum and another on the head. It is quite common in eastern



Queensland, even occurring in gardens in Brisbane, where the larvae feed in compost heaps, and the species has a wide distribution extending to north India.

Most of the surviving rainforest of Queensland is in the hills; the coastal plain has pretty well been completely cleared for agriculture (bananas, sugarcane, etc). Some fragments of coastal rainforest linger on in the Mission Beach area south of Cairns and here I found the greatest variety of butterflies, especially in a small forest reserve on Clump Point, a hill at the north end of Mission Beach. Australia's two most spectacular species, the birdwing *Ornithoptera priamus euphorion* (males only) and *Papilio ulysses joesa*, were frequent, flying beside tracks and stopping briefly to feed at Lantana flowers. The wings of *P. ulysses*, spanning 10 cm., are brilliant iridescent blue with a broad black border. Both these species also occur in New Guinea. Other butterflies that I recognised were the swallowtail *Graphium agamemnon*, a widespread species with a distribution extending to north India, which has black wings spotted with green, and the beautiful crimson and black nymphalid *Cethosia cydippe*.

The lowland rainforest at Mission Beach, incidentally, is supposed to be the best place in Australia for seeing the Two-wattled Cassowary as some of these birds have become used to handouts from people living at the forest verge and are quite tame. This species of cassowary is the world's third biggest bird and is the largest animal in the rainforests of Australia and New Guinea. Apparently, it is also the only bird capable of killing a human in self defence – there is more than one recorded incident of them having done so.

Another good spot for butterflies was at Babinda Creek, an inland location at the edge of the Atherton Tablelands. *Papilio ulysses* was again a common insect here along with *Graphium agamemnon*, *Hypolimnas bolina*, *Tirumala hamata* and many species that I couldn't identify. *Tirumala hamata*, black with light blue spots and streaks, is very abundant at times in Queensland and is an irregular migrant, sometimes straying south down the east coast of Australia as far as Sydney. On South Molle Island in the Whitsundays in September 1970 I saw *Tirumala* in hundreds flying around flowering mango trees, and in May 1971 I encountered great numbers flying northwards along the coast road near Mackay on the mainland opposite the Whitsundays. The large diurnal moth *Alcides metaurus* of the *Uraniidae* was one of the denizens of the forest interior at Babinda. This handsome species, like some others of the family (which has some 29 species in Australia, all confined to Queensland), resembles the swallowtail butterflies in



form and has broad bands of iridescent olive green or pink across its black wings. Although it is a forest insect, I have seen several over the sea some miles out from Cairns.

I spent a couple of nights at Babinda sleeping in a clearing near the forest edge. Fireflies drifted around the clearing, their lights blinking on and off as green bush-cricket *Hexacentrus mundas* stridulated from their perches on grass stems and other low vegetation. Here I found one of the very few phasmids that I encountered. It was a big, heavy-bodied, female Spiny Leaf Insect (*Extatosoma tiaratum*) hanging upside down on a shrub. Nearby was a tiny spider, *Argyrodes antipodians*, with a silver abdomen, and in the rotting wood of a fallen tree were robust black wingless cockroaches of the genus *Panesthia*, green scorpions, red millipedes and hairy mygalomorph spiders.

I noted few Hymenoptera in the Queensland rainforests other than ants in which Australia is very rich having representatives of 101 genera and about 1,100 species. One of the characteristic genera of the humid forests is *Leptomyrmex* (Dolichoderinae) containing 40 species and restricted to New Guinea, eastern Australia and New Caledonia. They are distinctive for their narrow bodies, long legs and the habit of many species of holding the gaster bent forward over the thorax so that they look like spiders. One *Leptomyrmex* found was *L. unicolor*, workers of which were feeding at extra floral nectaries of some leguminous shrub in a forest clearing. The colouring of this species is rather unusual in being matt black with pure white tarsal joints and funicle of the antennae. I found a colony of another species, *L. varius* var. *rufipes*, nesting in the very damp wood of a rotting log. Many of the workers of this were replete with greatly swollen gasters that are used by the colony to store liquid in the manner of the honeypot ants of the Australian desert. Among other ants were the Green Tree Ant (*Oecophylla smaragdina*), an aggressive yellow-green species notable for its unique nests made on the branches of trees by sowing the living leaves together using silk from their larvae. *Rhytidoponera*, *Camponotus*, *Odontomachus* and *Myrmecia* were other ant genera that I recognised.

I never found many beetles in the northern rain forests, although Passalidae were quite frequent in rotten logs and stumps, sometimes shared with Staphylinids of the genus *Priochirus*. The latter belong to the subfamily Piestinae (of which we have just one member in Britain: *Siagonium quadricorne*) and were, like all others of the genus, dorso-ventrally flattened, shiny black, with broad head and pronotum. Of the



few kinds of leafbeetle that I found, I identified only the round, dark metallic green *Chalcomela fulvipes*, which was quite common.

I left Australia in April 1972 on a passenger-cargo ship out of Sydney bound for Singapore. For the first few days the ship sailed close to the Queensland coast. When we passed through the Whitsunday Islands, a number of butterflies fluttered around the decks: *Tirumala hamata* and bright yellow Pierids of the genus *Eurema* (probably *E. hecabe*) and also a single unidentified Papilionid. The occasional *Tirumala* flew to the ship the following day when we were ten miles from land and well to the north of the islands. In addition a few other insects – a couple of dragonflies, a tiny tree hopper (Membracidae) and a large moth of the Syntominiinae – came to the ships lights during the night.

North of Cairns the ship sailed out of the Great Barrier Reef into the open Coral Sea, then we reached the top of Cape York, turned west through the Torres Straits and into the Arafura Sea. During the 3 days that it took to traverse the Arafura, the ship was visited by a surprising number of insects. As we were never less than 150 miles from land, I assumed that these insects must have been crossing the 300 to 500 mile wide sea between Australia and New Guinea. The most frequent species was the Yellow-winged Locust (*Gastrimargus musicus*), an insect distributed all over Australia. The other insects were: a few dragonflies of three different species; a few each of several butterfly species including the yellow and black swallowtail *Papilio demoleus* and a *Eurema* sp.; a variety of small moths, an assortment of small flies and one large horsefly. Nearly all of the insects landed on the decks and lingered there for up to several hours before taking flight again. The exceptions were the butterflies which all fluttered past the ship roughly in a northerly direction without stopping.

From time to time a few land birds, Sacred Kingfisher, White-collared Kingfisher and Satin Flycatcher, also landed on the ship. Whilst on the ship's decks the birds were extraordinarily tame. Swallows also sometimes came to the ship, never landing but flying to and fro alongside for hours.

Presumably the birds were on migration (certainly the first two species winter in New Guinea) and, perhaps, so were some of the insects i.e. the butterflies, locusts and the dragonflies, but it seemed to me unlikely that the little flies and moths were intentionally crossing such a wide stretch of sea. Only the most benign weather conditions, such as we experienced during this journey, might allow them to achieve it. The weather was warm, sunny and there was virtually no wind to blow them so far from land. Whatever was impelling all these



insects to cross the Arafura Sea, they were my last encounter with the entomological fauna of Australia.

Over the following days more insects were met with over the Java Sea between the Indonesian islands of Java and Borneo which are separated by 200 miles. Fifty miles to the north of Java various dragonflies, Diptera and small moths landed on the ship's deck – no locusts or butterflies were seen. The seas here were remarkably tranquil and there was not a breath of wind. At sunrise one day, I woke to find the sea as flat as a sheet of glass but covered for miles around with fine yellow dust. So thick was this dust in places that it looked as if the ship was ploughing through mud. I couldn't imagine what the nature or origin of this dust was but, later, I read in Charles Darwin's journal of the voyage of the *Endeavour* in 1831 about a similar phenomenon when great volumes of dust fell on ships far out in the Atlantic. Upon examination this dust was found to be composed of dry (fossil?) shells and silica of 'infusoria', an obsolete term covering various minute plants and animals eg. diatoms and foraminifera. On another day the almost flat surface of the sea was streaked with southward flowing currents of smoother water carrying accumulations of plant debris composed almost entirely of the leaves and flowers of a single plant species. Flying over these drifting ribbons of debris, which appeared to be many miles long, there were small pale yellow insects. I was unable to make out what these insects could have been, unfortunately the deck was too far above water to see, or even hazard a guess at what order of insects they might be.

References

- Darwin, C. 1845, *Naturalists Voyage Round the World*. John Murray, London.
- Department of the Environment and Heritage, Australia. Australian Faunal Directory website. www.deh.gov.au/biodiversity/abrs/online-resources/fauna/afd
- Shattuck, S.O. & Barnett, N.J. Australian Ants Online. Commonwealth Scientific and Industrial Research Organisation. www.ento.csiro.au/science/ants/default.htm
- Tillyard, R J. 1926 *The Insects of Australia and New Zealand*. Angus and Robertson, Sydney, NSW.
- Williams, G. 2002. *A Taxonomic and Biogeographic Review of the Invertebrates of the Central Eastern Rainforest Reserves of Australia (CERRA) World Heritage Area and Adjacent Regions*. Australian Museum, Sydney.





In praise of Buddleia "Golden Glow"

by Jan Koryszko (6089)

3 Dudley Place, Meir, Stoke-on-Trent, Staffordshire ST3 7AY.

For forty years now I have grown buddleias in my garden. I have grown many varieties from cuttings, even the variegated leaf species. The white butterflies seem to like to roost in these after feeding. *Buddleia davidii* is the most commonly grown in gardens, with many forms to be found- Black Night, Royal Red, White Cloud, White Bouquet and many other hybrids. They grow best in well-drained, chalky or limestone soil, positioned in full sun. They should be pruned hard in the spring, flowering best on strong new shoots. My garden has acid soil, but they still do very well. They are quite hardy plants, and can stand up to hard frosts. The flowering season in my garden lasts from late July to mid September.

These buddleias can also be found growing on waste land, and growing out of old buildings in the brick work- no doubt the seeds are distributed by birds, and the lime in the mortar helps their growth.

In 1998 I was very surprised to find a buddleia in flower in October. The flowers were a yellow colour, and quite fragrant. The owner of the





garden kindly allowed me to take cuttings, and advised me to prune it hard every year. I potted them with soil from an old grow bag. They grew well, and I transplanted them into my garden the following year. In no time they grew vigorously and flowered in late July until mid November, attracting all the late butterflies and moths. Since then I grow this species every year with all my other varieties. The entomologist cannot be without this species, with its long flowering period, lasting long after other buddleias have finished. The form is known as Golden Glow (*Buddleia x weyeriana*) a hybrid between *Buddleia globosa* and *Buddleia davidii* var. *magnifica* raised by a Mr. Van de Weyer in Dorset in 1914: a semi evergreen shrub to 3m high, flowers in various shades of cream or yellow to orange, and often shaded with purple. It has a quite fragrant scent.

The cuttings grow quite well out of doors, best taken in Autumn. You can add a touch of lime if you wish, but it is not important. I put mine in a sheltered spot during the winter, away from the cold North and North East winds. If there is a long dry spell sprinkle them with water, but some cuttings will die if you overwater them. Put quite a few cuttings in each flower pot, as they seem to support each other.

I have seen this plant on sale in garden centres at £10 to £15. If you love butterflies, moths and bees this plant is a must.

Reference

Philips, R. and Rix, M. *Shrubs*. London: Pan, 1989.





Book Reviews

Phasmida Species File. Catalogue of Stick and Leaf Insects of the World

by Otte, D. & Brock, P. D. 2005. 414 S. 210x280 mm, ringbound. Published by the Insect Diversity Association, Academy of Natural Sciences, Philadelphia. ISBN 1-929014-08-2. Subscription price: 50 USD, later 75,00 USD. In English.

Over the past two decades the species of the order Phasmatodea, the stick insects and walking leaves, have attracted the interest of more and more enthusiasts. Many of them start taxonomic work, resulting in a considerable number of publications. But there are only two major publications, 2001 BRAGG's *Phasmids of Borneo* and 2004 Zompro's *Revision of the genera of the Areolatae*, that deal with the order. A catalogue, urgently required, was still missing. Otte and Brock have tried to fill this gap with the present work. The high price would lead one to expect high quality book production, but the work takes the form of a ringbound collection of loose leaves. The cover quickly becomes damaged by use. This form of binding is unsuitable for a book that will be used heavily, and the buyer must be recommended to rebind the book more suitably.

On page two the book is called a 'second edition'. This is not really correct. The so-called previous edition did not fulfil the requirements of Article 8.6 of the International Rules of Zoological Nomenclature. A consequence is that all taxonomic acts must be dated 2005 and not 2003, as suggested in the introduction. The authors stick to the grammatically incorrect term 'Phasmida' instead of the correct term 'Phasmatodea'. Fortunately, the use of 'Phasmida' is decreasing, and hopefully it will not be encouraged by this book again.

Many errors are corrected on a separate sheet of paper. This includes a link to a website, where further errors and additions shall be published. At the moment this site is offline. Considering the high price a more thorough revision of the manuscript would not just be desirable but urgently necessary since the value of such a catalogue is almost completely defined by the accuracy of its contents.

One chapter contains collections of references dealing with the biogeographical regions. The selection policy for these references is not obvious, as minor generic revisions stand beside an unpublished thesis and species lists of all groups of insects, while several important works are missing. One of the most important works on Nearctic phasmids



(Zompro, 1998: *Revision of Diapheromerinae*) is not cited for the Nearctic, and another work dealing solely with these faunae (Helfer, 1987: *How to know the Grasshoppers, Cockroaches and their allies*) can only be found in the section 'General'.

The sections 'Type catalogues', 'Taxonomic Arrangement' and 'List of genera' appear well-done, but the prominent use of self-creating tribal names as, for example, *Necrosciini*, the single tribe in the subfamily *Necrosciinae*, is confusing.

In the section 'Taxa above the level of genus' almost all more recent important publications are missing, some of them are mentioned on the separate leaf.

In the main part 'Genera and Species' many spelling mistakes like '*dulterina*' instead of '*adulterina*' (S. 228) could have been avoided with a careful review. This is also true for formatting, *Athertonia* is placed as a valid genus under 'T', instead of 'A'. At a closer look it becomes obvious that this is a wrongly formatted synonym. The weakest treatment concerns *Heteronemia*. 23 species are listed in this genus, which actually belong to various genera (*Heteronemia*, *Pseudosermyle*, *Baculum*, etc) and families (*Heteronemiidae*, *Diapheromeridae*, *Phasmatidae*). Almost without exception their actual assignment has been published in major revisory works already.

Systematics of Phasmatodea are changing, and the next years will bring a considerable number of changes. Valuable as it is, this work is still premature, and, considering the high price, it cannot really be recommended. This might change when a second, thoroughly corrected edition will (hopefully) be published.

Oliver Zompro

A list of terrestrial fauna (Mollusca and Arthropoda) and flora (Bryophyta, Pteridophyta and Spermatophyta) from the Azores

Edited by P.A.V. Borges, R. Cunha, R. Gabriel, A.F. Martins, L. Silva and V. Vieira. September 2005. Direcção Regional do Ambiente and Universidade dos Açores, Horta, Angra do Heroísmo and Ponta Delgada, 317 pp. 16 Plates. Species lists. Bilingual (Portuguese and English). Hardback. ISBN 972-8612-22-2.

This volume, edited by members of the biology and agricultural science departments of the University of the Azores, is the first substantial list of the biodiversity of these Macaronesian islands.



The Azores consist of a remote archipelago of nine oceanic islands which are populated by terrestrial organisms which arrived by sea, on the wind and via other animals or with human assistance. They form the northernmost and most recent Macaronesian archipelago and represent a great ecological and evolutionary laboratory. The region was the first to be recognised by the European Union under the European Habitats Directive.

The fauna and flora of isolated oceanic islands are significantly different from those of other terrestrial ecosystems and merit special attention. They are very sensitive to changes in land use, with endemic species (i.e. species not found elsewhere) in particular under pressure from new introductions. Evolutionary speciation is an important component of the islands' natural history, and the numerous endemic species present are a result of both neo-endemic events and the extinction of continental parent populations (paleo-endemic events).

This book is the culmination of a recording project resulting from Project ATLANTICO, which extended the BIOTA biodiversity monitoring initiative in the Canary Islands, begun in 1988, to the other Macaronesian islands – Cape Verde, Madeira and the Azores.

Around two thirds of the volume consists of lists of the recorded taxa, order by order. One of the four appendices deals with problem species (those that require further taxonomic work before their presence can be confirmed). These data have allowed an interesting analysis of the relative diversity of the different taxonomic groups in the Azores.

As would be expected from global and Canary Islands data, of the total 4,487 terrestrial species and subspecies in the taxonomic groups described in the book, 49.2% (2209) are Arthropods. There are 393 endemic spp. and most of these (267) are represented by the Arthropods. Most are known only on one island, whereas plants are more evenly distributed over the islands. The three islands richest in arthropods are also those which have the largest human populations, which suggests the possibility of a recording bias.

Among the Arthropods, the Hexapods are the most diverse, with 1,758 taxa, 196 of these being endemic to the Azores. There are 528 species of Coleoptera, 306 Hemiptera and 149 Lepidoptera, as well as 121 species of spiders and 113 mites. Compared with global estimates and those from the Canary Islands study, the Azores are unusually rich in Diptera (393 species) possibly because this order is better adapted to long distance dispersal. The Hymenoptera are relatively poorly represented, with 131 species, possibly because of under recording.



It has been possible to completely classify some of the insect groups, including the Thysanoptera, Aphidoidea, Coleoptera and Lepidoptera, according to whether they are exotics/alien, native or endemic groups. A major proportion are introduced species, indicating vulnerability to future biotic homogenization. In the case of the Lepidoptera and Thysanoptera the indigenous population dominates, although a major proportion is non-indigenous, and more and more new species are being described as interest in the Azorean fauna increases among foreign entomologists.

In addition to a chapter describing the ATLANTIS Tierra 2.0 biological recording software, which can be used to collate both published and field data and was developed for the earlier research on the Canary Islands, a chapter is also devoted to how the recorded data can be combined with GIS geographical information to predict the habitat suitability and distribution of endemic species. This involves comparison of mapped geographical records with an estimate of the suitability of environmental conditions for individual species. Maps can then be generated showing the likely future spread of the species. Geological and historical data (such as on volcanic events) also provide useful inputs into the predictive model.

In order to generate environmental suitability data, a Bioclimate Analysis and Prediction System (BIOCLIM) and a program called BioMapper have both been useful. [Incidentally, BioMapper is freely available for download at <http://www.unil.ch/biomapper>]. BioMapper can be used to generate an Ecological Niche Factor Analysis (ENFA) which compares differences between mean environmental conditions and those suitable for a particular species, as well as estimating the tolerance of the species to minor environmental gradients.

This is a welcome publication, not least because invertebrates have been almost completely neglected in the management of habitats in the Azores, and the book will be of great interest to anyone planning to study the entomology or ecological evolution of the Macaronesian islands. Our review copy has been donated to the Royal Entomological Society Library, in order to make it more widely accessible to all current members of the RES and AES and to the wider entomological community.

Dafydd Lewis

Special Offers on outstanding classic entomological books by leading authorities in their fields



British Pyralid Moths by B. Goater <i>et al.</i>	h/b £22.50 to £12.00
British and Irish Pug Moths - a guide to their Identification by Adrian M. Riley and Gaston Prior	h/b £29.50 to £15.00
Hawkmoths of the Western Palaearctic by A.R. Pittaway	h/b £37.50 to £20.00
Breeding Butterflies and Moths - a practical handbook for British and European Species by Ekkehard Friedrich	h/b £20.00 to £10.00 p/b £11.95 to £7.50
A Systematic Catalogue and A Bibliography of the Zygaeninae (2 vols) by W.G. Tremewan and A. Hofmann	h/b £65.00 to £32.50
The Scientific Names of the British Lepidoptera by A.M. Emmet	p/b £17.50 to £10.00
The Aurelian Legacy - British butterflies and their collectors by Michael A. Salmon	h/b £30.00 to £15.00
Grasshoppers and allied Insects of Great Britain and Ireland by Judith Marshall & E.C.M. Haes	p/b £18.95 to £15.00
Sound Guide to the above (audio cassette)	(inc. VAT) £6.00 to £4.50
The Songs of the Grasshoppers and Crickets of Western Europe by D.R. Ragge & W.J. Reynolds	h/b £45.00 to £22.50
Sound Guide to the above (double CD set)	(inc. VAT) £20.00 to £12.50
The Dragonflies of Europe by R.R. Askew	p/b £30.00 to £25.00
Dragonflies: behaviour and ecology of Odonata by P.S. Corbet	h/b £62.50 to £45.00
Oaks, Dragonflies and People by N.W. Moore	p/b £7.50 to £5.95

N.B. As notified in the last Bulletin, our series, *The Moths and Butterflies of Great Britain and Ireland*, has been sold to Apollo Books (www.apollobooks.com). Dr K.P. Bland, author and associate editor, has been appointed editor and is planning the completion of the series with a strengthened editorial board. Basil and Annette Harley warmly thank their many subscribers to this series for their loyal support over the past 23 years. All other Harley Books titles will be available as previously.

Offers open until end August 2006 only, so do not miss this golden opportunity. For full details of these and other titles, visit our website: www.harleybooks.com.

To **HARLEY BOOKS**, FREEPOST, Great Horkesley, Colchester CO6 4YY
(Tel. 01206 271216; Fax. 01206 271182; e-mail: harley@harleybooks.co.uk)

I enclose my cheque / Please debit my charge card / for the following titles:

.....
.....

Total (to include postage/carriage of £3.50 for one book; £5.00 for two or more) £

Mastercard/Visa/Maestro/Amex a/c no. sec. no.

Name c/c expiry date

Address

.....

Postcode

Tel. no. Signed Date

AURELIAN BOOKS

DAVID DUNBAR

Butterflies, Moths and Entomology

View stock on-line at www.booksatpbfa.com

(Click on sellers and search Aurelian Books)

- Antiquarian, out-of-print and new reference books -
- Butterflies, moths, dragonflies, beetles and other insects -
 - British Isles, Europe and rest of the World -
 - Free book finding search service -
 - Catalogues available on request -
 - Browse our stock - by prior appointment -
- Collections and good individual books and journals bought -

Phone, fax, e-mail or snail-mail for all enquiries
which are always welcome

31 LLANVANOR ROAD, LONDON NW2 2AR
(Telephone and fax) 020 8455 9612 e-mail: dgdunbar@aol.com



ARE YOU MISSING OUT? THE ENTOMOLOGIST'S RECORD and Journal of Variation

Publishes notes, observations, articles and reviews,
mainly on the Lepidoptera and Coleoptera of the British Isles and Europe.

Founded in 1890 by J. W. Tutt, and still going strong, we publish six issues a year - alternating with the AES *Bulletin*. This means there is now a first class entomological journal available every month of the year!

Our subscription price is £28 per year. If you would like to see a specimen copy, please send your name and address, and a couple of second class stamps to cover postage to:

The Editor, 14 West Road, Bishops Stortford, Hertfordshire CM23 2QP.

Write now! You never know what you could be missing.

The Entomologist's Record is an independent, non profit making journal.
To ensure high standards of production we use Cravitz Printing Company.

To be published in November 2006
SUBSCRIPTION OFFER

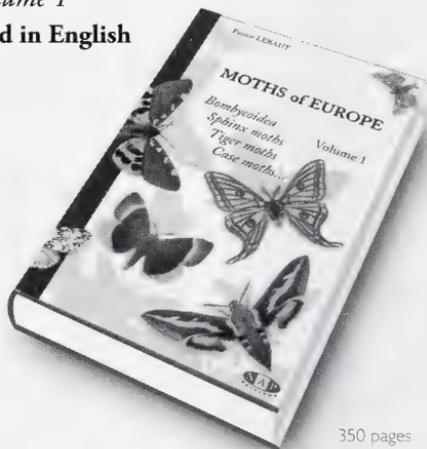
Volume 1 of a collection of 3 volumes which cover most of the moths of Europe.
Author : **Patrice LERAUT** from the **Museum d'Histoire naturelle, Paris**

Moths of Europe
Bombycoidea, Sphinx moths, Tiger moths, Case moths
Volume 1
Published in English

Species featured :

- more than 500 moths traditionally grouped under the generic headings of bombycoideans, sphinx moths, tiger moths and footmen, ghost moths and swifts, etc. : Arctiidae, Sphingidae, Lasiocampidae, Saturniidae, Endromidae, Lemoniidae, Bombycidae, Drepanidae, Axiidae, Limacodidae, Notodontidae, Lymantriidae, Brahmaeidae, Castniidae, Heterogynidae, Cossidae, Hepialidae, Somabrachyidae, Thyrididae and Psychidae.

- 3 new species are described.
- 50 colour plates and outline drawings
- Distribution maps



350 pages
Hardback cover
Format 13 x 20,5 cm
Bound book

Public selling price on publication : 65 € (59 € for the book + 6 € post and packaging)

Subscription price : 1 copy : 46 € (post and packaging included).

Payment accepted by international money order, international visa card, bank transfer, cheques in euros.
For more than one copy and grouped orders, contact us by email, fax, or post at the address below.
Please note that our offices will be closed between 26 July and 24 August.
This special price is reserved for individuals and associations.

Offer valid : 15 September 2006

© N.A.P Editions : 3 chemin des hauts graviers - 91370 Verrieres Le Buisson - France
Tel. (+33).1.60.13.59.52 - fax (+33).1.60.13.01.33
napedit@wanadoo.fr

For further information consult <http://www.napeditions.com>

AES Publications

Amateur Entomologists' Society

Being a member of the Royal Entomological Society and the Amateur Entomologists' Society has the advantage of discount on all our publications. Discounts are only available if the subscriptions are fully up to date. Single copies only may be purchased on discount. Postage & Packing - Free to U.K. addresses, Overseas add 10%.

The Hymenopterist's Handbook by Dr. C. Betts et al.

A completely revised 2nd edition dealing with the history of their families, classification and structures; natural history; studying, collecting, breeding, attracting and preserving Hymenoptera. Appendices include keys to the families. 214 pages with numerous tables, keys and figures (1986) **£ 11.45**

Members price **£ 8.60**

Revised Flight Tables for the Hymenoptera

Revised flight tables for the Hymenoptera giving, wherever possible, times, location, flower visits and some indication of distribution and abundance. 24 pages (1988) **£ 3.10**

Members price **£ 2.35**

A Coleopterist's Handbook

Edited by J. Coates & M. L. Barclay. One of the Society's best selling publications, the *Coleopterist's Handbook* is now available as a fully revised and expanded fourth edition. Nomenclature has been brought inline with current use, collecting/curatorial methods reflect best practice and plan/beetle and beetle/plant lists are included together. Recent additions to the British fauna, modern and traditional techniques are included. All advice and comment given in the book is based upon collective years of practical experience of both curatorial methods and field craft; beetle family chapters have each been written by an internationally recognised authority. 496 pages including 32 colour plates. **£ 54.00**

Members price **£ 39.00**

Host plants of British Beetles: A List of Recorded Associations

A list of a wide range of plants, in alphabetical order, together with the beetle species that have been recorded as being associated with them. 24 pages (1992) **£ 3.10**

Members price **£ 2.35**

A Silkmoth Rearer's Handbook by B.O.C. Gardiner

SPECIAL OFFER PRICE **£ 7.70**

No further discounted price available

A Lepidopterist's Handbook by R. Dickson

A practical book on the breeding, collecting, storing, conservation and photography of Lepidoptera. A *vaude mecum* for beginners and the initiated. 136 pages, seven sections, 34 line drawings, 13 plates, new edition (1996) **£ 9.90**

Members price **£ 7.35**

A Dipterist's Handbook by A.E. Stubbs, P.J. Chandler and others

A practical handbook for both the beginner and the initiated on collecting, breeding and studying the two-winged flies. Describes equipment, trapping, preservation, habitat, plant and animal associations and behaviour. Includes a detailed chapter on larval stages with an illustrated key to families. An essential book for the keen Dipterist. 260 pages with drawings of larvae and equipment (1978, reprinted 1996) **£ 14.20**

Members price **£ 10.60**

Practical Hints for Collecting and Studying the Microlepidoptera

By P.A. Sokoloff. A practical manual for those interested in the smaller moths, describing techniques for collecting adult moths, collecting immature stages, breeding, killing, setting and mounting. A list of useful books and journals as well as details of societies and suppliers is included. 40 pages, 11 figures (1980) **£ 4.20**

Members price **£ 3.15**

Rearing and Studying Stick and Leaf-Insects by P.D. Brock

Specifically intended for beginners, although it is also suitable for experienced Phasmid enthusiasts. It is one of the few guides to rearing that features the majority of the culture stocks available, 22 species in detail. The informative text is complemented by 8 colour plates, 14 black and white plates and 29 figures. (New edition, 2003) **£ 11.20**

Members price **£ 8.20**

The Study of Stoneflies, Mayflies and Caddisflies by T.T. Macan

A comprehensive guide to collecting and studying the biology and ecology of these aquatic insects. 44 pages, 10 figures and bibliography (1982) **£ 4.20**

Members price **£ 3.15**

Breeding the British Butterflies by F.W. Crabb

A practical handbook covering all aspects of butterfly breeding, including general techniques, equipment and hints on how to breed each of the British species. 60 pages, 6 figures, 5 plates. Revised (2001) **£ 5.20**

Members price **£ 3.85**

Practical Hints for the Field Lepidopterist by J.W. Tutt

Written at the turn of the century, this book has been reprinted because of its scarcity and value to students of Lepidoptera. It gives a complete month by month guide to which species and stages of macro and micro to look for and how to find them. Also contains a biological account of the early stages and how to keep, rear, photograph and describe them. 422 pages. Hardback. (Reprinted 1994). **£ 24.00**

Members price **£ 18.30**

An index to the modern names for use with J.W. Tutt's

Practical Hints for the Field Lepidopterist by B.O.C. Gardiner

A valuable cross-reference guide between the scientific and English names used in the early 1900s and the present time. **£ 4.70**

Members price **£ 3.50**

A Guide to Moth traps and their use by R. Fry and P. Waring

The first sections deal with the measurement and properties of light falling into the types of lamp available and the electrical circuits needed to operate them. The next sections give details of the construction of the most popular traps used in the UK. The last half deals with the practical use of traps in the field including where and when to trap, limitations of traps and their relative performance. 68 pages, 21 figures, 15 plates (1996) **£ 6.85**

Members price **£ 5.05**

The Amazing World of Stick and Leaf Insects by Paul D. Brock

A superb, comprehensive guide, for all those intrigued by these groups of insects. Topics covered in detail include: structure, fascinating facts, life history and development, defence behaviour, enemies, collecting, breeding (including trouble shooting), preserving, taxonomic studies, important collections in Museums etc. around the world and elaborate stories, beliefs and poems. Also outlines the major known species around the world on a regional basis. A section on Fossils is included. The appendices include a comprehensive glossary of the technical terms used in the description and classification of stick and leaf-insects. Hardback A5. 184 pages, 46 figures, 26 black and white plates and 40 pages of colour plates (containing 83 photographs and 4 drawings/paintings of insects and their habitats). (1999) **£ 18.00**

Members price **£ 14.10**

Rearing Parasitic Hymenoptera by M. Shaw

This booklet provides information on the parasitic Hymenoptera to enable successful studies to be made of this little understood group of the British insect fauna. Details are given on the general biology of parasitic wasps, rearing principles, efficient rearing practices and detailed methods of dealing with adult wasps. 52 pages, 4 colour plates (New edition - 2001) **£ 5.70**

Members price **£ 4.20**

Larval Foodplants of the British Butterflies by Peter May

A comprehensive compilation of the known larval foodplants of our native and immigrant butterflies. Also including "How to Encourage Butterflies to Live in Your Garden" by the late Peter Cribb 62 pages. (2003) **£ 7.40**

Members price **£ 5.45**

Glossary for the Young Lepidopterist

6 pages, 2 figures. (1951) **£ 1.05**

Members price **£ 0.90**

A Label List of European Butterflies

20 pages. (Revised 1981) **£ 2.35**

Members price **£ 1.85**

Some British Moths Reviewed

Aid to the identification of some of the more difficult species. Reprinted from the *Amateur Entomologist* Vol. 5 (1941) and a *Guide to the Critical Species of Lepidoptera*, reprinted from *Entomologist's Gazette* 1969-72. 64 pages, 6 black and white plates, numerous figures (1985) **£ 4.45**

Members price **£ 3.35**

Butterflies of Cyprus 1998 (Records of a years sightings) by Eddie John
Observations of the 44 species of butterfly found on the island in 1998 including notes on each species and distribution maps. 46 pages (2000) **£ 4.30**

Members price **£ 3.25**

Collecting Hel.Bugs (Hemiptera: Heteroptera)

12 pages (including 2 plates). (1946) **£ 1.20**

Members price **£ 1.00**

Collecting Clearwings

12 pages (including 2 plates), 4 figures. (1946) **£ 1.10**

Members price **£ 1.00**

Collecting Lacewings

9 pages, 8 figures, 5 plates. (2nd edition 1976) **£ 2.25**

Members price **£ 1.75**

An Amateur's Guide to the Study of the Genitalia of Lepidoptera

16 pages, 15 figures. (1973) **£ 3.10**

Members price **£ 2.35**

Rearing the Hymenoptera Parasitica

16 pages, 1 plate, 10 figures. (1974) **£ 2.55**

Members price **£ 2.00**

Rearing Crickets in the Classroom

12 pages, 2 plates. (1986) (Reprinted 1993) **£ 1.60**

Members price **£ 1.35**

Guidelines for Entomological Site Surveys

Published on behalf of the JCCBL. 7 pages (2000) (Reprinted 2003) **Members price £ 2.35**

The Journal of Entomological Exchange and Correspondence Club 1935-1936
An AES Jubilee Publication. Fascinating reprint of the very first volume of the AES journal. 100 pages. **£ 4.20**

Members price **£ 3.35**

A Directory for Entomologists

64 pages **£ 3.70**

Members price **£ 3.15**



All the above publications sent post free to U.K. addresses. Outside U.K. please add 10% to order value for postage by surface mail.

For postage by air-mail outside Europe please add 30% to order value. Please allow 28 days delivery.

Please make all cheques/postal orders payable to 'AES Publications' and send to:

AES Publications, 1 Tower Hill, Brentwood, Essex CM14 4TA.

Telephone 01277 224610 • Fax: 01277 262815 • E-mail: aespublishings@btconnect.com

The Bulletin

of the Amateur Entomologists' Society

Volume 65 • Number 466

June 2006

CONTENTS

Editorial	99
York Exhibition 2006 – Final Report	100
Exhibit Reports	103
Waring, P. On digging for moth pupae, as featured on BBC Radio 4, 20 February 2006.	112
Keen, D. Letter from Spain – first of a series	115
George, R.S. Fleas on a Chilean Puda, Puda puda (Molinia 1782), Mammalia, Cervidae	119
Waring, P. Testing the new 'Moonlander' design of light-trap.....	120
Cole, S. Old Notes: Australian Insects	124
Koryszko, J. In praise of Buddleia "Golden Glow"	134
Book Reviews	
<i>Phasmida Species File. Catalogue of Stick and Leaf Insects of the World</i> by Otte, D. & Brock, P.D.	136
<i>A list of terrestrial fauna (Mollusca and Arthropoda) and flora (Bryophyta, Pteridophyta and Spermatophyta) from the Azores</i>	137

ES 36 A

HISTORY MUSEUM

20 SEP 2006

PRESENTED
ENTOMOLOGY LIBRARY

Bulletin

of the Amateur Entomologists' Society

Volume 65 • Number 467

August 2006



ISSN 0266-836X

Editors: Dr P. Wilkins & M. Hough

The Amateur Entomologists' Society



Founded in 1935

The AES • P.O. Box 8774 • London • SW7 5ZG



<http://www.amentsoc.org>

Officers of the Society

President: Mike Majerus

Secretary: Ray Crisp

Treasurer: Peter May

Registrar: Nick Holford

Bulletin Editors: Phil Wilkins & Martin Hough

General Editor: Fiona Merrion-Vass

Habitat Conservation Officer: Peter Sutton

Advertising Secretary: Peter Hodge

Exhibition Secretary: Wayne Jarvis

Youth Secretary: Kieren Pitts

ICN Editor: David Lonsdale

Wants & Exchange: Peter May

SUBSCRIPTIONS:

First subscriptions should be accompanied by an additional £2 entrance fee, except for Bug Club members under the age of 13 to which this charge does not apply.

Renewal charges

Ordinary	£17.50	Ordinary Overseas	£21.00
Bug Club (Junior)	£10.00	Bug Club (Junior) Overseas	£21.00
Family	£24.00	Family Overseas	£30.00

ADVERTISING RATES:

Rates for advertising in the body of the *Bulletin* are:

Full page £60, Half page £40, Quarter page £25.

Series discounts and insert charges are available from the Advertising Secretary on request.

NOTICE

It is to be distinctly understood that all views, opinions, or theories, expressed in the pages of this Journal are solely those of the author(s) concerned. All announcements of meetings, financial grants offered or sought, requests for help or information, are accepted as bona fide. Neither the Editor, the Officers and Council of the Society, nor its Trustees, can be held responsible for any loss, embarrassment or injury that might be sustained by reliance thereon.

Worldwide Butterflies

MOONLANDER MOTH TRAP

Completely New Principles

Total innovation – developed by Robert Goodden

Now NEW ELECTRICS

Available with

MERCURY VAPOUR or

Special new 12V SAFE and powerful
40W actinic lamp. Use ANYwhere



Moths enter from
BOTTOM of trap!

Benefits of observation
sheet as well as Trap.

Moths fly upwards and
cannot escape.

Use with mains or battery.

White top fluoresces
bright violet with UV.

Trap contents stay dry.

Hang or stand.

Anchors – withstands
most weather.

Three sizes – choose for
portability or volume.

Full details – also
livestock specimens
and equipment on
www.wwb.co.uk

Please refer to website

www.wwb.co.uk

for full details and
prices



Folds
totally flat.

Travels in a
slip case.



Worldwide Butterflies

PO Box 101 Liskeard PL14 3ZS

Tel 01579 384050

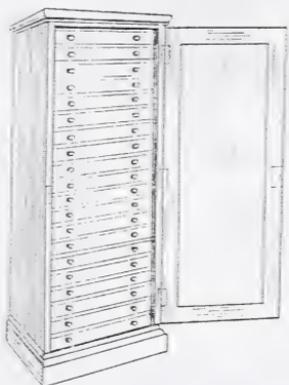
Fax 01579 384430

sales@wwb.co.uk

www.wwb.co.uk

ATROPOS ANTIQUES*

PURVEYORS OF FINE COLLECTOR'S CABINETS



*Many of you will have met us at the AES
London Fair where we regularly show
entomological cabinets for sale*

- We are specialist dealers in fine collector's cabinets.
- We can offer a choice of at least 30 cabinets, varying in purpose, construction, quality and price.
- We can supply both restored and un-restored cabinets and will undertake to restore and paper cabinets for clients.
- We are always interested in the purchase or exchange of cabinets, with or without a collection.
- Callers to our showrooms are always welcome by appointment.
- We offer a specialist collection and delivery service throughout the UK and have full expertise in the safe transportation of cabinets and collections.

George Morgan

97, West Street, Hartland, N. Devon EX39 6BQ

T: 01237-441205/984 M: 07973 302190

E-mail: george@atropos.wanadoo.co.uk

HISTORY MUSEUM
20 SEP 2006
PRESENTED
LOGY LIBRARY

A NEW BOOK FROM

Cravitz

Experience the lighter side of field entomology with Torben Larsen as he describes his experiences from around the world.



There must be a Hazard for every occasion?

£11.99 (inc. UK p&p) • £13.99 (overseas)

ORDER YOUR COPY NOW FROM

Cravitz Printing Company Limited

1 Tower Hill, Brentwood, Essex CM14 4TA.

Tel: (01277) 224610 • Fax: (01277) 262815 • E-mail: CravitzPrinting@btconnect.com



Ian Johnson Natural History Books

(Pemberley Books)

Specialist in *Entomology* and related subjects
Also *Zoology, Ornithology, Botany* etc.

- CATALOGUES – Second-hand, Antiquarian and New books – free catalogues available on request.
- SPECIALIST BOOKSHOP at Richings Park, Iver, just to the West of London – easy to reach by car or train. Visitors are welcome to visit and view our stock, but please telephone first to confirm opening times.
 - * *By car:* only 10 minutes drive from the M25 via the M4 (Junction 5), or M40 (Junction 1). 15 minutes from Heathrow Airport.
 - * *By train:* 20 minutes from London Paddington to Iver Station on the Paddington-Slough Thames Trains service (2 trains every hour). We are 1 minute's walk from Iver Station.
- WEBSITE – view our stock on our website: www.pembooks.demon.co.uk
- BOOKS BOUGHT – We are always interested in purchasing books in our specialist field, particularly antiquarian, academic and scholarly works on insects and other invertebrates.

18 BATHURST WALK, RICHINGS PARK, IVER, BUCKS SL0 9AZ

Tel: 01753 631114/Fax: 01753 631115 • e-mail: ij@pembooks.demon.co.uk



The AES BUG CLUB



Do you want to cuddle a Cockroach, stroke a Stick Insect or hug a Harvestman?

The AES Bug Club is for young people or the "young at heart" who find insects and other creepy crawlies interesting and even fascinating.

As the junior section of the AES we are devoted to promoting invertebrates to the younger generation who, after all, will be the entomologists of tomorrow!

You can help us in a number of ways, for example: by joining the Bug Club yourself, getting someone else to join the Bug Club, promoting the Bug Club and AES to your local school/Scout or Guide Group etc, running a Bug Club event or writing an article for our exciting newsletter. If you can do anything to help then please write to us: **AES Bug Club, PO Box 8774, London, SW7 5ZG.** Membership details can be found in the front of this Bulletin.



Bulletin Cover



The cover of the *Bulletin* shows *Danaus plexippus*, the Monarch or Milkweed Butterfly

The Monarch is probably the most famous migratory butterfly in the world. It overwinters in communal roosts in a small area of forest in Mexico, where tens of millions of butterflies roost. In the spring they migrate out from here, northwards through the USA to Canada, the journey having taken several generations by the time Canada is reached. In the late summer and early autumn they return. The butterflies returning to the overwintering roosts are several generations away from the ones that made the journey out in the spring of that year. A truly remarkable feat of instinct.

Photo – Norman Patten

Details Nick Holford

The Bulletin

of the Amateur Entomologists' Society

Volume 65 • Number 467

August 2006

Editorial

Welcome to another *Bulletin*. I hope it finds you well and am sorry that it is late. Autumn seems well and truly upon us. I hope that the season has been fruitful. It has certainly been interesting for Odonata and Lepidoptera. Both migrants and new colonists are in good supply. In my garden in Suffolk, Small Red-eyed Damselflies *Erythromma viridulum* have now joined their larger relatives. My four year old son, Tom walks past the Buddleia saying "It's *another* Hummingbird Hawk-



moth, daddy"! The Scarce Bordered Straw *Heliothis armigera* (left) in my moth trap seemed to be one of a relatively large, widely dispersed influx if internet for a are to be believed.

All this is just a taster of an interesting year. Hopefully many of you will be inspired to write about it for the *Bulletin* or prepare an Exhibition for the Annual Exhibition in October. As a further incentive for the latter, please see the note on Awards in this issue.

Phil Wilkins



The Wants and Exchange Table at the Exhibition

Every year that passes sees the Wants and Exchange Table at the annual exhibition in October get busier. The table is an ideal place for members who have surplus equipment, books, live and deadstock to dispose or these items either by having the items sold on their behalf on the day or by donating the items to the society in order for us to raise more funds. In general, the Wants and Exchange Table may be used by members to sell any item of an entomological nature, and a



few general natural history items. Can I please, however, ask that the following conditions be noted for those wanting to make use of the table by having items sold on their behalf.

1. Livestock can only be accepted if securely enclosed in suitable containers, and with a care sheet. We are too busy on the day to have time to transfer livestock from a large cage to other containers. Dangerous species will not be accepted under any circumstances.
2. Both live and deadstock of species covered by either CITES or the Wildlife and Countryside Act 1981 can only be sold with the relevant licence/permit.
3. The society shall not be responsible for loss or damage to items left for sale.
4. If you are bringing a number of items to be sold, it will save time if you bring a priced list of the items.
5. All items that are to be sold on behalf of a member must be priced, preferably in a manner that will prevent the price ticket coming adrift from the item to be sold.
6. The society will accept items for sale on the condition that a donation of no less than 10% of the monies received is given to the society.
7. The opinion of the Society Officers working on the table shall be final, although advice may be sought from other Council members before a decision is made.
8. No responsibility shall rest with the Society for items mis-identified or incorrectly described.

Item 1 above will also apply to items donated to the Society. Should any member have a number of items that they wish to donate to the Society, it would be helpful (but not essential) if they could contact me using the details on the Wants and Exchange list to make suitable arrangements.

Let us all help to make this the most successful year to date on the Wants and Exchange table by making full use of it to sell and buy our surplus items.

Peter May (10514)
Wants and Exchange Editor





Treasurers Report for the Year Ending 31st December 2005

With 2004 being the first year since 1991 during which the General Fund had made a profit, council entered 2005 with a new optimism. I am pleased to report that our hopes of a continuing recovery for the finances of the Society were realised and that the General Fund now stands at £4290. Income for the majority of items in the General Fund rose during the year and expenditure remained at the same levels as in 2004, and as a result a profit for the General Fund of £2959 resulted. This turn around in the finances of the Society is mainly as a result of a cut back in expenses and an increase in subscriptions. The most severe problem had been the fact that subscription levels had remained the same for approximately ten years, whilst expenditure had grown, mostly due to improvements in the *Bulletin*, the re-introduction of *Invertebrate Conservation News* and the commencement of *Bug Club News*. Whilst increases in subscriptions are never welcomed, they are a necessity for a Society such as ours if we are to continue.

The Publications Fund showed a profit again this year, as is expected, in the sum of £2403. No new publications were produced, but it is expected that expenditure from the fund will be high during 2006 with at least two new publications nearing completion.

The Crow and Hammond Fund showed a healthy income of £8291 during 2005, partly due to capital investment increases. Expenditure for this fund related to Hammond Awards of £200 and promotional leaflets of £607. The usage of the income for this fund is currently being reviewed by council so as to make better use of the monies received. A new award is planned for the best exhibit at the Annual Exhibition by an adult member, similar to the long standing Anson Award which is for Junior members.

The Anson Fund also increased during 2004, partly due to a lack of eligible entries for the Anson Award. In order to make better use of this fund and also to further encourage our Junior members, a new award for articles in the *Bug Club Magazine* by Junior members will be starting in 2006.

Peter May
Hon. Treasurer



The Ansonge Award

This award is given annually for Junior Exhibits at the Exhibition in memory of **Sir Eric Ansonge CSI, CIE.**

Sir Eric Ansonge was born in 1887. At the age of 23 he entered the Indian Civil Service. He retired from the Indian Civil Service in 1946. In recognition of his long and distinguished service in India he was made Companion of the Order of the Indian Empire and Companion of the Order of the Star of India. Subsequently he was knighted in recognition of his valuable work in India over a period of 35 years. On returning to England from service abroad, Sir Eric and Lady Ansonge lived at Chalfont St Peter in Buckinghamshire.

Sir Eric wrote a book entitled *Silk in India*. In 1969 he wrote another book on the *Macrolepidoptera of Buckinghamshire* published by the Bucks Archaeological Society.

Sir Eric was a member of the AES and a regular contributor to the Society's publications, having several articles published in the Society's bulletins in the 1960s and early 1970s. He was also a Fellow of the Royal Entomological Society. Whilst his main interest was in Lepidoptera, he was also keen on Coleoptera and philately.

On Sir Eric's death in 1977 the AES received a bequest from his estate. Subsequently this was increased by an additional gift from Lady Ansonge. These were invested and the income received used to fund a prize, the 'Ansonge Award', presented more or less annually for junior exhibit(s) at the AES annual exhibition.

The Bradford Award

The Bradford Award is given annually in memory of Mr E.S. Bradford (3068) who was a Lepidopterist. It is awarded for the best adult exhibit at the exhibition. All Adult members, i.e. those 18 years or over on 1st January of the judging year, are eligible but Council Members are excluded. Under the terms of affiliation, RES members are eligible. Participants must be present on the day. The prize was initially set at £100.00, funded from the Crow and Hammond fund, but this can be reclaimed from Exhibit funds if Council so wishes.



***Harmonia axyridis* Pallas in Hertfordshire**

by Dave Hodges (12313)

Bridgewater Basin, Watford WD18 8SN.

Following the interesting article in volume 64 I thought I'd send in some colour photos (see colour section) I took in 1985 of a Harlequin and it's brood which show the remarkable colour and marking variation in the adult.

I found an adult female on nettles by a small river near Sarrat in Hertfordshire. Not being aware of the existence of the Harlequin I was a bit stumped, after all a melanic seven spot ladybird with red legs!!! However, after a chance conversation with an interested gardener in my local pub who had accessed the BBC website, I realised it was a Harlequin Ladybird. Luckily it was gravid and obligingly laid a small brood of about 10 eggs which I bred out.

The female itself was all black with red spots (Plate 1). Although the subsequent larvae (Plates 7, 8) showed no discernible variation in colouring, the adult offspring were very different (Plates 2-6).

As stated in the previous article the adult is similar in size and shape to the Seven Spot. Despite the elytral colouring all my specimens had red legs with each elytra having a hump on each shoulder and a distinctive 'Pinched' sculptured ridge at the apex. The larvae, especially in the last instar are quite striking and like the adult distinctive. The pupae are again distinctive being predominantly orange with black markings. Like the larvae there seems to be no obvious hint to the adult's colour from the pupa.

Reference

Ware, R.L., Majerus, M.E.N., Roy, H.E. and Symington, F. (2005). The Harlequin ladybird arrives in Britain: A threat to our native species? *Bulletin of the Amateur Entomologists' Society*. **64**(462): 175-186.





Glowin' in the rain

by Tim Gardiner (11826)

Writtle College, Lordship Road, Writtle, Chelmsford, Essex, CM13RR,
tg@writtle.ac.uk

Transect counts of adult female Glow-worms *Lampyrus noctiluca* (Coleoptera: Lampyridae) (Plate 9) have been undertaken as part of the Essex Glow-worm Survey which started in 2001 (Gardiner *et al.*, 2002). The aim of the standardised walks is to ascertain whether the Essex Glow-worm population is declining. However, it has become evident that there is variability between counts due to weather conditions. The survey required each transect to be at least 100m in length and to be walked once in each of three two-week periods: 9-22 July, 23 July-5 August, and 6-19 August in all years of the survey. Any glowing adult females which were observed along the route were recorded. Survey participants were required to commence each walk between 2200 and 2300 hours, and to terminate by 0000 hours. A slow strolling pace was recommended for the walks to reduce the risk of overlooking glowing females along the route.

I advised participants to avoid walks on nights with wet weather, because counts may be reduced (Alexander, 1992). However, after analysing the data from the first four years of the survey (2001-2004) it has become apparent that counts of glowing females may actually be higher on nights with either drizzle or heavy rain (average count of 3.6 glowing females per 100m) than those where it was not raining (average count of 1 female per 100m). Of course, the majority of surveys were undertaken in dry conditions (94 surveys on dry nights, only nine surveys on wet nights) as advised but there is no doubt that the highest counts of the survey were produced on wet nights.

There are several possible explanations for high counts of Glow-worms on wet nights. Tyler (2002) suggests that whilst glowing females seem unaffected by wet weather, adult males may not fly when it is raining. Therefore large numbers of glowing females, which 'switch' their light off after mating, may be observed on wet nights as there are no patrolling males to mate with. Another possible explanation is that high numbers of females, which are rarely found above ground during the day (Tyler, 2002), may be brought to the surface by moist conditions in the evening. Females which display during wet weather are likely to do so close to the ground (Tyler, 2002) in preference to glowing higher up in the vegetation. This may mean that their light is harder to detect from the air by the plucky males that have braved the



conditions, leading to a low occurrence of mating, and therefore higher numbers of glowing females.

Whatever reason there may be for the high counts of female Glow-worms during wet weather, it is clear that if scientific comparisons are desired between surveys conducted in different years, then walks should be avoided on nights with drizzle or heavy rain. However, if you are leading a Glow-worm walk with the public, then a wet night could be very productive. I'm not sure how many people would turn up though!

References

- Alexander, K.N.A. (1992) The glow worm, *Lampyris noctiluca* (L.), in Gloucestershire and its conservation. *The Gloucestershire Naturalist* 5: 1-5.
- Gardiner, T., Pye, M. & Field, R. (2002) Glow-worms *Lampyris noctiluca* L. (Coleoptera: Lampyridae) in Essex: results of the 2001 Essex Glow-worm Survey. *Essex Naturalist* 19: 151-159.
- Tyler, J. (2002) *The Glow-worm*. Lakeside Press, Sevenoaks.



A very early Flounced Chestnut

by Jan Koryszko (6089)

3 Dudley Place, Meir, Stoke-on-Trent, Staffordshire ST3 7AY.

On the evening of 30th June 2005, in the company of R.H. Heath and Derek Heath, a light-trap was run in Derek's garden at the Meir which is only a short distance from my own. A number of moths were captured, all common, then to our surprise we took a Flounced Chestnut (*Agrochola belvola* Linn.), a most early date for this species. It is normally found in September and October. In recent years I have read in entomological journals of a number of moth species which should appear in the spring being found in the autumn, and autumn species being found in the spring with some appearing in the spring and the autumn when normally they are only seen once a year. The seasons do not seem the same these days, with strange weather conditions. Maybe global warming is the reason for this. No doubt we will have more of these observations in the future.



Old Notes: A Tool-using Wasp and other Insects in Indian Sal Forest

by Stuart Cole (10159)

21 Wensleydale Gardens, Hampton, Middlesex TW12 2LU.

stuart.cole@odpm.gsi.gov.uk

I have done some more delving into my notebooks for material that might be of sufficient entomological interest to submit as articles for the *AES Bulletin*. Here I have picked out notes on two of the Indian national parks that I visited when I did some backpacking in the country in the 1970s and 1990s. See colour plate 10.

Although separated by 500 miles, Corbett National Park, in the foothills of the Himalayas, and Kanha, in the central Indian state of Madhya Pradesh, have a very similar type of forest dominated by the sal tree (*Shorea robusta*). Actually, sal forest is the natural vegetation of much of northern India, although all of what survives is secondary forest. Both these national parks have a good range of characteristic Indian mammals, except that Corbett lacks the Gaur (a species of wild cattle) which does not reach this far north-west and Kanha has no wild elephants.

I spent 11 days at Corbett in June 1972, reaching there by train from Delhi to Moradabad where I changed onto a narrow gauge up to the railhead at Ramnagar. From there I got a lift to the National Park's visitor accommodation at Dhikala which overlooks the valley of the Ramganga River, a tributary of the Ganges (Ganga), that runs through the National Park. After months of dry weather and just before the monsoon, the river was reduced to a shallow stream a few yards wide exposing the wide shingle bed. I have read that since then, a 10 mile stretch of the Ramganga valley in Corbett has been submerged following the construction of the Kalagarh Dam and the park has lost its finest natural feature.

Dhikala is backed by extensive forest of sal. This fine straight boled tree has four-inch to eight-inch long leaves that cast a pleasant shade that allows sufficient light to enable a varied understory of shrubs to develop. In Corbett this was crisscrossed with tracks made by the many elephants that used the forest to shelter from the heat. And the weather was very hot, about 100°F, but a relief after the 115°F of Delhi.

After months of dry weather, visible insect life was not abundant except for the Hymenoptera. Termites, although the insects themselves were not seen, are obviously a very important element of the ecosystem



judging by the number of their hills scattered throughout the forest. These pinnacled structures of ochre-coloured earth were mostly four to five feet high but one was more than eight feet. Many of the various bees and wasps were particularly attracted to an artificial waterhole in the forest. There would often be hundreds of the large wild honeybee *Apis dorsata* crowded along the concrete sides drinking at the surface of the water. These are larger and more brightly coloured than the European Honeybee (*A. mellifera*), being mostly orange with a black tip to the abdomen. Mingling with them were several kinds of wasp: the big 3.2 cm long workers of the hornet *Vespa tropica*, the solitary wasps *Eumenes pyriformis* and *E. campanuliformis* and a pale yellow and brown social wasp of the Polistinae. Of the ants, *Tetraoponera rufonigra* of the Pseudomyrmecinae was the most numerous visible above ground and the only one that I could identify. The workers are very slender red-brown creatures 1 cm long. The colonies of this species nested in tree trunks and damp patches in the dry watercourses.

One very distinctive hymenopteran was the metallic sphecid wasp *Ampulex compressa*. This species was commonly found on the trunks of the fig trees (*Ficus* spp.) that were scattered through the sal forests. On one of these I found a number of *Ampulex*, some green, others dark blue. This widely distributed species (it occurs from India to Australia) is a parasitoid of cockroaches which it provides for its larvae. Among other sphecids were the large sand wasps that burrowed into the forest tracks. They were dull black except for the red pedicel of the abdomen and I think they were an *Ammophila* sp. but larger any others that I have seen of this genus. I watched two beside a dry watercourse stocking their burrows with caterpillars and I was fascinated by the thoroughness of their efforts to conceal their burrows whilst excavating them and then again after they had completed the task of installing the caterpillar, presumably laying an egg on it and then filling in the hole. This included the use of a tool to press the material used to stop up the entrance.

The first wasp had made her burrow in level ground just to one side of a track. She had just returned with a hairless grey caterpillar which she placed beside the burrow entrance. Then several times she went in and out of the burrow. Each time she exited she carried loose soil away, flying a couple of feet and dropping the dust in flight. On her final return, the wasp reversed into the burrow pulling the caterpillar after her. After a minute or two she came out and began scraping loose soil up around the entrance – there was no soil piled up already since all the excavated earth had been disposed of some distance away – then



pushed it into the burrow. Every now and again the wasp would stop to search around for a small lump of soil which she would then grind down into the soil already in the hole. When the burrow entrance was filled level with the soil surface, she broke up the rim and smoothed it down so that no indication of the burrow entrance was visible. She then flew a distance of 12 inches or so and, searching the ground, flew back to the burrow carrying a small wedge-shaped piece of twig. Holding this in her mandibles, she used this to press down and further level the soil over the burrow. This done, the wasp discarded the twig a short distance away then completed the concealment of her burrow by scattering bits of twig and dry leaves over and around it.

The second sand wasp further along the track had dug her burrow in coarser sandy ground than the first. She was filling in the burrow entrance mostly with tiny stones. Occasionally she gripped one stone in her mandibles and used it to compress the others, her folded wings vibrating with the effort. She too finished off the job by hiding the burrow site under vegetable debris.

On two evenings I sat beside one of the pools in the valley in the hope of seeing a tiger that frequented the area. I never saw it, despite the many recent footprints in the damp mud around, but on the second night I was entertained with a light display by multitudes of fireflies (beetles of the family Lampyridae). Whilst it was still light, there was little about other than some dozens of Crested Tree Swifts that swooped down at speed to snatch a drink at the water surface. As it turned dark the swifts disappeared to be replaced by nightjars silently diving and swooping over the water like huge moths, touching the surface to scoop up a beakful of water. At about the same time I noticed a few fireflies on waterside plants switching on and off the lights at the tip of their abdomen. When it became darker still, quickly becoming night, the number of pulsating lights around the pool increased to hundreds. Most of the beetles were settled on the vegetation, but some were in flight, also switching their luminescence on and off but more rhythmically than those perched on the plants below: lights on twice in quick succession then off for half to one second and on twice again and so on. Perhaps those in the air were males and those on the vegetation females, or maybe there were two similar species present, though they both looked to be the same but, as I took no specimens for closer examination, I couldn't be sure.

The damp sand beside the streams and pools in the valley was home to great numbers of tiny crickets of the family Tridactylidae that made their burrows here. Tridactylids are commonly called pygmy mole



crickets and have forelegs modified for digging. The larger, bronze-brown and more numerous of the two species present I was unable to identify but the other was a *Tridactylus* sp., probably *T. variegatus*. The pygmy mole crickets are amongst the smallest of the Orthoptera, some being as little as 4mm long when adult. Two kinds of tiger beetles, most of them of a green species, the other brown, neither identified, ran about at the river's edge picking at minute creatures in the sand. The ground beetle *Pheropsophus chaudoiri* and a staphylinid of the genus *Paederus* were other beetles of the wet sand. Another, larger, tiger beetle, *Cicendela sexpunctata*, which frequented drier ground, was one of the few insects that came to the lights of the resthouses at night. Amongst the other species at light were the grasshopper *Gelastorbinus semipictus*, the small green mantid *Creobroter gemmatus* and a species of cicada.

In the parched conditions of Corbett any sources of moisture were a great draw for insects. Damp depressions, filled with rotting leaves, in otherwise dry rocky watercourses, attracted large numbers of wasps, flies, butterflies and beetles. Beneath the leaves there were thousands of tiny beetles, most of them of a single species of ground beetle of the Bembidiini. One of the other beetles present was another ground beetle, *Omopbron oberthuri*, which is black with red markings and has the oval form characteristic of this genus.

In 1972 one could walk alone on foot in the major Indian National Parks, although it wasn't encouraged (and anyway it disturbs the wildlife) but that was before the well known birdwatcher David Hunt was killed by a tiger at Corbett. Since then, park authorities have become nervous about letting visitors wander around on foot and at Kanha in March 1991 it was made quite plain that tourists must only enter the reserve in company with a guide either on elephant back or by hiring a jeep. Nevertheless, I managed to slip away into the forest from the visitor accommodation a few times to look for insects. Incidentally, this region of Madhya Pradesh was once the kingdom of the Gonds for which the local geology was called the Gondwana Beds and from which the Austrian geologist Edward Suess coined the name Gondwana or Gondwanaland for the former supercontinent.

The topography of Kanha National Park is generally flat, intersected by a number of rivers but with some low hills rising to 914 metres altitude. The forest dominated by sal which forms pure stands in some parts and elsewhere is mixed with other trees that include *Sterculia urens* (the source of Indian gum tragacanth), *Madhuca indica* and *Ficus* and *Terminalia* spp. At this season the sal trees were shedding their old leaves and at the same time bringing forth new shiny, orange-green



foliage and panicles of small white flowers, thus giving the forest at once the look of autumn and spring. As at Corbett, termite mounds are scattered through the forest and they are of the same pinnacled form, fashioned from orange or raw sienna coloured earth and reaching to a height of seven feet.

Here too, *Tetraponera rufonigra* was the most frequent ant of the forest floor, but by far the most abundant ant was the golden brown tree ant *Oecophylla smaragdina* which was absent at Corbett. The nests of *Oecophylla* are made in the foliage of the trees, up to 50 or 60 feet from the ground, by sowing the leaves together using silk from their own larvae. In some places there were nests in every tree; they especially favoured the trees along river banks. Other numerous ants were of the familiar genera *Camponotus* and *Crematogaster*. One ant that I never expected to find was a winged male driver ant that was outside the door of my hut one morning. I had assumed that driver ants (*Dorylus* spp.), famed for their rapacious raiding columns, were as exclusively African as the giraffe. This one was a typical male doryline; a wasp-like brown insect 3.5 cms long with large wings, elongate sausage-shaped abdomen and small head with sharp mandibles. In East Africa the males often come to light, as this one had probably done. I later found out that, although almost all the 60 or so species of *Dorylus* are from sub-Saharan Africa, about five species occur in Asia and at least two of these are found in India. I didn't see any more individual driver ants, let alone any marching columns of ants, at Kanha (nor anywhere else in India) however the majority of Dorylinae are subterranean, including all the Asian species, and the workers are infrequently seen even where common.

Deer were numerous at Kanha, especially the beautiful Chital or Spotted Deer which often lingered around the visitor compound at Kisli in company with Langur monkeys and Peafowl. Other species were the large Sambar, the rare Barasingha (a sub species of the Swamp Deer) and the little Indian Muntjac. With all these deer, plus the three kinds of antelope that occur here in small numbers, it was not surprising that blood sucking hippoboscids were abundant. All those that I examined were winged and active flyers of the genus *Lipoptena* and they frequently settled on the domestic dogs that roamed the compound at Kisli. They were never present on the dogs in the early morning but would gather on them, mainly around their necks, as the day warmed up. What was surprising was that no horse flies were noted, either here or at Corbett.

For my second week at Kanha I moved to the visitors' lodge at Mukki where the Banjar River forms the boundary of the National Park. Not only was it more humid here in the vicinity of the river but the weather turned



very wet with storms building up each afternoon and heavy rain falling until dusk. Consequently insects were more prolific than during the previous dry week at Kisli. In the evenings, once the rains had stopped, the fields and pastures around Mukki village just outside the national park were thickly sprinkled with the lights of fireflies. The trees at the edge of the forest were covered with thousands of tiny lights up to the top branches. Other than fireflies, very few beetles were found at Kanha.

Butterflies were now quite abundant with a species of crow (*Euploea* sp.) most numerous and the black and white banded *Neptis mahendra*, the tiger (*Danaus chrysippus*) and a swallowtail of the genus *Pachliopta* all frequent at the flowers of shrubs at the forest verge. The *Pachliopta* swallowtails belong to the tribe Troidini which includes the Indo-Australian birdwing butterflies. This species had velvet-black wings and a scarlet abdomen. The colourfully striped caterpillars of *Danaus chrysippus* fed on a plant of the Asclepiadaceae in the vicinity of the lodge. Flocks of rather drab lycaenids would fly up from the leaf litter as I walked along tracks through the forest interior and a larger butterfly sometimes spotted resting on the forest floor was the satyrine *Lethe europa*, which the cryptically marked grey and brown underside to the wings made virtually invisible against the dead leaves. The other butterflies about included *Papilio demoleus*, *Precis almana*, *Hypolimnas bolina*, a *Tirumala* sp., a *Delias* sp. and some iridescent violet and blue-winged lycaenids.

Just a few small moths came to lights of the lodge and virtually the only moth that I saw in the surrounding forest was the common day-flying *Trypanophora hyaline*, an attractive member of the burnet family Zygaenidae with transparent patches on the wings.

Just before a storm one afternoon, I witnessed a swarm of dragonflies engaged in what I appeared to be a mating ritual. Some 200 or so medium sized blackish dragonflies, all of one species were gathered around the leafless branch of a sal tree beside a track. Most, all females I think, were clinging to the branch with their abdomen curved upwards. The others, presumably males were flying up and down behind them. Whenever one of those in flight came close to the perched females, the latter would flutter their wings in response. Unfortunately a torrential tropical downpour interrupted the proceedings and they were all gone when I passed by a couple of hours later.

Reference

- A Weissflog et al 'How to study subterranean army ants: a novel method for locating and monitoring field populations of the South East Asian army ant *Dorylus laevigatus*, with observations on their ecology' *Insectes Sociaux* 2000.



Collecting Centipedes And Millipedes

by Nick Holford

(this account is based upon an article by Dr. I.L. Cloudsley-Thompson M A Ph.D. (Cantab.), F.L.S., published in the AES *Bulletin*, 1952, Vol. 11 pages 5-8).

Introduction

Most people are familiar with the general appearance of centipedes and millipedes. However, very few are interested in studying these arthropods. The reason for this neglect is not hard to find. Few are of economic importance, and they are not very easy to identify. The literature about the group is scattered and often not easy to obtain. However, the difficulties of identification can be overcome and there is much to be found out about them. This means that there are many opportunities for amateur entomologists to make valuable contributions to our knowledge of them.

Centipedes (Chilopoda) and millipedes (Diplopoda) are often considered together in an unnatural assembly, the "Myriapoda" (the word has Latin and Greek origins giving "myria" meaning many and "poda" as feet). This loose grouping also includes the microscopic Symphyla and Pauropoda. The Myriapoda is a group of "convenience" because of a superficial similarity between centipedes and millipedes. It is an unnatural group because the centipedes and millipedes show considerable differences in structure from each other. They are now regarded as separate classes in which parallel evolution has taken place (this means that evolution has produced similar features in unrelated groups).

Characteristics

A. The main features of the **Chilopoda** are:-

1. They have flattened bodies.
2. There are 15 or more body segments.
3. Each segment bears one pair of limbs (or other appendages).
4. The antennae are long, with many segments.
5. There are a pair of poison claws on the head.
6. Many produce poisons from their body surface. These chemicals are mainly to discourage predators from eating them.



7. The reproductive organs have a duct that opens at the rear end of the body.
8. Centipedes are active, carnivorous animals feeding on insects and their larvae, spiders and other small animals which they kill with their poison-claws (maxillipeds). They are usually regarded as beneficial, since they must destroy numbers of injurious insects.

B. The main features of the **Diplopoda** are:-

1. The body is cylindrical in cross-section.
2. There are 11 or more body segments.
3. Each segment has two pairs of legs.
4. The antennae are club-shaped and made up of seven or eight segments.
5. They do not have "poison claws" on the head.
6. Many produce poisons from their body surface. These chemicals are mainly to discourage predators from eating them.
7. The reproductive organs have a duct that opens on the third body segment. (For this reason they are sometimes known as **Progoneata**.)
8. Millipedes are sluggish creatures with a vegetarian diet. Some species are occasionally found feeding on decaying carcasses. *Blaniulus* has been found feeding on dead snails. Millipedes have also been recorded eating worms, molluscs, insects, a slow-worm and a mouse.

The British myriapods are harmless; but tropical centipedes may reach a foot (30cm) in length and their poison can be dangerous even to man. Both centipedes and millipedes are distasteful to their enemies. The millipedes produce a poisonous fluid secreted by a row of glands opening along the side of the body. The fluid of some of the tropical species has a strong caustic action on the human skin and is dangerous to the eyes.

Collecting

1. Where to find them

Myriapods are nocturnal animals, and during the daytime are usually to be found in damp, dark places. Diurnal rhythms in millipedes have



recently been investigated experimentally. These facts tell us the best places in which to collect them. These are:-

- under leaves, bark and stones, e.g. stored flower pots in the garden, bark of dead, fallen trees
- in the soil
- in accumulations of rubble and humus – e.g. a compost heap

In addition, some centipedes are marine and have been found living among sea-weed below high-tide mark. These marine animals are apparently very rare, so little is known about them.

2. How to collect them

The larger species of myriapods are best collected with a pair of forceps. Smaller species are best collected by using a camel-hair brush. A robust screw-driver is most useful for levering up bark. Dead leaves, etc., should be shaken, or sieved, over a piece of white cloth. Similar methods are used for collecting spiders.

A **pitfall trap** is a very good way of collecting specimens. Other small animals, such as ground beetles, will also be caught. Many of these animals are very carnivorous, so traps need to be checked at least two or three times a day.

3. Preservation

The best way to preserve Myriapods is to place them in methylated spirit – (clear laboratory spirit is best – it can be bought from a chemist). To every 70cm³ spirit add 30cm³ deionised water (obtainable from a chemist such as Boots, or a car part shop such as Halfords). To this mixture, add 5cm³ Glycerol (also obtainable from a chemist). All specimens should be labelled with the details of capture:-

- where caught
- when caught
- how caught
- name, when you know it.

Labels should be written with waterproof Indian ink and placed with the specimen in a tube. (Paper stuck on the outside will come off.) The tubes can then be corked and put in a jar, a Kilner type preserving jar is best. This should be kept in a cupboard, away from light. As your collection grows, you will realise the importance of full and accurate records.



It is a great mistake to put every specimen into alcohol the moment it is caught. A lot can be learned about food and feeding, behaviour, mating habits etc by keeping the animals alive.

Diploda (millipedes)



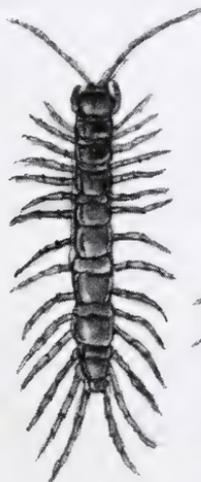
Glomeridae
(Pill millipede)



Polydesmidae and Chordeumidae



Symphyla



Chilopoda (centipedes)
Lithobiidae and Geophilidae



4. Keeping them alive in captivity

You will need to set up small tanks – the wider types of jam jar are very good, as are plastic sandwich boxes. In each one put moist composted forest bark in the bottom. On this place some moss, pieces of bark, and perhaps a small stone. Myriapods use oxygen very slowly, so air holes are not necessary, provided the lid is taken off and air wafted into the container each day.

This method is simple and can be very successful – for example it is recorded that a specimen of *Lithobius forficatus* lived in this way for four years and seven months, and then only died as a result of an accident!

As one collects, any biological and ecological observations such as migrations, enemies, food preferences, breeding seasons. At present there is very little information on these matters or on distribution.

Identification

The more important Families of centipedes and millipedes found in the British Isles can be separated by means of the following keys:-

'Myriapoda'

- | | |
|--|--|
| 1. 12 body segments, 9 pairs of legs. Animal less than 1mm long | PAUROPODA
(Minute, soft bodied Myriapods that are probably related to Millipedes)
Go to 2 |
| Animal greater than 1mm long | |
| 2. 15 or more body segments, 1 pair of legs to each
2 pairs of legs to the majority of body segments | CHILOPODA
(Centipedes)

Go to 3 |
| 3. 12 body segments 12 pairs of legs. 3-6 mm long | SYMPHYLA
(Small, soft bodied Myriapods that are probably related to Centipedes) |
| 11 or more body segments, 2 pairs of legs to each (apart from segments 2 to 4, which have 1 pair of legs and segment 1 which has no legs), hence there are 17 or more pairs of legs. | DIPLOPODA
(Millipedes) |

**Class Chilopoda (Centipedes)**

- | | |
|---|--|
| 1. 14 body segments
More than 14 body segments | Lithobiidae.
Go to 2 |
| 2. 22 body segments
31-173 body segments | Geophilidae.
Schendylidae,
Mecistocephalidae, and
Himantariidae |

Class Diplopoda (Millipedes)

- | | |
|---|---|
| 1. Body is 2-3 mm long. There are 13 pairs of legs, the body is covered with bristles. (Sub-class PSELAPHOGNATHA).
7 or more pairs of legs. Body is larger (sub-class CHILOGNATHA) | Polyxenidae

Go to 2 |
| 2. 17 pairs of legs, body short and broad, like a woodlouse
Numerous pairs of legs, body elongated | Glomeridae

Go to 3 |
| 3. Body convex above, flattened ventrally
Body circular, or more or less flattened dorsally | Polyzoniidae
Go to 4 |
| 4. Body more or less flattened dorsally
Body circular in section | Go to 7
Go to 5 |
| 5. Body has 28 segments, animal less than 10 mm. long
30 or more body segments | Chordeumidae

Go to 6 |
| 6. Body stouter
Body more slender | Iulidae
Blaniulidae |
| 7. Body has 19-20 segments
Body has 30 segments | Polydesmidae
Go to 8 |
| 8. Body less than 10 mm. long
Body more than 10 mm. long | Brachychaeteumidae
Craspedosomidae |

For the identification of some species, minute structural characters must be examined.



Books for Identification

There are no simple books for the beginner, but the following may help you start:-

- Chinery, M., 1986. "Collins Guide to the Insects of Britain and Western Europe", published by Collins. ISBN - 0-00-219170-9
- Nichols, D., and Cooke, J., 1971. (and later), "The Oxford Book of Invertebrates", published by Oxford University Press. ISBN - 0 19 910008 X
- Cloudsley-Thompson, I.L., 1952. "Collecting Centipedes and Millipedes", *Bull. Amat. Ent. Soc.*, 11, 5-8

Please note – the large tropical *Scolopendra* centipedes are aggressive and very dangerous and their poison may be lethal. Also, their defensive chemicals can irritate the skin seriously if handled. The AES and the AES Bug Club do not recommend anyone to keep them as a pet. This warning includes the large Mediterranean species *Scolopendra cingulatus*. However, we do produce a care sheet for them, obtainable from the Registrar at the PO Box address. We do this because we feel that if someone insists on keeping them, despite the warnings, then the animals should be looked after correctly.

References

A number of references are given below. These should be of value to anyone seriously contemplating the study of myriapods.

- Auerbach, S. I., 1951. *Ecol. Monogr.*, 21, 97 – breeding seasons.
- Blower, J.Gordon, 1985, "Millipedes", *Synopses of the British Fauna* (NS) no. 35. published by the Linnean Society of London. ISBN - 90 04 07698 0
- Brade-Birks, S. G., 1929. *J. S.-E. Agric. Coll. Wye*, No. 26, 178. (On Centipedes)
- Brade-Birks, S. O., 1930. *J. S.-E. Agric. Coll. Wye*, No. 27, 103. (On Millipedes.)
- Brade-Birks, S. O. (1939). Notes on Myriapoda, XXXVI. Sources for description and illustration of the British Fauna. *J. S.-E. Agric. Coll. Wye*, No. 44, 156. (Good for advanced identification.)
- Brolemann, H. W., 1920. *Bull. Soc. Zool. agric.*, 19, 8). (On Millipedes.)
- Brolemana, H. W. 1930. Chilopodes, *Faune de France*, volume 25, Paris. For accurate identification of centipedes.
- Brolemana, H. W. 1935. Diplopodes I, *Faune de France*, volume 29, Paris.
- Burttt, E., A review of the caustic effects of Myriapods on the skin.
- Causey, N. B., 1943. *Amer. Midl. Nat.*, 29, 670 – breeding seasons.
- Cloudsley-Thompson, I.L., 1945. *Nature*, 156, 537. Details of their requirements, particularly with reference to damp etc.
- Cloudsley-Thompson, I.L., 1947. *Trop. Dis. Bull.*, volume 44, page 7.
- Cloudsley-Thompson, I.L., 1948. *Country-Side* (N.S.), volume 14, page 149. Marine Centipedes.
- Cloudsley-Thompson, I.L., *Naturalist*, 1949. 137 – distasteful qualities of British species.
- Cloudsley-Thompson, I.L., 1949. *Ann. Mag. Nat. Hist.* (12). 2. 947 - migrations, enemies, food preferences
- Cloudsley-Thompson, I.L., 1950. *Country-Side* (N.S.), 15, 270. (On feeding in Millipedes.)
- Cloudsley-Thompson, I.L., 1950. *Country-Side* (N.S.), 15, 200 – details of keeping them in captivity.



Plate 1. Mum



Plate 2. Offspring 1



Plate 3. Offspring 2



Plate 4. Offspring 3



Plate 5. Offspring 4



Plate 6. Offspring 5



Plate 7. Larva 4th instar



Plate 8. Larva 4th instar

Larvae of the Harlequin Ladybird *Harmonia axyridis*.

Photos: Dave Hodges

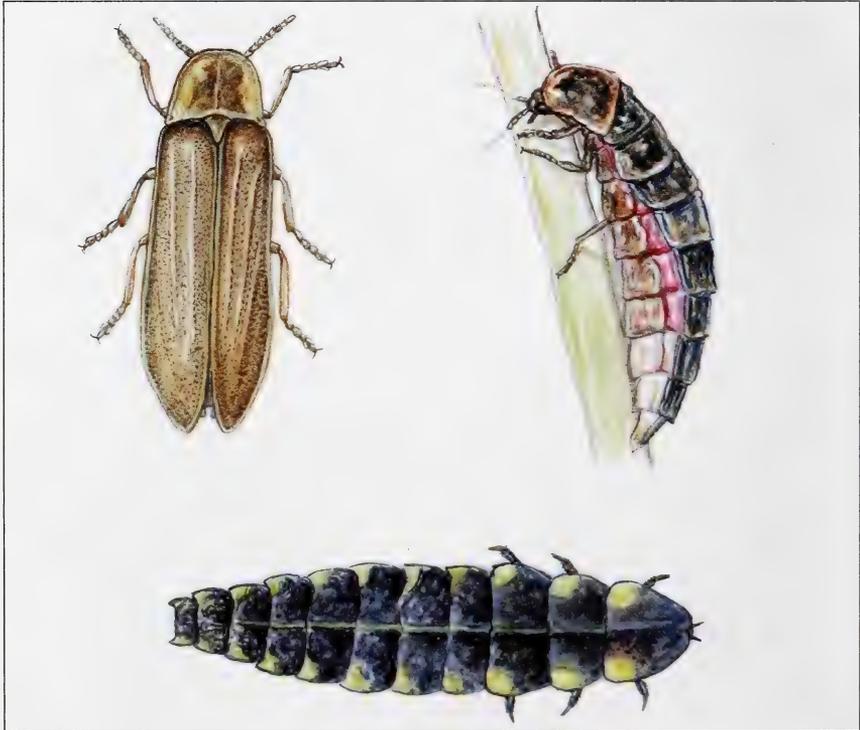


Plate 9. The Glow-worm *Lampyris noctiluca*. Clockwise from top left: male, female, larva.
Original watercolours by Phil Wilkins

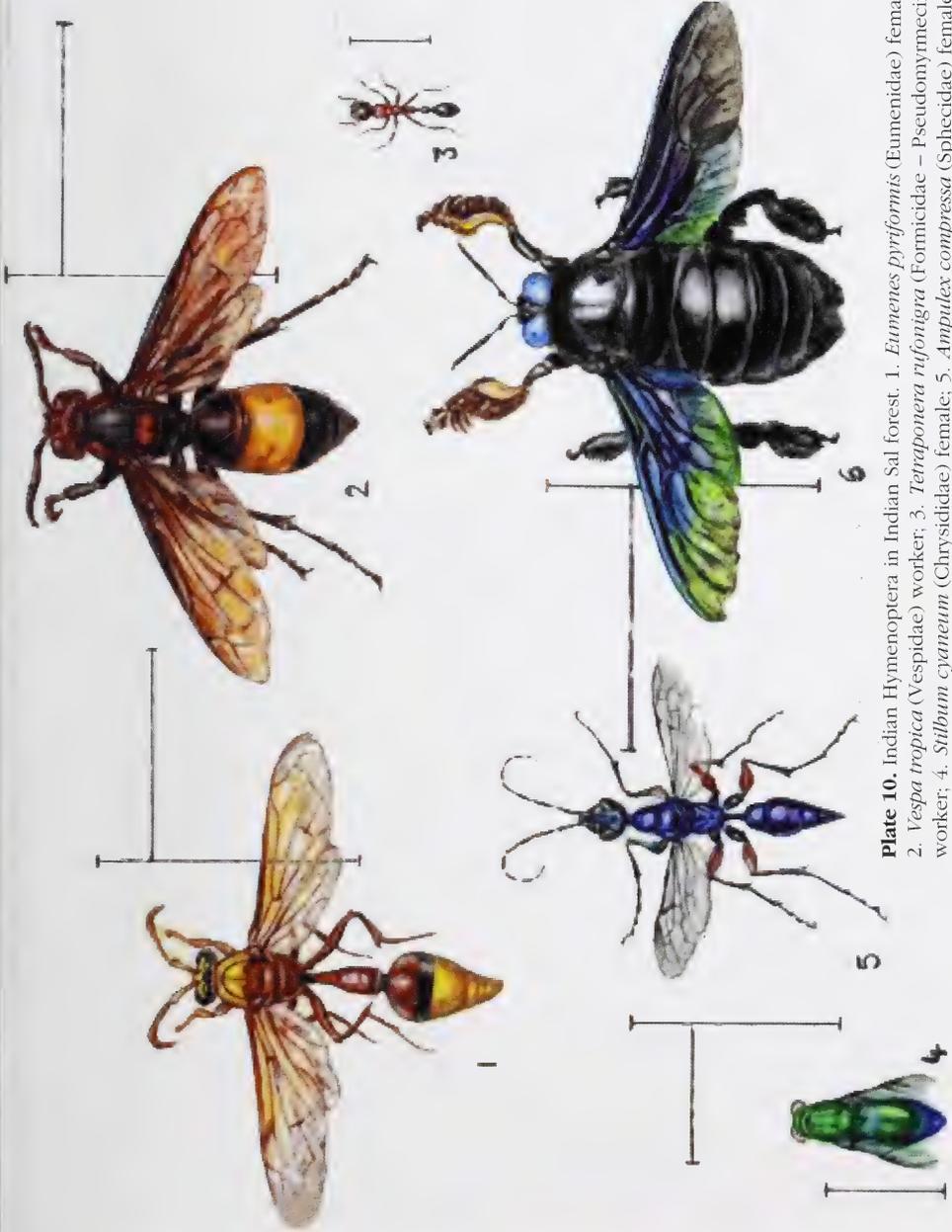


Plate 10. Indian Hymenoptera in Indian Sal forest. 1. *Eumenes pyriformis* (Eumenidae) female; 2. *Vespa tropica* (Vespidae) worker; 3. *Tetraponera rufonigra* (Formicidae – Pseudomyrmecinae) worker; 4. *Stilbum cyanetum* (Chrysididae) female; 5. *Ampulex compressa* (Sphecidae) female; 6. *Xylocopa latipes* (Anthophoridae) male.

Painting by Stuart Cole



Photo: Mike Majerus

Plate 11. The extra-ordinary *Acraea* hybrid mating as described in Mike Majerus' article.



- Cloudsley-Thompson, I.L., 1950. *Quart. J. Micr. Sci.*, 91, 453. Details of their requirements, particularly with reference to damp etc.
- Cloudsley-Thompson, I.L., 1951. *Ent. mon. Mag.*, 87, 247 – general account of the biology of Myriapods.
- Cloudsley-Thompson, I.L., 1951. *Proc. Zool. Soc. Lond.*, 121, 253. Details of their requirements, particularly with reference to damp etc.
- Cloudsley-Thompson, I.L., 1951. *Proc. Zool. Soc. Lond.*, 121, 253) – keeping in captivity.
- Cloudsley-Thompson, I.L., 1951. *Country-Side* (N.S.), 16, 111 in captivity.
- Cloudsley-Thompson, I.L., 1951. *J. Exp. Biol.*, 28, 165 – diurnal rhythms
- Cloudsley-Thompson, I.L., 1952. "Collecting Centipedes and Millipedes", *Bull. Amat. Ent. Soc.*, 11, 5-8
- Cloudsley-Thompson, I.L., 1951. *Zoo Life*, 6, 92 – general account of the biology of Myriapods.
- Cloudsley-Thompson, I.L., 1952. *Discovery* – general account of the biology of Myriapods.
- Cloudsley-Thompson, I.L., 1952. *Science News*, 23 – general account of the biology of Myriapods.
- Evans, T. J., 1910. *Ann. Mag. Nat. Hist.* (8), 6, 284. (On Millipedes.)
- Locket, G. H., and Millidge, A. F., 1951. "British Spiders", Vol. 1, Ray Soc. London – collecting methods (this book deals with spiders, but the collecting methods are the same).
- Lyford, W. H., Jr., 1943. *Ecology*, 24, 252.
- Schubart, O. 1934. Tausendfüßler oder Myriapoda I: Diplopoda. *Tierw. Deutsch.*, 28, Jena.
For accurate identification of British and European species.



South facing walls – profitable for larvae hunting

by Jan Koryszko (6089)

3 Dudley Place, Meir, Stoke-on-Trent, Staffordsbire ST3 7AY.

Over the years I have noticed that south facing walls can be most profitable when larvae hunting. After spells of cold and wet weather, and even during the winter months, larvae can be found sunning their cold and wet bodies. I have found a number of cutworm larvae, which normally come out at night, no doubt taking the risk of being attacked by birds or parasitic flies in the daytime. The Garden Tiger (*Arctia caja* Linn.) loves the warm spring sunshine after hibernation. Angle Shades (*Phlogophora meticulosa* Linn.) is another species commonly found and the adults of this species have been found roosting on south facing walls in the winter after frost and snowfalls. I have found adults every month of the year, the sugar patch is a favourite spot for this moth even during the winter, there are not many nectar plants for this species during this time so it must find other sources of food. Entomologists who search these areas throughout the year may well turn up some very interesting species.



Inter-specific hybrid mating by female *Acraea sotikensis* due to lack of males?

by Michael E.N. Majerus^{1*}, Sami Saeed M. Hassan¹ and Ylva Hanell²

¹ Department of Genetics, Downing Street, Cambridge, CB2 3EH, UK.

² Department of Animal Ecology, Lund University, Ecology Building, 223 62 Lund, Sweden.

* For correspondence

Introduction

Most sexually reproducing organisms produce roughly equal numbers of male and female offspring. The reason for this is adaptive. As Darwin (1871) suggested, and Fisher (1930) confirmed mathematically, an equal sex ratio is stable because, should one sex be commoner than the other, there will be an advantage to any that produce more of the rarer sex. This is easy to understand if one imagines a population with twice as many females as males. Then, on average, each male will mate with two females and so sire two families of offspring, while females will have only one family of offspring. Any gene that caused a parent to produce more sons than daughters would thereby benefit in the evolutionary long run, by gaining more grandchildren. The same argument applies if females are less common than males. Only when males and females are equally common would the value of a son and a daughter be equal.

The stability of the 1:1 sex ratio by negative frequency dependent selection was the first evolutionary stable strategy (ESS) to be described. The assumptions on which this ESS is based are rarely contravened at a population level, except where there is local mate competition (Hamilton 1967). In such cases, particularly in haplo-diploid species, such as the Hymenoptera (bees, wasps, ants and sawflies), where loss of fitness through inbreeding is very small or absent, females are sometimes produced in excess of males. However, in diploid species, including most other insects, deviations from sexual equality are rare. In consequence, when strongly biased sex ratios are observed in a sexually reproducing diploid species, this has a particular evolutionary interest.

One of the first species, in which strongly female biased population sex ratios were detected, was the African butterfly *Acraea encedon* (Poulton 1914). A variety of hypotheses were put forward to explain this phenomenon before it was finally demonstrated that a bacterium of the genus *Wolbachia* was responsible for the preponderance of females (Hurst *et al.* 1999). This bacterium is maternally inherited: i.e it is



passed from mother to offspring, but not from father to offspring. The bacterium thus has no interest in being in males, as it cannot be passed on from male hosts. Thus, in males the bacterium loses nothing by killing its host. Indeed, this act may provide some benefit to clonally identical copies of the bacterium in the males' sisters by reducing the competition for resources that they will face. Subsequently, *Wolbachia* that cause female biased sex ratio distortion have been found in two other species of *Acraea*, *A. encedana* (Jiggins *et al.* 2000), a sibling species to *A. encedon*, and *A. eponina* (Jiggins 2000), although in this species, that the bias is caused by male-killing has not been demonstrated (Majerus 2003). It is a characteristic of male-killing bacteria that they are present in some female adults of a species, but not in males. This pattern has led Jiggins *et al.* (2001) to suggest that another species of *Acraea*, *A. macarista*, may harbour male-killing *Wolbachia*.

One of the most remarkable observations in these species is that at times, the sex ratio is so severely female biased (more than 95% of the population female (e.g. Owen and Chanter 1969; Jiggins 2000; Majerus 2003)) that many females die with their virginity intact as a result of the scarcity of males. This has led to sex role reversal for some reproductive traits (Jiggins *et al.* 1999).

It is against this background that we wish to record an unusual inter-specific hybrid mating between two species of *Acraea*.

Observation, analysis and discussion

The extraordinary mating was between a female *Acraea sotikensis* and a male *Acraea alicia*. The mating was observed and photographed (Plate 11) in July 2005, in Kibale Forest Reserve, western Uganda.

What gives this observation more import than a mere curio, was the sex ratio of samples of *A. sotikensis* and other *Acraea* species collected in Kibale over a four week period, and subsequent molecular genetic analysis of the *A. sotikensis* sampled. For most species of *Acraea*, males are far more apparent than females. This is the case both for flying individuals, and those that visit dung, urine slicks and mud puddles. However, of 36 *A. sotikensis* found in Kibale between 23rd June and 20th July 2005, all were female.

Three other samples of *A. sotikensis* were collected in Uganda in 2005. These samples also had a female bias, although males were found in two locations (Table 1).



Table 1. Details of *Acraea sotikensis* sampled in Uganda, 2005, and assayed for presence or absence of *Wolbachia*.

Site	Male	Female	<i>Wolbachia</i> present	
			Male	Female
Kibale (June/July, 2005)	0	36	–	36 of 36
Ngogo (July, 2005)	1	3	0 of 1	3 of 3
Malabigambo (July, 2005)	0	26	–	26 of 26
Tank Hill, Kampala, (March, 2005)	1	2	0 of 1	2 of 2
Totals	2	67	0 of 2	67 of 67

Molecular genetic analysis of *A. sotikensis* individuals, designed to detect the presence of *Wolbachia*, were performed. The method, in brief, was to remove the posterior part of the abdomen on the day of collection and store in absolute ethanol. The abdomen was ground up and DNA, which will have included that from the butterfly and any bacteria present, was extracted (as in Hurst *et al.* 1999). The resultant supernatant was probed with a *Wolbachia* specific primer for the *usp* gene. Products were sequenced on an automated sequence machine, and the resultant sequence of over 500 nucleotide bases was identified by comparison to a sequence data base, through a BLAST search. All 36 female *A. sotikensis* from Kibale, and 31 females and two males from other sites were assayed.

The results (Table 1) show that all the females from Kibale and from the other three sites were positive for the presence of *Wolbachia*, while neither of the males had *Wolbachia*.

We speculate that in Kibale Forest and more widely in Uganda, *A. sotikensis* harbours a sex ratio distorting bacterium that favours the production of female progeny. It is not possible to say how *Wolbachia* causes sex ratio distortion in this species. Three possibilities exist.

First, this *Wolbachia* may be a male-killer, with much the same phenotype as the male-killing *Wolbachia* known from *A. encedon* and *A. encedana* (Jiggins *et al.* 1998, 2000; Hurst *et al.* 1999).

Second, this may be a case in which *Wolbachia* favours W-bearing eggs in the female during, or, more probably, prior to fertilization. This is a possibility because in butterflies females have two sex chromosomes of different sizes (known as Z and W), while males have



two sex chromosomes of the same size (ZZ). So, females produce sex cells (gametes) of two types, either carrying a Z chromosome or carrying a W chromosome, while all sperm have a Z chromosome. It has previously been suggested that in another *Acraea*, *A. eponina*, sex ratio distortion may be a result of this type of process (Majerus 2003).

Third, the *Wolbachia* may be a feminising agent, converting infected males into functional females. This phenomenon, which is best known in some Crustacea, has also been recorded in the pierid butterfly *Eurema hecabe*, and two species of moth of the genus *Ostrinia* (Kageyama *et al.* 2000). Critically in these cases, treatment of infected females (which are ZZ because they are feminised males) with antibiotics, which causes the death of the *Wolbachia*, should lead to the production of only male offspring because both females and males only pass on Z chromosomes. It is interesting to note that all females were infected, which gives the feminisation some support as in both other hypotheses, uninfected females should occur as commonly as males occur, while under the feminisation hypothesis, all females may be infected. Males are still produced, but only because the inheritance of the bacterium from infected females to progeny is not 100% efficient. Any progeny that do not inherit the bacterium will be male as they will have two Z sex chromosomes.

These three possibilities will only be distinguished by breeding *A. sotikensis*, analysing the egg hatch rates and larval mortality, and determining what happens if infected females are cured of the infection with antibiotics. Chromosomal studies might also be informative if the sex chromosomes can be visualised and identified.

Finally, we return to the observed hybrid mating between a female *A. sotikensis* and a male *A. alicia* that was the catalyst for this article. We feel it probable that this was a consequence of *Wolbachia*-induced sex ratio distortion, leading to a dearth of males in the Kibale population, and the consequent breakdown of the normal species recognition behaviour on the part of the female *A. sotikensis*.

Acknowledgements

We are grateful to Akite Perpetra and Robert Kityo for help and assistance in Kampala, and to Clive Nuttman, and all staff and students on the Tropical Biology Association field course in Kibale, June-July 2005, for help with sampling and facilities. S. S. M. H. is recipient of a studentship from the Yousef Jameel Family Trust. H.A. received financial support and other assistance from Eva Walldemarson, Henrik Smith and The British Ecological Society.



References

- Darwin, C. 1871. *The descent of man and selection in relation to sex* (1st edition). John Murray: London.
- Fisher, R.A. 1930. *The Genetical Theory of Natural Selection*. Oxford University Press: Oxford. Pp. 272.
- Hamilton, W.D. 1967. Extraordinary sex ratios. *Science*, **156**, 477-488.
- Hurst, G.D.D., Jiggins, F.M., Schulenberg, J.H.G.v.d., Bertrand, D., West, S.A., Goriacheva, I.I., Zakharov, I.A., Werren, J.H., Stouthamer, R., Majerus, M.E.N. (1999) Male-killing *Wolbachia* in two species of insect. *Proc. R. Soc. Lond. B*, **266**, 735-740.
- Jiggins, F.M. 2000. *The Causes and Consequences of Sex Ratio Distortion in African Butterflies*. Ph. D. thesis: University of Cambridge.
- Jiggins, F.M., Hurst, G.D.D. and Majerus, M.E.N. (1998) Sex-ratio distortion in *Acraea encedon* (Lepidoptera: Nymphalidae) is caused by a male-killing bacterium. *Heredity*, **81**, 87-91
- Jiggins, F.M., Hurst, G.D.D., Dolman, C.E. & Majerus, M.E.N. (2000) High prevalence male-killing *Wolbachia* in the butterfly *Acraea encedana*. *J. Evol. Biol.*, **13**, 495-501.
- Jiggins, F.M., Bentley, J., Majerus, M.E.N. & Hurst, G.D.D. (2001) How many species are infected with *Wolbachia*? Cryptic sex ratio distorters revealed to be common by intensive sampling. *Proc. R. Soc. Lond. B*, **268**, 1123-1126.
- Kageyama, D., Nishimura, G., Hoshizaki, S. and Ishikawa, Y. 2000. *Wolbachia* infection causes feminization in two species of moths, *Ostrinia furnacalis* and *O. scapularis* (Lepidoptera: Crambidae). *First Int. Wolbachia Conf. Program and Abstracts*, 106-107.
- Majerus, M.E.N. (2003) *Sex Wars: Genes, Bacteria, and Sex Ratios*. Princeton University Press: Princeton, New Jersey.
- Owen, D.F. and Chanter, D.O. 1969. Population biology of tropical African butterflies. Sex ratio and genetic variation in *Acraea encedon*. *J. Zool. Lond.*, **157**, 345-374
- Poulton, E.B. 1914. W.A. Lamborn's breeding experiments upon *Acraea encedon* (Linn.) in the Lagos district of West Africa, 1910-12. *J. Linn. Soc. Lond.*, **32**, 391-416.

Editor's Note: Please note that the photo for Plate 11 is incorrectly credited. The photograph was taken by Ylva Hanell, not Mike Majerus. (Ed)





Where are all the Welsh Fleas (Siphonaptera)?

by R.S. George (1402)

54 Richmond Park Avenue, Bournemouth, Dorset, BH8 9DR.

In this short paper I want to concentrate on the state of recording the distribution of fleas in Wales and to give a brief run-up on my work/hobby.

The recorded distribution of Siphonaptera throughout Great Britain has been bedevilled by a gross shortage of collectors, researchers and recorders. The effective number of workers has, at any one time, barely reached the teens and most counties have not hosted anyone in the last century! When we look at the numbers of mammalogists and ornithologists, upon whom a siphonapterist is largely dependent, there is no worthwhile comparison. Yet some collecting can be done with ease by almost anyone. For example, as I drafted these notes there came in the post a dead cat flea from Newport, Pembrokeshire – only the fourth record from the county and the first from 10km square SNO3.

I have been accumulating data on our flea fauna since 1951, and my major help has been a paper published by Franz Smit in 1957. There, the known county and island distribution, hosts and bibliography was given. This very detailed yet easy to use paper enables a basic County List and appropriate references to be compiled in a few minutes and has been the spur to my work ever since it appeared. With an interesting accumulation of knowledge, it enabled me to produce a Provisional Atlas in 1974 and now a second edition is contemplated.

From Smit's paper and the information contained in my files up to 8th November 2004 we can see the increases in mainland county records in Table 1 and for Welsh island records in Table 2. The mainland total has gone up from 71 to 212, up by 199% and the island total from 15 to 33, up by 120%. These figures look good but let us look at the facts.

Wales, including Monmouthshire, has all or part of 278 10km squares of the National Grid, county boundaries break across 35 of these so to get a complete county and 10km square coverage (the two most popular ways of recording distribution) we need 313 records for each species. Each "self respecting" county could produce 39 species and subspecies so there is a need (for perfection) for 12207 locality records – an immense distance from the actual figure which, probably, is less than a thousand.



Table 1: The particular desiderata are fleas from the counties as follows (N = from nest. B = from body):

Hedgehog	Anglesey, Brecknock, Flint	B
Dog	Brecknock	B
Voles	Carmarthen, Flint, Radnor	N, B
Moles	Brecknock, Carmarthen, Flint, Pembroke, Radnor	N, B
Bats	All counties, collection only by licensed handlers	B & droppings
House mice	All counties	N, B
Badger	Anglesey, Brecknock, Caernarfon, Flint, Radnor	N, B, RTAs
Grey squirrel	Anglesey, Carmarthen, Flint, Pembroke	N, B
Brown rat	Anglesey, Brecknock, Denbigh, Flint, Merioneth, Radnor	B
House sparrow	All counties	N
Corvidae (Magpies & Crow)	All counties	N
House martin	Anglesey, Caernarvon, Carmarthen, Flint, Pembroke	N
Sand Martin	All counties	N
Feral pigeon	All counties	N, especially nests from buildings
Wheatears	All counties	N

Table 2. Showing the increase in Island Records between 1957 and November 2004. The Skerries provide one species extra to the mainland for Anglesey. Bardsey provides four extra for Ardgian and Skomer three extra for Pembroke.

Island	Part of VC	In Smit	Post Smit	Total
Bardsey	46	2	13	15
Cardigan Isle	46	0	1	1
Puffin Island	52	0	1	1
Ramsey	45	0	5	5
Skerries	52	0	2	2
Skokholm	45	8	4	12
Skomer	45	8	4	12
Total		15	33	48



The best sources for fleas are the bodies and the nests of the preferred hosts and with the exception of bats, the handling of which is very strictly controlled by law, is fairly easy. Fleas of rabbits, hedgehogs, grey squirrels, cats and dogs are most easily obtained from bodies. Road Traffic Casualties (RTAs) are useful. Nests of voles, rats, house mice (local pest authorities should be able to help) and bedding from badger setts all contain fleas. Bird nests, which must not be taken until the last of the fledglings have definitely gone, can be good; the best are from nest boxes (there are regulations covering these), house martins (only one nest per colony), sand martins, Corvidae, ground nesting birds can provide a variety of species. Specimens should be put into a tube of alcohol (methylated spirits will do, or even a little gin, as a temporary preservative) or wrapped in an alcohol soaked piece of tissue paper. Fleas are not normally found on horses, ponies, goats, sheep, cattle and deer, conversely pigs can suffer severe infestation.

I would ask that specimens be sent to me with as much information as possible: species of host, body or nest, county, locality, map grid reference, collection date, collector's name. Gatherings should be as complete as possible otherwise species present in low numbers may be missed. Nests should be put into transparent plastic bags (I use freezer bags), tightly sealed. I will extract specimens from nests, identify the fleas, report back, record details in my own files and also log with the national data bank, and eventually use the information to publish in County Lists.

Years ago the late Bernard Edwards, once of Llanbrynmair and latterly of Commins Coch, co-operated excellently with me and in 1966 we jointly published a list of the fleas of Merionethshire and Montgomeryshire. I hope there may be some successors to his efforts to carry on flea collecting.

References

- George, R.S., 1974. *Provisional Atlas of the Insects of the British Isles, Part 4* Siphonaptera. Biological Records Centre, Monks Wood Experimental Station, Abbots Ripton, pp 12, 60 maps.
- George, R.S., and Edwards, E.B., 1966 'The Fleas (Siphonaptera) of Merioneth and Montgomery'. *Nature in Wales* **10** (1):31-36.
- Smit, F.G.A.M., 1957. 'The Recorded Distribution and Hosts of Siphonaptera in Britain'. *Entomologists' Gazette*, **8** (1):45-75.



Evolution of size

by Leo Lester

*School of Animal and Microbial Sciences, The University of Reading, Whiteknights,
PO Box 228, Reading RG6 6AJ.*

A question often asked is 'Why are insects so small?' The answer most often given in return sounds very biological and convincing but it is also a little prosaic and based on a misunderstanding of biology. In fact, the question we ought to be asking is quite different.

The diminutive size of insects is most usually blamed on a physiological constraint. With no lungs or gills, insects rely on simple diffusion to get the oxygen they need out of the atmosphere and into their bodies. To this end, their exoskeleton is punctured with pairs of tiny holes called spiracles. These connect to a system of pipes (or trachea) which ramify through their tissue. Yet these pipes can only carry the oxygen so far. After about 25mm they become too narrow and too distant from the surface for effective diffusion and gas exchange. A maximum diameter of 50mm is therefore imposed on insects: if they were any fatter their innards would asphyxiate. This, then, explains why butterfly bodies remain pretty slim even when attached to wings 100mm across. In the insect world it really is bad news to be fat.

Yet true as this might be, it is not the whole picture. Insects can overcome the 50mm limit. Exercising muscles at the inner limit of the trachea can function almost as pumps, increasing the rate of diffusion and pulling the oxygen in. Such oversized insects can still be found, but they were certainly more numerous in the Permian and Carboniferous eras. Their relative abundance in times past might be put down to variation in the level of oxygen in the atmosphere, but that fails to explain why the many prehistoric insect monsters that were long and narrow (within the 50mm limit) have also died out. Something else must be at work.

That something is the same something that explains the rise and fall of gigantism in all groups of animals, including the reptiles and mammals: ecology. It is ecology, the interactions between different species and between the biotic and abiotic, that truly explains biology. Physiology, biochemistry, taxonomy; these might describe life, but it is the interactions that drive it forward.

When insects seized the land all trembled in their wake, and when they ruled the air they did so regally. They were the most ferocious,



they were the best, and, for a while, they were the biggest. But size has its costs. It takes longer to grow, and larger species are usually less populous and less fecund. This hardly matters if one is the top predator, but if the tables are turned and predator becomes prey, size can leave one very vulnerable indeed.

The rise of the vertebrates, and especially of vertebrate fliers, put paid to insect dreams of topping the food chain. Insects were no longer without challenger: the vertebrates could move faster and further. The huge dragonflies, previously so fearsome, were nothing more than a tasty snack: too weak to fight, too slow to run away. As the new predators achieved dominance, so they fell upon the old with a vengeance. Being big was no advantage; now it was the smaller species that held the winning ticket. They could breed faster, maintain larger populations, and pass on their genes before passing through a vertebrate's gut. The real question we ought to be asking, then, is, given the disadvantages of being big, why insects are still as big as they are.

This question too must be answered with reference to interactions, but this time on a different scale. Although small body size makes biological sense for the insects, it does present them with physical disadvantages. Breathing, breeding, and feeding might become easier, but so too does desiccation. Extreme smallness can also make movement difficult. The fairy fly is so small that to it air is as viscous as treacle is to us. It does not fly through the air, it rows through it.

Of course, some organisms do get much smaller than even the tiniest of insects, so there must again be something else at play. This time it is the insect's own complexity. With compound eyes, jointed legs and a blood-brain barrier, insects are complex animals and as their body size decreases, so all this must be rendered on ever smaller scales. Cell size, in contrast, is largely invariant (though of course there are some notable exceptions). The fairy fly does not have smaller cells than the stag beetle, it has fewer cells. One is forced to wonder just what the minimum number of cells needed to make a fully functional insect is.

Like the mammals, reptiles, birds, amphibians and fish, like even the spiders, crustaceans and molluscs, insects have toyed with gigantism in the past. It worked for them for a while, just as it did for all the others, but as time and the environment changed, so they evolved ever smaller. It was ecology that made them large, and it was ecology that made them small. They grew to kill other invertebrates, and they shrunk to avoid the vertebrates. Yet in both directions they found a limit, and so settled on a happy medium, with body sizes ranging from



approximately 2 to 200mm. A happy medium for insects, and for life it would seem, for it lies bang in the centre of creation's own great size range of 0.002 to 20,000mm.

This then is the key to the insects' success. Through time they have proved masters of adaptability, always taking on the environment and making it their own.



A most interesting observation

by *Jan Koryszko (6089)*

3 Dudley Place, Meir, Stoke-on-Trent, Staffordshire ST3 7AY.

Most of us from time to time have had problems with cats fouling in our gardens. I have tried all sorts of cat repellents – orange peel, moth balls, and many other strong-smelling pellets and pepper dust from Garden Centres. These do work in the short term, but the best method I find is 'cheap' neat washing-up liquid from the local supermarket. I sparingly squirt it on to the soil around my plants around once a month. This works quite well even after rain. During the summer months of 2005 after application of the washing-up liquid on the garden, within hours I noticed a small number of flies looking like rather dull greenbottles running around the soil as if in search of an unseen prey. I believe these flies may be a species of *Bellardia*? (*Onesia* of the Kloet and Hincks checklist.) These are a member of the Blowfly family (*Calliphoridae*) and are apparently predators of earthworms and are parasites – maybe they also attack slugs and snails? (See *Fauna Ent. Scand.* 24.) Did these flies expect the washing-up liquid to bring the earthworms to the surface when it soaked into the soil so they could attack them or did they think the washing-up liquid was slug or snail trails across the garden, again in the hope of attacking them? I observed no predation, maybe the smell of the washing-up liquid was the attraction for some unknown reason. The flies were most active. Perhaps other AES members have had similar observations, or may have other points of view of this. All replies would be most welcome.



Roadtrip 2004

by Tony Steele (4106)

57 Westfield Road, Barnehurst, Kent DA7 6LR.

I have always had an interest in insects but rarely had the time to study or record them in much detail until recently. For over twenty five years my chief hobby had been bird ringing but I gave this up and started moth trapping in June 2002. The long awaited arrival of a generator and two extra traps at the beginning of 2004 gave me a considerable boost in that I could get out to the woods as well as trap my own garden. The ultimate mothing adventure was soon decided when a friend (Chris) and I decided to plan a week's mothing together in the summer.

A look at the records from the garden soon told us that early July was a very prolific time for the number of species to be found. So a search for the moon's cycles on the internet resulted in us picking the week of the 11th-18th as our target dates. Unfortunately Chris could not get all the time off work we needed, so I did a catch on my own at my regular Lincolnshire woodland site on Tuesday the 13th July to start the recording and as soon as Chris finished work on Wednesday we departed for Norfolk and began the trip properly.

The equipment we had was two 125W mercury vapour skinner traps with a third skinner trap fitted with a 16W actinic lamp, one generator and about 200 yards of cable. The traps were normally set out in a long line with a m.v. trap at each end and the actinic somewhere near the middle.

The weather forecast for the latter part of the week and the weekend was not very favourable with a band of heavy rain descending the country from the north-west. However, we were intending to head east and then south so there was a chance of keeping dry and beating the rain. What it did do was give plenty of cloud to keep the nights warm. When we had first planned the trip our target was to try and catch a total of 200 species of moth, including micros, a target we had beaten by 14 species on our second night. It just shows what variety is about within the British countryside and also how much we had to learn about moth trapping!

My local patch is a Forest Enterprise woodland that has had much of the spruce removed but leaving all the deciduous trees to grow on. Regeneration has so far been very rapid for species such as Sliver Birch and Sallow, but there are seedling Oaks and Ash coming through in good numbers as well. The catch on Tuesday 13th was my best ever at this site with 150 species eventually being identified. Of these 57 were



micros, many of which were new species to me and there are still a few more needing dissection to finish them off. The omens for the coming week were good. Of the macro's I caught my first ever Scarce Silver Lines, and Ash Pug, along with Pinion Streaked Snout, V Pug, Maple Prominent, Beautiful Hook Tip and Triple Spotted Clay. Having never seen Maple Prominent before it was one of the few species to be caught at every site we trapped during the five nights of the road trip.

By the time we arrived in Norfolk and found our trapping site it was already dark so we were a little unsure of exactly where to place the traps and chose a long track which started in trees at the edge of the wood, went through a clearing and then rejoined the woodland. The first trap was close to the wood's edge where the trees were more mixed in species. The actinic fitted neatly by a solitary tree in the clearing and the last m.v. just reached to within about fifty feet of the woodland edge at the other side of the clearing. When the sun came up and showed us the whole view we could not really have chosen much better had we known what we were actually doing!

The night started very well with the first moth to appear being Clouded Magpie. This was then followed by a female Festoon and we had only just got the first trap switched on and were still assembling the second. We could not have asked for a better start. From then on things got very busy trying to record all the species that we were attracting. By the time we had all three traps working and returned to the first trap it was already full of moths. Chris was kept busy writing down the various species I could identify easily while potting those that needed to come back to the car and the books. Clouded Magpies were quite common at the first trap. We only caught a few Festoons but we were able to compare both male and female. Whilst working our way through the contents of the first trap a single Black Arches arrived followed shortly by one of three Pine Hawks we caught that night.

There were many new and interesting species of both macro's and micro's from this site besides those already mentioned. We caught Blackneck, Broom-tip, Brown Scallop, Sharp Angled Carpet, Dotted Clay, Rosy Footman, Oblique Striped and Lesser Cream Wave. An afternoon's visit to Jon Clifton helped with micro identification and Jon was able to confirm the identity of two micros not found frequently in Norfolk. *Doryctria sylvestrella*, a pyralid, had only been found a couple of times and ours was a new site for it (it was difficult to identify because it is a newish species to the UK and is not in the pyralid book yet). The second species was *Capperia britaniodactyla*, a Plume Moth that was a bit worn and needed dissecting to confirm.



The total haul for the night was 104 species of macro moth with another 40 species of micro's. Two tired, but happy moth-ers managed to get very little sleep in the front seats of the car before heading into Thetford for breakfast. Perhaps it is worth the mention that luxury accommodation was not at the top of our list when deciding to undertake this trip. We intended to be up all night with the traps and grab some sleep when and where we could during the day. With hindsight I am glad we did not succeed in having the full eight days trapping that had been the original plan.

Our next port of call was the coast. We headed into Suffolk and down to the area of stable dunes near Dunwich. This area was chosen because I had come to this area on my honeymoon and was aware of its richness as a wild life habitat. We were looking for different types of habitat for each night's trapping session without having to travel vast distances and neither of us had any experience of catching moths near the coast. There was also a large reed bed nearby but very little in the way of trees or bushes.

This time we were able to get set up in daylight and also spend a bit of time dusking. The weather was doing its best to be negative with the wind getting quite blustery and there were also several showers during the night but overall still good trapping conditions.

Dusking produced several Tawny Shears of a wide variety of colours and intensity of markings and a few Antler Moths, which were another new species for me. But when the lights began to take effect we very quickly appreciated the difference between the woodland and the coastal habitats. The variety of moths was obviously very different with a much greater number of micro moths being attracted to the traps than we had experienced at Thetford. We expected a reduction in the number of species overall catching 62 species of macro and 23 species of micro, but the number of individuals was also much less, especially with the larger moths.

The night definitely belonged to the pyralids, especially a species noted for being found on coastal shingles – *Synaphe punctalis*. This micro was caught by the hundred and literally carpeted the walls and floor of the traps. A single specimen of the notable pyralid *Nyctegretis lineana* was also caught along with many *Endotricha flammealis* and Ringed China Mark Moths. Other pyralids caught were *Euzophera cinerosella*, *Eudonia pallida*, *Pyrausta cespitalis*, *Donacaula forficella* and a single *Schoenobius gigantella*.

Amongst the macro moths I had never seen before were Brown Tail, Dotted Fan Foot, Southern Wainscot and Striped Wainscot. We also had



visits from Cream Bordered Green Pea, Garden Tiger, Leopard, and True Lover's Knot. A small but quite distinctive micro was *Monopsis monachella* that is only found from a few sites in this country.

This time sleep was getting much easier in the front seats of the car, all be it in a lay-by on the side of a busy main road but the main attraction of the spot was large numbers of Essex Skippers that would appear every time the sun came out.

Our next target was to try to visit some downland in Kent near the Maidstone area. This was also an area of the country where I had lived previously and knew of a few likely spots. The first turned out to be too close to housing to run a generator and some very bright lights so a quick look on the map gave us a few more choices. While parked down a dirt track having a look over a hedge to assess the vegetation growing in a field we fancied, the landowner just happened to pass by. This was very fortunate as he was very agreeable to us trapping on his land and directed us further along the track to the most botanically rich piece of land he owned. It also saved us a lot of time trying to find out who owned the land we wished to trap upon. So we headed into town for a meal.

Back on the Downs we set a line of traps starting by an overgrown hedge, of mostly hawthorn and blackthorn, and ending at the top of the slope fairly close to a wood that consisted of mostly large yew trees. The weather was a bit breezy and cooler than the previous nights had been and the slope of the Downs caught the wind perfectly! Fortunately the wind eased off during the small hours and was quite calm by dawn.

A Bee Moth was the first species of interest to arrive at the traps. I do catch a few at home but not very often, but it was soon clear that the geometers were going to be tonight's feature presentation. Early arrivals were Scorched Carpet, Dark Umber, V-Pug and a Purple Bar. By the end of the night we had also caught White Spotted and Double Striped Pugs, Small Emerald, Fern, Least Carpet and Pretty Chalk Carpet and the last moth of the night – Waved Black.

The micros were not to be outdone and a beautifully marked pink coloured species *Oncocera semirubella* was present in good numbers including the form which has a creamy-white stripe along the leading edge of the forewing. Another pink micro that was new to me was *Celypha rosaceana*; we also caught the delightfully marked *Pyrausta nigrata* and my first Wax Moth.

The total catch for the night was 118 species of which 42 were micros with both grass moths and tortrix species being well



represented, although most were not outstanding species many were new for the roadtrip.

Our last trapping site was not far from the downland habitat of the previous night. We wanted to try a similar habitat to that back home but much further south. The wood we chose was a standard mix of mostly conifer with a mixture of hardwood species, particularly towards the woodland edge. The chosen site was just outside of Tonbridge still in Kent. This gave us plenty of time for relaxation and to get some sleep but because we felt we deserved a little luxury, we found a pleasant rural pub and ordered a slap up meal, good enough for us to have to finish up quick and get back to the wood before it got dark!

This time we set the traps spaced out along a grassy ride that went up one side of the wood fairly close to the edge, it could be described as the path of least equipment carrying!

The catch was not especially large but sufficiently different from those we had had before to be very pleasant. What was most notable was that instead of catching one or two species from a family, we would generally catch a good selection, for example we had caught Emerald Moths at most sites on the roadtrip but at Tonbridge we not only caught the regulars, Common, Large and Light Emeralds, we also caught the Small and Blotched Emeralds as well. Having not caught a single Lutestring during the trip we caught several individuals of Common, Poplar and Satin Lutestrings. One of my favourite subfamilies is the Footmen and the Rosy Footman made its second appearance for the trip in reasonable numbers.

Strangely we caught very few Carpets with Broken Barred and Large Twin Spot being the only representatives that night of this large subfamily. However this was compensated by several Clay Triple Lines and a Barred Hook Tip, both new species for me. Other new species among the macros were September Thorn and the Beautiful Snout. We also caught my second example of a Gold Swift.

Micros were somewhat thin on the ground both in number and species but we did catch two examples of *Perinephela lancealis*, a pyralid that I first thought looked like a Mother of Pearl. We also caught our second example of *Euzophera cinerosella*.

In total we caught 195 species of macro moth, and 108 species of micro, making a grand total of 303 species for the five nights. How this compares with other trips of this nature I don't know because it was our first, but we were very pleased though a little worn out. I still have a dozen or so micros that I am unable to identify at present, so the list



may yet get longer. All records we obtained have been sent to the various County Recorders, some of the moths we found have been records of note, most have at least been from previously unrecorded sites. We are already planning our next trip for 2005 and are thinking of heading west this time either to the Devon area or perhaps South Wales. Can't wait!



Records of *Arbopalus rusticus* Linnaeus 1758 in the British and other Museums also records for East and West Sussex Part 4

by Keith C. Lewis (3680)

Top Flat, 108 Park View Road, Welling, Kent, DA16 1SJ.

Records of *Arbopalus rusticus* held in the British and other U.K. Museums.

Date	Specimens	Collectors name	Museums
14. 07. 1901	1	Sharp D. Dr	B. M.
22. 08. 1904 +	1	Yerbury Colonel, Ex Power collection	B. M.
00. 00. 1905 +	2	Yerbury Colonel, Ex Lamb G. Sharp D. Dr.	B. M.
16. 06. 1906	1	Sharp D. Dr	E. C. M
14. 07. 1906	30	Sharp D. Dr	B. M.
00. 06. 1907	2	Bishop T. G. Ex Fowler W. W Cannon.	N. N. H. M.
00. 06. 1907	2	Bishop T. G.	H. M. U. G.
00. 06. 1907	3	Sharp D. Dr.	B. M.
14. 07. 1907	2	Sharp D. Dr.	B. M.
14. 07. 1907	1	Lamb G. Ex Sharp D. Dr.	B. M.
00. 06. 1908	3	Sharp D. Dr.	B. M.
00. 06. 1908	1	Sharp D. Dr.	N. N. H. M.
00. 07. 1908	4	Sharp D. Dr.	B. M.
00. 00. 1909	1	Bishop T. G.	B. M.
00. 00. 1909	2	Bishop T. G. Ex Rothschild Lord.	B. M.
00. 06. 1909	1	Bishop T. G. Ex Rothschild Lord.	N. N. H. M.
00. 07. 1909	1	Bishop T. G. Ex Rothschild Lord.	B. M.
00.07. 1909	1	Bishop T. G.	H. M. U. G.
00. 07. 1909	1	No name	H. W. E. Y. M.
00. 07. 1909	4	Bishop T. G.	H. M. U. G.
00. 07. 1909	1	No name	T.
00. 07. 1909	1	Bishop T. G.	H. W. E. Y. M.
00. 06. 1910	1	Fergusson A.	H. M. U. H. G.

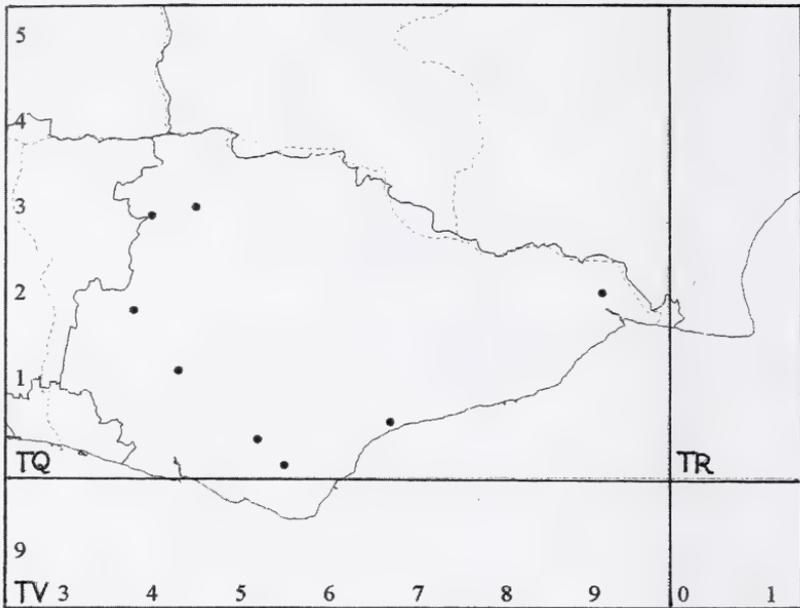


12. 07. 1910	1	No name.	H. W. E. Y. M.
14. 07. 1910	1	Beare T. G.	H. W. E. Y. M.
17. 07. 1910	2	May A. H.	R. M. S.
17. 07. 1910	3	Beare T. G.	C. P. A. G.
21. 07. 1910	1	No name.	T.
21. 07. 1910	1	Beare T. H.	H. W. E. Y. M.
05. 10. 1910	1	Beare T. H.	H. W. E. Y. M.
08. 10. 1910	3	Beare T. H.	H. W. E. Y. M.
00. 00. 1911	1	Sharp D. Dr.	B. M.
00. 06. 1911	3	Fergusson A.	H. M. U. G.
00. 06. 1911	1	Donisthorpe H. St. J.	C. P. A. G.
16. 06. 1911	3	Donisthorpe H. St. J.	B. M.
17. 06. 1911	7	Donisthorpe H. St. J.	B. M.
00. 07. 1911	8	Black J. E.	E. C. M.
00. 08. 1911	3	Beare T. H. Ex Day F. H.	H. W. E. Y. M.
00. 00. 1916	3	Beare T. H.	H. W. E. Y. M.
00. 08. 1916	1	Bishop T. H. Ex Power collection	B. M.
00. 06. 1919	1	Bishop T. H.	B. M.
00. 08. 1921	1	Heath O. G. Ex Power collection	B. M.
00. 08. 1927	1	Harwood P.	A. A. A.
00. 08. 1927	2	May A. H.	R. M. S.
00. 08. 1929	1	Harwood P.	A. A. A.
00. 08. 1929	2	No name	T.
29. 08. 1929	1	Harwood P.	S-o-T. C. M.
12. 07. 1930	1	Bedwell E. C.	C. M. R. C.

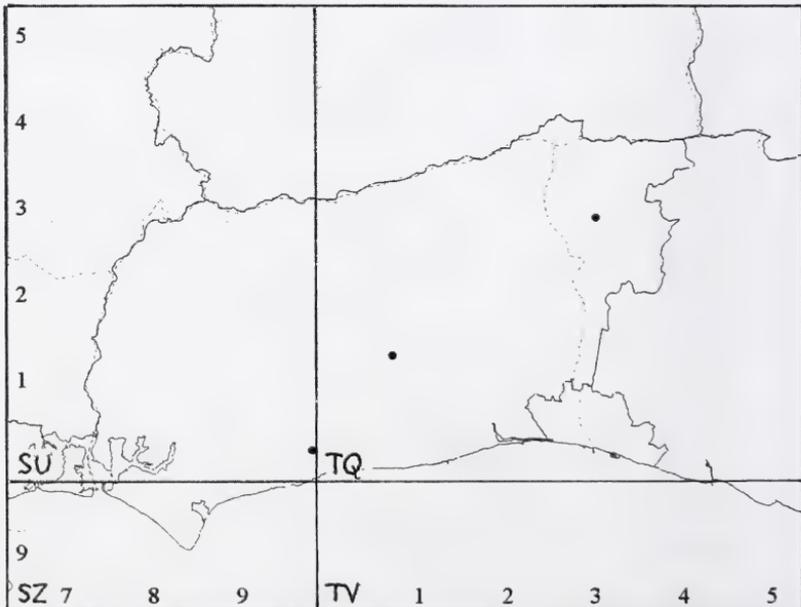
When the *Arhopalus rusticus* collection was viewed c1998 in the British Museum only two locations were found for the records listed above (Colonel Yerbery +). These locations were attached to the pin under the card mount on additional slips of paper, marked Nethy Bridge. But there can be little doubt that most if not all of the specimens listed above came from the Nethy Bridge area of Scotland NJ0020. Note that Anderson Fergusson 1889-1949 was also a well known Scottish coleopterist.

Initial Keys to Museums and Recorders

A. A. A.	Anthony A. Allen.
B. M.	British Museum Natural History.
C. P. A. G.	City of Plymouth Museum and Art gallery.
E. C. M.	Exeter City Museum.
H. M. U. G.	Hunterian Museum University of Glasgow.
N. N. H. M.	Nottingham Natural History Museum.
R. M. S.	Royal Museum of Scotland.
S-o-T. C. M.	Stoke on Trent City Museum.
T.	Twinn Dr.
W. H. E. Y. M.	W. H. Ellis York Museum. (His collection)



Arhopalus rusticus in East Sussex



Arhopalus rusticus in West Sussex



East Sussex Records

Date	Location	Site	Habitat	Recorder
00. 00. 1946.	Chailey	TQ3919	No record	Cribb J.
07. 07. 1970.	Harvard Road	TQ4412	M.V. light	Dumbrell R.G.
08. 08. 1970.	Milton Street	TQ5304	M.V. light	Hodge P.J.
28. 08. 1973.	Chelwood Gate	TQ4130	Pine trunk	Hodge P.J.
00. 08. 1979.	Playden near Rye	TQ9221	No record	Tweedie M.
08. 08. 1981.	Heathfield near	TQ4631	M.V. light	Charmers-Hunt J.M.
01. 08. 1995.	Normans Bay near Pevensey	TQ 6806	M.V. light	Simmons M.J.
00. 08. 1995.	Jevington	TQ5601	Dropped from belfry	Hodge P.J. Mrs.

West Sussex Records (larvae*)

00. 07. 1946.	Ford near Littlehampton	SU9903	No record	Cribb J.
20. 07. 1980.	Storrington	TQ0814	No record	Twinn Dr
04. 07. 1992.	Balcombe	TQ3130	Under pine bark*	Lewis K.C.

Acknowledgements

I wish to thank the many coleopterists and Museums for sending me their records c1997-1999, especially Mrs Sharon Shute and Malcolm Kurley for access to the British Museum's Coleoptera collection.

References

- Donisthorpe Horace St K. J. (1939). The Coleoptera of Windsor Forest. Nathaniel Lloyd and Co.
- Harde K. W. (1984). A Field Guide in Colour to Beetles. Octopus Books.
- Norman Hickin. (1989). Longhorn Beetles of the British Isles. Shire Publications.
- Ulrick Bense. (1995). Longhorn Beetles.
- Gaetan du Chatenet. (2000). Coleopteres Phytophages D'Europe N. A. P. Editions.

AURELIAN BOOKS

DAVID DUNBAR

Butterflies, Moths and Entomology

View stock on-line at www.booksatpbfa.com

(Click on sellers and search Aurelian Books)

- Antiquarian, out-of-print and new reference books -
- Butterflies, moths, dragonflies, beetles and other insects -
 - British Isles, Europe and rest of the World -
 - Free book finding search service -
 - Catalogues available on request -
 - Browse our stock - by prior appointment -
- Collections and good individual books and journals bought -

Phone, fax, e-mail or snail-mail for all enquiries
which are always welcome

31 LLANVANOR ROAD, LONDON NW2 2AR

(Telephone and fax) 020 8455 9612 e-mail: dgldunbar@aol.com



ARE YOU MISSING OUT? THE ENTOMOLOGIST'S RECORD and Journal of Variation

Publishes notes, observations, articles and reviews,
mainly on the Lepidoptera and Coleoptera of the British Isles and Europe.

Founded in 1890 by J. W. Tutt, and still going strong, we publish six issues a year -
alternating with the *AES Bulletin*. This means there is now a first class entomological
journal available every month of the year!

Our subscription price is £28 per year. If you would like to see a specimen copy, please send
your name and address, and a couple of second class stamps to cover postage to:

The Editor, 14 West Road, Bishops Stortford, Hertfordshire CM23 2QP.

Write now! You never know what you could be missing.

The Entomologist's Record is an independent, non profit making journal.
To ensure high standards of production we use Cravitz Printing Company.

Being a member of the Royal Entomological Society and the Amateur Entomologists' Society has the advantage of discount on all our publications. Discounts are only available if the subscriptions are fully up to date. Single copies only may be purchased on discount. Postage & Packing - Free to U.K. addresses, Overseas add 10%.

The Hymenopterist's Handbook by Dr. C. Betts et al.

A completely revised 2nd edition dealing with the history of their families, classification and structures, natural history, studying, collecting, breeding, attracting and preserving Hymenoptera. Appendices include keys to the families. 214 pages with numerous tables, keys and figures (1986) £ 11.45

Members price £ 8.60

Revised Flight Tables for the Hymenoptera

Revised flight tables for the Hymenoptera giving, wherever possible, times, location, flower visits and some indication of distribution and abundance. 24 pages (1988) £ 3.10

Members price £ 2.35

A Coleopterist's Handbook

Edited by J. Cooter & M.V.L. Barclay One of the Society's best selling publications, the *Coleopterist's Handbook*, is now available as a fully revised and expanded fourth edition. Nomenclature has been brought inline with current use, collecting/curatorial methods reflect best practice and plant/beetle and beetle/plant lists are included together. Recent additions to the British fauna, modern and traditional techniques are included. All advice and comment given in the book is based upon collective years of practical experience of both curatorial methods and field crafts; beetle family chapters have each been written by an internationally recognised authority. 496 pages including 32 colour plates. £ 54.00

Members price £ 39.00

Host plants of British Beetles: A List of Recorded Associations

A list of a wide range of plants, in alphabetical order, together with the beetle species that have been recorded as being associated with them. 24 pages (1992) £ 3.10

Members price £ 2.35

A Silkmoth Rearer's Handbook by B.O.C. Gardiner

SPECIAL OFFER PRICE £ 7.70
No further discounted price available

A Dipterist's Handbook by A.E. Snubbs, P.J. Chandler and others
A practical handbook for both the beginner and the initiated on collecting, breeding and studying the two-winged flies. Describes equipment, trapping, preservation, habitat, plant and animal associations and behaviour. Includes a detailed chapter on larval stages with an illustrated key to families. An essential book for the keen Dipterist. 260 pages with drawings of larvae and equipment (1978, reprinted 1996) £ 14.20

Members price £ 10.60

Practical Hints for Collecting and Studying the Microlepidoptera

by P.A. Sokoloff. A practical manual for those interested in the smaller moths, describing techniques for collecting adult moths, collecting immature stages, breeding, killing, setting and mounting. A list of useful books and journals as well as details of societies and suppliers is included. 40 pages, 11 figures (1980) £ 4.20

Members price £ 3.15

Rearing and Studying Stick and Leaf-Insects by P. D. Brock

Specifically intended for beginners, although it is also suitable for experienced Phasmid enthusiasts, it is one of the few guides to rearing that features the majority of the culture stocks available, 22 species in detail. The informative text is complemented by 8 colour plates, 14 black and white plates and 29 figures. (New edition, 2003) £ 11.20

Members price £ 8.20

The Study of Stoneflies, Mayflies and Caddisflies by T.T. Macan

A comprehensive guide to collecting and studying the biology and ecology of these aquatic insects. 44 pages, 10 figures and bibliography (1982) £ 4.20

Members price £ 3.15

Breeding the British Butterflies by P.W. Cribb

A practical handbook covering all aspects of butterfly breeding, including general techniques, equipment and hints on how to breed each of the British species. 60 pages, 6 figures, 5 plates. Revised (2001) £ 5.20

Members price £ 3.85

Practical Hints for the Field Lepidopterist by J.W. Tutt

Written at the turn of the century, this book has been reprinted because of its scarcity and value to students of Lepidoptera. It gives a complete month by month guide to which species and stages of macros and micros to look for and how to find them. Also contains a biological account of the early stages and how to keep, rear, photograph and describe them. 422 pages. Hardback. (Reprinted 1994) £ 24.00

Members price £ 18.30

An index to the modern names for use with J.W. Tutt's

Practical Hints for the Field Lepidopterist by B.O.C. Gardiner
A valuable cross-reference between the scientific and English names used in the early 1900s and the present time. £ 4.70

Members price £ 3.50

A Guide to Moth traps and their use by R. Fry and P. Waring

A superb, comprehensive guide, for all those intrigued by these groups of insects. Topics covered in detail include structure, fascinating facts, life history and development, defence behaviour, enemies, collecting, breeding (including trouble shooting), preserving, taxonomic studies, important collections in Museums etc. around the world and elaborate stories, beliefs and poems. Also outlines the major known species around the world on a regional basis. A section on Fossils is included. The appendices include a comprehensive glossary of the technical terms used in the description and classification of stick and leaf-insects. Hardback A5, 184 pages, 46 figures, 26 black and white plates and 40 pages of colour plates (containing 83 photographs and 4 drawings/paintings of insects and their habitats). (1999) £ 18.90

Members price £ 5.05

The Amazing World of Stick and Leaf Insects by M. Shaw

A superb, comprehensive guide, for all those intrigued by these groups of insects. Topics covered in detail include structure, fascinating facts, life history and development, defence behaviour, enemies, collecting, breeding (including trouble shooting), preserving, taxonomic studies, important collections in Museums etc. around the world and elaborate stories, beliefs and poems. Also outlines the major known species around the world on a regional basis. A section on Fossils is included. The appendices include a comprehensive glossary of the technical terms used in the description and classification of stick and leaf-insects. Hardback A5, 184 pages, 46 figures, 26 black and white plates and 40 pages of colour plates (containing 83 photographs and 4 drawings/paintings of insects and their habitats). (1999) £ 18.90

Members price £ 14.10

Rearing Parasitic Hymenoptera by M. Shaw

This booklet provides information on the parasitic Hymenoptera to enable successful studies to be made of this little understood group of the British insect fauna. Details are given on the general biology of parasitic wasps, rearing principles, efficient rearing practices and detailed methods of dealing with adult wasps. 52 pages, 4 colour plates. (New edition - 2001) £ 5.70

Members price £ 4.20

Larval Foodplants of the British Butterflies by Peter May

A comprehensive compilation of the known larval foodplants of our native and immigrant butterflies. Also including "How to Encourage Butterflies to Live in Your Garden" by the late Peter Cribb 62 pages. (2003) £ 7.40

Members price £ 5.45

Glossary for the Young Lepidopterist

6 pages, 2 figures. (1951) £ 1.05

Members price £ 0.90

A Label List of European Butterflies

20 pages. (Revised 1981) £ 2.35

Members price £ 1.85

Some British Moths Revisited

Aid to the identification of some of the more difficult species. Reprinted from the *Amateur Entomologist* Vol. 5 (1941) and a *Guide to the Critical Species of Lepidoptera*, reprinted from *Entomologist's Gazette* 1969/72. 64 pages, 6 black and white plates, numerous figures (1985) £ 4.45

Members price £ 3.35

Butterflies of Cyprus 1998 (Records of a year's sightings) by Eddie John

Observations of the 44 species of butterfly found on the island in 1998 including notes on each species and distribution maps. 46 pages (2000) £ 4.30

Members price £ 3.25

Collecting Het.Bugs (Hemiptera: Heteroptera)

12 pages (including 2 plates). (1946) £ 1.20

Members price £ 1.00

Collecting Clearwings

12 pages (including 2 plates), 4 figures. (1946) £ 1.10

Members price £ 1.00

Collecting Lacewings

9 pages, 8 figures, 5 plates. (2nd edition 1976) £ 2.25

Members price £ 1.75

An Amateur's Guide to the Study of the Genitalia of Lepidoptera

16 pages, 15 figures. (1973) £ 3.10

Members price £ 2.35

Rearing the Hymenoptera Parasitica

16 pages, 1 plate, 10 figures. (1974) £ 2.55

Members price £ 2.00

Rearing Crickets in the Classroom

12 pages, 2 plates. (1986) (Reprinted 1993) £ 2.10

Members price £ 1.65

Guidelines for Entomological Site Surveys

Published on behalf of the ICCBL. 7 pages (2000) (Reprinted 2003) £ 3.10

Members price £ 2.35

The Journal of the Entomological Exchange and Correspondence Club 1935-1936

An AES Jubilee Publication. Fascinating reprint of the very first volume of the AES journal. 100 pages. £ 4.20

Members price £ 3.35

A Directory for Entomologists

64 pages £ 3.70

Members price £ 3.15



All the above publications sent post free to U.K. addresses. Outside U.K. please add 10% to order value for postage by surface mail. For postage by air-mail outside Europe please add 30% to order value. Please allow 28 days delivery.

Please make all cheques/postal orders payable to 'AES Publications' and send to:
AES Publications, 1 Tower Hill, Brentwood, Essex CM14 4TA.
Telephone 01277 224610 • Fax: 01277 262815 • E-mail: aespublications@btconnect.com

Whether you're young or old, beginner or expert, there is something for everyone who loves bugs at the **largest** insect extravaganza of the year.

Join us at Kempton Park Racecourse on Saturday 7th October.



- ◆ Over 100 dealers
- ◆ Caterpillars and Butterflies
- ◆ Praying Mantids
- ◆ Exotic Pets
- ◆ Bug Pottery and Toys
- ◆ Antique Boxes and Cabinets
- ◆ Insect Identification Guide
- ◆ Join Clubs and Societies
- ◆ Rare and Recent Books
- ◆ Meet other enthusiasts
- ◆ Stick insects
- ◆ Tarantulas and Scorpions
- ◆ Nets, Traps and Equipment
- ◆ Netting and Cages
- ◆ Mounted Specimens
- ◆ Leading Insect Artists

Kempton Park is situated under a mile from Junction 1 of the M3. Rail services operate to Sunbury Station, half a mile from the racecourse, from London Waterloo.

For further details contact the AES at:

PO Box 8774, London SW7 5ZG

or alternatively visit the Society's Website at

www.amentsoc.org

**AMATEUR ENTOMOLOGISTS' SOCIETY
ANNUAL EXHIBITION AND TRADE FAIR**

Saturday 7th October 2006

11.00am - 4.30pm

Kempton Park Racecourse

Steane Road, Sunbury, Middlesex

HOW TO GET THERE



BY CAR

From the M25. Exit at Junction 12 (M3) towards Sunbury.
Exit the M3 at Junction 1 and take the A308 sign posted for Kempton Park.
The racecourse is situated one mile on the left hand side.

BY TRAIN

Two services an hour are operated from London Waterloo to Sunbury station by South West Trains. Journey time is approximately 40 minutes.

For more information contact London Travel Information on 020 7222 1234

The Bulletin

of the Amateur Entomologists' Society

Volume 65 • Number 467

August 2006

CONTENTS

Editorial	141
The Wants and Exchange Table at the Exhibition	141
Treasurers Report for the Year Ending 31st December 2005	143
The Anson Award	144
The Bradford Award	144
Hodges, D. <i>Harmonia axyridis</i> Pallas in Hertfordshire.....	145
Gardiner, T. Glowin' in the rain.....	146
Koryszko, J. A very early Flounced Chestnut.....	147
Cole, S. Old Notes: A tool-using Wasp and other Insects in Indian Sal Forest.....	148
Holford, N. Collecting Centipedes and Millipedes.....	154
Koryszko, J. South facing walls – profitable for larvae hunting.....	161
Majerus, M., Hassan, S. & Hanell, Y. Inter-specific hybrid mating by female <i>Acraea sotikensis</i> due to lack of males?.....	162
George, R. Where are all the Welsh Fleas (Siphonaptera)?.....	167
Lester, L. Evolution of Size.....	170
Koryszko, J. A most interesting observation.....	172
Steele, R. Roadtrip 2004.....	173
Lewis, K. Records of <i>Arhopalus rusticus</i> Linnaeus 1758 in the British and other Museums also records for East and West Sussex Part 4.....	178

ES 36A

The Bulletin



of the Amateur Entomologists' Society

Volume 65 • Number 468

October 2006

THE NATURAL
HISTORY MUSEUM
29 NOV 2006
PRESENTED
ENTOMOLOGY LIBRARY



ISSN 0266-836X

Editors: Dr P. Wilkins & M. Hough

The Amateur Entomologists' Society



Founded in 1935

The AES • P.O. Box 8774 • London • SW7 5ZG



<http://www.amentsoc.org>

Officers of the Society

<i>President:</i>	Mike Majerus
<i>Secretary:</i>	Ray Crisp
<i>Treasurer:</i>	Peter May
<i>Registrar:</i>	Nick Holford
<i>Bulletin Editors:</i>	Phil Wilkins & Martin Hough
<i>General Editor:</i>	Fiona Merrion-Vass
<i>Habitat Conservation Officer:</i>	Peter Sutton
<i>Advertising Secretary:</i>	Peter Hodge
<i>Exhibition Secretary:</i>	Wayne Jarvis
<i>Youth Secretary:</i>	Kieren Pitts
<i>ICN Editor:</i>	David Lonsdale
<i>Wants & Exchange:</i>	Peter May

SUBSCRIPTIONS:

First subscriptions should be accompanied by an additional £2 entrance fee, except for Bug Club members under the age of 13 to which this charge does not apply.

Renewal charges

Ordinary	£17.50	Ordinary Overseas	£21.00
Bug Club (Junior)	£10.00	Bug Club (Junior) Overseas	£21.00
Family	£24.00	Family Overseas	£30.00

ADVERTISING RATES:

Rates for advertising in the body of the *Bulletin* are:

Full page £60, Half page £40, Quarter page £25.

Series discounts and insert charges are available from the Advertising Secretary on request.

NOTICE

It is to be distinctly understood that all views, opinions, or theories, expressed in the pages of this Journal are solely those of the author(s) concerned. All announcements of meetings, financial grants offered or sought, requests for help or information, are accepted as bona fide. Neither the Editor, the Officers and Council of the Society, nor its Trustees, can be held responsible for any loss, embarrassment or injury that might be sustained by reliance thereon.

Worldwide Butterflies
www.wwb.co.uk

**Just announced
and shown at the
AES Exhibition**

Our website is very easy to use and gives constantly updated information, colourfully illustrated. Find what you need amongst livestock, specimens, field equipment, books and other items. This winter there will be many new items and an enlarged Sale section.

The new **GOODDEN LIGHT**

Patent Pending

Details on **www.wwb.co.uk**

**The new Goodden Light is entirely new to
Entomology**

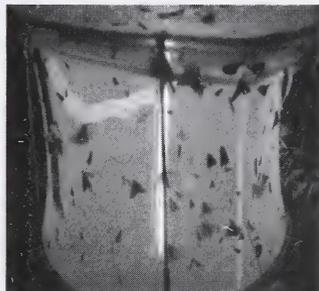
A sophisticated and safe 12V light that withstands rain. Trap in the remotest places, on a very lightweight battery and get results that surpass all known actinic lights. Tests have often equalled and even sometimes out-performed mains Mercury Vapour.



Only 6W but beats 40W Actinic - and other battery lights.

The photoswitch enables you to set the trap when it suits you: the light comes on at dusk and goes off at dawn, Convenient and power-saving.

Used in the tropics catches of 400+ are recorded. In Europe the trap fills quickly in summer, and can be used to greater effect in the off season.



Unique design. White sheet and trap combined! Moths enter from BELOW.

Unlike open top traps, the moths cannot get out in the morning.



Moths don't escape

The **Goodden Light** is exclusively sold with the innovative **MOONLANDER MOTH TRAP**



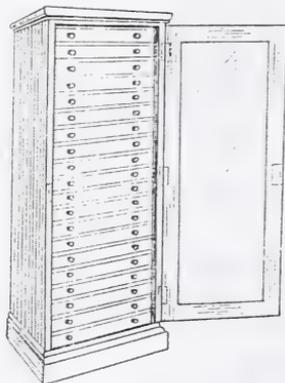
THE NATURAL
HISTORY MUSEUM

29 NOV 2006

PRESENTED
ENTOMOLOGY LIBRARY

ATROPOS ANTIQUES*

PURVEYORS OF FINE COLLECTOR'S CABINETS



*Many of you will have met us at the AES
London Fair where we regularly show
entomological cabinets for sale*

- We are specialist dealers in fine collector's cabinets.
- We can offer a choice of at least 30 cabinets, varying in purpose, construction, quality and price.
- We can supply both restored and un-restored cabinets and will undertake to restore and paper cabinets for clients.
- We are always interested in the purchase or exchange of cabinets, with or without a collection.
- Callers to our showrooms are always welcome by appointment.
- We offer a specialist collection and delivery service throughout the UK and have full expertise in the safe transportation of cabinets and collections.

George Morgan

97, West Street, Hartland, N. Devon EX39 6BQ

T: 01237-441205/984 M: 07973 302190

E-mail: george@atropos.wanadoo.co.uk

A NEW BOOK FROM

Cravitz

Experience the lighter side
of field entomology with
Torben Larsen as he
describes his experiences
from around the world.



There must be a Hazard for every occasion?

£11.99 (inc. UK p&p) • **£13.99** (overseas)

ORDER YOUR COPY NOW FROM

Cravitz Printing Company Limited

1 Tower Hill, Brentwood, Essex CM14 4TA.

Tel: (01277) 224610 • Fax: (01277) 262815 • E-mail: CravitzPrinting@btconnect.com



Ian Johnson Natural History Books

(Pemberley Books)

Specialist in *Entomology* and related subjects
Also *Zoology, Ornithology, Botany* etc.

- CATALOGUES – Second-hand, Antiquarian and New books – free catalogues available on request.
- SPECIALIST BOOKSHOP at Richings Park, Iver, just to the West of London – easy to reach by car or train. Visitors are welcome to visit and view our stock, but please telephone first to confirm opening times.
 - * *By car*: only 10 minutes drive from the M25 via the M4 (Junction 5), or M40 (Junction 1). 15 minutes from Heathrow Airport.
 - * *By train*: 20 minutes from London Paddington to Iver Station on the Paddington-Slough *Thames Trains* service (2 trains every hour). We are 1 minute's walk from Iver Station.
- WEBSITE – view our stock on our website: www.pembooks.demon.co.uk
- BOOKS BOUGHT – We are always interested in purchasing books in our specialist field, particularly antiquarian, academic and scholarly works on insects and other invertebrates.

18 BATHURST WALK, RICHINGS PARK, IVER, BUCKS SL0 9AZ
Tel: 01753 631114 / Fax: 01753 631115 • e-mail: ij@pembooks.demon.co.uk



The AES BUG CLUB



Do you want to cuddle a Cockroach, stroke a Stick Insect or hug a Harvestman?

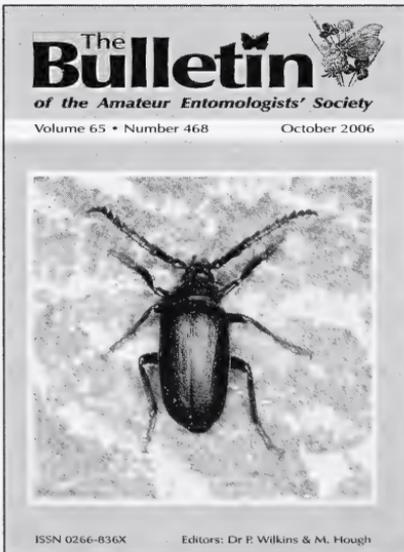
The AES Bug Club is for young people or the "young at heart" who find insects and other creepy crawlies interesting and even fascinating.

As the junior section of the AES we are devoted to promoting invertebrates to the younger generation who, after all, will be the entomologists of tomorrow!

You can help us in a number of ways, for example: by joining the Bug Club yourself, getting someone else to join the Bug Club, promoting the Bug Club and AES to your local school/Scout or Guide Group etc, running a Bug Club event or writing an article for our exciting newsletter. If you can do anything to help then please write to us: **AES Bug Club, PO Box 8774, London, SW7 5ZG.** Membership details can be found in the front of this Bulletin.



Bulletin Cover



The cover of the *Bulletin* shows a *Prionus coriarius* (L.)

This male *Prionus coriarius* (L.) was caught in flight using an MV trap in a garden in Surrey. This species seems to be declining in range of late. For a fuller account, please see the article on pages 209-215.

The Bulletin

of the Amateur Entomologists' Society

Volume 65 • Number 468

October 2006

AES AGM and Members' Day

by Nick Holford, AES Registrar

This event was held in the main meeting hall of the Royal Entomological Society on Saturday 29th April 2006, commencing at 11.00a.m. For those who have not attended the day, it takes the form of three illustrated lectures, the actual legally required AGM bit being less than 20 minutes at the beginning of the lunch break. 22 members attended. For the Members' Day this year there were three very interesting talks, two of them by AES members. All three were PowerPoint presentations. Below I give abstracts of the talks.

The AES President, Dr Michael Majerus, took the chair and welcomed everyone to the meeting. Then he introduced the speaker for the first talk at 11.00a.m. – Miss Remy Ware. She is a postgraduate student member of the Harlequin Ladybird research project based at the Department of Genetics, Cambridge. She is in the second year of her PhD. Her research concerns the ecological and evolutionary impacts of the arrival of the Harlequin Ladybird in Britain. Currently she is working on the risk to British Coccinellids through intra-guild predation.

The Harlequin Ladybird: an update on Britain's newest invasive species

by Remy L. Ware

Department of Genetics, University of Cambridge

Britain's best loved insect, the ladybird, has recently come under threat from an alien invader...

The harlequin ladybird, *Harmonia axyridis*, arrived in this country in September 2004 and provoked immediate concern from entomologists, based on some of the negative impacts it has had elsewhere. In both North America and Europe, *H. axyridis* was introduced from Asia to control crop pests such as aphids and coccids. There, its establishment in the wild has been associated with predation of non-target species, predatory and competitive interactions with other aphidophagous and coccidophagous insects, damage to fruit crops and being a nuisance to people when at high density.



The arrival of the harlequin in Britain was covered extensively by both local and national media. In March 2005, the harlequin ladybird survey (www.harlequin-survey.org) and the UK ladybird survey (www.ladybird-survey.org) were launched to monitor the spread of the this species in Britain and its impact on native coccinellids. Since the initial sightings in 2004, *H. axyridis* has become well established in the south-east, with significant spread into East Anglia, some isolated records from Derby, Burnley and the Isle of Wight and recent sightings in Staffordshire.

In addition to monitoring its spread closely, research is being conducted in Cambridge to ascertain which British ladybird species might be most at risk from detrimental interactions with *H. axyridis*. The vulnerabilities of immature stages (eggs, larvae and pupae) to predation are being assessed in laboratory experiments and it seems that many common British ladybirds lack the necessary chemical and physical defence needed to survive such encounters. Should these unfavourable effects be observed in the wild, efforts to control *H. axyridis* may become necessary.

There followed discussion promoted by questions from the floor.

The business of the AGM followed, the report of which is at the end. Then the meeting was adjourned until 2.00p.m. for lunch. This is an important time and the members present were able to get to know each other and talk about a whole variety of mutually interesting topics.

After lunch the President, Dr Michael Majerus, again took the chair and introduced the speaker for the second talk at 2.00p.m. – Dr Maxwell Barclay. He is a former AES Council member and was our Exhibition Secretary and Meetings Co-ordinator several years ago. Currently he is Collections Manager of the Beetle Collections at the Natural History Museum. He is a lifelong coleopterist.

Beetles in Bolivia

by Maxwell Barclay

Collections Manager of the Beetle Collections at the Natural History Museum, London

In December 2004 two NHM coleopterists, Maxwell and Howard Mendel, made a three week collecting trip to Bolivia. The purpose was primarily to collect beetles, and secondarily certain families of moths (Hawk Moths Sphingidae and Silk Moths Saturniidae) from a very rich area of mid-altitude primary rainforest. The material collected, once named, is to be divided between the NHM and Bolivian institutions.



Maxwell talked about collecting in the tropics, and how a major modern museum maximises its efficiency in the field, and coordinates the sorting and identification of large samples from collection through to publication.

It was decided to investigate one site, Los Volcanes Nature Reserve near Santa Cruz, in depth, rather than to examine a number of sites superficially. Los Volcanes is a very convenient base with access to various forest types. Maxwell and Howard used a wide range of trapping techniques, including flight interception traps, Malaise traps, pitfall traps and traps baited with fruit, vinegar, meat, fish, dung etc. A light sheet was run for several hours every night, in a variety of sites from dead trees to riverbanks. Slides of the various trapping techniques and their catches were shown.

Much of the trapping and collecting activity was centred on an immense, recently fallen tree; this was irresistible to a very wide variety of wood feeding beetles, especially longhorns (Cerambycidae), click beetles (Elateridae) and jewel beetles (Buprestidae). Around 150 species of longhorn beetle were found here!

Slides were shown of some of the more impressive beetles collected, as well as some hawk moths and silk moths, and many of the other inhabitants of the rainforest which they encountered. These included the venomous fer de lance and Coral snakes, king vulture, morpho butterflies, giant 'Dobson flies', bush crickets and very large *Blaberus* cockroaches.

Beetles were collected into alcohol, and moths dried in paper triangles with silica gel. Around 25,000 beetles and several hundred moths were collected. Back in the UK the material was mounted, and within a year of collection, was sorted to family. Beetles were then sorted to species and sent out to specialists all over the world for identification. A number of new species are in the process of being described from this material.

The Natural History Museum's collection includes 197,000 species of beetle, almost half of the total number known; this collection goes back to the expeditions of Captain Cook and Sir Hans Sloane, right up to the present day. It is consulted daily by scientists from all over the world. Maxwell said how important it is that this reference collection is kept up, and made as comprehensive an archive as possible of the diversity of the natural world. This is more urgent than ever in the present biodiversity crisis, as the forests where most species occur are being destroyed. To reach Los Volcanes, Maxwell flew over hundreds of miles of devastated land that had once been rich tropical forest; much of this land is now used to grow Soya, which is exported to Europe.



As before there followed discussion promoted by questions from the floor.

The President, Dr Michael Majerus, again took the chair and introduced the last speaker, who was giving the third talk at 3.00p.m. – Darren Mann. He is a former AES Council member, and was the Youth Officer for a number of years, running annual camps for Junior AES members. Currently he is Collections Manager at the Hope Entomological Collections, Oxford University Museum of Natural History where he looks after 5 million dead insects, teaches undergraduates, post graduates and school age groups. When his time permits he studies cockroaches and dung beetles.

Dung Beetles & Cockroaches in Borneo

by *Darren Mann*

Collections Manager at the Hope Entomological Collections,
Oxford University Museum of Natural History

Darren's talk consisted of observations from his recent research trip to Sabah, Borneo, to study dung beetle diversity and ecosystem function. In effect he was a Dung beetle ecologist by day and a cockroach hunter by night!

The expedition involved being in an area of primary rain forest in the Danum Valley for about six weeks. In this area there are very tall trees: at 70 metres or more in height they are some of the tallest trees in the world! The expedition was based in the moderate comfort of a research centre. The centre was near the River Segama, which floods regularly producing scoured banks. These conditions were ideal for Dragonflies and spiders. The high rainfall, particularly in the afternoon, meant that the river level was up and down daily. Flight interception traps were used to collect flying insects.

A variety of animals were seen, such as frogs and a pangolin, and regularly there were fruit bats flying around! Also, there were leeches, whip scorpions, millipedes (which produce benzoquinone for defence and this attracts dung beetles) and the centipede *Scutigera* which gives a very nasty bite. Insects found included tiger beetles and assassin bugs, as well as the dung beetles and cockroaches, Darren saw an earwig take one of their moths and eat it!

Observations on the dung beetles showed that they would go to dung as soon as it had been deposited. Experiments were then set up to see how dung beetles interacted, plus what they like



and how much disturbance they can tolerate. Interestingly, it has been shown in studies in South America that when dung beetles remove and bury dung, there is a higher percentage of germination of seeds contained in the dung. This factor is important in the secondary regeneration of rainforest. Secondary rainforest is denser and has more shrubs etc than primary rainforest. Also, there are more elephants in this secondary habitat. As the habitat is disturbed, there are fewer mammals so less dung is produced. Therefore there is less food for dung beetles so there are fewer of them. The smaller cockroaches are important in the breakdown and recycling of leaf litter and many of them feed on fungi in the litter. Of around 4,000 world species of cockroach, only about 1% (= about 40) are pests. Some of the cockroaches have posterior spiracles. They use these for breathing when they are hiding in water. There are cockroach mimics of both ants and the velvet ants (mutilid wasps).

As with the previous lectures there followed discussion promoted by questions from the floor.

The President thanked everyone for attending and closed the meeting at about 4.00p.m.

The business of the AGM, commencing at 12.00 noon

Apologies for absence

Nine apologies had been received.

Minutes of the Previous Annual General Meeting

Circulated and agreed to be correct

Matters Arising

None

Hammond Award and Cribb awards

These awards were not made this year

Reports of the Society

Report of Council for the year ended 31 December 2005

(required by constitution)

Membership of the Society as at 31st December 2005 was 1223, a 4% decrease on the previous year. This total comprised 870 ordinary



members (a 1.5% decrease on the previous year), 106 Bug Club members, 74 Parent members, 19 Juvenile members, 36 Youth members, 57 Life members, 27 Associate members, 20 Complimentary and 14 Exchange members. These figures include 68 Overseas members from 24 countries.

The Council met on four occasions in 2005 at the Conway Halls in Holborn. From June onwards the new President, Dr Michael Majerus took the chair, and David Humphries, Dafydd Lewis, and Malcolm Simpson were welcome new members of Council. None of the administrative posts formally changed hands, but Ray Crisp has been acting in the role of temporary secretary while Martin Hough becomes involved in the editorial team for the *Bulletin*. After many years' service Don MacNamara has resigned his position on Council. He will be missed.

The society's new link with the Royal Entomological Society was formalised this year. Benefits to members include access to meetings, use of the RES' library facilities and discounted publications. Working together will make each society more effective in the promotion of awareness of entomology. During the year the finishing touches were made to the new *Coleopterist's Handbook* – a major work that will be a substantial asset to our catalogue. Four other new publications are still currently in production. The *AES Bulletin* and *Bug Club Magazine* each appeared six times, and *Invertebrate Conservation News* was published thrice. The Hammond Award for best bulletin article was presented to Lisa Webb for her article on the Dung Beetles of Ayrshire (*Bull. Amat. Ent. Soc.* Vol 63 no 456 Oct 2004 131-135)

The AGM and Members Day took place on 23rd April 2005 in the rooms of the Royal Entomological Society in Queen's Gate. Speakers were Michael Majerus, Peter Sutton and Matt Shardlow. Duncan Fraser was presented with The Cribb Award for his conservation work at the Old Stores Meadows Nature Reserve. There were field meetings in Bognor Regis and Little Blakenham in August, organised by Peter May and Dr Phil Wilkins.

The Annual Exhibition was held on Saturday 1st October at Kempton Park, and attendance was as strong as ever. The day was very successful and the usual wide range of dealers and exhibits were available. To build on the success of this event, and extend opportunities for members based further north, a second annual exhibition, in conjunction with the RES, is to take place in York. The Ansonge Bequest award for best Junior exhibit was not awarded this year.



Nearly half of all new members have been recruited via the Internet, and Kieren Pitts has been working hard to produce a completely revamped AES website. This will be available shortly. The members' discussion forum continues to produce valuable contact and information exchange.

The AES has continued its role as a corporate member of Buglife, with Peter Sutton acting as the Society's representative. It is important that this newly formed trust evolves in a way that is consistent with the work of its supporting bodies. The society's Conservation Officers continue to be a voice in support of Invertebrate Conservation.

Finally it is with regret that we announce the deaths during 2005 of members: Mr R.W. Crouthers, Cmdr J. Locke, Dr A. McCrae, Mr C. Rivers, Mr C. Watson and Mr T. Williams.

Of the Treasurer – *This is required by Constitution*

Treasurers Report for the Year Ending 31st December 2005

(This appeared in the AES *Bulletin* Vol 65 no 467 August 2006)

Of the Conservation Committee – *optional – not required constitutionally*

Conservation Report for 2005

National and International Representation

Much of the work of Invertebrate Link (Inv Link) has involved matters which have been previously reported but remain to be resolved. These include the revision of Part 1 of the Wildlife and Countryside Act 1981, which was still awaited by the end of 2005. Reportedly, the relevant government department (DEFRA) was taking account of many of the comments submitted by Inv Link and by individual member-organisations, including the AES. Progress has been very slow with the related matter of the fourth quinquennial review of Schedule 5 of the 1981 Act. Inv Link wrote to DEFRA, stating the joint position of several organisations, including the AES, i.e. that two burnet moths, which had been officially recommended for full protection, should be protected in respect of sale only. The AES also made its own submission. By the end of the year, and indeed at the time of writing this report, the Review had still not been concluded.

With AES support, further work was done on the revision of Inv Link's statement of the principles of legislation for the protection of



invertebrates in the wild. There was, however, some disagreement and misunderstanding amongst Inv Link members, and so the matter was deferred until some time in 2006.

Some important parts of Inv Link's work are undertaken by working groups, rather than the main committee. The working group on UK Biodiversity Action Plan Priority Species has continued to develop a system for revising the list of species and for drawing up the Action Plans. Under this process, Buglife has been working in co-operation with Inv Link, with funding under a government contract, to obtain and co-ordinate advice and information from a wide range of taxonomic specialists. This work was nearing completion by the end of the year.

The need for Inv Link to be more effective in communicating with government and other organisations has been addressed by the drafting of procedures for verifying the support of Inv Link member organisations on particular issues. Sometimes, however, Inv Link lacks time to react quickly to events or new developments. For example it was not possible to forestall the publication of a draft research report which inappropriately cast serious doubt on current guidelines for evaluating deadwood habitats. The matter was, however, taken up by the Inv Link Executive, with the result that the authors have agreed to review the report carefully before a final version is issued.

In September, members of the AES Conservation Committee attended an international conference (ENTO 05), organised by the Royal Entomological Society at Sussex University. The conference was a great success and included a very useful session on education. This included an excellent and inspiring presentation by Dr Roger Key of English Nature. He has been asked to speak at the Inv Link conference in 2006, which is on the theme of education for new generations.

Publications

The wide range of reports and information in *Invertebrate Conservation News* included news about an analysis of butterfly extinction rates, a new UK law concerning "nuisance insects", a Buglife project on the rare beetle *Malachius aeneus*, a little-known UK government eradication programme of woody nightshade along various riverbanks and a major insect conservation conference, organised by the Royal Entomological Society.

**Election of Council Members 2006-9**

Election of President: Dr Mike Majerus was elected for a second year

Election of Council Members: No position being contested, the following were elected en bloc: John Howells, Wayne Jarvis, Peter Hodge, David Lonsdale, Kieren Pitts

Election of Officers of the Society 2006-9

No position being contested, the following were elected en bloc

<i>Secretary</i>	<i>Ray Crisp</i>
<i>Treasurer</i>	<i>Peter May</i>
<i>Bulletin Editor</i>	<i>Phil Wilkins</i>
<i>Bulletin Co-Editor</i>	<i>Martin Hough</i>
<i>General Editor</i>	<i>Jacqueline Ruffle</i>
<i>Exhibitions Secretary</i>	<i>Wayne Jarvis</i>
<i>Advertising Secretary</i>	<i>Peter Hodge</i>
<i>Habitat Conservation Officer</i>	<i>Peter Sutton</i>
<i>ICN Editor</i>	<i>David Lonsdale</i>
<i>InvLink Representative 1</i>	<i>David Lonsdale</i>
<i>InvLink Representative 2</i>	<i>VACANT</i>
<i>Wants & Exchanges Editor</i>	<i>Peter May</i>
<i>Youth/Bug Club Secretary</i>	<i>Kieren Pitts</i>

Independent Examiner of Accounts 2006-7

John Flynn

Any other business

The meeting closed at 12.18 p.m.





Members' Discount on Publications

by Nick Holford, AES Registrar

During my discussions on affiliation with the Registrar of the Royal Entomological Society, the question of members' discount on publications arose. It is something I have believed in for many years as if it was not for our members, we would not be able to produce publications. Also, most other entomological societies offer their members a discount on their publications. The principle of differential prices for members and non-members was acknowledged by Council. The prices of AES publications are already very low, and discounting them further could have been problematical. However, after prolonged discussion on the issue in Council, the Treasurer and I were charged with finding an acceptable way of achieving it. Individually Peter May and I were tackling the problem from opposite ends of the spectrum and could not find common ground. However, one Saturday, after going round in circles for several hours, a number of mugs of tea and several ample slices of Mrs May's excellent sponge cakes enabled us to see the light and were able to resolve the problem very quickly and in a way acceptable to all. Members may not realise that our publications are sold all over the world, and are often much sought after by entomologists – our market is quite good. We have had to examine our prices for all past publications still in print as these were originally priced without a discount in mind. These prices have remained static since their publication, only being increased because of postage changes. They have been re-priced at today's values and this has enabled a discount to be given and this discounted price is below the previous price of the item. All new publications, such as *The Coleopterists' Handbook* have been and will be priced bearing in mind the price differential, as in other societies.

Now, I am very pleased to be able to advise members that they can buy AES publications from our agents (Cravitz) at a 30% discount below the recommended price, bearing in mind postage costs etc that are included in the prices and postal rates have gone up of late. In the "Prospectus" and other literature advertising our publications, two prices are quoted. Members wishing to purchase at the discounted price will need to give their membership number (which is printed after your name on the mailing label of the *Bulletin* and *Bug Club Magazine* for every edition). The agent will check membership and subscription status – the discount will only be available if the subscription payment is up to date, otherwise the retail price will be charged. Cravitz's address is printed at the bottom of the outside of the back cover of the



Bulletin plus their address and phone number are printed with any advert for publications in the *Bulletin*.

As part of our affiliation agreement with the RES, this discount facility will be available to members of the RES as well and their subscription status will be checked also upon receipt of the order.

The reciprocal of this is that AES members are entitled to receive a 30% discount on RES publications, particularly the *Handbooks for the Identification of British Insects*. You must give your AES membership number at the time of the order. Your membership and subscription status will be checked and discount is only available if the subscription payments are up to date. Also, AES members are entitled to attend RES meetings and symposia; where fees are due these will be at RES Members rates, but again subscription payments must be up to date.

All of this represents a good deal for AES members and rewards members for their loyalty – please remember that without members the AES would cease to exist, and therefore the publications would not be produced and the Exhibitions would not take place. On their own these are significant reasons for being a member, the *Bulletin* and other benefits, such as the discount scheme described above, make membership even more worthwhile!

Details of AES publications can be obtained from their website – www.amentsoc.org.

Details of RES publications etc can be obtained from their website – www.royensoc.co.uk.



Back Issues of the *Bulletin*

The AES is grateful to John Harris, of Wormley, Hertfordshire, a past member of the Society, for his donation of numerous back issues of the AES *Bulletin*, together with other entomological journals.

We are always grateful to receive such donations for our archives, or to sell via the website or at the Exhibitions.



Butterfly Bonanza in 2006

by Malcolm Simpson (4859)

Harvest Lodge, Foxenfields, Abbots Repton, Cambridgeshire PE282PW

It is only the middle of August as I write this article but already I can look back and relive some most enjoyable butterfly experiences of this unusually hot summer.

The small village of Abbots Repton, where I live, is just a few miles north of Huntingdon and is one of the few remaining areas in England with a healthy elm tree population, so it may come as no surprise that I recorded a White Letter Hairstreak *Strymonidia u-album* (Knoch) in my garden on the 1st July. However, to me it is always a pleasure to see this small and elusive butterfly in the wild. That it should be in my garden makes the experience even more pleasurable. More exciting however was the sighting of a male Silver-washed Fritillary *Argynnis paphia* (Linn) nectaring on a white buddleia in the garden of my immediate neighbour and fellow AES member, Colin Drague. This beautiful butterfly has not been recorded in this area since 1963 and two further sightings of this species locally is a welcome and encouraging sign.

Dozens of Red Admirals *Vanessa atalanta* (Linn), Painted Ladies *Vanessa cardui* (Linn) and Purple Hairstreaks *Quercusia quercus* (Linn) in a nearby wood have already contributed towards 2006 being a rather special butterfly summer.

But for me, I shall never forget a magical four days spent with my eldest son, Stuart, his wife Jo and my two grand-daughters Megan and Ellie, at San Benedetto, 5 kms north of Umbertide on the Tuscany and Umbria borders in Italy. At their invitation to join them for a few days in the villa they had rented for their summer holiday, my wife Pam and I braved a cut-price airline flight to Rimini. We endured a flight cancellation which delayed our departure by two days, several flight-time alterations and an almost three-hour midnight drive from Rimini to the villa. But what else do you expect when you only pay a few pounds for such a long flight? We finally arrived at the villa in the early hours of Wednesday 19th July.

The journey set-backs were soon forgotten when, rising early next morning, I found hibernating Large Tortoiseshells *Nymphalis polychloros* (Linn) and roosting Old Lady moths *Mormo maura* (Linn) in the outside laundry room of the villa. The Large Tortoiseshell enters into hibernation very shortly after emerging from the chrysalis and is



more frequently sighted after hibernation than in its year of emergence. Apart from one which we accidentally disturbed and saw flying around the villa, the other four remained static, while the Old Lady moths were quite active.

From a good start the day just got better. The villa was situated on a quiet country lane some 1300 feet above sea level, surrounded by a mix of cattle fodder fields, orchards and olive groves. The lane meandered through the fields and rose steeply to 2000 feet within a mile. In blazing sunshine, with temperatures in the high thirties, our first morning's walk up the hill was hard thirsty work, but definitely worth the effort!

The profusion of butterflies was something that I had never experienced previously. In less than two hours we recorded over thirty species, including the graceful Scarce Swallowtail *Iphiclides podalirius* (Linn), Great Banded Grayling *Brintesia circe* (Fabr), Woodland Grayling *Hipparchia fagi* (Scop.), Bath White *Pontia daphidice* (Linn), Pale Clouded Yellow *Colias hyale* (Linn), Long-tailed Blue *Lampides boeticus* (Linn) and, at 2000 feet, Wood White *Leptidea simapsis* (Linn). Over the next two days other unexpected species were added to the number, making a total of 37. (A complete list is included at the end of this article.)

Armed with a kite net, glass topped pill boxes and a copy of Higgins and Riley's *Field Guide to the Butterflies of Britain and Europe* each species was netted and boxed for positive identification and immediately released where it was taken. Stuart wielded the net with a greater dexterity than I displayed with Higgins and Riley! Such was the number of butterflies on the wing that we were constantly busy, but certainly not complaining at such a butterfly bonanza.

One sight I shall not forget was that of Megan and Ellie standing in the middle of the lane with their arms outstretched and hands open for the Scarce Swallowtails to use as landing pads. These beautiful butterflies are quite inquisitive and gave us regular close inspection and, much to my grand-daughters' delight, dutifully accepted the invitations to come in to land.

Our short holiday came to an end far too quickly and, even with a further four hour flight delay on our return journey, I considered the hassle a small price to pay for the pleasure and privilege of seeing such a diversity of species in good numbers.

After our departure Stuart added a further six species to the list and these are shown separately.

**PAPILIONIDAE**

Scarce swallowtail *Iphiclides podalirius* (Linn)

Swallowtail *Papilio machaon* (Linn)

PIERIDAE

Large White *Pieris brassicae* (Linn)

Small White *Pieris rapae* (Linn)

Southern Small White *Artogeia manni* (Mayer)

Bath White *Pontia daphidice* (Linn)

Clouded Yellow *Colias croceus* (Linn)

Pale Clouded Yellow *Colias hyale* (Linn)

Wood White *Leptidea simapsis* (Linn)

NYMPHALIDAE

Comma *Polygonia c-album* (Linn)

Southern White Admiral *Limenitis reducta* (Stgr)

Large Tortoiseshell *Nymphalis polychloros* (Linn)

Painted Lady *Vanessa cardui* (Linn)

Marbled Fritillary *Brenthis daphne* (D & S)

Spotted Fritillary *Melitea didyma* (Esp)

Silver-washed fritillary *Argynnis paphia* (Linn)

SATYRIDAE

Marbled White *Melanargia galathea* (Linn)

Woodland Grayling *Hipparchia fagi* (Linn)

Great Banded Grayling *Brintesia circe* (Linn)

Meadow Brown *Maniola jurtina* (Linn)

Gatekeeper *Pyronia tithonus* (Linn)

Wall Brown *Lasiommata megera* (Linn)

Small Heath *Coenonympha pamphilus* (Linn)

LYCAENIDAE

Purple Hairstreak *Quercusia quercus* (Linn)

Small Copper *Lycaena phlaeas* (Linn)

Long-tailed Blue *Lampides boeticus* (Linn)

Small Blue *Cupido minimus* (Fuessly)

Silver-studded Blue *Plebejus argus* (Linn)



Chalkhill Blue *Lysandra coridon* (Poda)
Sloe Hairstreak *Satyrrium acaciae* (Fabr)

HESPERIIDAE

Grizzled Skipper *Pyrgus malvae* (Linn)
Dingy Skipper *Eryannis tages* (Linn)
Small Skipper *Thymelicus sylvestris* (Poda)
Mediterranean Skipper *Gegenes nostradamus* (Fabr)
Marbled Skipper *Carcharodus lavatherae* (Esp)
Mallow Skipper *Carcharodus alceae* (Esp)

Further six species sighted after my departure

Red Admiral *Vanessa atalanta* (Linn)
Grayling *Hipparchia semele* (Linn)
Heath Fritillary *Mellicta athalia* (Rott)
Large Wall Brown *Lasiommata maera* (Linn)
Holly Blue *Celastrina argiolus* (Linn)
Large Chequered Skipper *Heteropterus morpheus* (Pall)

Reference

Higgins, L. and Riley, N. D. Field Guide to the Butterflies of Britain and Europe. London: Collins, 1980.



Chamomile plants

by Frank McCann (6291)

57 Lockhart Street, Germiston, Glasgow G21 2AP.

With reference to my previous articles about the Chamomile Shark (Lepidoptera: *Cucullia chamomillae* D & S) and its foodplants, I have noticed that locally chamomile plants are being crowded out, so to speak, by other more common plants, and in some areas they have completely disappeared. I would like to hear from other members about this experience. Maybe the wet winters and springs of recent years are encouraging the vigorous growth of indigenous plants, which overgrow the chamomiles. If any AES members have noticed the same situation in their own areas, I would be grateful if they would write to me.



Sugaring Notes from an Edwardian Naturalist

by Jan Koryszko (6089)

3 Dudley Place, Meir, Stoke on Trent, Staffordshire ST3 7AY.

Over the past few years I have published a number of notes on sugaring techniques and methods in this *Bulletin*. Some of these can be hit or miss, because of a number of factors, including weather conditions, the time of year, different locations, and moonlit nights. A method used one night will bring moths from miles away, then the following night very few moths can be found. Some old entomologists say they have a secret recipe they prepare with all the jealous care and beautiful exactness of dispensing an elaborate prescription.

During the summer of 2005 I visited my local Oxfam charity shop and purchased a very interesting book: *Nature Studies by Night and Day*, by F. C. Snell, published in 1907. The author was a member of the Canterbury Nature Students' Club. The book covers all aspects of nature study including some photography and a good section on entomology.

Mr Snell describes methods used for sugaring in 1907. Even in those days, when more moths and butterflies were on the wing, they still had their problems when sugaring. Here are a few extracts from his book.

"Sugar prescriptions used by some collectors: some will require so much treacle and so much coarse sugar, with a certain amount of stale beer and a small quantity of rum, scented perhaps with cloves, aniseed, or Jargonelle pear, while another will use nothing more than the commonest treacle with a tablespoon of methylated spirit added, and declare that it requires no scenting or other preparation.

There is little doubt about it that if only the right kind of treacle is obtainable very little preparation or admixture of any kind is really required, but the real difficulty of getting the really common thick dark green treacle is greater than might be supposed, as it is an article that seems to be but seldom used now except in the business of curing hams and bacon. Certainly the cheapest kind usually obtainable at oilshops and elsewhere is not common enough, and has not the rank smell desired by nobody but the moth collector, and which is such a necessary quality for attracting the insects.

At midsummer it is of very little use to try and attract insects when there is an abundance of flowers at hand, which the insects always seem to prefer to artificial sweets, however highly scented, and although a few may be attracted, the numbers are never large at such times compared with those that come later on in the autumn.



The nights most favourable to the work are damp, muggy nights-and if there is an unpleasant drizzle, so much the better, although the collector may not be inclined to admit it at the time. A really heavy rain or strong wind are not detrimental to success, but either a clear moonlight night or wind from the East, even if only slight, is fatal to all success and at once sends all experienced collectors straight back home again”.

It has been said that “during an east wind a collector will catch nothing but a cold”. So was the really common thick dark green treacle, so hard to find by 1907, the entomologist’s secret recipe?. We will never know.

Reference

Snell, F. C. Nature studies by night and day. London: Unwin, 1907



Corrections to AES *Bulletin*

Vol 65 No. 467 Aug 2006

Lewis, K.C. 2006. Records of *Arhopalus rusticus* Linnaeus 1758 in the British and other museums also records for East and West Sussex Part 4.

On page 181, the 2nd record should read: “07.07.1970. Harvard Road, Ringmer; TQ4412; M.V. light; Dumbrell, R.D. (*not* Dumbrell, R.G.)”

The 8th record should read: “20.08.1995 (*not* 00.08.1995). Jevington; TQ5601; dropped from Belfry; Hodge, Rosalind E. Mrs (my cousin’s wife) (*not* Hodge P.J. Mrs).

George, R.S. Where are all the Welsh Fleas

On page 168, caption for Table 2, for Ardigan and Skomer read Cardigan and Skokholm

Hodges, Dave *Harmonia axyridis* Pallas in Hertfordshire

On page 145 for 1985 read 2005

Road Trip 2004

Tony Steele was not the author of this article. Will the real author please come forward?



AES Bognor Field Trip Report

by Peter May (10314)

6 Aigburth Avenue, Aldwick, Bognor Regis, West Sussex PO21 3DA.

and Peter Hodge (5335)

8 Harvard Road, Ringmer, Lewes, East Sussex BN8 5HJ.

During the latter part of 2004 PM received a request from Arun District Council for help in trying to ascertain the invertebrates currently resident at a site on the outskirts of Bognor Regis, known as The Brooks. This is an area now designated as a public open space, having previously been used as farmland. A non profit making organisation, The Friends of the Brooks, has been set up to help manage the site for the general public as well as for the benefit of the wildlife. In order to help with this, surveys of some of the flora and fauna were being organised to obtain some basis for future planning.

A number of enquiries have been received over recent years by the Society regarding field trips, and the request received by PM from Arun District Council prompted the decision to organise a field trip to the site, and the date of Saturday 13th August was chosen, with a start time of 11 a.m. As well as a notice appearing in the *Bulletin*, notice of the field trip was also given to Arun District Council and The Friends of The Brooks in the hope that some interested local residents might also attend.

The day of the field trip arrived and PM travelled to the site, picking up David Lonsdale on route. The day was cloudy at times, with a fresh wind, not optimum weather to run an outdoor entomological event, but the absence of rain gave us some hope, and indeed some good periods of sunshine were to be had. Upon arrival at the site, PM and DL displayed a number of signs in the roads nearby in order to help those wishing to attend find the entrance to the car park. Several more members of the Society now started to arrive, including three Bug Club members and about a dozen local residents and their children. A local newspaper photographer arrived, having been informed of the event by the local council, and as a result a small article subsequently appeared in The Chichester and Bognor Observer newspaper.

A meeting point was maintained in the car park on site which enabled the members of the society to report back at times during the day and also gave the local residents, most of whom arrived eagerly armed with small pots, nets and digital cameras to return to the car park for information on the invertebrates they had themselves found. A passing motorist saw our society banner at the entrance to the car



park as he was returning home from mowing the lawn at his mother's house. He was carrying a pot containing a large larva which he had found on her lawn and having remembered from his childhood days what an entomologist was, decided to call in to ask if we could identify it for him. A quick look in his pot revealed a fully grown Elephant Hawk-moth *Deilephila elpenor* larva.

Although bad weather eventually caused the meeting to end earlier than had been hoped, the event was undoubtedly a success having enabled not only members of the society to meet up, but also to help spread the view that invertebrates are not only fascinating but also essential to members of the public. It also gave some of our Bug Club members the chance to receive some much appreciated guidance from experienced entomologists. In due course it is hoped to give some advice to the Friends of the Brooks as to how to best manage the site for the invertebrate inhabitants.

The site is bounded on the southern side by a small river, and is divided into three separate fields all bounded by ditches and abandoned hedges. Flowering herbaceous vegetation in the fields included several plants typical of former arable land, the most dominant species being Bristly oxtongue *Picris echioides*, with a few patches of ragwort *Senecio* and creeping thistle *Cirsium arvense*.

Although many species of insects were recorded the deteriorating weather conditions, with an increasing westerly wind, meant that the catch was lower than expected. Nevertheless a few uncommon insects were found, including the picture-winged fly *Tephritis divisa* (Tephritidae) collected by PH that is new to the British Isles and the Nationally Scarce solitary wasp *Didineis lunicornis*.

AES Members in attendance:

Peter May and son David
David Lonsdale
David Humphries
Dafydd Lewis
Jaqueline Ruffle and children
Peter Hodge
Ian Boler

Several members from The Friends of the Brooks were also in attendance

Since the list has been compiled from records supplied by several entomologists, some species are listed by either their Latin name on



English name only, although both are given for many species. English names do not exist for all species of invertebrates due to the vast number of species involved. In addition, the presence of a cross in a column only indicates that the species was found in that particular field, and not an indication that it is not found in the others. A few species have no particular field entered against them, since this was not indicated on the returns sent to me.

Red Data Book and Nationally Scarce Species

Na ARANEAE (Spiders)

ARANEIDAE (Orb-web spiders)

Argiope bruennichi

This large, striking yellow and black-banded spider (females only; males are smaller and brown) is currently spreading quite rapidly in southern England. It is found in rough grassland where grasshoppers are the main prey. Females mature in August and may live until October whereas males are short-lived.

Several noted in Fields 1 and 2.

COLEOPTERA (Beetles)

APIONIDAE (Weevils)

Nb *Oxystoma cerdo*

Widespread but local, formerly confined to the midlands and northern Britain. Now recorded widely in south-east England, where it is possibly a recent colonist. Phytophagous. Associated with vetches, especially tufted vetch *Vicia cracca*. The larvae develop in the pods feeding on the seeds.

One male tapped off vetch in Field 2, near the hedge separating it from Field 1.

DIPTERA (Flies)

TEPHRITIDAE (Picture-winged flies)

RDBK *Tephritis divisa*

Not previously recorded from the British Isles. A Mediterranean species associated with species of *Picris* (Asteraceae). In Sussex it appears to be exclusively attracted to Bristly oxtongue *Picris echioides*. First detected from specimens collected near Bognor Regis, West Sussex on 13th August 2005 but a misidentified example has since been found in PH's



collection labelled "Newhaven, East Sussex, 2nd August 2002" Searches carried out during September and October 2005 proved the species was widespread in both East and West Sussex between Bognor and Rye, wherever the host plants occurred. Phytophagous. Larvae are presumed to develop in the flower heads of *P. echinoides* but the species has not yet been reared in Britain.

Three specimens were collected on 13th August 2005 but a return visit on 30th August proved that a large population was present.

HEMIPTERA-HETEROPTERA (Bugs)

LYGAEIDAE (Ground bugs)

Status *Nysius senecionis*

Unknown

First found in Britain at Powdermill Reservoir, East Sussex in September 1992 (Hodge & Porter, 1997), this species has spread rapidly and now occurs in many parts of England. Associated with ragwort *Senecio* species and Common Fleabane *Pulicaria dysenterica*.

One swept off ragwort in Field 2.

HYMENOPTERA (Bees, wasps, ants, etc)

SPHECIDAE (Solitary wasps)

Na *Didineis lunicornis*

Recorded sparingly from scattered localities in southern England. Falk (1991a) states: 'Packer (1987) and G. Dicker (pers. comm.) demonstrated that it can be locally frequent, but finding it seems to be an acquired technique.' According to Falk (1991a) there are post-1970 records for about 20 sites in six southern English vice counties. Nesting occurs in bare or sparsely vegetated clay soil, on banks or level ground, fully exposed to the sun. Nest entrances are situated in the deep fissures which form as clay dries out during the summer. The cells are stocked with Cicadellidae and Delphacidae (Hemiptera-Homoptera (Bugs)).

One female swept near the river in Field 3.

ORTHOPTERA (Grasshoppers & crickets)

TETTIGONIIDAE (Bush-crickets)

Na *Conocephalus discolor* (Long-winged Cone-head)

Formerly very local near the coast of Sussex, Hampshire, Isle of Wight and Dorset, this species has been slowly extending its range and now



occurs in many inland localities in south-east England. Found in areas of long grass, reeds or rushes.

Recorded from Fields 1, 2 and 3.

References

- Falk, S., 1991a. *A review of the scarce and threatened bees wasps and ants of Great Britain*. Research and Survey in Nature Conservation No. 35. Peterborough: Nature Conservancy Council.
- Falk, S., 1991b. *A review of the scarce and threatened flies of Great Britain*, (part 1). Research and Survey in Nature Conservation No. 39. Peterborough: Nature Conservancy Council.
- Hodge, P. J. & Porter, D. A., 1997. *Nysius senecionis* (Schilling) (Hemiptera: Lygaeidae) new to the British Isles. *Br. J. Ent. Nat. Hist.*, **10**: 1 - 2.
- Hyman, P. S., (revised Parsons, M. S.), 1992. *A review of the scarce and threatened Coleoptera of Great Britain, part 1*. UK Nature Conservation No. 3. Peterborough: Joint Nature Conservation Committee.

Species recorded on 13th August 2005

Species	Field 1	Field 2	Field 3	Notes
ARANEAE (Spiders)				
<i>Argiope bruennichi</i>	+	+		Nationally Scarce (Na)
COLEOPTERA (Beetles)				
APIONIDAE (Weevils)				
<i>Acanephodus onopordi</i>	+			
<i>Oxystoma cerdo</i>		+		Nationally Scarce (Nb)
<i>Protapion fulvipes</i>	+		+	
CANTHARIDAE (Soldier beetles)				
<i>Rhagonycha fulva</i> (Bloodsucker)	+	+	+	
CARABIDAE (Ground beetles)				
<i>Demetrias atricapillus</i>	+			
<i>Dromius linearis</i>	+			
<i>Harpalus rufipes</i>		+		
<i>Harpalus affinis</i>				
CHRYSOMELIDAE (Leaf beetles)				
<i>Altica lybri</i>			+	
<i>Aphthona euphorbiae</i>		+		
<i>Chalcoides plutus</i>		+		
<i>Longitarsus flavicornis</i>	+			



COCCINELLIDAE (Ladybirds)

<i>Coccinella septempunctata</i> (7-spot)	+	+	+
<i>Propylea</i> <i>quattuordecimpunctata</i> (14-spot)	+	+	+
<i>Rhyzobius litura</i>	+	+	+
<i>Tytthaspis sedecimpunctata</i> (16-spot)	+	+	+
<i>Psyllobora</i> <i>vigintiduopunctata</i> (22-spot)	+		

CURCULIONIDAE (Weevils)

<i>Ceutorhynchus pallidactylus</i>	+		
<i>Curculio salicivorus</i>	+		
<i>Liophloeus tessulatus</i>	+		
<i>Sitona hispidulus</i>	+		
<i>Sitona lepidus</i>	+		
<i>Sitona lineatus</i>	+	+	+

OEDEMERIDAE

<i>Oedemera nobilis</i>	+	+	
-------------------------	---	---	--

PHALACRIDAE

<i>Olibrus aeneus</i>		+	
-----------------------	--	---	--

DERMAPTERA (Earwigs)

FORFICULIDAE

<i>Forficula auricularia</i> (Common Earwig)		+	
--	--	---	--

DIPTERA (Flies)

MUSCIDAE

Greenbottle Fly

SARCOPHAGIDAE

<i>Sarcophaga carnaria</i> (Flesh-fly)		+	
--	--	---	--

STRATIOMYIDAE (Soldier flies)

<i>Pachygaster leachii</i>	+		
----------------------------	---	--	--

SYRPHIDAE (Hover-flies)

<i>Episyrphus balteatus</i>	+		
<i>Eristalis tenax</i> (Drone-fly)		+	
<i>Helophilus pendulus</i>	+		
<i>Melanostoma ?scalare</i>	+	+	
<i>Sphaerophoria scripta</i>		+	
<i>Sphaerophoria</i> spp.			
<i>Volucella pelluscens</i>	+		



TEPHRITIDAE (Picture-winged flies)

<i>Sphenella marginata</i>		+		
<i>Terphritis divisa</i>	+		+	New to the British Isles

HEMIPTERA-HETEROPTERA (Bugs)

ACANTHOSOMATIDAE (Shield bugs)

<i>Acanthosoma haemorrhoidale</i>	+			
-----------------------------------	---	--	--	--

COREIDAE (Squash bugs)

<i>Coreus marginatus</i>	+			
--------------------------	---	--	--	--

LYGAEIDAE (Ground bugs)

<i>Gastrodes grossipes</i>	+			
<i>Heterogaster urticae</i>	+			+
<i>Nysius senecionis</i>			+	

MIRIDAE (Capsid bugs)

<i>Deraeocoris lutescens</i>	+			
<i>Dicyphus epilobii</i>	+			
<i>Heterotoma meriopterum</i>	+			
<i>Liocoris tripustulatus</i>	+		+	
<i>Notostira elongata</i>	+			
<i>Phytocoris tiliae</i>	+		+	
<i>Phytocoris varipes</i>	+		+	+
<i>Plagiognathus arbustorum</i>	+		+	+
<i>Stenodema calcaratum</i>	+			

HEMIPTERA-HOMOPTERA (Bugs)

CERCOPIDAE

<i>Neophilaenus lineatus</i>	+			
<i>Philaenus spumarius</i>	+		+	+

CICADELLIDAE

<i>Aphrodes makarovi</i>			+	+
--------------------------	--	--	---	---

HYMENOPTERA (Bees, wasps, ants, etc)

APIDAE (Bees)

<i>Apis mellifera</i> (Honeybee)	+			
<i>Bombus lapidarius</i> (Lge Red-tail Bumb Bee)	+		+	+
<i>Bombus pascuorum</i> (Common Carder Bee)	+			
<i>Bombus terrestris</i> (Buff-tailed Bumble Bee)	+		+	+
White-tailed Bumble Bee				



CYNIPIDAE

Andricus quercusalicis (gall) +

FORMICIDAE (Ants)

Red Ant spp

Black Ant spp

ICHNEUMONIDAE

Pimpla ?instigator +

POMPIDIDAE (Spider-hunting wasps)

Anoplus nigerrimus +

SPHECIDAE (Solitary wasps)

Didineis lunicollis + Nationally Scarce (Nb)**LEPIDOPTERA (Butterflies)**

HESPERIDAE

Thymelicus lineola (Essex Skipper) +

LYCAENIDAE

Aricia agestis (Brown Argus) +*Lycaena phlaeas* (Small Copper)*Lysandra coridon* (Chalk-hill Blue) + Vagrant from the South Downs*Polyommatus icarus* (Common Blue) + + +

NYMPHALIDAE

Aglais urticae (Small Tortoiseshell) +*Vanessa cardui* (Painted Lady) +*Vanessa atalanta* (Red Admiral) + +

PIERIDAE

Pieris brassicae (Large White) + + +*Pieris rapae* (Small White) + + +

SATYRIDAE

Maniola jurtina (Meadow Brown) + + +*Melanargia galathea* (Marbled White) +*Pararge aegeria* (Speckled Wood)*Pyronia tithonus* (The Gatekeeper) + + +**LEPIDOPTERA (Moths)**

ARCTIIDAE

Eilema lurideola (Common Footman) +*Tyria jacobaeae* (Cinnabar Moth) larva +



OECOPHORIDAE

Carcina quercana -

NEPTICULIDAE

Stigmella ruficapitella leaf mine on oak

PYRALIDAE

Agriphila tristella + -*Numonia advenella* +

TORTRICIDAE

*Cochylis molliculana**Pammene aurana* +**ORTHOPTERA (Grasshoppers & crickets)**

ACRIDIDAE (Grasshoppers)

Chorthippus parallelus

(Meadow Grasshopper) + - -

Gomphocerippus rufus

(Rufus Grasshopper)

Chorthippus curtipennis

(Meadow Grasshopper)

TETRIGIDAE

Tetrix subulata

(Slender Ground-hopper) -

TETTIGONIIDAE (Bush-crickets)

Conocephalus discolor

(Long-winged Cone-head) + - -

Leptophyes punctatissima

(Speckled Bush-cricket) +

ODONATA (Dragonflies)

LIBELLULIDAE

Aeshna grandis (Brown Hawker)*Sympetrum striolatum* (Common Darter) - -



Some Personal Observations on *Prionus coriarius* (L.) (Coleoptera, Prionidae), also called the Tanner Beetle or the Sawyer Beetle, and a summary of current knowledge about it

by Nick Holford, 3804, Registrar

This beetle is the largest and bulkiest longhorn beetle in Britain. I found my first specimen, a female, on 26th August 1967 whilst walking in Stansted Forest, near Rowlands Castle, West Sussex in the early evening, grid reference SU746117. We heard a loud rustling noise from under a beech tree and eventually located it as this specimen walking over the dead beech leaves. This female is 42mm long, the antennae are about 17mm long, giving an antenna length to body length ratio of 0.4. She is chestnut brown in colour. A year later I had moved to Gloucester and whilst David Atty, who produced the list of Gloucestershire Coleoptera in early 1984, had not found it there himself, there are a small number of historical records in his published list.

A number of years later, whilst I lived in Horsham, West Sussex, a moth-trapping friend told me that he regularly caught one or two each year in his garden. Eventually he provided me with some specimens to photograph. Interestingly, these were all males and one, the largest, had the left elytron (wing case) removed, probably by a bat! The two other specimens were more or less perfect and I was able to photograph one of them. The other one, the larger of the two, had the left middle leg missing, probably due to fighting resulting from male rivalry. Interestingly, after I had done my photography, the one with a leg missing bit off the antenna at the third joint of the one I had photographed. I did not witness this, but the cut marks were clearly visible on the remains of the antenna. It appeared that at least two cuts had been made. I assume that it was done in a competition of male rivalry, the larger male being the victor! In the male the antennae are longer, more robust and distinctly serrate whereas in the female they are shorter, less robust and less obviously serrate. In the male there are 12 joints in the antenna, whereas in the female there are 11.

Details	Body length	Antenna length	Antenna Body length
To MV light, Buckland, Surrey, 21/07/2006	22mm	18mm	0.81
Caught in flight at 1330hours, Buckland, Surrey, 30/07/2006	26mm	21mm	0.81



These figures show that, with respect to body length, the male antenna length is about twice that of the female.

The body length of *Prionus* is 18-45mm. the male is usually smaller than the female. It is dark pitchy brown to pitchy black in colour, with no pubescence on the upper surface. The underside is usually chestnut brown in colour, with the second and third thoracic plates covered in pubescence (mesosternum and metasternum). The head is smallish, with largish, slightly curved and pointed mandibles, each with a sharp cutting edge along the inner margin. These mandibles are strong and powerful. A few authors have described the mandibles as small and straight, but my experiences with live adults for photographic purposes taught me otherwise. I found the mandibles very obvious, from which I would describe them as larger. Also, they appeared curved rather than straight, more curved than those of *Carabus spp.* In handling them, very carefully and with much respect I might add, I found them very quick to spread their mandibles and start biting, particularly in the afternoon and evening! Whilst I did not experience it, I am certain that they would inflict a painful bite and probably could draw blood! They were much more docile in the morning and that is when I photographed them. Since the insect is crepuscular (= active in twilight) and nocturnal, this is to be expected. As the day progressed through the afternoon and evening they became far more active, walking around quite quickly. As dusk approached, they readily took flight within the insect cages I kept them in and with no stimulus other than the light (the ambient temperature was about 17°C. This is in contradiction to the comment in some of the literature that it is sluggish - in my experience it was far from that!

The elytra are wrinkled (= rugose) like leather, hence the name "Tanner Beetle", and punctured, with hints of three raised lines on each.

The genus *Prionus* has three species in Europe, one of which is doubtful, as follows:

Species	Comment
<i>Prionus coriarius</i> (Linnaeus, 1758)	Found in Britain, Western Europe, Central Europe and Southern Scandinavia
<i>Prionus besiancus</i> Fairmaire, 1855	Found in the southern half of the Balkans.
<i>Prionus asiaticus</i> Faldermann, 1857	Possibly recorded from Greece, but an unconfirmed record.



The two confirmed European species are separated on the shape of the prothorax. In both species the prothorax has three spines or large teeth on each side, one at more or less the anterior and posterior corners, and one more or less in the middle. However, in *Prionus coriarius* the prothorax is twice as wide as long at the rear edge, whereas in *Prionus besiancus* it is about one and a half times as wide as long.

Distribution

Prionus is found in well-wooded regions of broad-leaved and pasture woodland, especially oak. According to Kaufmann, 1991, it is found in two distinct areas, linked by the Channel coast and Nottinghamshire:-

From Cornwall northwards along the western part of Britain to Lancashire and Westmoreland.

Along the south coast from Cornwall to Kent, but excluding the Isle of Wight. Traditionally, it was abundant in the New Forest.

On the east side northwards from Kent and the home counties, through East Anglia to the Wash. Traditionally, it was abundant in Epping Forest.

Records from Mansfield in Nottinghamshire would appear to link the east and west areas. Kaufmann believes it to be more prevalent in the Midlands than the records show; I would have expected it to be more prevalent in Sherwood Forest.

Also, I would believe it to be more widespread in the Forest of Dean than the records show, though I know that David Atty had never found it when he wrote his list of the *Coleoptera of Gloucestershire*. Welsh records are very few and it is unknown in Scotland and Ireland. According to Hyman, it was more widespread in former times but appears to have declined more recently. Recent records are from south east England, and its current stronghold would appear to be Surrey. Hyman designates it as **Notable A**, by which he means that it is uncommon in Great Britain since it is thought to occur in 30 or less 10km squares of the National Grid or between 8 and 20 vice-counties. In Kaufmann's list there are 38 vice-counties, but many of these are from historical records. I have drawn a map showing Vice-County distribution as Figure 1.

It tends to be local in its distribution, but can be abundant where found. Its requirement for rotting stumps means that it prefers "natural" woodland, rather than that which is intensively managed and "tidied up".



Figure 1. Vice-County distribution.





Indicator species value – according to Harding and Rose, 1986, *Prionus* is a genus included in group 3. This is a group of species that are of widespread occurrence in woodland, but together indicate ancient woodland with dead wood habitats. On its own, each species does not indicate ancient woodland.

Flight Time and Habits

The adult is found from mid July to the end of September, on certain plants, particularly umbellifers, though Kaufmann records it as not being a nectar seeker. The male in particular will come to light. It may be taken occasionally on the wing. The flight is quite fast but can be clumsy, which is not surprising from the size of the beetle. In the daytime it may be found more usually resting on stumps and posts. It is recorded as coming to entomologists' sugar but I found that it would not take pure honey. The males can be aggressive and fight readily, biting off legs and antennae from the opponent. It is recorded as stridulating loudly during mating and when picked up, but I did not witness this, even though I was handling it quite a bit – once or twice I heard a quiet stridulation, but not regularly. This may have been due to the fact that I was working with the insects in the morning – they may stridulate more when active. Usually the males emerge first, then the females and the adults live for three to four weeks. Usually, mating takes place in the evening.

Life Cycle

Development takes three to four years. The eggs are laid in batches of 8 to 12 together, deep in crevices in the bark, usually below 30cm above the base of trunks, or in exposed roots. Generally, oviposition starts in the evening, before midnight and may take two to three days, it usually starts about two to three days after mating. Each female may lay 100-150 or more eggs. The egg is slightly off-white, darkening a while after being laid and about 4mm long and 1.4mm at its widest point.

The freshly hatched larva quickly burrows through the bark and feed in the outer layers of wood. After about the third instar it burrows deeper, towards the underground roots. It may burrow through the soil to another root should it exhaust the food supply of the root it is in. For older larvae, the burrows in the wood may be 2 metres long and about $2\frac{1}{2}$ - 3 cms in diameter. There appear to be about 14 larval instars, which is a lot for a beetle. Together they take three to four years. The mature larva is 75-80mm long, with a head width of about 9mm. These larvae were believed to have been eaten as "cossus" by the Romans.



There are varying accounts on pupation, but it appears that usually they pupate 3-8cm below the soil surface, alongside the roots or beneath fallen rotting logs or trunks. Here cocoons are made of fine soil particles stuck together with secretion from the larvae. If pupation takes place in the wood, then the cocoons are made from fragments of wood. The cocoons are large and oval, averaging about 45mm long by 30mm in breadth, with a smooth interior. Usually, pupation takes place from June to July within the cocoon. The pupae are about 29-40mm long and about 15mm broad. Generally the adults emerge in July and August.

Habitat and food plants

The larva may be found in the moist rotting roots and rotting stumps of ageing and dying trees, particularly in sandy soils, almost invariably below 30cm above ground level. It is found particularly in oaks, but also in beech, birch, firs and Scots pine. Other trees it may be found in are alder, apple, ash, elm, cherry, holly, hornbeam, horse chestnut, larch, plane, spruce, sweet chestnut and willow. Hence it is very polyphagous and is unusual in feeding on the wood of both coniferous and deciduous trees (= amphixylophagous). It has been found in telegraph poles and old posts. Apparently, the larva will burrow through the soil to find suitable food.

References

- Atty, D.B. 1984. *Coleoptera of Gloucestershire*, Privately published.
- Bense, U., 1995. *Longhorn Beetles*, Margraf Verlag.
- Bilý, S. and Mehl, O., 1989. *Longhorn Beetles of Fennoscandia and Denmark*, E.J.Brill/Scandinavian Science Press Ltd.
- Duffy, E.A.J., 1946. Observations on *Prionus coriarius* L. with Particular Regard to Collecting Methods, *Ent. Mon Mag.* **82**:136-137.
- Duffy, E.A.J., 1946. Distribution of *Prionus coriarius* L. in Great Britain, *Ent. Mon Mag.* **82**: 251-252.
- Duffy, E.A.J., 1946. A Contribution Towards the Biology of *Prionus coriarius* L., *Trans. R. Ent. Soc. Lond.* **97**: 419-442.
- Duffy, E.A.J., 1953. *A Monograph of the Immature Stages of British and imported Timber Beetles*, British Museum (Natural History).
- Fowler, W.W. 1890. *The Coleoptera of the British Isles*, Volume 4, L. Reeve and Co., London.
- Harding, P.T. and Rose, F., 1986. *Pasture Woodlands in Lowland Britain*, NERC.
- Hyman, P.S., 1992. *A Review of the Scarce and Threatened Coleoptera of Great Britain*, Joint Nature Conservation Committee, Peterborough.
- Moon, B.R., 1991. Longicorn Hunting in Southern England, *Bull. Am. Ent. Soc.* **50**: 21-28.
- Twinn, P.F.G. and Harding, P.T., 1999., *Provisional Atlas of the Longhorn Beetles of Britain*, Biological Records Centre.
- Uthhoff-Kaufmann, R.R., 1948. Notes on the Distribution of British Longhorn Coleoptera, *Ent. Mon Mag.* **84**: 66-85.
- Uthhoff-Kaufmann, R.R., 1991. The Distribution and Occurrence of the Tanner Beetle *Prionus coriarius* L. in Great Britain, *Ent. Rec. and J. of Var.* **103**: 3-5.



Beetle Survey at Haumont, Tarn et Garonne, France

by Stuart Cole (10159)

21 Wensleydale Gardens, Hampton, Middlesex TW12 2LU
stuart.cole@odpm.gsi.gov.uk

and Peter Hodge (5335)

8 Harvard Road, Ringmer, Lewes, East Sussex BN8 5HJ
peter.j.hodge@tesco.net

In AES *Bulletin* Number 456 (Oct. 2004), Frank Botterill wrote about the moths he found on AES member Jenny Boncey's property of Barrau in south-west France in September 2003. We also took up Jenny's invitation to survey the insects of Barrau in return for a week's free accommodation. We stayed separate weeks in May 2004, primarily to survey the beetles; Peter and his wife Corrine staying the last week of May and Stuart and his wife Maria the week before. In addition to beetles, SC surveyed the flowering plants and PH identified quite a number of the Heteroptera.

Jenny's property of Barrau is deep in the countryside to the north of the Pyrenees near the tiny hamlet of Haumont and a few miles from the small town of Baumont de Lomagne. Barrau comprises about 16 acres, most of it formerly cultivated fields that have been allowed to revert to natural vegetation. There are a couple of blocks of broadleaf woodland and there is also a natural pond on the property and another at the bottom of a slope at its edge. The surrounding land is cultivated with cereal crops interspersed with patches of oak woodland.

The dominant tree in the woodland at Barrau is the Sessile Oak (*Quercus petraea*). Although the woodland appears to be secondary there are a number of good sized mature oaks. The other tree species are Bird Cherry (*Prunus avium*), Hazel (*Corylus avellana*), Sweet Chestnut (*Castanea sativa*) and a species of elm (*Ulmus* sp). The chestnut and hazel are mostly in the form of coppice. There is little ground vegetation in the interior and that is mostly honeysuckle (*Lonicera*) and Butcher's Broom (*Ruscus aculeatus*) with Ivy (*Hedera helix*) growing up some of the trees.

Large bushes of Dog Rose (*Rosa canina*) are a conspicuous feature of the woodland verge and hedgerows where they grow alongside Privet (*Ligustrum vulgare*), Dogwood (*Cornus sanguinea*), Blackthorn (*Prunus spinosus*) and a few scattered specimens of Medlar (*Mespilus germanica*) and Service Tree (*Sorbus torminalis*). Other shrubs and climbers here are: White Bryony (*Bryonia dioica*), Black Bryony



(*Tamus communis*), *Ruscus aculeatus*, a tall species of *Erica* that had finished flowering and was not identified and a few plants of *Cistus salvifolius*. Herbaceous plants included, Flax (*Linum perenne*), Bugle (*Ajuga reptans*), Herb Robert (*Geranium robertianum*), White Campion (*Silene alba*), Goat's Beard (*Tragopogon pratense*), Teasel (*Dipsacus fullonum*), Yarrow (*Achillea millefolium*), two or three kinds of spurge, the most abundant of which was *Euphorbia hiberna* with bright green-yellow bracts, bedstraws (*Galium* spp.), a madder (*Rubia* sp.), vetches (*Vicia* spp. and *Lathyrus* spp.), clovers (*Trifolium* spp.), a St John's wort (*Hypericum* sp.), a sow thistle (*Sonchus* sp.), a mint (*Mentha* spp), a *Salvia* sp., and the white flowered umbellifer *Conopodium majus*.

The upper field consists of rough herbage dominated by around 10 species of grasses (including the genera *Avena*, *Dactylus*, *Festuca*, *Hordeum* and *Vulpia*) and vetches. In addition there are two or three species of *Geranium* and a storksbill of the related genus *Erodium*, buttercups (*Ranunculus* spp.), docks and sorrels (*Rumex* spp.), the blue flowered *Muscari comosum*, stands of the thistle *Galactites tomentosa*, an *Artemisia* sp., and Burnet (*Poterium officinalis*). On drier ground where the grasses thin out there are Field Eryngio (*Eryngium campestre*), a species of bugloss (*Echium*), a large *Sedum* (*S. sediforme*), and a small group of the orchid *Serapias cordigera*.

The lower field is more lush and is fringed by bushes of gorse (*Ulex europaeus*), which had finished flowering, and Common Broom (*Cytisus scoparius*) in full flower. The vegetation cover is mostly grasses of various species with patches of Bramble (*Rubus* spp.). Herbaceous plants include buttercups (*Ranunculus* spp.), Ox-eye daisy (*Leucanthemum vulgare*), Hedge mustard (*Sisymbrium officinale*), a Sow thistle (*Sonchus* sp.), Geraniums (*Geranium* spp. including *G. molle*) and a *Potentilla* sp. with large yellow flowers. The pink flowered Ragged Robin (*Lychnis flos-cuculi*) was conspicuous on damp ground.

Because the property has been uncultivated for several years, reptiles, amphibians and birds were numerous. Apart from one or two bats, no mammals were seen but there was evidence of moles, badger, roe deer and wild boar. As for insects, these were probably a bit late due to very wet Spring weather in the weeks up to SC's arrival. Fortunately the weather through both our weeks in the second half of May was warm, dry and sunny except for a storm one night. Insects were becoming more numerous as the weeks progressed and PH, in the last week of May, found a much greater number and variety of species than SC.



Jenny asked us to limit collection and killing of specimens on her land to the minimum. Taking specimens for identification on our return to England was unavoidable in the case of smaller Coleoptera, such as weevils, but some of the larger species were identified in the field. SC found only 74 species, while PH turned up around 190, of which 145 or so were different species, making a total of about 220 species between us. As with Frank's moths, a good proportion (about 70%) of the beetles that we found were species that also occur in Britain. As would be expected of certain families, notably Buprestidae and Cerambycidae, there were few that are on the British list.

The most conspicuous beetles were those on flowers. *Oedemara* species were numerous and four species were identified: *Oedemara flavipes*, *O. lurida*, *O. nobilis* and *O. podagrariae*. The bright red and dark blue *Trichodes alvearius* was the most striking beetle on herbaceous flowers while the metallic green cetonine chafer *Netocia cuprea* was attracted to dogwood. Other flower-haunting chafers were *Oxythyrea funesta*, *Trichius zonatus* and *Valgus hemipterus* while *Tropinota birta* was found on grasses and the Cockchafer (*Melolontha melolontha*) often flew to the house lights. A large variety of weevils were beaten and swept from vegetation. Among them were four kinds of *Curculio*, a genus noted for the very long thin curved rostrum (*C. glandium*, *C. salicivorus*, *C. pyrrhoceras* and *C. venosus*) and three species of *Rhynchites*, including the metallic *R. auratus*, formerly a British insect but now presumed extinct in this country.

The well-vegetated pond near Jenny's house looked promising but only two species of dytiscid were found, one of which, *Acilius sulcatus*, was present in abundance as larvae. The other dytiscid was the small *Hydroporus palustris* of which just two were found. This pond was full of frogs, tadpoles and the nymphs of newts which might account for the paucity of water beetle species yet it was surprising that *Acilius* was thriving amidst all these amphibians. Three species of aquatic Hydrophilidae were turned up in the pond and in a water-filled concrete tank nearby. Of these the little *Hydrochus elongatus* was in the pond and *Helochares lividus* and an unidentified *Helophorus* in the tank, mostly on the underside of pieces of polystyrene that were floating on the surface.

Other insects about in these last two weeks of May included a wide variety of Hymenoptera, among them social wasps of three genera: *Vespa*, *Vespula* and *Polistes*. The *Vespa* were all queens of the Hornet (*Vespa crabro*), the sole species of this genus in Europe to the west of Italy, mostly seen around and in the house, probably searching for



suitable nest sites. The *Polistes* were founder females with small nests containing young grubs in the cells. On the outside walls of Jenny's house, mason wasps (*Odynerus* spp), had made their burrows in the mortar between beams. One species, probably *O. spinipes*, constructed a downward curved tube outside the burrow entrance. These nests were plagued by brilliant metallic chrysid (jewel) wasps, which are parasitoids of the mason wasp larvae, and were often seen entering the burrows when the owner left. Ants noted were of the genera *Lasius*, *Formica* and *Crematogaster*. Bumblebees (*Bombus* spp.), all queens, of 3 or 4 species, including *B. lapidarius* and one of the brown carder bees, were frequent at flowers, especially the cultivated *Salvia* next to the house. The big black, violet-winged, carpenter bee *Xylocopa violacea*, usually seen flying around the pergola or beams of the house, was the most conspicuous of the solitary bees.

There were not many butterflies or moths on the wing but there were great numbers of caterpillars busily gorging on the new foliage of the oaks, the sound of their feeding resembling the patter of light rain. Of butterflies seen, only the two common swallowtails *Iphiclides podalirius* and *Papilio machaon* were recognised. Two day-flying species of hawkmoth, the Hummingbird Hawk (*Macroglossum stellatarum*) and the Broad-bordered Bee Hawk (*Hemaris fuciformis*), were always present at the cultivated salvias.

Acknowledgements

Our thanks go to Jenny Boncey for giving us the opportunity to survey the insects on her property of Barrau and for a very enjoyable stay in this lovely part of France. PH would also like to thank French entomologist Patrick Dauphin for kindly advising on the local status of the beetles and bugs recorded from Haumont.

THE DERBYSHIRE & NOTTINGHAMSHIRE ENTOMOLOGICAL SOCIETY

will be holding its

INSECT SHOW

on SATURDAY 4TH NOVEMBER 10.30am - 4pm
at BROOMFIELD HALL, MORLEY
on the A608 just north of Derby



The Entomologist Blether

by *Patrick Vickery*

Email: Aldieburnplants@aol.com

(This article was received via the AES website: amentsoc.org)

Some unscheduled moments in life are like no other: 'A multi-coloured flying carrot wizzed past my ear narrowly avoiding an incoming football that subsequently bounced off the top of my bald head' sort of moment. Not a very unusual or exceptional sort of moment in the grand scheme of things, of course, but certainly an irritating sort of moment to say the least (the 'multi-coloured flying carrot', by the way, was a dragon fly; the football, a wayward shot on goal by my son) And then, of course, there's that sort of moment that can be described as 'a stretched in time sort of moment' with longer lasting effect and possibly remembered as being unique or even exceptional. One of these happened to me last August.

I watched through the kitchen window as a man on his hands and knees sifted through fallen pine needles in our garden, a sweep net in one hand and a magnifying glass in the other. He was an entomologist (or 'bug man' as he referred to himself) searching for bugs. I didn't know that he was an entomologist at the time, of course, no, not to begin with anyway – never met the man before in my life – so what was he doing in our garden in the first place, you might ask?

Well, it was like this: his wife and mine, work colleagues, friends, dropped in for a chat, cup of tea, carrot cake, that sort of thing, brought husband along as well ('bug man'), and children too, mustn't forget them, and very pleasant folk they were too. So that explains that. Now our garden isn't much of a garden, you know, not really, not in a conventional sense anyway, far more accurate to describe it as a two acre wood with some rather damp parts, extremely conducive to midges and not very conducive to anything much else apart from heathers, conifers and a variety of uninteresting looking sedges (unless you like sedges and sedges are your thing). Boggy land and lots of it, that's what it is, though undoubtedly a wonderful habitat for bugs and insects of the microscopic kind, and obviously fascinating if you happen to be an entomologist dropping by for a cup of tea.

As I scoffed more carrot cake and chatted between mouthfuls to the extremely pleasant Mrs 'Entomologist'. I watched with mounting curiosity as Mr 'Entomologist' glided smoothly through the heathers, his sweep net swishing energetically back and forth, side to side, stopping just now and again for him to inspect the contents. He



carried bug detecting equipment with him at all times, you see, ready to leap into action whenever necessary. No deranged individual with strange habits, this chappy, no, no, certainly not, but a highly respected (though somewhat eccentric) scientist equipped with the latest hand-held satellite technology to record the exact location of any rare or exotic bug he might come across. Fascinating!

During an interval in the tea and cake consumption, we gathered by the pond to view pond skaters, toads, dragonflies and similar beasties (sweep net now replaced by 'pond net'), all of which I could have seen at any time of course, only now they were revealed through the eyes of an animated character who's obvious excitement was hard to contain as he flitted from spot to spot uttering gleeful and enthusiastic noises. Wonderful!

There were dragonflies in abundance by the pond, creatures hitherto viewed suspiciously by me as 'wasp-like flying carrots' to be avoided at all costs – to run away from in fact – although on this occasion I stood still and, for a fleeting moment or two, they metamorphosed from 'flying carrots' into 'insect of beauty' (although not quite beautiful enough, I must admit, to prevent me from losing all dignity and running away when any ventured too close for comfort).

Just before 'Bug Man' left, he noted the exact location of a rare species of insect (using satellite technology of the hand-held variety) and announced in no uncertain terms that we were lucky to possess such "good quality bog". And with this startling revelation ringing in our ears, they were gone, returning home via a bug-infested wood stump – spotted earlier on Scotsburn road – that clearly merited further investigations.

So next time you're out and about the 'bog lands' of Tain, Dornoch or wherever you happen to be and spot a deranged individual prancing through heather and sedges, take note for he may not be deranged at all but simply an enthusiastic entomologist out for a 'jaunt with his family, sweep net in one hand and the latest techno-wizardry in the other.

As for us, we see our garden in a different light now. It may not be the neatest garden in the world, but – my word, good heavens – we have it on expert authority that our bog is of good quality – a good quality bog – and not many folk can say that, now can they?



Book Reviews

The Living Tropical Greenhouse – Creating a haven for butterflies

John and Maureen Tampion. Guild of Master Craftsman Publications. ISBN 1-86108-123-5. 118 pages with numerous colour plates. Softback. Only available from the authors at 57 Brookway, Lindfield, Haywards Heath, West Sussex, RH16 2BP at a cost of £8 inclusive of postage.

Whilst there are usually numerous books dealing with butterflies available at any one time, very few of them have ever covered the main subject matter of this publication, which can therefore be considered as a welcome diversion to the usual Lepidoptera books. The book is also illustrated by colour plates on virtually every page.

The introduction briefly deals with the origins of the greenhouse, and then goes on to mention how even in tropical countries, butterflies can be under threat from various sources, and how trying to rear them in captivity in a "Living Tropical Greenhouse" can help us to uncover their biology as well as help to conserve them. Whilst it is generally accepted that the biology of any fauna needs to be understood as fully as possible before adequate steps are taken to try to conserve it in its natural surroundings, I am sceptical of how a book such as this will help to achieve this.

Chapter 1 then deals with the question of choosing a suitable greenhouse, covering aspects of construction, materials, ventilation, size and location. From here, one is led to matters such as heating, temperatures, insulation, soil type, various aspects of lighting, humidity and water. When dealing with a large structure which will house tropical species of Lepidoptera, all these elements need to be considered and seem to be adequately covered here.

Clearly, any greenhouse in which it is hoped to have a small colony of butterflies, must be suitably planted with adequate food plants for all the stages of their lifecycle. Chapters 4 and 5 provide some details of the larval and nectar food plants that might be needed, but the reader is rightly told that only a brief overview of such a large topic can be given. As such, most plants are only referred to by family, with some specific species mentioned at various points throughout. However, this will no doubt be a useful pointer in the right direction, with the overriding factor regarding plant choice clearly being availability. From here the book turns to "Foes and friends of the plants", namely pests and diseases, and how to prevent or deal with them should they occur.



From the view of an entomologist, chapter 7 is perhaps the least helpful chapter, since it deals with the lifecycle of butterflies, but will obviously be of more use to those non-entomologists wanting to find a new use for their greenhouse, instead of growing more tomatoes. Chapter 8 covers the various different ways of providing nutrition for the adults in addition to the flowers present, such as sugar water, fruit and pollen, and then on to breeding, which leads us to the next chapters for how to care for the immature stages, mortality and pests. Following this, a large section is devoted to the types of species one might be able to obtain and keep in the greenhouse, and how to get a colony started.

Probably few entomologists will be able to think of attempting to breed butterflies on such a scale as a "Living Tropical Greenhouse", but having seen the author's greenhouse a few years ago, the results can certainly be worth the effort. At the very cheap price of £8 inclusive of postage, this book is certainly well worth the money, with much information not available readily elsewhere and makes interesting reading even if you are not at the moment contemplating a new use for your greenhouse at the present time.

Peter May (10514)

The Butterflies of Yorkshire

Edited by Howard M Frost and written by a team of 25 writers. Artwork by: Nick Lawman. Maps by: Jim Asher. Paperback: 310 + 2 pages, in full colour throughout. Published by Butterfly Conservation Yorkshire (ie the Yorkshire Branch of Butterfly Conservation). ISBN 0-9548249-0-3. Available from: Butterfly Conservation, c/o 10 Chellsway, Withernsea, HU19 2EN. £30 inclusive of p&p.

This is the first-ever book dedicated entirely to Yorkshire butterflies, and it has been a pleasure to read it in order to produce this review. It presents an atlas style report on the current distribution of Yorkshire butterflies and aims to put this into context, with information about the distribution of each species not only in Yorkshire but also world, British Isles and North of England distribution, including a British Isles distribution map which picks out Yorkshire distribution in a different colour. This is most helpful in putting these in context with the rest of the British Isles.



35 regular species are given five pages each including a detailed historical account covering at least the last two centuries and in some cases going back to 1780. Yorkshire distribution is shown on three different maps for each of these species, including a detailed tetrad map with dots for each 2x2km square on the Ordnance Survey grid. Colour is used to bring out additional information on the maps. Much of this is further backed up in the text, where historical and more modern records are discussed. Yorkshire phenograms (or flight period diagrams) are also included which will no doubt be of use to those wishing to see the particular species, and comparisons could be made with such data from other areas of the country to illustrate any differing flight times. Each of these species chapters includes some basic ID notes (intended to supplement the use of an ID book, not to replace it), a brief section on the life story and a summary of conservation issues.

A further 27 rare, doubtful or extinct species are investigated in depth and the historical evidence for the acceptance or rejection of some of these is re-examined including some surprising contenders for a place on the Yorkshire list such as Cleopatra, Chalk Hill Blue, Mazarine Blue, Black Hairstreak and Glanville Fritillary. Reading this section serves to illustrate how distribution has waxed and waned over the centuries, often for the worse.

Highlights of the 14 introductory chapters include a history of butterfly recording both nationally and locally, and an analysis of 200 years of weather season by season in colour-coded charts. The possibility that volcanoes may have hastened the demise of many 19th century species is also examined. Further chapters look at the effects of past industrial smoke pollution on Yorkshire butterfly populations and the new habitats created on brownfield sites as the smoky industries have disappeared. All of this gives an interesting insight into the butterflies of Yorkshire, both present and past.

All 35 regular species are illustrated expertly by Nick Lawman and overlaid onto habitat photographs. No fewer than 332 photographs have also been used, mainly to illustrate aspects of butterfly life and aberrations as well as some specimens of historical interest. Additional diagrams include a 3D view of the County to show its layout.

Peter May (10514)

AURELIAN BOOKS

DAVID DUNBAR

Butterflies, Moths and Entomology

View stock on-line at www.booksatpbfa.com

(Click on sellers and search Aurelian Books)

- Antiquarian, out-of-print and new reference books -
- Butterflies, moths, dragonflies, beetles and other insects -
 - British Isles, Europe and rest of the World -
 - Free book finding search service -
 - Catalogues available on request -
 - Browse our stock - by prior appointment -
- Collections and good individual books and journals bought -

**Phone, fax, e-mail or snail-mail for all enquiries
which are always welcome**

31 LLANVANOR ROAD, LONDON NW2 2AR
(Telephone and fax) 020 8455 9612 e-mail: dgdunbar@aol.com

Two publications from the *British Entomological and Natural History Society*

British Soldierflies and their allies

by Alan Stubbs and Martin Drake with colour photographs by David Wilson
(ISBN 1-899935-04-5)

Covering the Asilidae, Bombyliidae, Rhagionidae, Stratiomyidae, Tabanidae, and other related families, this 528-page book reveals a remarkable assemblage of extraordinary and fascinating species, varied in both their appearance and life styles. Well-illustrated keys identify the adults of all 162 British species, and the larvae and pupae of several families. Extensive species accounts detail ecology and natural history, incorporating much new information. 20 colour plates depict adults of most species.

British Hoverflies: an illustrated identification guide. 2nd Edition

By Alan Stubbs with colour illustrations by Steven Falk
(ISBN 1-899935-05-3)

A second edition of this popular book, fully revised by a team of BENHS members. The book covers all 276 British species (compared with 256 in the first edition) together with some that might be expected to arrive from continental Europe. The keys and species accounts have been updated and extended to take account of advances in knowledge up to 2002. There are 469 pages with 12 colour plates and 17 new black & white plates of genitalia.

Both books are available in hardback: at £30 each, plus £5 each UK postage. For overseas postage rates and an order form see the BENHS website or write to the address below. BENHS members qualify for reduced prices.

Founded in 1872, the Society holds regular lecture meetings in London and the well-known Annual Exhibition which in 2004 will be held at Imperial College, London SW7, on Saturday 13 November. The Society publishes the *British Journal of Entomology and Natural History* (free to members), a quarterly journal of entomological articles, short communications, meeting reports, book reviews etc.

For further details visit the Society's website at www.benhs.org.uk or write to the British Entomological and Natural History Society, Dinton Pastures Country Park, Davis Street, Hurst, Reading RG10 0TH. The BENHS is a charity registered in England number 213149.

AES Publications

Amateur
Entomologists' Society

Being a member of the Royal Entomological Society and the Amateur Entomologists' Society has the advantage of discount on all our publications. Discounts are only available if the subscriptions are fully up to date. Single copies only may be purchased on discount. Postage & Packing - Free to U.K. addresses, Overseas add 10%.

The Hymenopterist's Handbook by Dr. C. Beets et al.

A completely revised 2nd edition dealing with the history of their families, classification and structures; natural history; studying, collecting, breeding, attracting and preserving Hymenoptera. Appendices include keys to the families, 214 pages with numerous tables, keys and figures (1986) £ 11.45
Members price £ 8.60

Revised Flight Tables for the Hymenoptera

Revised flight tables for the Hymenoptera giving, wherever possible, times, location, flower visits and some indication of distribution and abundance. 24 pages (1988) £ 3.10
Members price £ 2.35

A Coleopterist's Handbook

Edited by J. Coater & M.V.L. Barclay One of the Society's best selling publications, the *Coleopterist's Handbook* is now available as a fully revised and expanded fourth edition. Nomenclature has been brought in line with current use, collecting/curation methods reflect best practice and plant/beetle and beetle/plant lists are included together. Recent additions to the British fauna, modern and traditional techniques are included. All advice and comment given in the book is based upon collective years of practical experience of both curatorial methods and field craft; beetle family chapters have each been written by an internationally recognised authority. 496 pages including 32 colour plates. £ 54.00
Members price £ 39.00

Host plants of British Beetles: A List of Recorded Associations

A list of a wide range of plants, in alphabetical order, together with the beetle species which have been recorded as being associated with them. 24 pages (1992) £ 3.10
Members price £ 2.35

A Silkmother Rearer's Handbook by B.O.C. Gardner

SPECIAL OFFER PRICE £ 7.70
No further discounted price available

A Dipterist's Handbook by A.E. Stubbs, P.I. Chandler and others

A practical handbook for both the beginner and the initiated on collecting, breeding and studying the two-winged flies. Describes equipment, trapping, preservation, habitat, plant and animal associations and behaviour. Includes a detailed chapter on larval stages with an illustrated key to families. An essential book for the keen Dipterist. 260 pages with drawings of larvae and equipment (1978, reprinted 1996) £ 14.20
Members price £ 10.60

Practical Hints for Collecting and Studying the Microlepidoptera

by F.A. Sokoloff. A practical manual for those interested in the smaller moths, describing techniques for collecting adult moths, collecting immature stages, breeding, killing, setting and mounting. A list of useful books and journals as well as details of societies and suppliers is included. 40 pages, 11 figures (1980) £ 4.20
Members price £ 3.15

Rearing and Studying Stick and Leaf-Insects by P. D. Brock

Specifically intended for beginners, although it is also suitable for experienced Phasnid enthusiasts, it is one of the few guides to rearing that features the majority of the culture stocks available; 22 species in detail. The informative text is complimented by 8 colour plates, 14 black and white plates and 29 figures. (New edition, 2003) £ 11.20
Members price £ 8.20

The Study of Stoneflies, Mayflies and Caddisflies by T.T. Macan

A comprehensive guide to collecting and studying the biology and ecology of these aquatic insects. 44 pages, 10 figures and bibliography (1982) £ 4.20
Members price £ 3.15

Breeding the British Butterflies by P.W. Cribb

A practical handbook covering all aspects of butterfly breeding, including general techniques, equipment and hints on how to breed each of the British species. 60 pages, 6 figures, 5 plates. Revised (2001) £ 5.20
Members price £ 3.85

Practical Hints for the Field Lepidopterist by J.W. Tutt

Written at the turn of the century, this book has been reprinted because of its scarcity and value to students of Lepidoptera. It gives a complete month by month guide to which species and stages of macro and micro to look for and how to find them. Also contains a biological account of the early stages and how to keep, rear, photograph and describe them. 422 pages. Hardback. (Reprinted 1994) £ 24.00
Members price £ 18.40

An index to the modern names for use with J.W. Tutt's

Practical Hints for the Field Lepidopterist by B.O.C. Gardner
A valuable cross-reference guide between the scientific and English names used in the early 1900s and the present time. £ 4.70
Members price £ 3.50

A Guide to Moth traps and their use by R. Fry and P. Waring

A superb, comprehensive guide for all those intrigued by these groups of insects. Topics covered in detail include structure, fascinating facts, life history and development, defence behaviour, enemies, collecting, breeding (including trouble shooting), preserving, taxonomic studies, important collections in Museums etc. around the world and elaborate stories, beliefs and poems. Also outlines the major known species around the world on a regional basis. A section on Fossils is included. The appendices include a comprehensive glossary of the technical terms used in the description and classification of stick and leaf-insects. Hardback A5, 184 pages, 46 figures, 26 black and white plates and 40 pages of colour plates (containing 83 photographs and 4 drawings/paintings of insects and their habitats). (1999) £ 18.90
Members price £ 14.10

The Amazing World of Stick and Leaf Insects by Paul D. Brock

A superb, comprehensive guide for all those intrigued by these groups of insects. Topics covered in detail include structure, fascinating facts, life history and development, defence behaviour, enemies, collecting, breeding (including trouble shooting), preserving, taxonomic studies, important collections in Museums etc. around the world and elaborate stories, beliefs and poems. Also outlines the major known species around the world on a regional basis. A section on Fossils is included. The appendices include a comprehensive glossary of the technical terms used in the description and classification of stick and leaf-insects. Hardback A5, 184 pages, 46 figures, 26 black and white plates and 40 pages of colour plates (containing 83 photographs and 4 drawings/paintings of insects and their habitats). (1999) £ 18.90
Members price £ 14.10

Rearing Parasitic Hymenoptera by M. Shaw

This booklet provides information on the parasitic Hymenoptera to enable successful studies to be made of this little understood group of the British insect fauna. Details are given on the general biology of parasitic wasps, rearing principles, efficient rearing practices and detailed methods of dealing with adult wasps. 52 pages, 4 colour plates. (New edition - 2001) £ 5.70
Members price £ 4.20

Larval Foodplants of the British Butterflies by Peter May

A comprehensive compilation of the known larval foodplants of our native and immigrant butterflies. Also including "How to Encourage Butterflies to Live in Your Garden" by the late Peter Cribb 62 pages. (2003) £ 7.40
Members price £ 5.45

Glossary for the Young Lepidopterist

6 pages, 2 figures. (1951) £ 1.05
Members price £ 0.90

A Label List of European Butterflies

20 pages. (Revised 1981) £ 2.35
Members price £ 1.85

Some British Moths Reviewed

Aid to the identification of some of the more difficult species. Reprinted from the *Amateur Entomologist's Vol.* 5 (1941) and a *Guide to the Critical Species of Lepidoptera*, reprinted from *Entomologist's Gazette* 1969-72, 64 pages, 6 black and white plates, numerous figures (1985) £ 4.45
Members price £ 3.35

Butterflies of Cyprus 1998 (Records of a years sightings) by Eddie John
Observations of the 44 species of butterfly found on the island in 1998 including notes on each species and distribution maps. 46 pages (2000) £ 4.30
Members price £ 3.25

Collecting Hct. Bugs (Hemiptera: Heteroptera)

12 pages (including 2 plates). (1946) £ 1.20
Members price £ 1.00

Collecting Clearwings

12 pages (including 2 plates), 4 figures. (1946) £ 1.10
Members price £ 1.00

Collecting Lacewings

9 pages, 8 figures, 5 plates. (2nd edition 1976) £ 2.25
Members price £ 1.75

An Amateur's Guide to the Study of the Genitalia of Lepidoptera

16 pages, 15 figures. (1973) £ 3.10
Members price £ 2.35

Rearing the Hymenoptera Parasitica

16 pages, 1 plate, 10 figures. (1974) £ 2.85
Members price £ 2.00

Rearing Crickets in the Classroom

12 pages, 2 plates. (1986) (Reprinted 1993) £ 2.10
Members price £ 1.65

Guidelines for Entomological Site Surveys

Published on behalf of the JCCBL. 7 pages (2000) (Reprinted 2003) £ 3.10
Members price £ 2.35

The Journal of the Entomological Exchange and Correspondence Club 1935-1936

An AES Jubilee Publication. Fascinating reprint of the very first volume of the AES journal. 100 pages. £ 4.20
Members price £ 3.35

A Directory for Entomologists

64 pages £ 3.70
Members price £ 3.15



All the above publications sent post free to U.K. addresses. Outside U.K. please add 10% to order value for postage by surface mail.

For postage by air-mail outside Europe please add 30% to order value. Please allow 28 days delivery.

Please make all cheques/postal orders payable to 'AES Publications' and send to:

AES Publications, 1 Tower Hill, Brentwood, Essex CM14 4TA.

Telephone 01277 224610 • Fax: 01277 262815 • E-mail: aespublishings@btconnect.com

A COLEOPTERIST'S HANDBOOK

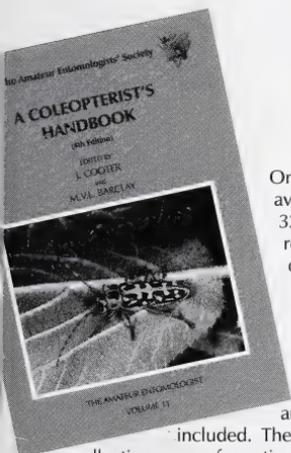
Fourth edition (almost) fully revised.
Edited by J.Cooter & M.V.L.Barclay

Price £54.00 inc. p.&p.

One of the Society's best selling publications, the *Coleopterist's Handbook*, is now available as a new and expanded fourth edition. It includes several new chapters and 32 pages of colour plates and in addition the text has mostly been re-written or fully revised and expanded. 'Almost' has been included (above) for the sole reason that only two pages of text from the third (1991) edition have not been revised. Nomenclature has been brought inline with current use, collecting/curatorial methods reflect best practice and plant/beetle and beetle/plant lists are included together.

Production of the *Handbook* has been overseen by two of Britain's leading entomologists who are also amongst the impressive list of contributing specialist authors. Recent additions to the British fauna, modern and traditional techniques are included. The user will appreciate all advice and comment given in the book is based upon collective years of practical experience of both curatorial methods and field craft; beetle family chapters have each been written by an internationally recognised authority.

The Society has sold copies of the third edition world wide, an indication of the value and use of the *Coleopterist's Handbook*; the new edition has been eagerly awaited, don't delay, buy your copy today.



Preparing and maintaining a collection of Butterflies and Moths

Members Price
£3.65

Price £.4.85 inc. p.&p.

A practical manual detailing the various methods used to prepare specimens for a collection, from killing methods, setting the specimens and repairing damaged ones, to storage and preservation, including pest prevention and cure. It is now more important than ever that scientific entomological collections are prepared and maintained properly using the best current methods. 21 pages. 4 figures and 5 plates. (2006)



The Bulletin

of the Amateur Entomologists' Society

Volume 65 • Number 468

October 2006

CONTENTS

AES AGM and Members' Day	183
Holford, N. Members' Discount on Publications	192
Back Issues of the <i>Bulletin</i>	193
Simpson, M. Butterfly Bonanza in 2006	194
McCann, F. Chamomile plants	197
Koryszko, J. Sugaring Notes from an Edwardian Naturalist	198
Corrections to AES <i>Bulletin</i> Vol 65 No. 467 Aug 2006	199
May, P. and Hodge, P. AES Bognor Field Trip Report	200
Holford, N. Some Personal Observations on <i>Prionus coriarius</i> (L.) (Coleoptera, Prionidae), also called the Tanner Beetle or the Sawyer Beetle, and a summary of current knowledge about it.....	209
Cole, S. and Hodge, P. Beetle Survey at Haumont, Tarn et Garonne, France.....	216
Vickery, P. The Entomologist Blether.....	220

Book Reviews

<i>The Living Tropical Greenhouse – Creating a haven for butterflies</i> by John and Maureen Tampion	222
<i>The Butterflies of Yorkshire</i>	223

ES 36 A

THE **Bulletin**



of the Amateur Entomologists' Society

Volume 65 • Number 469

December 2006

THE NATURAL
HISTORY MUSEUM
- 4 JAN 2007
PRESENTED
ENTOMOLOGY LIBRARY



ISSN 0266-836X

Editors: Dr P. Wilkins & M. Hough

The Amateur Entomologists' Society



Founded in 1935

The AES • P.O. Box 8774 • London • SW7 5ZG



<http://www.amentsoc.org>

Officers of the Society

<i>President:</i>	Mike Majerus
<i>Secretary:</i>	Ray Crisp
<i>Treasurer:</i>	Peter May
<i>Registrar:</i>	Nick Holford
<i>Bulletin Editors:</i>	Phil Wilkins & Martin Hough
<i>General Editor:</i>	Fiona Merrion-Vass
<i>Habitat Conservation Officer:</i>	Peter Sutton
<i>Advertising Secretary:</i>	Peter Hodge
<i>Exhibition Secretary:</i>	Wayne Jarvis
<i>Youth Secretary:</i>	Kieren Pitts
<i>ICN Editor:</i>	David Lonsdale
<i>Wants & Exchange:</i>	Peter May

SUBSCRIPTIONS:

First subscriptions should be accompanied by an additional £2 entrance fee, except for Bug Club members under the age of 13 to which this charge does not apply.

Renewal charges

Ordinary	£17.50	Ordinary Overseas	£21.00
Bug Club (Junior)	£10.00	Bug Club (Junior) Overseas	£21.00
Family	£24.00	Family Overseas	£30.00

ADVERTISING RATES:

Rates for advertising in the body of the *Bulletin* are:

Full page £60, Half page £40, Quarter page £25.

Series discounts and insert charges are available from the Advertising Secretary on request.

NOTICE

It is to be distinctly understood that all views, opinions, or theories, expressed in the pages of this Journal are solely those of the author(s) concerned. All announcements of meetings, financial grants offered or sought, requests for help or information, are accepted as bona fide. Neither the Editor, the Officers and Council of the Society, nor its Trustees, can be held responsible for any loss, embarrassment or injury that might be sustained by reliance thereon.

Worldwide Butterflies
www.wwb.co.uk

**Just announced
and shown at the
AES Exhibition**

Our website is very easy to use and gives constantly updated information, colourfully illustrated. Find what you need amongst livestock, specimens, field equipment, books and other items.

This winter there will be many new items and an enlarged Sale section.

The new GOODDEN LIGHT

Details on **www.wwb.co.uk**

Patent Pending

**The new Goodden Light is entirely new to
Entomology**

A sophisticated and safe 12V light that withstands rain. Trap in the remotest places, on a very lightweight battery and get results that surpass all known actinic lights. Tests have often equalled and even sometimes out-performed mains Mercury Vapour.



Only 6W but beats 40W Actinic - and other battery lights.

The photoswitch enables you to set the trap when it suits you: the light comes on at dusk and goes off at dawn, Convenient and power-saving.

Used in the tropics catches of 400+ are recorded. In Europe the trap fills quickly in summer, and can be used to greater effect in the off season.



Unique design. White sheet and trap combined! Moths enter from BELOW.

Unlike open top traps, the moths cannot get out in the morning.



Moths don't escape

The **Goodden Light** is exclusively sold with the innovative **MOONLANDER MOTH TRAP**



THE NATURAL HISTORY MUSEUM

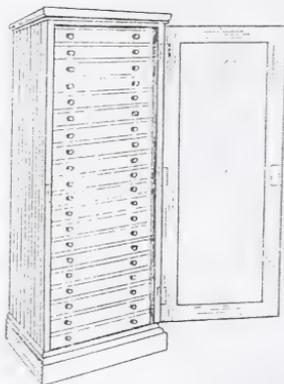
- 4 JAN 2007

IMPRINTED

ENTOMOLOGY LIBRARY

ATROPOS ANTIQUES*

PURVEYORS OF FINE COLLECTOR'S CABINETS



*Many of you will have met us at the AES
London Fair where we regularly show
entomological cabinets for sale*

- We are specialist dealers in fine collector's cabinets.
- We can offer a choice of at least 30 cabinets, varying in purpose, construction, quality and price.
- We can supply both restored and un-restored cabinets and will undertake to restore and paper cabinets for clients.
- We are always interested in the purchase or exchange of cabinets, with or without a collection.
- Callers to our showrooms are always welcome by appointment.
- We offer a specialist collection and delivery service throughout the UK and have full expertise in the safe transportation of cabinets and collections.

George Morgan

97, West Street, Hartland, N. Devon EX39 6BQ

T: 01237-441205/984 M: 07973 302190

E-mail: george@atropos.wanadoo.co.uk

* We are an independent dealership of 30 years standing and have no association with any similarly named business.

A NEW BOOK FROM

Cravitz

Experience the lighter side of field entomology with Torben Larsen as he describes his experiences from around the world.



There must be a Hazard for every occasion?

£11.99 (inc. UK p&p) • **£13.99** (overseas)

ORDER YOUR COPY NOW FROM

Cravitz Printing Company Limited

1 Tower Hill, Brentwood, Essex CM14 4TA.

Tel: (01277) 224610 • Fax: (01277) 262815 • E-mail: CravitzPrinting@btconnect.com



Ian Johnson

Natural History Books

(Pemberley Books)

Specialist in *Entomology* and related subjects
Also *Zoology, Ornithology, Botany* etc.

- CATALOGUES – Second-hand, Antiquarian and New books – free catalogues available on request.
- SPECIALIST BOOKSHOP at Richings Park, Iver, just to the West of London – easy to reach by car or train. Visitors are welcome to visit and view our stock, but please telephone first to confirm opening times.
 - * *By car*: only 10 minutes drive from the M25 via the M4 (Junction 5), or M40 (Junction 1). 15 minutes from Heathrow Airport.
 - * *By train*: 20 minutes from London Paddington to Iver Station on the Paddington-Slough *Thames Trains* service (2 trains every hour). We are 1 minute's walk from Iver Station.
- WEBSITE – view our stock on our website: www.pembooks.demon.co.uk
- BOOKS BOUGHT – We are always interested in purchasing books in our specialist field, particularly antiquarian, academic and scholarly works on insects and other invertebrates.

18 BATHURST WALK, RICHINGS PARK, IVER, BUCKS SL0 9AZ

Tel: 01753 631114 / Fax: 01753 631115 • e-mail: ij@pembooks.demon.co.uk



The AES BUG CLUB

Do you want to cuddle a Cockroach, stroke a Stick Insect or hug a Harvestman?

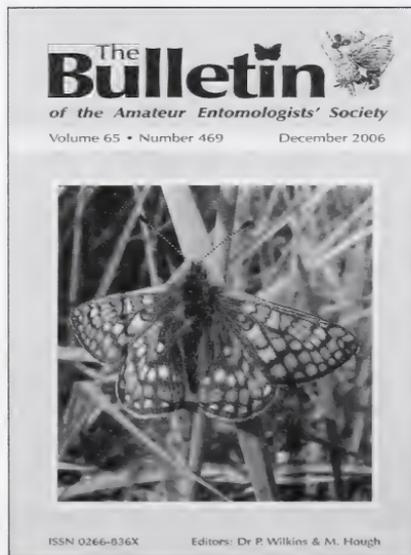
The AES Bug Club is for young people or the "young at heart" who find insects and other creepy crawlies interesting and even fascinating.

As the junior section of the AES we are devoted to promoting invertebrates to the younger generation who, after all, will be the entomologists of tomorrow!

You can help us in a number of ways, for example: by joining the Bug Club yourself, getting someone else to join the Bug Club, promoting the Bug Club and AES to your local school/Scout or Guide Group etc, running a Bug Club event or writing an article for our exciting newsletter. If you can do anything to help then please write to us: **AES Bug Club, PO Box 8774, London, SW7 5ZG.** Membership details can be found in the front of this Bulletin.



Bulletin Cover



The front cover of this issue shows the beautiful, but threatened Marsh Fritillary Butterfly *Euphydryas aurinia*. Despite its name, it is found in a range of grassland habitats. Unfortunately, even though Britain is regarded as a European stronghold for the species, its range has contracted westwards, particularly since 1950. Its distribution has probably shrunk by over 60% since the eighteenth century.

Its foodplant is Devil's-bit Scabious *Succisa pratensis*. The larvae are gregarious and can be found in late summer on their communal webs. Culm grasslands in the West Country still hold important populations. This picture is a still from a Sony video, taken at Dunsdon, Devon.

Photograph by Dr Paul Millard (4372) who kindly responded to a request for photographs in a previous *Bulletin*.

The Bulletin

of the Amateur Entomologists' Society

Volume 65 • Number 469

December 2006

Editorial

Well, it's another December *Bulletin*, so another year is almost over. 2006 has been an exciting year for the AES. The Society was involved in another National Insect Week with the Royal Entomological Society. On the theme of this society, our Registrar, Nick Holford has negotiated an excellent arrangement with the RES. This allows AES members to benefit from use of the RES facilities in London and to claim a discount on RES publications. In line with this we have introduced discounts for our members on AES publications. Also on the publication front, 2006 saw the publication of two eagerly awaited books – *The Coleopterists' Handbook* and *Preparing and Maintaining a Collection of Butterflies and Moths*. I picked up the latter at the October Exhibition and must say that Peter May and Martin White have done a superb job with this little book. If you do not have a copy, the members' discount makes it so cheap, you really have no excuse not to purchase it! On the subject of Exhibitions (I should get a job as a continuity announcer, this editorial has been so seamless!!), April 2006 heralded the first AES/RES York Exhibition. This was regarded as a success by all involved. However, it needs continued commitment to make it a permanent fixture on the entomological calendar, so please support it again in 2007.

After a successful 2006, the Society does not wish to rest on its laurels. There are more exciting developments for 2007, so keep your eyes peeled. Some may be announced at the AGM in April, so why not come along?

As always, I would like to request more articles. We are reliant on members for the contents of the *Bulletin*. However, we cannot guarantee that articles will go in the next issue – there may be a lag of two or three issues before your article appears, so please be patient!

Phil Wilkins





AES Members' Day and AGM

Saturday 21st April, 2007

at 1.00 pm

Flett Events Theatre, Natural History Museum,
Cromwell Road, London SW7

For the 2007 Members' Day we are organising a range of activities suited to both adult AES Members and Bug Clubbers.

We will be joined by the Members of the Natural History Museum (NHM) for an afternoon of bug films, a special private exhibition and behind-the-scenes visits to parts of the Museum not open to the public (such as the bug collections). We will meet the Museum's Keeper of Entomology and other entomology department staff. For families there will be talks and exhibits to do with entomology by AES members and NHM staff; and there will be AES stands and refreshments laid on (free of charge to AES members). A detailed agenda for the day will appear in the February issue of the BCM. Please let us know in good time if you are attending so that we can plan the catering, via the PO Box address or dafydd@amentsoc.org.



The Natural History Museum is the main museum for natural history in the UK. It is located in South Kensington, London and also has a facility at Tring in Hertfordshire. The Museum has world-class collections, fantastic exhibitions and carries out cutting-edge research.

Become a Member of the Natural History Museum and enjoy the following benefits:

- Free, fast-track entry to special exhibitions
- a full-colour quarterly magazine
- more than 80 events each year exclusively for Members - including behind-the-scenes visits, talks, day-trips, exhibition previews and workshops
- 10 guest passes, a private Members Room and generous discounts

Museum Membership for Bug Clubbers is £27. **The Museum is offering a 20% discount for adult AES members between now and the end of January.** To take advantage of this offer and/or for more information, please call Helen on 020 7942 5899, quoting AES/NHM offer. Have a look at the Natural History Museum's website at www.nhm.ac.uk. Kids click on the Kids Only section.



Butterfly (and other) recording in Cyprus

by Eddie John

Davies Cottage, Penllyn, Cowbridge, Vale of Glamorgan, CF71 7RQ

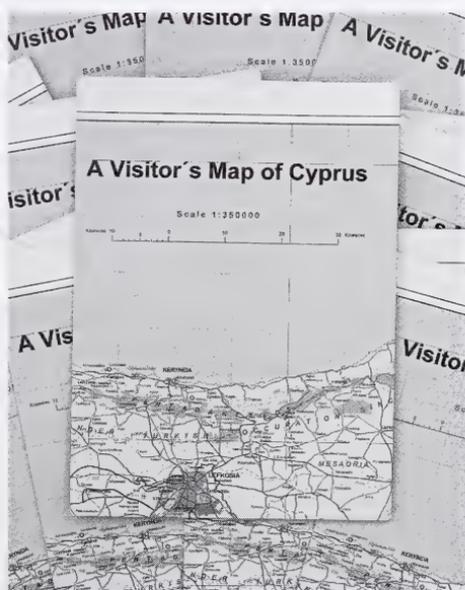
E-mail: eddie@grayling.dircon.co.uk

Members may be interested to learn that the Cyprus Tourism Organisation (CTO) has responded favourably to a request by Eddie John (who organises the Butterfly Recording Scheme for Cyprus) to produce a readily available tourist-style map based on 10 km UTM grids (WGS84). The map, which will greatly assist with recording of wildlife, is now available free-of-charge to AES members within the UK, from the CTO office in London: Tel: 0207 569 8800 or e-mail: informationcto@btconnect.com

CTO Head Office in Nicosia have confirmed that stocks of the new map have also been sent to all CTO offices throughout the world, so overseas members should contact their local CTO office. Copies may also be obtained from CTO offices throughout Cyprus.

When requesting a copy, please ensure you specify that you require the **June 2006 version** of *A Visitor's Map of Cyprus*, as this is a reprint of a map which has been in use for many years.

I would be pleased to hear from anyone with records of butterfly sightings from Cyprus. If you would like information prior to a proposed visit, please contact me at the above address.





A pallid Painted Lady

by Michael E.N. Majerus

Department of Genetics, Downing Street, Cambridge, CB2 3EH.

Aberrations hold a special fascination for many lepidopterists, as evidenced in many of the larger collections and in books dedicated to variants and aberrants (e.g. Harmer 2000). Although I have been studying colour pattern polymorphisms in Lepidoptera for many years, I have devoted little time to searching for rare, aberrant forms. However, encountering an odd painted lady (*Cynthia cardui*), on a *Buddleia* in the garden still gave me a surge of excitement and raised my pulse rate. Rapidly collecting my camera from the house, the butterfly posed beautifully for a few moments before departing. The two pictures (Plates 1 and 2) show the butterfly to be an aberration known as ab. *pallida* (Schöyen), an appropriate name for this pallid painted lady.

The butterfly was seen on the outskirts of Coton, Cambridgeshire, on 23rd August 2003, and the weather was sunny and warm. The date of record has some significance. Bretherton and Emmet (1989) report that ab. *pallida* individuals are usually small and pale pink, and are long distance migrants that arrive in spring. This does not seem to be the case for this individual. Apart from the date, the butterfly was relatively fresh, not suggesting long distance migration, and was of a similar size to three other much more strongly coloured painted ladies seen in the garden on the same day.

References

- Bretherton, R.F. and Emmet, A.M. (1989) *Cynthia cardui*. In *The Moths and Butterflies of Great Britain and Ireland: Vol. 7, part I: Hesperidae-Nymphalidae* (Eds. A. M. Emmet and J. Heath). Harley Books: Colchester, Essex.
- Harmer, A.S. (2000) *Variation in British Butterflies*. Paphia Publishing: Lymington, Hants.





Caterpillars of Magpie Moth *Abraxas grossulariata* (L.) abundant at the Ring of Brogar, Orkney Isles, 1st June 2005

by Paul Waring (4220)

Windmill View, 1366 Lincoln Road, Werrington, Peterborough, PE4 6LS.

E-mail: paul_waring@btinternet.com

During the half-term week of 29 May – 4 June 2005, my wife Rachel, daughter Kirsty and I took the opportunity to visit the Orkney Isles, where we were guests of Sydney Gauld, County Moth Recorder for the Orkney Isles, and his family. On 31st May we made a brief visit to see the ancient standing stones of the Ring of Brogar, Stenness (Plate 4). The entomological high-light at this monument was finding large numbers of larvae, and some pupae (Insets, Plate 4), of the Magpie Moth *Abraxas grossulariata* accumulating under over-hanging parts of some of the standing stones in groups of a dozen or more. The larvae were evidently using the stones as major pupation sites. To reach the stones these larvae must have crossed a three-metre wide mown grassy path separating them from the moorland sward where additional large numbers of the larvae were found feeding on Ling Heather *Calluna vulgaris* (lower right inset, Plate 4). As an indication of the population density of larvae in the heather, it was easy to find three or four larvae per square metre and in a pair of two-minute searches over the heather, a dozen were found each time.

The Magpie Moth is one of a raft of species that have been confirmed as having declined in population density in a major way in recent decades in parts of lowland England, based on numbers recorded since the 1960s in the national network of light traps operated by the Rothamsted Insect Survey (see Woiwod, Gould & Conrad, 2005). Amateur light-trappers were also aware of the decline (see West, 1991) and some sources, such as county listings, report cyclical fluctuations as well as the longer term decline (e.g. Plant, 1993). Goater (1974) reports only short-term fluctuations for Hampshire but by Goater & Norriss (2001) a major decline in distribution was evident. Generally I now see the adult moth occasionally, usually in ones and twos, in light-traps during my travels around the lowlands and that was certainly the case in 2005. I see the larvae even less frequently in the lowlands, but still beat them occasionally from hedgerows of Blackthorn *Prunus spinosa*, as I have done since the 1960s (see Waring & Townsend, 2005). I have childhood memories from the early 1960s of finding several dozen



larvae feeding on a short length (4m) of hedge of Garden Privet *Ligustrum ovalifolium*, in the front garden belonging to my grandfather. Lawrence Gale, who lived at St Anne's, Station Road, Sway, near Brockenhurst in the New Forest, Hampshire. When they were fully grown some of the larvae used to leave the hedge, wander along an adjoining brick wall and pupate under the eaves of the coping stones, sheltered from above, but in an otherwise open situation, just like at the Ring of Brogar. I would also find them in smaller numbers feeding on the leaves of Blackcurrant *Ribes nigrum*, Red Currant *R. rubrum* and Gooseberry *R. uva-crispa* in my grandfather's vegetable garden and indeed he referred to them as Currant moths.

I first discovered for myself that the Magpie Moth can occur in huge numbers in heather moorland in western Scotland when on a holiday on the Isle of Eigg from 14-26 July 1977. There I saw them in great swarms, accumulating particularly as adults roosting by day in heather where it overhung moorland streams, such that the moths could fly up under the heather to rest.

Immense populations of the Magpie Moth in heather moorland have been reported from the Hebrides at least since the late nineteenth century (Horsfield and MacDonald, 2004). Although the habitat at the Ring of Brogar is heather moorland, similar to that on Eigg, large populations of the Magpie Moth here appear to be a much more recent phenomenon. The Magpie Moth was considered a probable immigrant to the Orkney Isles until the early 1990s. Ian Lorimer, County Moth Recorder for the Orkney Isles, had only a single record, from 1981, but had received ten by 1991, from widely scattered locations, though none of larvae (Lorimer, 1983, 1998). Lorimer's successor, Sydney Gauld (pers. comm.) reports numbers have increased dramatically in some parts of Orkney mainland, where they have been found as larvae and adults in some gardens on currant and gooseberry bushes as well as amongst heather. By the end of the 1990s it was evident that the moth had become established in the vicinity of a garden at Bay View, Herston, on South Ronaldsey, where a total of sixteen was recorded in a mercury vapour light-trap from 5-27 July 1999, 87 from 17 July-12 August 2000 and 176 from 4 July-14 August 2001 (J. & R. McCutcheon). Also in 1999, fourteen adults were recorded between 12-23 July at Echna View on the adjacent island of Burray (T. Dean). The first record of a larva from the Orkney Isles was on 14 May 2000 at White Glen plantation on Hoy and on 4 August 2001 adults were noted in thousands on Hoy, with many dead on the water in streams and others flying up from the heather (S. Gauld, pers. comm.). This apparent



colonisation and increase in numbers coincides with reports of an easterly increase in numbers and distribution in eastern mainland Scotland. Horsfield & MacDonald (2004) report seeing large-scale browning of heather from defoliation by the Magpie Moth on the mainland east to Dunnet Head, Caithness, and Leverton (2004) notes a spate of records of adults in 2003 from Banffshire, Kincardineshire, North & South Aberdeenshire, the first for records for over a decade for these counties with the exception of a single long-term population on the coast at Buchanhaven near Peterhead, Aberdeenshire, the only surviving one known in north-east Scotland. At this stage, the Magpie Moth is certainly not in large numbers on every piece of open heather in the Orkney Isles. On 3 June 2005 Rachel, Kirsty and I searched a large area of heather opposite the Hoxa Tapestry Gallery, Neviholm, Hoxa, on South Ronaldsay and found it devoid of them. It will be interesting to see whether further colonisation takes place and whether numbers of this conspicuous and easily identified moth increase more widely in the next few years.

I would like to thank the Centre for Environment & Rural Affairs, Writtle College, for support in the preparation of this note and all the above-named for their information and observations.

References

- Goater, B., 1974. *The butterflies and moths of Hampshire and the Isle of Wight*. Classey. Faringdon.
- Goater, B. & Norriss, T., 2001. *Moths of Hampshire and the Isle of Wight*. Pisces & Hampshire County Council.
- Horsfield, D. & MacDonald, A.J., 2004. Recent large outbreaks of Magpie Moth *Abraxas grossulariata* (L.) (Lep.: Geometridae) on heather *Calluna vulgaris* (L.) Hull on the mainland of north-west Scotland. *Entomologists' Record & Journal of Variation* **116**: 81-83.
- Leverton, R., 2004. Magpie Moth *Abraxas grossulariata* (L.) (Lep.: Geometridae) in North-east Scotland. *Entomologists' Record & Journal of Variation* **116**: 119-121.
- Lorimer, R.I., 1983. *The Lepidoptera of the Orkney Islands*. Classey. Faringdon.
- Lorimer, R.I., 1998. *Unfinished business - A supplement to The Lepidoptera of the Orkney Islands*. Hedera Press. Faringdon.
- Plant, C.W., 1993. *Larger moths of the London area*. London Natural History Society. London.
- Waring, P., 2005. Wildlife reports - Moths. *British Wildlife* **16**: 434-436.
- Waring, P. & Townsend, M., 2005. Field meeting report – Rushy Meadows SSSI, Kidlington, Oxfordshire, 21 May 2004. *British Journal of Entomology and Natural History* **18**: 64-68.
- West, B.K., 1991. The Magpie Moth *Abraxas grossulariata* (L.): a change of status? *Entomologists' Record & Journal of Variation* **103**: 89-92.
- Woiwod, I., Gould, P. & Conrad, K., 2005. The Rothamsted light-trap network – shedding light on a common moth problem. *Atropos* **26**: 5-18.



Black form of Privet Hawk moth larvae

by Roy Goff (12541)

April Cottage, Kite's Bridge, Bourne, Lincolnshire PE10 0EN

E-mail: goffro@btomercall.co.uk

During the summer of 2005 I obtained some eggs from a Privet Hawk *Sphinx ligustri* I caught in my garden. From these I over wintered about 15 pupae in the fridge until April 2006. The fridge is normally about 3-5 degrees C and the pupae were sprayed with water about once a month. Most of the pupae hatched successfully and six pairs mated very quickly.

Larval development was normal and approximately sixty larvae were reared to the pupal stage without incident. The larvae were kept in containers until the start of their third instar when they were transferred en masse into a mesh cage hanging in my conservatory. They were fed cut food throughout changed daily or twice daily when in their final instar. When about two thirds of the larvae had moulted into their final instar one of them changed colour to almost all black. The stripes on its sides remained white with the thin red edge and a few other markings remained close to their original colours. At first I thought the larva was diseased but upon closer examination it was perfectly healthy. The larva was then kept in isolation so I would be able to keep track of it when it pupated which it did after about a further week of feeding.

Unfortunately there is a small amount of damage to the pupa where the case has 'separated' slightly between the folds for the antennae and the legs. Hopefully it will still be viable and hatch without too much

difficulty; it is a male and is still alive at the moment.



I have kept several of its brothers and sisters so hope to be able to do some cross matings next year to see what happens with future larvae. I doubt there will be any noticeable difference in the colour patterns of the adult when it does emerge.



Classic Entomological Sites: Ainsdale Sand Dunes NNR

by Dr Peter G. Sutton (7388)

AES Habitat Conservation Officer, 2 Fir Tree Close, Flitwick, Beds. MK45 1NZ.

and David Browne (11909)

4 Skelmersdale Walk, Bewbush, Crawley, West Sussex RH11 6EP.

Ainsdale Sand Dunes NNR and the Sefton Coast SAC

The sand dune habitats of the Sefton Coast, between the estuaries of the Ribble to the north, and the Alt to the south, in Lancashire, have long been recognized as a site of outstanding importance for wildlife, and Ainsdale Sand Dunes National Nature Reserve (Grid Ref: SD 300 115) forms part of the Sefton Coast Special Area of Conservation.

In the early part of the 20th Century, the sand dunes at Ainsdale were considered important enough to be included in a schedule of "areas worthy of protection" by Lord Rothschild and his Society for the Promotion of Nature Reserves. Since that time, various areas along the Sefton Coast (Formby Sand Dunes, 1963; Ainsdale Sand Dunes, 1965; Southport Sand Dunes and Foreshore, 1966; Altcar Sand Dunes and Foreshore, 1979; and Freshfield Dune Heath, 1984) have been designated and notified as Sites of Special Scientific Interest (SSSI), culminating in the SSSI status for the whole of the Sefton Coast on 16th August 2000.

The Sefton Coast has received a further international designation as a Ramsar wetland (chosen because the habitat between the Ribble and the Alt estuaries supports 40% of the British population of Natterjack Toads *Bufo calamita*, and populations of internationally important waterfowl), and again, the international importance of this region has been confirmed by its status as a Special Area of Conservation (SAC).

The Sefton Coast supports an outstanding invertebrate fauna, including rarities such as the Northern Dune Tiger Beetle *Cicindela hybrida*, and the endemic Sandhill Rustic *Luperina nickerlii* ssp. *gueneei*.

Sefton Coast Habitats

The Sefton Coast SSSI covers 4605 ha, of which 2,100 ha are occupied by sand dune habitats, making this the largest of England's sand dune systems. The abundance and variety of life to be found in this SSSI justifies its position as, arguably, the best wildlife site in the north-west of England. The reason for the observed biodiversity can be found in



the complexity of its habitats. As Houston (1997) points out: "Dune habitats are among the most complicated and diverse of any ecosystems in Britain", stating that sand dune communities, according to the National Vegetation Classification, are represented by 18 communities with sub-communities of vegetation. (It is interesting to note that a 1999 inventory of vascular plants found on the Sefton Coast, concluded that of the 890 taxa described, over a quarter (246, 27.6 %) were introductions (Smith, 2000).)

The habitats of the Sefton Coast SAC include estuarine habitats and coastal sand dune habitats. The sand dune habitats, so important to the flora and fauna of the region, consist of embryonic shifting dunes, shifting dunes, fixed dunes with herbaceous vegetation, dune slacks dominated by Creeping Willow *Salix repens*, and humid dune slacks. (These EU Habitats Directive Annex I habitats were a primary reason for the selection of the Sefton Coast as a SAC).

The declining fortunes of Ainsdale's Sand Dunes: 1800–1990

The decline in the quantity and quality of the sand dune habitats of the Sefton Coast has been mirrored at Ainsdale Sand Dunes, and is in turn integrally linked to the fortunes of the dune system's most famous inhabitant, the Natterjack Toad.

In the wider context, the dune system has suffered losses from two main factors, town building and golf courses. The development of townships along the Sefton Coast has accounted for the loss of approximately 40% of the original dune system (Smith, 2000).

Golf courses account for over a quarter of the remaining dune system (550 ha), and while it is clear that: "At worst, golf courses can obliterate existing high quality and long-established habitats; they can be managed as ecologically sterile, close mown swards of non-native grasses requiring high amounts of fertiliser, pesticides and water and dotted with ornamental trees", Tobin and Taylor (1996), also point out that: "Although slow to come out of the Clubhouse, the golfing industry produced, in 1995, the first publications outlining their environmental strategy to address the ecological management of golf courses sympathetically for wildlife".

The simple fact is that although the golf courses of the Sefton Coast have had a deleterious effect on the wildlife and habitats of the region, they have undoubtedly saved a significant proportion of the dune system from development, and with their inclusion within SSSI's, and the recently developed strategy for species and habitat management, they provide an valuable opportunity for wildlife conservation.



Another major factor in the decline of the sand dune habitats at Ainsdale was the commercial planting of Corsican Pine *Pinus nigra* ssp. *laricio* (and Sea-Buckthorn *Hippophae rhamnoides*) from 1900 onwards, over an area of 100 ha, by Charles Weld-Blundell, to stabilise the dunes and produce a timber crop. The area continued to be planted until the 1960s, with serious implications for the adjacent dune habitats. The water table of the surrounding dune system was lowered; the nature of the soil changed within the vicinity of the woodlands; dune mobility was stopped in certain areas; humid dune slack habitat was lost; and the character of the dune system was changing with scrub encroachment. This situation was exacerbated by the loss of Rabbits through Myxomatosis in the 1950s, a species that had been grazing the site and maintaining the essential mosaic of species-rich short dune turf and bare sandy areas since they had been introduced and farmed for meat and fur at Ainsdale in the 1600s.

Recreational pressures have also taken their toll, eroding and destabilizing the dunes and, together with mechanical beach cleaning regimes, affecting the dynamic processes of dune formation.

Turning the tide: Restoration of Sand Dune Habitat at Ainsdale

Restoration work at Ainsdale Sands NNR has focused (in addition to dune slack operations designed to benefit the Natterjack Toad and rare flora) on the clearance of the frontal belt of pine trees, scrub clearance, and other procedures designed to restore the original character of the dune habitat. Freshly cleared areas have been grazed in winter using Herdwick Sheep, with superb results (Simpson, 2002), and a return to the classic short turf mosaic with areas of bare sand has been observed. This regime has also benefited the Rabbit population, which has again been beneficial to the flora and fauna of the site.

Mowing has also been used to good effect at Ainsdale to reduce the dominance of Creeping Willow and improve species diversity.

The invertebrate highlights of Ainsdale Sand Dunes NNR

Over 700 invertebrates have been recorded from the Sefton Coast region, including a number of Red Data Book and nationally scarce species.

The Aculeate Hymenoptera of the Ainsdale-Formby Sand Dunes have been studied by Archer (1999), who noted that the species quality score for this area was higher than that for other northern sites. The presence of the rare wasps, *Arachnospilea wesmaeli* and *Psen littoralis*, together with the bees, *Colletes cunicularis* ssp. *celticus* and *Colletes marginatus*,



as well as other noteworthy species such as *Podalonia affinis* and *Stelis ornatula* make the site well worth a visit.

For coleopterists, there is little doubt that the vulnerable (RDB2) Northern Dune Tiger Beetle *Cicindela hybrida* (Plate 3) is of key interest. There is also the possibility of encountering the endangered (RDB1) dung beetle, *Aphodius brevis*, *Aegelia rufa* (RDBI: Mann, D.J. & Ramsey, 2001), and the scarce strandline inhabitant, *Hypocaccus rugiceps*. Other pleasant surprises include the Musk Beetle *Aromia moschata*, the Ant Beetle *Thanasimus formicarius*, *Phloiotrya vaudoueri* and *Geotrupes vernalis*.

The Lepidoptera offer plenty of interest, from the endemic Sandhill Rustic *Luperina nickerlii gueneei* (moths are particularly well-represented) to the Dark Green Fritillary *Argynnis aglaja* and Grayling *Hipparchia semele* butterflies.

The Odonata are fairly well-represented and have taken advantage of fairly recent excavations originally designed to benefit the Natterjack Toads. Species include the Ruddy Darter *Sympetrum sanguineum* and the Emperor Dragonfly *Anax imperator*.

There have been many Diptera recorded from the dunes, but of particular note is the Dune villa *Villa modesta*, (Plate 3) which appears to be missing from the Invertebrate Site Registers for Sefton Coast sites. (Stubbs (1997) notes that this species is: "Curiously absent from some classic dunes.")

Diary Notes

Ainsdale Sand Dunes NNR was visited on a hot day in August (10.viii.05) to attempt to locate the Northern Dune Tiger Beetle. Almost immediately, this species was discovered on dunes within the area of the dune restoration site to the south of the remaining conifer plantation. This species is very active but fairly easy to approach if you follow it slowly and persistently until it gets used to your presence.

Butterflies were everywhere and several Dark Green Fritillaries (Plate 3) were seen feeding on the dune flowers. Smith (2000) states that "The casual visitor in high summer can hardly fail to be impressed by the abundance of butterflies, whose numbers bring to mind descriptions of the British countryside before the advent of modern farming." In the heat of that August day, it was a pleasure to find that he was right, with Grayling, Meadow Brown, Common Blue and other species nectaring at dune flowers. In the bare sandy areas there were many species of wasp, and also a number of flies, including the Dune Villa. This species was observed alighting on bare patches of sand among the more



stabilised dune heath at the back of the dune system, and occupied the same sites as the Northern Dune Tiger Beetle. A specimen was later observed furrowing the sand with its abdomen (Plate 3). This species fills its sand chamber in order to coat its eggs, presumably for both camouflage and to increase the weight of the egg, which it flicks into small tussocks of bare grass which are surrounded by bare sand in vicinity of host burrows. Stubbs and Drake (2001) state that: "Information on the hosts of *Villa* occurring in Britain is unsatisfactory", and that there are records of larvae being reared from a lepidopterous pupa and from the cells of a solitary bee *Osmia aurulenta*. It is also stated that although the hosts are likely to be the larvae of Lepidoptera, especially those of noctuid moths: "...host records of other species-groups of *Villa* include beetles and even horse-flies, so we need to keep an open mind in working out the life-histories of our British species." It seems that there is still much to learn about the life-history of this species in Britain. It is not unfeasible that the female observed could have been targeting the burrows of *Cicindela*.

A large Puss Moth *Cerura vinula* caterpillar was observed crawling over the parched dune turf. It was a remarkable colour, not green as is usual, but a maroon purple (Plate 3). It may have been feeding on White Poplar, which was present at the site. (White Poplar, an introduced species, together with Sea Buckthorn has caused over-stabilisation of dunes and is being removed as part of the conservation programme.)

Ainsdale Sand Dunes NNR has much to offer the entomologist, and with many scarce species unrecorded since the 1970's, it could produce some very pleasant surprises.

References

- Asher, J., Warren, M., Fox, R., Harding, P., Jeffcoat, G. and Jeffcoate, S., (2001), *The Millenium Atlas of Butterflies in Britain and Ireland*, Oxford University Press, Oxford.
- Archer, Michael E., (1999), The Aculeate Wasps and Bees (Hymenoptera: Aculeata) of the Ainsdale-Formby Sand Dunes on the Lancashire Coast compared with other Northern Sites, *British Journal of Entomology and Natural History*, **12**, pp. 1-10.
- Drake, C.M., (1997), *Provisional Atlas of the Larger Brachycera (Diptera) of Britain and Ireland*, p.1-131, Huntingdon: Biological Records Centre.
- Houston, J., (1997), Conservation Management Practice on British Dune Systems, *British Wildlife*, **8** (No.5), pp.297-307.
- Llewellyn, P.J. and Shackley, S.E., (1996), The effects of mechanical beach-cleaning on invertebrate populations, *British Wildlife*, **7** (No 3), pp. 147-155.
- Mann, D.J. & Ramsey, A. (2001), *Aegilia (Rhysothorax) rufa* (Fabricius) (Scarabaeidae) in Britain. *The Coleopterist* **10**, pp. 44-45.
- Simpson, D., (2002), The Fall and Rise of Ainsdale's Natterjacks, *British Wildlife*, **13** (No.3), pp.161-170.



- Smith, P.H., (2000). Classic Wildlife Sites: The Sefton Coast sand-dunes, Merseyside. *British Wildlife*, **12** (No.1), pp. 28-36.
- Stubbs, A.E. (1997). Identification: British Beeflies. *British Wildlife*, **8** (No.3), pp.175-179.
- Stubbs, A.E. and Drake, M., (2001). *British Soldierflies and their Allies*. p. 1-512. British Entomological and Natural History Society, London.
- Sutton, P.G. and Browne, D.E., (2001). British Tiger Beetles. *Bull. Amat. Ent. Soc.*, **60**. (No. 434), pp. 21-35.
- Sutton, P.G., (2002). Classic Entomological Sites: Braunton Burrows, Devon. *Bull. Amat. Ent. Soc.*, **61** (No. 445), pp. 245-254.
- Sutton, P.G., (2005). Classic Entomological Sites: South Haven Peninsula, Dorset. *Bull. Amat. Ent. Soc.*, **64** (No. 461), pp.129-164.
- Tobin, B. and Taylor, B., (1996). Golf and Wildlife. *British Wildlife*, **7** (No.3), pp.137-146.
- Twinn, P.J.F. and Harding, P.T. (Eds.), (1999). *Provisional Atlas of the Longhorn Beetles (Coleoptera, Cerambycidae) of Britain*. Huntingdon: Biological Records Centre.



***Catocala nupta* at Banbury, Oxfordshire**

by K. F. Williams (8197)

Arcanum House, 45 Braunston Road, Daventry, Northants, NN11 9BY.

I read with interest David Keen's *Letter from Spain* in the *Bulletin* vol 65, p115. Of particular interest was the mention of the Red Underwing *Catocala nupta*. He records that the moth was apparently scarce in Oxfordshire. If that is the current situation, it was not when I lived there. The easiest way to find them was in the pupal stage, always behind the bark of willow trees (*Salix* species). The pupae were in flimsy, powdery cocoons.

The River Cherwell, Wroxton Woods area and Bodicote 'Brook' all produced the moth. I am sure David is familiar with the above place names.



The Hummingbird Hawkmoth *Macroglossum stellatarum* (Linnaeus)

by Phil Wilkins (7607)

Thistledown, The Common, Little Blakenham, Suffolk, IP8 4JX

Photographs by Adrian Jones (5065)

14 Kingswood Crescent, Copthorne, Shreusbury, Shropshire

2006 has been a good year for migrant insects and it proved to be a fine year for *Macroglossum stellatarum*. The moth turned up in good numbers all over the country and stimulated interest from lepidopterists and the general public. It has made it into many local and even national newspapers.

The moth even featured in BBC2's *Autumn Watch* with Bill Oddie. Observant entomologists will have noticed, however, that not all the moths that were shown in the accompanying film were *Macroglossum stellatarum*!

Pittaway (1993) describes the moth as 'a very distinct species' and it is indeed hard to confuse it with any other British species. In fact, lay press reports often confuse it with avian rather than entomological fauna. It is confused by many with its namesake, the true Hummingbirds. A dose of reality would make any sane person realise that these tiny birds would be unable to cross the Atlantic (even with a strong wind to assist). It is also rather depressing that the moth should be mistaken for a bird. Even a relatively superficial glance should allow an observer to ascertain that the creature is an insect.

The 2006 immigration of *M. stellatarum* has been discussed elsewhere (for example, Waring, 2006). However, the Society were offered for publication in the *Bulletin* some excellent photographs by Adrian Jones (see Plate 5). Many attempt to photograph this aerial acrobat, but few achieve such a fine result as seen in this issue's colour section.

The Hummingbird Hawkmoth is essentially a southern European species. Individuals seen in central and northern Europe are regarded as migrants. The increase in sightings over the last few years, coupled with sightings well into the winter months, has led to many regarding this phenomenon as further evidence of global warming. There is mounting evidence that another well-known migrant lepidopteran species, the Red Admiral *Vanessa atalanta*, may be able to survive British winters (Burton, 2006). So it is not unreasonable to predict that *M. stellatarum* may become a resident member of our fauna in the



future. The food-plants (various bedstraws) are widespread and already support reasonable numbers of caterpillars from migrant individuals (Porter, 1997).

References

- Burton, J.F. 2006. Overwintering by the Red Admiral *Vanessa atalanta* (Linn.) in Britain and elsewhere in North-west Europe. *Atropos* **29**: 3-11.
- Pittaway, A.R. 1993. *The Hawkmoths of the Western Palearctic*. Harley Books, Colchester.
- Porter, J. 1997. *The Colour Identification Guide to Caterpillars of the British Isles*. Viking, London.
- Waring, P. 2006. Wildlife Reports – Moths. *British Wildlife* **18**(1): 57-9.



An early Meadow Brown

by Jan Koryszko (6089)

3 Dudley Place, Meir, Stoke-on-Trent, Staffordshire ST3 7AX

On 15th May 2005 while talking to my nextdoor neighbour, I noticed their dog disturb a butterfly in the garden which then flew into my garden. I was surprised to see a Meadow Brown (*Maniola jurtina* L.). The day was quite warm with a little sunshine. Quite an early date for this species but not the earliest date for this species in Staffordshire.

On 10th May 2002, my friend, R.H. Heath observed a Meadow Brown on the wing in a meadow at Blythe Bridge, Staffordshire. Of interest, both these butterflies were male. Some late butterflies have also been recorded. On 22nd September 2002 I recorded a Meadow Brown in my garden on *Buddleia* bushes of the yellow variety. This was the latest date since the very hot summer of 1976 when I saw a Meadow Brown on the wing in late September on Barlaston Rough Close Common, Staffordshire. Maybe with the onset of global warming, more early and late butterflies are to be expected, including other species of Lepidoptera.



Plate 1. *Vanessa cardui* ab. *pallida* on white buddleia (dorsal view)

Photo: Mike Majerus



Plate 2. *Vanessa cardui* ab. *pallida* on white buddleia (ventral view)

Photo: Mike Majerus



Plate 3. Sefton Coast Dune Life. Main picture: Well-vegetated sand dune habitat at Ainsdale Sands NNR. Clockwise from top left: Northern Dune Tiger Beetle *Cicindela hybrida*; an unusual purple form of the Puss Moth *Gerris vittula* caterpillar; Dark Green Fritillary. All photos: Dave Browne except *C. hybrida*: Peter Sutton

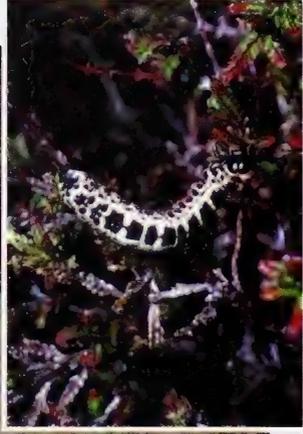


Plate 4. Main picture: The standing stone circle in Orkney, habitat for the Magpie Moth larvae. Insets: Various views of the larvae of the Magpie Moth *Abraxas grossulariata*.

All photos: Paul Waring

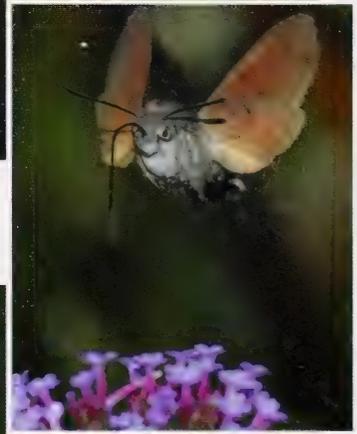


Plate 5. Some stunning photos of the Hummingbird Hawk-moth *Macroglossum stellatarum* by Adrian Jones.



Some Observations on moths in Surrey

by Michael Ferris (12738)

46 Abbey Road, Selsdon, South Croydon, Surrey, CR2 8NG.

Two very unexpected moths visited our Mercury Vapour (m.v.) Trap on the night of 26th-27th July 2006. We had been operating this trap since April 2006 for three or four nights a week, subject to weather conditions. The catches on some nights have, in my opinion, been quite surprising in terms of number of individuals and species.

The two noteworthy moths mentioned above were a Jersey Tiger *Euplagia quadripunctaria* (Poda) and a Tree Lichen Beauty *Cryphia algae* (Fabr.). The former species is very distinctive and unmistakable. The latter was identified with relative certainty using Waring and Townsend (2003).

A list of all the species present on any given night is kept including weather conditions. The trap is set up on a garden table and placed near the top of our garden. This garden is situated about 12 miles from central London.

We also have an open sided shed which has been used by Old Lady *Mormo maura* (Linn.). In August 2005, there were regular counts of over twenty individuals in the shed. The highest count was 24. I noted how they grouped together when roosting in a corner of the shed on the blind side of a roof support. They are frequent visitors to the sugar patch along with Copper Underwings *Amphipyra pyramidea* (Linn.).

Sadly, this year they seem to have deserted the shed. I wonder if our use of a m.v. trap nearby this year has in some way put them off. It is strange that they are no longer roosting here as they have done for many years now.

Reference

Waring, P. and Townsend, M. 2003. Field Guide to the Moths of Great Britain and Ireland. British Wildlife Publishing. Hook, Hampshire.

Ed – There have been comments regarding *Euplagia quadripunctaria* and *Cryphia algae* in the entomological literature this year. It is possible that both species are establishing colonies in the London area. Michael's observations would correspond with this.





Records of *Arbopalus rusticus* Linnaeus 1758 in Hampshire, Isle of Wight, Dorset, Cornwall and Somerset. Part 5

by Keith C. Lewis (3680)

108 Park View Road, Welling, Kent, DA16 1SJ.

Introduction

The following records of *Arbopalus rusticus* (L) is part five in the series. The records cover the counties of Hampshire, Isle of Wight, Dorset, Cornwall and Somerset. Only one map, Hampshire and the Isles of Wight map 1, has been printed due to space in the *Bulletin* and few records for some of the other counties.

Hampshire

Date	Location	Map Reference	Recorder
26.08.1927	Chandlers Ford	SU4319	Twinn Dr.
25.07.1927	Chandlers Ford	SU4318	British Museum collection.
28.08.1927	Chandlers Ford	SU4417	Hancock E. G. Kelvingrove Museum.
10.07.1938	Fowley	SU4503	Purchased Watkins & Doncaster.
16.07.1946	Hampshire no other location	No map reference	Cribb J.
00.00.1953	Longmow	SU7932	Proctor D.
25.08.1966	Emery Down Under pine bark	SU2808	Lewis K. C.
00.00.1973	Hengistbury Head	SZ1892	No recorder.
00.08.1975	Fareham	SU5606	British Museum.
26.07.1975	Shirley M.V. light	SU4014	Lipton B. F.
00.00.1976	Brockishill Enclosure	SU2911	Proctor D.
02.07.1976	Langley M.V. light	SU4401	Lipton B. F.
12.07.1978	St Catherines Head	No map reference	British Museum collection.
00.08.1979	Fordingbridge	SU1414	Allen T.
25.07.1989	Ashley	SU3831	Twinn Dr.
03.08.1991	Bramshaw Wood New Forest	SU2615	Twinn Dr.
13.08.1991	Stockbridge	SU3535	Twinn Dr.
04.08.1992	Totten	SU3613	Twinn Dr.

Isle of Wight

00.08.1946	Cowes	SZ4896	Twinn Dr.
00.09.1946	Cowes	SZ4896	Bowdray J.
00.00.1983	Freshwater near	SZ3487	Twinn Dr.
22.07.1989	Freshwater near	SZ3487	Shepard B.
00.00.1992	Freshwater near	SZ3487	Shepard B.
21.09.1991	Ryde	SZ5992	Shapard B.

**Dorset**

00.00.1918	Branksome	SZ0492	Ford A.
00.08.1925	Poole	SZ0090	Lyle G. T.
00.00.1936	Poole	SZ0090	British Museum collection.
26.06.1958	Canfield Heath	No reference	Hunter F. W.
01.09.1958	Wareham	SY9287	Harwood P.
20.08.1967	Alderholt M. V. light	SZ1213	Lewis K. C.
06.09.1972	Studland Bay	SZ0284	No recorder.
00.08.1973	Bournemouth +	SZ0890	Twinn Dr.
00.00.1978	Canford Cliffs	SZ0690	Hunter F. A.
28.08.1967	Three Legged Cross	SU0805	Hatton R. H. S.
00.00.1992	Ullwell	SZ0381	Pavett P. M.
29.06.1995	Weymouth M.V. light	SY6770	Sterling P. H.
30.06.1995	Weymouth M.V. light	SY6770	Sterling P. H.

Note: + Confusion can arise in records on the Hampshire and Dorset borders. The AA Atlas 1995 locates Bournemouth as being in Hampshire, while the AA Atlas 2003 locates Bournemouth as being in Dorset.

00.08.1957	Cambourne/Reskadinnick	SW6440. SW6342	Mrs Turk S. M.
00.08.1957	Cambourne/Reskadinnick	SW6440. SW6342	Mrs Turk S. M.
No date	Cambourne/Reskadinnick	SW6440. SW6342	Mrs Turk S. M.
18. 08. 1986	Hayle	SW5537	Mrs Turk S. M.

Note: Records for Cornwall were received 1997 from Mrs Stella M. Turk, then Hon Research Fellow ICS/CBRU of the University of Exeter. Mrs Turk informed me that the beetles were found by her husband in their garden in a dead pine, *Pinus maritima*. The above specimens are not available for inspection for a reason not given.

Somerset

00. 08. 1988	Crewkerne	ST4409	Twinn Dr.
08. 09. 1988	Crewkeme	ST4409	Orton P. D.

Acknowledgements

I wish to thank the many coleopterists and Museums for sending me their records c1997-1998.

References

- Donisthorpe Horace St K. J. (1939). *The Coleoptera of Windsor Forest*. Nathaniel Lloyd and Co.
- Harde K. W. (1984). *A Field Guide in Colour to Beetles*. Octopus Books.
- Norman Hickin (1989). *Longhorn Beetles*. Shire Natural History Number 22. Shire Publications Ltd.
- Ulrick Bense. (1995). *Longhorn Beetles*.
- Gaetan du Chatenet (2000). *Coleopteres Phytophages DiEurope*. N.A.P. Editions.
- Lewis K. C. (2005) *Arbopalus rusticus* in Kent Part 1. *Bulletin* Volume 64. Number 459.
- Lewis K. C. (2005) *Arbopalus rusticus* in Essex and Surrey Part 2 *Bulletin* Volume 64. Number 460.



Butterfly decoys and lures

by Jan Koryszko (6089)

3 Dudley Place, Meir, Stoke-on-Trent, Staffordshire ST3 7AY.

I read with great interest the article "Butterfly decoys" by Keith Lewis (*Bulletin* 458: 6 February 2005). As a schoolboy in the early to mid-1960s I experimented with butterfly decoys in my garden. I cut out pictures of butterflies from old books and magazines. I remember at this time Brooke Bond tea brought out tea cards, a series of 50 British butterflies to collect, with an album. These cards were by Richard Ward and you got one or two cards in each packet of tea. Most of my repeated or double cards were used for the decoys. They were cut out and pinned flat on flowers, leaves and even on the bare earth. I remember three species in the garden which did show a passing interest to cards of their own species, the Large White (*Pieris brassicae* L.) and Small Tortoiseshell (*Aglais urticae* L.) in the spring after hibernation, no doubt looking for a mate, thirdly there was the Wall Brown (*Lasiomatta megera* L.) which is less common these days. The Wall Brown decoys worked most successfully on the ground as these butterflies like to bask on the ground or walls and the like. The butterflies must have been attracted by sight when flying past, they would swoop down to the decoys and on seeing they were bogus, would fly away again immediately. This fleeting period of time can give the collector a better chance of netting the butterfly but the lack of pheromone must give the game away, more successful methods to use are by using a specimen that was captured and killed previously as a decoy. I remember a Large White female which had been dead for two days attracted males in my garden, no doubt the pheromone was still active but I also believe sight plays a part in this – maybe old set specimens pinned to flowers and the like will act as a lure?

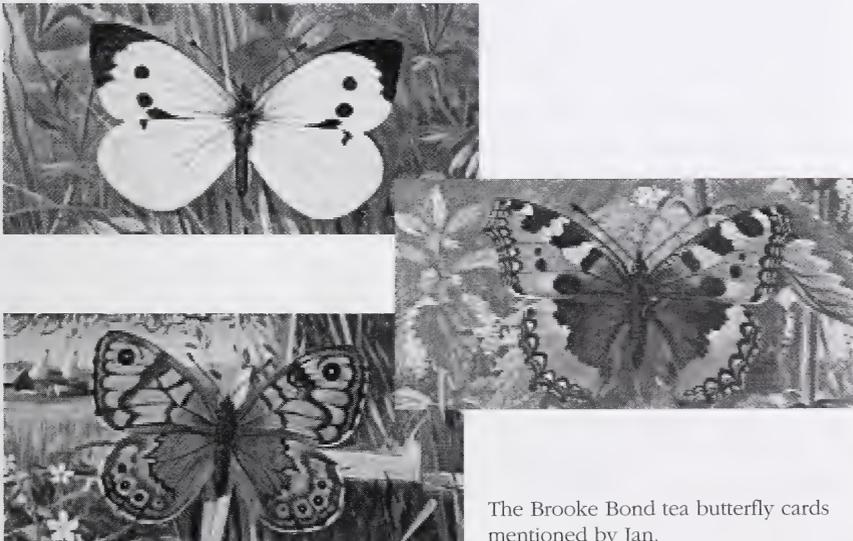
I did not experiment with the Holly Blue (*Celastrina argiolus*) but I have seen males chasing cherry blossom blown from the trees, no doubt thinking they had sighted a female on the wing. There is a very interesting note in the book by J. Moucha, *Beautiful Butterflies* (Spring books, 1965). On page 36 Moucha mentions collecting Morphidae butterflies in South America, he states that the morphos are hunted both by placing lures and by another highly ingenious method, the hunter is equipped with small brightly-coloured flags which he waves about in the air. Many a butterfly approaches, under the impression that it is seeing its mate, and can be caught in the net. Experienced collectors know exactly what colour will attract which species, the morphos can



likewise be cheated by flashing a mirror in the sunshine, or by using a specimen that was captured and killed previously as a decoy. Most butterfly pheromone can not be detected by the human nose, yet Moucha mentions on page 86 of the same book, that the Bhutan Glory (*Bhutanitis lidderdalei* Atkinson) the wings and whole body give off a sweet odour, which does not fade for days after the butterfly is dead. Also the book by E. B. Ford, *Butterflies*, (New Naturalist Series, revised edition, Fontana 1975, page 102) gives a table of the attractive scent of male butterflies which stimulate the female so that actual pairing takes place. This ranges from the Wall Brown (*Lasiomatta megera* L.) the scent of heavy and sweet, like chocolate cream, strength slight, to the Large White (*Pieris brassicae* L.) the scent of orris root, strength very slight. Fifteen species are recorded in the table, no doubt more research needs to be done on this subject which should also include moths.

References

- Ford, E.B. 1975. *Butterflies*. New Naturalist Series, revised edition. Page 102. Fontana, Collins, London
- Lewis, K.C. 2005. Butterfly decoys. *Bulletin of the Amateur Entomologists Society*. **64**: 458 (February 2005) pp. 6-7.
- Miles, P.J.S. 1963. A method of enticing the Holly Blue (*Celastrina argiolus*) to the ground. *Bulletin of the Amateur Entomologists Society*. Pages 88-89.
- Moucha, J. 1965. *Beautiful Butterflies*. Pages 36 and 86. Artia, Spring Books, London.
- Ward, R. 1960s. British Butterflies, a collection of 50 British butterfly cards. Brooke Bond Tea Company.



The Brooke Bond tea butterfly cards mentioned by Jan.



***Volucella inanis* (Linnaeus) and *V. zonaria* (Poda) (Diptera: Syrphidae)**

by David Keen (3309)

Calle Casto Bancalero 11, 41650 El Saucejo, Sevilla, Spain

Following the article by Roger Morris and Stuart Ball about the Hoverfly Atlas 2010 in the April 2006 issue of the *Bulletin*, members may be interested to read about my records of these two striking hoverflies. *V. inanis* was a regular, if not a common, visitor to our garden in Thames Ditton, Surrey between the late 1950s until I moved away in 1966. Both males and females were to be seen each summer. I have no records for *V. zonaria* from Thames Ditton. However, I regularly travelled by rail to visit my friend Laurie Christie in his house in Streatham, South West London. On alighting from the Wimbledon train at Streatham Station, I crossed the main road and walked down a footpath by the side of the railway in the direction of his house. About half way down, the path turned to the right and there was a derelict house on the left. Its garden was badly overgrown and several enormous *Buddleia* bushes were very prominent each summer in the early 1960s. Every year these bushes would be visited by large numbers of *V. zonaria* – frequently 20 or more specimens would be seen at any one time.

My next observations of either species took place during family holidays to Bournemouth, Hampshire in the late 1970s. Each year we stayed near Alum Chine in the middle of August. *V. zonaria* was seen on umbel flowers on the zig-zag path from the beach to the cliff top road on sunny days each year.

V. inanis was also found on a regular basis in an area of Oxshott, Surrey which, as boys, we called "Oxshott Clay Pits". There were derelict buildings on the site and the old workings were flooded to a depth of 60 feet or more. Just before we moved away in 1966, a local council filled the flooded pits with household rubbish. Years later I tried to re-visit the site, only to find it was occupied by some very expensive looking houses.

On a visit to the RHS Gardens at Wisley, Surrey on 30 August 2003, I was pleased to be able to observe a female *V. inanis* sunning itself on a leaf during a brief bright interlude during a dull and often wet day.





Camouflage in the larvae of the Iron Prominent, and an interesting pupation site

by Rob Partridge (8956)

11 New Road, Mepal, Ely, Cambridgeshire.

A second-generation female Iron Prominent, *Notodonta dromedarius*, was caught in an MV trap on the first night of September 2006. Overnight, I retained it in the fridge, simply to have a closer look the next day as I only see a few of these each year, so I was pleased to find that she had laid about twenty-five attractive, pale blue-green eggs inside the plastic container. I released the adult and placed the eggs in the unheated garage.

The eggs began to hatch on the 11th of September, and the larvae gradually transferred themselves to the freshest birch leaves I could find – many trees locally already had dry, fading foliage. They grew quite slowly but by the 23rd of the month they were taking up the camouflage position on the edges of leaves.

Fully-grown, the larvae were up to one and three quarters of an inch long when fully stretched out but this was a posture that they rarely adopted. The rear section of the body was usually lifted clear of the twig of leaf-stem on which they rested, pointing up at an angle of forty five degrees – the claspers and the small hump pointing in opposite directions on the final segment further disguised the larva. Overall, the usual posture resembled a capital W without one of the end sections. The four small humps along the middle of the back closely resembled the serrations along the edge of the birch leaves on which they were feeding, and the broken, pale yellow stripe along the flanks was an exact match for the veins in the leaves, in terms of its colour and width. These October leaves were beginning to take on their autumn shades and again the larvae seemed to have anticipated this – in the later instars they were shaded a dull purplish brown below, and had a saddle of a lighter, more reddish brown on the upper surface, towards the head. The remaining green in the final stages was the bright one of fresh birch leaves but subtly mottled with equally bright, buttercup yellow; this seemed out of place until I examined the leaves carefully, and sure enough, yellow spots do develop as the leaves age. The head capsule itself was exactly the shape and size of the tiny brown buds that held next year's leaves, and speckled darker to match the bark of the twigs; seen through a low power lens, the camouflage thus created was remarkable.



This is said to be an easy species to rear but losses were regular as they grew to maturity, a few at each instar until only five were left. They were offered peat in which to pupate but, to my surprise, two chose to stitch together two leaves with silk before pupating inside. This would suggest that some at least might do so in the wild state; the cocoon would then fall from the tree with the leaves and overwinter on the ground beneath the tree. However, I can find no reference to this in my literature. There are still new things to discover about our commoner and apparently well-known moths.



Locations of *Urocerus gigas* Linnaeus

by David Keen (3309)

Calle Casto Bancalero 11, 41650 El Saucejo, Sevilla, Spain

I read the article by Keith C. Lewis in the April 2006 issue of the *Bulletin* with interest. Several of the locations he mentions were well known to me in my younger days. Frequently I cycled from my home in Thames Ditton, Surrey to Oxshott and Wisley. However, it was in my father's greenhouse in our Thames Ditton garden that I came across this wonderful insect. On 30 June 1964 I was in the greenhouse when a yellow object in a corner of the shelving caught my eye. Closer examination revealed the existence of a dead female – in more or less perfect condition. It is still in my collection and, for the record, I have just measured its length – 24mm. Naturally, I have no idea what it was doing in the greenhouse and I never saw another specimen.

Reference

Lewis Keith C., 2006. Locations of *Urocerus gigas* Linnaeus. *The Bulletin of the Amateur Entomologists' Society*, **65**: (465) 86-88.



Further notes on *Athous campyloides* (Newman 1833) = *Orthathous difformis* Boisduval and Lacordaire 1835 (in Joy.)

by Keith C. Lewis (3680)

Top Flat, 108 Park View Road, Welling, Kent, DA16 1SJ.

Introduction

J. F. Stephens writing in his *Manual of British Beetles*, 1839, records that this beetle was taken during the month of June in Ramsgate on Alder. Unfortunately, no other date is given although one would assume that it would have been taken during the first quarter of the 19th century as his manual was published in 1839. A line in his manual's reference pages, "authors quoted" is also rather vague as it only lists the capture reference as being found in the *Entomological Magazine* (Newman) i. 509 183 1-1837, 5 volumes. Stephens' description of this beetle that he gives the catalogue number 1450 1 the crucifix mark denoting that he had no British or foreign specimens in his collection was as follows:- ferruginous, eyes black, elytra faintly striate, rather convex with the hinder angles of the thorax slightly acute, length four and a half lines = 9.5-12mm for examples in my own collection. Other vice county locations, for this insect as given in Howard Mendel's *Provisional Atlas*, are Cornwall, South Hampshire, West and East Sussex, West and East Kent, South Essex, Middlesex, Cambridgeshire, Buckinghamshire, and Mid West Yorkshire. My main concern, now (2005), is that the breeding colony in my garden will become extinct due to the beetles being drowned in the birdbath and large pond, also that a large percentage of the beetles found dead were female.

Records of *Athous campyloides* are held in my collection apart from record 4*

Date	Location	Map Ref	Method	Male/Female	Recorder
00.08.1944	Cheshunt, Hertfordshire	TL2502	sweeping	male -	Allen A. A.
08.08.1972	Heathfield, East Sussex	TQ5821	unknown	male -	Charmers-Hunt M.
24.07.1988	Woolwich Common	unknown	sweeping	male	Allen A. A.
18.06.1998	Woodland Trust Farm*	TQ4476	unknown	unknown	Jones R. A.?
18.06.1997	Park View Road, garden	TQ4746	under tile	female	Lewis K. C.
18.06.1997	Park View Road, garden	TQ4746	under tile	female	Lewis K. C.
08.07.2000	Woodland Trust Farm	TQ4476	sweeping	female	Lewis K. C.
17.06.2004	Park View Road, garden	TQ4746	in birdbath	male	Lewis K. C.
17.06.2004	Park View Road, garden	TQ4474	in pond	male	Lewis K. C.



19.06.1004	Park View Road, garden	TQ4474	in birdbath	male	Lewis K. C.
20.06.2004	Park View Road, garden	TQ4474	in birdbath	male	Lewis K. C.
24.07. 2004	Park View Road, garden	TQ4474	in pond	female	Lewis K. C.
19.06. 2005	Park View Road, garden	TQ4474	in birdbath	female	Lewis K. C.
19.06. 2005	Park View Road, garden	TQ4474	in pond	male	Lewis K. C.
20.06. 2005	Park View Road, garden	TQ4746	in birdbath	male	Lewis K. C.
20.06. 2005	Park View Road, garden	TQ4746	in birdbath	female	Lewis K. C.

Please note that the last four records above show both male and female drowning on the same day; these beetles possibly emerged during the late evening to mate.

Note: Woodland Trust Farm* This record was given to me (2002) by personal communication by the then farm manager. Richard A. Jones was said to have taken this beetle but at the time of my visit and inquiry later to check the above record the provisional booklet listing the insects found by him on the farm could not be located.

References

- Lewis K. C. 2004. *Athous campyloides* (Newman) 1833 = *difformis* Boisduval and Lacordaire, 1835. Elateridae in Greater London. *Bulletin of the Amateur Entomologists' Society*. **63**: 145.
- Mendel H. 1988. *Provisional Atlas of the Click Beetles. Coleoptera. Elateroidea. of the British Isles*, Biological Records Centre.
- Stephens J. F. 1839. *Manual of British Coleoptera or Beetles*. Longmans, Orme Brown, and Longmans.





Letter from Spain – third of a series – our first summer in the sun

by David Keen (3309)

Calle Casto Bancalero 11, 41650 El Saucejo, Sevilla, Spain

After moving into our new home on 15 February 2005 we had a lot to sort out with the house, furniture, utilities, car, garden etc. not to mention the time spent showing family and friends round the house and surrounding area. With temperatures rising to at least the 80s just about every day from mid April to the end of October, very little time was available to venture into el campo (the countryside).

However, quite a few interesting insects were seen in the summer of 2005, so I hope that members will find this account to be of interest. The village of El Saucejo is approximately half way between Malaga and Sevilla and is just within the southern boundary of the Province of Sevilla. We have rolling hills all round the village and from our sun terrace we can see two mountains, the summits of which are over 1100 metres above sea level. All available land is used for olives, sunflowers, broadbeans and cereals. Wild flowers appear in February, reach their peak in mid May and have dried out and died by the end of that month – little or no rain falls here during the period from May to September inclusive.

The bedrock consists of limestone with clusters of sandstone so that from a distance the soil in one field looks white and in the next has a distinctly red hue. With all the crops being grown a fair amount of spraying takes place – from hand-held sprays attached to backpacks to clear weeds from road margins to light aircraft used to spray the olives, which cover just about every hillside. Our street is right on the southern edge of the village and is a *cul de sac* with 14 houses. We have a small rear garden with a flower bed measuring about 3.5 x 8 metres, with about the same area used as a tiled patio on which we grow other flowers in tubs. When we moved in, the whole of the back garden was covered waist high in dead weeds. Hence it took the whole of 2005 to establish flowering plants and shrubs.

The butterflies encountered will be the subject of a separate article, but we managed to see over 20 species in the garden. For the record, the first one was a large White *Pieris brassicae* on 30 March and the last species added to the list was the Red Admiral *Vanessa atalanta* on 5 November. The real highlight of the summer was seeing a Swallowtail *Papilio machaon* flitting from flower to flower on 28 September.

The commonest Skipper was the Lulworth Skipper *Thymelicus actaeon* which first appeared on 19 May and then was a regular visitor



for the next month. The Essex Skipper *T. lineola* was also seen from time to time in May and June. From the middle of September until well into November we often had one, two and even three specimens of Long-tailed Blue *Lampides boeticus* on various flowers.

With no ponds, rivers or lakes with any water in them within miles, I had not expected to see any Odonata, yet the Common Darter *Sympetrum striolatum* turned up in May and the Ruddy Darter *S. sanguineum* together with the Epaulet Skimmer *Orthetrum chrysostigma* in September. I even saw a female Scarce Blue-tailed Damselfly *Ischnura pumillo* on 3 August.

Turning to moths, on a visit to the local town of Olvera (actually in the Province of Cadiz), on 9 April, I came across two dead specimens of the Striped Hawk *Hyles lineata* on the main road and a Giant Peacock Moth *Saturnia pyri* on the pavement by an area of rough ground - on to which I placed the moth. Probably the commonest moth around here is the Four-spotted *Tyta luçuosa* which is frequently disturbed in the garden and the countryside. From Easter onwards, the Hummingbird Hawk *Macroglossum stellatarum* often visited the flowers on our *Plumbago* and *Malva* bushes - on one occasion we had three of them at once.

One of the commonest beetles seen in the early summer is the oil beetle *Meloe variegatus* - females of which have red rings round the abdomen. Some days we saw a dozen or more females walking across the roads as we drove to neighbouring towns and villages. "Walking" is not correct as, despite the weight they are actually dragging along, they do run quite quickly. The only male I saw was a dead one outside our door on 21 March. Various Scarabaeids are often found dead in the road, including the large mahogany coloured *Oryctes nasicornis* which must make quite a bang when striking a windscreen.

On 4 May, while helping to clean a friend's swimming pool, I found a dead cricket, *Scobius lusitanicus*. Members who visited the annual exhibition a few years ago may remember seeing a specimen I found in Portugal in 1996 - the one with the flap in front of the head. The one from the pool is the only one that I have so far seen in Spain. A female cricket, *Polysarcus denticaudata*, was found dead in the same pool on 5 August. This is a very large species with a fat abdomen - even in the male.

The largest Grasshopper seen in the garden is the Egyptian Grasshopper *Anacridium aegyptium*, which is very common throughout the area. The nymphs of this species are of a bright green colour but merge easily on their foodplants which include garden mint.



Arbopalus rusticus (Linnaeus 1758) in Scotland and Records of *Arbopalus tristis* (Motschulsky 1845)

by Keith C. Lewis (3680)

Top Flat, 108 Park View Road, Welling, Kent, DA16 1SJ.

Introduction

The following notes are the concluding part of the records of *Arbopalus rusticus* Linnaeus, that I have collected personally or are from records that I have been sent from other coleopterists or museums staff. I have also listed a small number of records of *Arbopalus tristis* Linnaeus at the end of this paper that were occasionally sent with *the A. rusticus* records or were found in the British Museum collection. I spent about six months in Perth and Grantown-on-Spey attached to the Black Watch regiment and would have liked to continue my search for other Scottish beetles but I was posted to the Canal Zone of Egypt for two years due to the start of the Suez crisis.

Arbopalus rusticus (L.)

Date	Location	Number	Map Ref	Captured	Determiner/ Museum
16.11.1950	Grantown-on-Spey	2*	NJ0328	Lewis K. C.	Lewis K. C.
20.11.1950	Grantown-on-Spey	1*	NJ0328	Lewis K. C.	Lewis K. C.
04.12.1950	Grantown-on-Spey	1*	NJ0328	Lewis K. C.	Lewis K. C.
10.12.1950	Grantown-on-Spey	1*	NJ0328	Lewis K. C.	Lewis K. C.
16.12.1950	Grantown-on-Spey	1	NJ0328	Lewis K. C.	Lewis K. C.
20.12.1950	Grantown-on-Spey	1*	NJ0328	Lewis K. C.	Lewis K. C.

The above beetles were found in a vast area of Scots pine that had been felled probably the previous year and had been left on the ground to rot. The records marked with an * were found dead and frozen under the bark.

Scottish Records

02.10.1991	Abernethy Forest	1	NJ0016	Sinclair Magnus	unknown
20.08.1994	South Queensferry, Lothian	2	Drambuie Co	Shaw Mark	unknown.
24.07.1966	Lock Garton Inverness-shire	1	No record	Philp Eric	unknown.
00.07.1961	Abernethy Forest Easterness	1 Cat No 2185	NJ0016	Hunter F. W.	Leicestershire Mus.



10.07.1961	Abernethy Forest Easternness	1	Cat No 2183	NJ0016	Hunter F. W.	Leicestershire Mus.
10.07.1961	Abernethy Forest Easternness	1	Cat No 2184	NJ0016	Hunter F. W.	Leicestershire Mus.
10.07.1961	Abernethy Forest Easternness	1	Cat No 2256	NJ0016	Hunter F. W.	Leicestershire Mus.
06.06.1965	Glen Taner, Aberdeenshire	1	Cat No 2528	N04693	Hunter F. W.	Leicestershire Mus.
24.07.1984	Abernethy Forest	8.	In cut pine	NJ0016	Drane T.	unknown.
00.00.1943	Abernethy Forest Lodge	1		NJ0 116	Ashe G. H.	Proctor D.
00.00.1977	Abernethy Forest	1		NJ0017	Owen J. A. Prof	Proctor D.
00.00.1977	Abernethy Forest by BB970 1		NJ0017	Lyszkowski R.	Proctod D.	
00.08.1929	Nethy Bridge	2		NJ0020	Unknown	Barnet R.
00.07.1929	Nethy Bridge	1		NJ0020	Harwood P.	Barnet R.
00.00.1929	Nethy Bridge	1		NJ0020	Harwood P.	Barnet R.
10.07.1961	Abernethy Forest	1		NJ0018	Unknown	Hunter E. A.
21.08.1968	Abernethy Forest	1		NJ0018	Unknown	Hunter E. A.
10.07.1967	Nethy Bridge	1		NJ0020	Unknown	Hunter E. A.
08.10.1978	R.S.P.B. Lock Garten	1		NH9617	Unknown	Hunter F. A.
00.07.1909	Nethy Bridge	1		NJ0020	Bishop T. G.	Brock J.
00.07.1911	Inverness-shire	4		No record	Joy & King collection	Chandler P.
21.07.1911	Inverness-shire	4		No record	Hudson Beare	Chandler P.
00.07.1919	Inverness-shire	2		No record	Bishop T. G.	Chandler P.
00.08.1929	Inverness-shire	1		No record	Harwood P.	Chandler P.
29.08.1929	Inverness-shire	1		No record	Williams B. S.	Chandler P.
12-14.07.1930	Inverness-shire	1		No record	Bedwell E. C.	Chandler P.
04.08.1961	Inverness-shire	3		No record	Massee A. M.	Chandler P.
14.08.1950	Nethy Bridge	2		NJ0020	KevanD. K.	KevanD. K.
16.08.1950	Nethy Bridge	2		NJ0020	Kevan D. K.	Kevan D. K.
27.07.1961	Aviemore, Inverness	1		NH8913	Gardiner A. B.	Unknown.

***Arbopalus tristis* (L.) British Museum Collection**

00.08.1903	New Forest Hampshire	1		No record	Sharp D. Dr	British Museum.
00.06.1904	New Forest Hampshire	1		No record	Sharp D. Dr	British Museum.
00.07.1904	New Forest Hampshire	1	larvae	No record	Sharp D. Dr.	British Museum.
18.07.1904	New Forest Hampshire	1**	see under	No record	Sharp D. Dr.	British Museum.
18.07.1904	New Forest Holmsley Inc	2		SU1717	Sharp D. Dr	British Museum.
29.08.1904	New Forest Holmsley Inc	3		SU1717	Sharp D. Dr	British Museum.
05.10.1905	New Forest Hampshire	1		No record	Sharp D. Dr.	British Museum.
00.00.1907	Nethy Bridge	1		NJ0016	Sharp D. Dr.	British Museum.
16.08.1907	Woking Surrey	1		TQ0058	Donisthorpe H.St.J	British Museum.



18.06.1908	New Forest Hampshire	1	No record	Donisthorpe H.St.J	British Museum.
27.08.1909	Woking Surrey	4	TQ0058	Champion G. C.	British Museum.
20.07.1912	Woking Surrey	1	TQ0058	Champion G. C.	British Museum.
21.07.1912	Woking Surrey	1	TQ0058	Power W. A.	British Museum.
00.00.1913	Branksome, Dorset	2	SZ0592	Ford A.	British Museum.
00.00.1913	Branksome, Dorset	9	SZ0592	Sharp D. Dr.	British Museum.
00.00.1914	Brockenhurst New Forest	1 larvae	SU3002	Willoughby-Ellis	H.British Museum.
00.00.1914	New Forest Hampshire	3	No record	Bishop T. G.	British Museum.
00.00.1914	Branksome, Dorset	15	SZ0592	Sharp D. Dr.	British Museum.
00.00.1915	Poole Dorset	3	SZ0090	Power C. J. C.	British Museum.
00.00.1916	Branksome, Dorset	2	SZ0592	Sharp D. Dr.	British Museum.
29.07.1916	Wellington College	Berkshire 1	SU8769	Donisthorpe H.St.J	British Museum.
00.06.1918	Wellington College	Berkshire I	SU8769	Ford A.	British Museum.
23.06.1919	Wellington College	Berkshire 2	SU8769	Harwood P.	British Museum.
00.07.1919	Wellington College	Berkshire 5	SU8769	Harwood P.	British Museum.
23.07.1919	Wellington College	Berkshire 1	SU8769	Tomline V. R.	British Museum.
00.08.1919	Wellington College	Berkshire 7	SU8769	Ford A.	British Museum.
00.08.1919	Near Parley	14	SZ0603	Ford A.	British Museum.
00.06.1924	Richmond	1 Pupa	TQ1873	Tottenham	British Museum.
00.08.1925	Sandbanks, Poole, Dorset	1	SZ0488	Lyle G. T.	British Museum.
27.07.1927	Guildford Surrey	1	SU9949	Goodman OR.	British Museum.
15.08.1938	Near West Stowell	1	SU14362	Andrews H. L.	British Museum.
00.00.1951	Totten, Hampshire	1	SU3613	No record	British Museum.
00.00.1950	Canterbury, Kent	1	TR1457	Parry J. A.	Unknown.
00.08.1950	Witley, Surrey	1	SU9439	Gould A. W.	Unknown.
00.00.1952	Fleet Street, London	1	No record	Wakely S.	Unknown.
22.07.1952	Millbrook, Nr Southampton	1 M.V. light	SU3813	No record	British Museum.
00.00.1953	Near Osborne, Isle of White	1	ZS5295	Wakely S.	Unknown.

Notes: 1** Larvae found by Dr David Sharp, 18. 07. 1904 later emerged 04. 07. 1908 *Arhopalus rusticus*, recorded as *Criocephalus polonicus*. Found in Windsor Forest by H. St. John Donisthorpe on young burnt pine, under pine bark, and in numbers in the roots of burnt Scots pine, May, June and July.

Larvae

Arhopalus rusticus larvae (Figure 2), dorsal and ventral views, larvae found in moribund Scots pine, March 1998. from Joydens Wood, Bexley, Kent, TQ500716, (Figure 3) Damage caused by *Arhopalus rusticus* larvae in a section of dead Scots pine. Joydens Wood, Bexley Kent, April 1996. Photographs by K. C. Lewis.

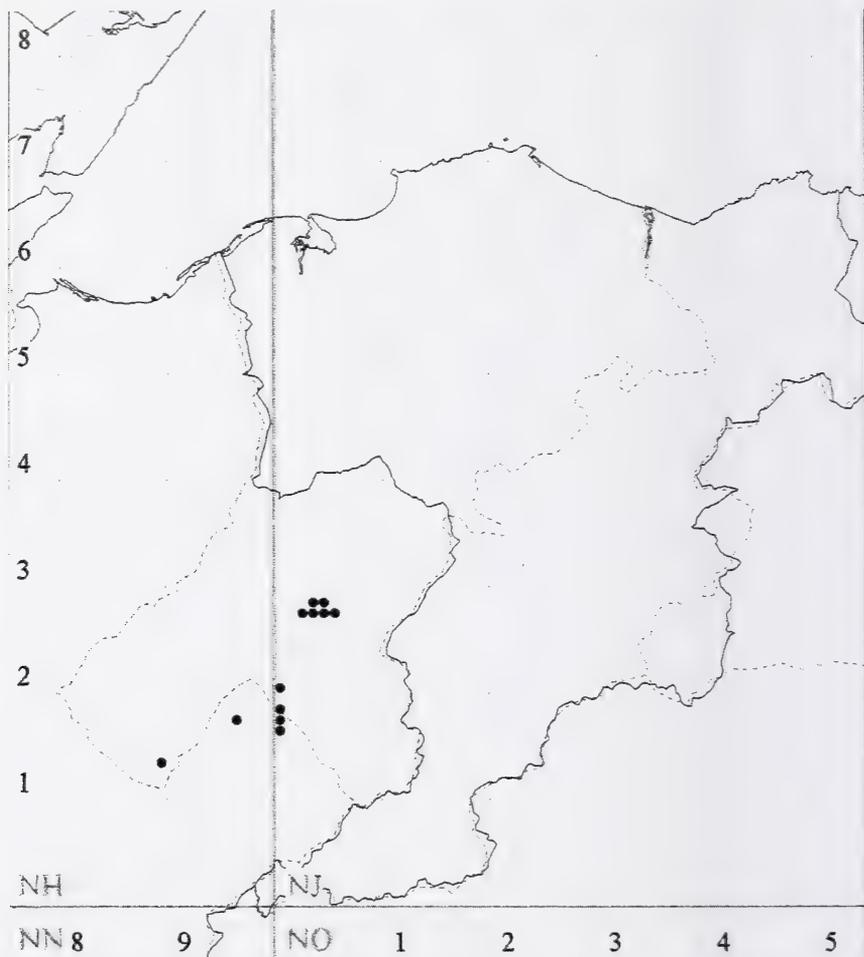


Figure 1. *Arhopalus rusticus* in Scotland V.C. 95.

Acknowledgements

I wish to thank the many coleopterists and museums for sending me their records c1997-1998.

References

- Horace St J. K. Donisthorpe (1939). *A Preliminary List of the Coleoptera of Windsor Forest*. Page 87, Nathaniel Lloyd & Co Ltd.
- Harde K. W. (1984). *A Field Guide in Colour to Beetles*. Octopus Books.

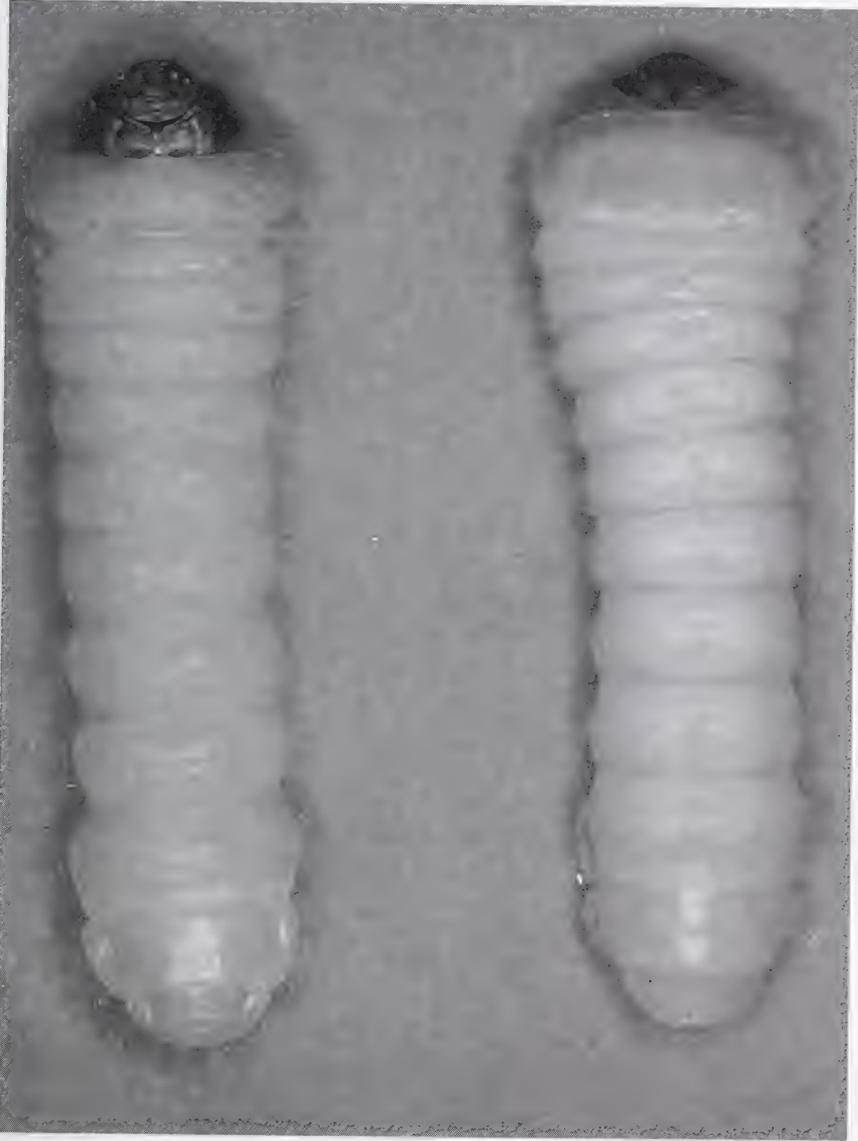


Figure 2. *Arbopalus rusticus* larvae.



Figure 3. Damage caused by *Arbopalus rusticus* larvae.

NAP new publication

Volume 1 of a collection of 3 volumes which cover most of the moths of Europe.

Author : Patrice LERAUT

Moths of Europe

Saturniids, Lasiocampids, Hawkmoths and Tiger Moths

Volume 1

Published in English

More than 1000 illustrations of moths

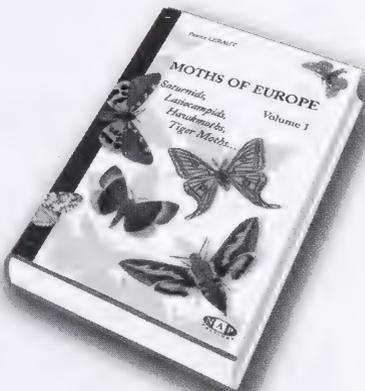
This guidebook covers around 500 moths (Lepidoptera, Heterocera) traditionally gathered under general names of Saturniids, Lasiocampids, Hawkmoths, Tiger Moths, Swifts and so on.

The great majority of the *Arctiidae*, *Sphingidae*, *Lasiocampidae*, *Saturniidae*, *Endromidae*, *Lemoniidae*, *Bombycidae*, *Drepanidae*, *Axiidae*, *Limacodidae*, *Notodontidae*, *Lymantriidae*, *Brahmaeidae*, *Castniidae*, *Heterogynidae*, *Somabrachyidae*, *Cossidae*, *Hepialidae* and *Thyrididae* of Europe and neighbouring regions are covered and illustrated.

In addition, 3 new species are described.

78 colour plates

Precise descriptions of each species with information on biology, with distribution maps. Line drawings highlighting certain characters and structure of genitalia for taxa more resistant to identification.



Hardback cover
Bound book

Format 13 x 20,5 cm
400 pages

59€

(+7 € postage for one book
+2 € by additional book)

Payment accepted by international money order, international visa card, bank transfer, cheques in euros. For more than one copy and grouped orders, contact us by email, fax, or post at the address below.

© N.A.P Editions : 3 chemin des hauts graviers - 91370 Verrieres Le Buisson - France

Tel. (+33).1.60.13.59.52 - fax (+33).1.60.13.01.33

napedit@wanadoo.fr

For further information consult <http://www.napeditions.com>

AURELIAN BOOKS

DAVID DUNBAR

Butterflies, Moths and Entomology

View stock on-line at www.booksatpbfa.com

(Click on sellers and search Aurelian Books)

- Antiquarian, out-of-print and new reference books -
- Butterflies, moths, dragonflies, beetles and other insects -
 - British Isles, Europe and rest of the World -
 - Free book finding search service -
 - Catalogues available on request -
 - Browse our stock - by prior appointment -
- Collections and good individual books and journals bought -

Phone, fax, e-mail or snail-mail for all enquiries
which are always welcome

31 LLANVANOR ROAD, LONDON NW2 2AR

(Telephone and fax) 020 8455 9612 e-mail: dgldunbar@aol.com

NEW Ecology, Phenotypes and the Mendelian Genetics of Burnet Moths by W. G. Tremewan

Describes in detail the toxic properties of burnet moths, their relationship with avian predators, their variation and what causes such variation. Many genotypes responsible for the colour morphs have been determined and whether they form part of a multiple allelomorph series or whether dominance or multifactorial inheritance is involved. xvi + 390pp including 194 figs (163 in colour). Hardback. Price £79 + p&p £6

Stratford-upon-Avon - A Flora and Fauna by John M. Price

A book demonstrating the amazing richness of species thriving in a small town. Over 3400 species listed with distribution notes and frequency. Price ~~£13~~ £6.50 + p&p £1

Butterflies on British and Irish Offshore Islands

by R. L. H. Dennis and T. G. Shreeve A synthesis of butterfly records for 219 of Britain's and Ireland's offshore islands. 144pp, softback. Price £16 £8 + p&p £1.20

The Moths and Butterflies of Cornwall and the Isles of Scilly

by F. H. N. Smith Systematic list of localities, dates and provenance for over 1500 species. 480pp including 152 colour illustrations. Hardback. Price ~~£44~~ £22 + p&p £3

HPM Volume 1 Sesiidae - Clearwing Moths

Covering 309 species of this family known in the Palaearctic region. With synonymic list, full data on male and female genitalia, bionomics and habitat, and distribution. 592pp, 487 superb colour illustrations. Hardback with jacket. Price ~~£120~~ £60 + p&p £6

GEM PUBLISHING COMPANY

Brightwood, Brightwell, Wallingford, Oxon, OX10 0QD

Payments by cheque, Visa or MasterCard.

E-mail: info@gempublishing.co.uk



Being a member of the Royal Entomological Society and the Amateur Entomologists' Society has the advantage of discount on all our publications. Discounts are only available if the subscriptions are fully up to date. Single copies only may be purchased on discount. Postage & Packing - Free to U.K. addresses, Overseas add 10%.

Preparing and maintaining a collection of Butterflies and Moths

by P. May and M. White. A practical manual detailing the various methods used to prepare specimens for a collection, from killing methods, setting the specimens and repairing damaged ones, to storage and preservation, including pest prevention and cure. 21 pages. 4 figures and 5 plates. (2006) **£4.85**
Members price **£3.65**

The Hymenopterist's Handbook by Dr. C. Betts et al.

2nd edition dealing with the history of their families, classification and structures; natural history, studying, collecting, breeding, attracting and preserving Hymenoptera. Appendices include keys to the families. 214 pages with numerous tables, keys and figures (1986) **£11.45**
Members price **£8.60**

Revised Flight Tables for the Hymenoptera

Revised flight tables for the Hymenoptera giving, wherever possible, times, location, flower visits and some indication of distribution and abundance. 24 pages (1988) **£3.10**
Members price **£2.35**

A Coleopterist's Handbook

Edited by J. Coaker & M.V.L. Barclay. The *Coleopterist's Handbook* is now available as a fully revised and expanded fourth edition. Nomenclature has been brought inline with current use, collecting/curation methods reflect best practice and plant/beetle and beetle/plant lists are included together. Recent additions to the British fauna, modern and traditional techniques are included. All advice and comment given in the book is based upon collective years of practical experience of both curatorial methods and field craft; beetle family chapters have each been written by an internationally recognised authority. **£54.00**
496 pages including 32 colour plates.
Members price **£39.00**

Host plants of British Beetles: A List of Recorded Associations

A list of a wide range of plants, in alphabetical order, together with the beetle species that have been recorded as being associated with them. 24 pages (1992) **£3.10**
Members price **£2.35**

A Silkmoth Rearer's Handbook by B.O.C. Gardner

SPECIAL OFFER PRICE £7.70

No further discounted price available

A Dipterist's Handbook by A.E. Stubbs, P.J. Chandler and others

A practical handbook for both the beginner and the initiated on collecting, breeding and studying the two-winged flies. Describes equipment, trapping, preservation, habitat, plant and animal associations and behaviour. Includes a detailed chapter on larval stages with an illustrated key to families. An essential book for the keen Dipterist. 260 pages with drawings of larvae and equipment (1978, reprinted 1996) **£14.20**
Members price **£10.60**

Practical Hints for Collecting and Studying the Microlepidoptera

by P.A. Sokoloff. A practical manual for those interested in the smallest moths, describing techniques for collecting adult moths, collecting immature stages, breeding, killing, setting and mounting. A list of useful books and journals as well as details of societies and suppliers is included. 40 pages, 11 figures (1980) **£4.20**
Members price **£3.15**

Rearing and Studying Stick and Leaf-Insects by P.D. Brock

Specifically intended for beginners, although it is also suitable for experienced Phasmid enthusiasts, it is one of the few guides to rearing that features the majority of the culture stocks available. 22 species in detail. The informative text is complemented by 8 colour plates, 14 black and white plates and 29 figures. (New edition, 2003) **£11.20**
Members price **£8.20**

The Study of Stoneflies, Mayflies and Caddisflies by T.T. Macan

A comprehensive guide to collecting and studying the biology and ecology of these aquatic insects. 44 pages, 10 figures and bibliography (1982) **£4.20**
Members price **£3.15**

Breeding the British Butterflies by P.W. Cibin

A practical handbook covering all aspects of butterfly breeding, including general techniques, equipment and hints on how to breed each of the British species. 60 pages, 6 figures, 5 plates, Revised (2001) **£5.20**
Members price **£3.85**

Practical Hints for the Field Lepidopterist by J.W. Tutt

Written at the turn of the century, this book has been reprinted because of its scarcity and value to students of Lepidoptera. It gives a complete month by month guide to which species and stages of macros and micros to look for and how to find them. Also contains a biological account of the early stages and how to keep, rear, photograph and describe them. 422 pages. Hardback. (Reprinted 1994). **£24.00**
Members price **£18.30**

An index to the modern names for use with J.W. Tutt's

Practical Hints for the Field Lepidopterist by B.O.C. Gardner

A valuable cross-reference guide between the scientific and English names used in the early 1900's and the present time. **£4.70**
Members price **£3.50**

A Guide to Moth traps and their use by R. Fry and P. Waring

The first sections deal with the measurement and properties of light leading into the types of lamp available and the electrical circuits needed to operate them. The next sections give details of the construction of the most popular traps used in the UK. The last half deals with the practical use of traps in the field including where and when to trap, limitations of traps and their relative performance. 68 pages, 21 figures, 15 plates (1996) **£6.85**
Members price **£5.05**

The Amazing World of Stick and Leaf Insects by Paul D. Brock

A superb, comprehensive guide, for all those intrigued by these groups of insects. Topics covered include structure, fascinating facts, life history and development, defence behaviour, enemies, collecting, breeding (including trouble shooting), preserving, taxonomic studies, important collections in Museums etc. around the world and elaborate stories, beliefs and poems. Also outlines the major known species around the world on a regional basis. A section on Fossils is included. Includes a comprehensive glossary of the technical terms used in the description and classification of stick and leaf insects. Hardback A5, 184 pages, 46 figures, 26 black and white plates and 40 pages of colour plates (containing 83 photographs and 4 drawings/paintings of insects and their habitats). (1999) **£18.90**
Members price **£14.10**

Rearing Parasitic Hymenoptera by M. Shaw

This booklet provides information on the parasitic Hymenoptera to enable successful studies to be made of this little understood group of the British insect fauna. Details are given on the general biology of parasitic wasps, rearing principles, efficient rearing practices and detailed methods of dealing with adult wasps. 52 pages, 4 colour plates (New edition - 2001) **£5.20**
Members price **£4.70**

Larval Foodplants of the British Butterflies by Peter May

A comprehensive compilation of the known larval foodplants of our native and immigrant butterflies. Also including "How to Encourage Butterflies to Live in Your Garden" by the late Peter Cribb 62 pages. (2003) **£7.40**
Members price **£5.45**

Glossary for the Young Lepidopterist

4 superb, comprehensive guide, for all those intrigued by these groups of insects. Topics covered include structure, fascinating facts, life history and development, defence behaviour, enemies, collecting, breeding (including trouble shooting), preserving, taxonomic studies, important collections in Museums etc. around the world and elaborate stories, beliefs and poems. Also outlines the major known species around the world on a regional basis. A section on Fossils is included. Includes a comprehensive glossary of the technical terms used in the description and classification of stick and leaf insects. Hardback A5, 184 pages, 46 figures, 26 black and white plates and 40 pages of colour plates (containing 83 photographs and 4 drawings/paintings of insects and their habitats). (1999) **£18.90**
Members price **£14.10**

A Label List of European Butterflies

9 pages, 2 figures. (1951) **£1.05**
Members price **£0.90**

A Label List of European Butterflies

20 pages. (Revised 1981) **£2.35**
Members price **£1.85**

Some British Moths Reviewed

Aid to the identification of some of the more difficult species. Reprinted from the *Amateur Entomologist* Vol. 5 (1941) and a *Guide to the Critical Species of Lepidoptera*, reprinted from *Entomologist's Gazette* 1969-72. 64 pages, 6 black and white plates, numerous figures (1985) **£4.45**
Members price **£3.35**

Butterflies of Cyprus 1998 (Records of a year's sightings) by Eddie John
Observations of the 44 species of butterfly found on the island in 1998 including notes on each species and distribution maps. 46 pages (2000) **£4.30**
Members price **£3.25**

Collecting Hel.Bugs (Hemiptera: Heteroptera)

12 pages (including 2 plates). (1946) **£1.20**
Members price **£1.00**

Collecting Clearwings

12 pages (including 2 plates), 4 figures. (1946) **£1.10**
Members price **£1.00**

Collecting Lacewings

9 pages, 5 figures, 5 plates. (2nd edition 1976) **£2.25**
Members price **£1.75**

An Amateur's Guide to the Study of the Genitalia of Lepidoptera

10 pages, 15 figures. (1973) **£3.10** Members price **£2.35**

Rearing the Hymenoptera Parasitica

16 pages, 1 plate, 10 figures. (1974) **£2.55**
Members price **£2.00**

Rearing Crickets in the Classroom

12 pages, 2 plates. (1986) (Reprinted 1993) **£2.10**
Members price **£1.65**

Guidelines for Entomological Site Surveys

Published on behalf of the JCCBL. 7 pages (2000) (Reprinted 2003) Members price **£2.35**

The Journal of the Entomological Exchange and Correspondence Club 1935-1936

An AES Jubilee Publication. Fascinating reprint of the very first volume of the AES journal. 100 pages. **£4.20**
Members price **£3.35**



All the above publications sent post free to U.K. addresses. Outside U.K. please add 10% to order value for postage by surface mail. For postage by air-mail outside Europe please add 30% to order value. Please allow 28 days delivery.

Please make all cheques/postal orders payable to 'AES Publications' and send to:

AES Publications, 1 Tower Hill, Brentwood, Essex CM14 4TA.

Telephone 01277 224610 • Fax: 01277 262815 • E-mail: aespublishings@btconnect.com

The Bulletin

of the Amateur Entomologists' Society

Volume 65 • Number 469

December 2006

CONTENTS

Editorial	225
AES Members' Day and AGM	226
John, E. Butterfly (and other) recording in Cyprus	227
Majerus, M.E.N. A pallid Painted Lady	228
Waring, P. Caterpillars of Magpie Moth <i>Abraxas grossulariata</i> (L.) abundant at the Ring of Brogar, Orkney Isles, 1st June 2005	229
Goff, R. Black form of Privet Hawk moth larvae	232
Sutton, P. G. and Browne, D. Classic Entomological Sites: Ainsdale Sand Dunes NNR ..	233
Williams, K. <i>Catocala nupta</i> at Banbury, Oxfordshire.....	238
Wilkins, P. and Jones, A. The Hummingbird Hawkmoth <i>Macroglossum stellatarum</i> (Linnaeus).....	239
Koryszko, J. An early Meadow Brown.....	240
Ferris, M. Some observations on moths in Surrey.....	241
Lewis, K. Records of <i>Arhopalus rusticus</i> Linnaeus 1758 in Hampshire, Isle of Wight, Dorset, Cornwall and Somerset. Part 5	242
Koryszko, J. Butterfly decoys and lures.....	244
Keen, D. <i>Volucella inanis</i> (Linnaeus) and <i>V. zonaria</i> (Poda) (Diptera: Syrphidae).....	246
Partridge, R. Camouflage in the larvae of the Iron Prominent, and an interesting pupation site	247
Keen, D. Locations of <i>Urocerus gigas</i> Linnaeus	248
Lewis, K. Further notes on <i>Athous campyloides</i> (Newman 1833) = <i>Orthathous difformis</i> Boisduval and Lacordaire 1835 (in Joy).	249
Keen, D. Letter from Spain – third of series – our first summer in the sun.....	251
Lewis, K. <i>Arhopalus rusticus</i> (Linnaeus 1758) in Scotland and Records of <i>Arhopalus tristis</i> (Motschulsky 1845)	253

25. 261A

THE NATIONAL
HISTORY MUSEUM
03 MAY 2007
PRESENTED
ENTOMOLOGY LIBRARY

The **Bulletin**

of the Amateur Entomologists' Society

World list abbreviation
Bull. amat. Ent. Soc.
Registered Charity No. 267430

Index to

The Bulletin of the Amateur Entomologists' Society
Vol. 65 (2006)

Edited by Dr Phil Wilkins
and Martin Hough

and to

Invertebrate Conservation News
Nos. 49, 50, 51, (2006)

Edited by Dr David Lonsdale



Index compiled by Jacqueline Ruffle

Published by
The Amateur Entomologists' Society
P.O. Box 8774, London SW7 5ZG
ISSN 0266-836X

© The Amateur Entomologists' Society
All Rights Reserved

F

Ferris, Michael

Some observations on moths in Surrey469: 241

G

Gardiner, T.

Glowin' in the rain467: 146-47

George, R.S.

Fleas on a Chilean Puda, *Puda puda* (Molinia 1782), Mammalia, Cervidae466: 1

Where are all the Welsh fleas?467: 167-69

Goff, Roy

Black forms of Privet Hawk moth larvae469: 232

H

Haggett, D.

Geographic variations.....465: 67-69

Wild about South African game farms.....465: 64-65

Hanell, Y., Majerus, M. & Hassan, S.

Inter-specific hybrid mating by female *Acraea sotikensis* due to lack of males? ...467: 162-66

Hassan, S., Majerus, M. & Hanell, Y.

Inter-specific hybrid mating by female *Acraea sotikensis* due to lack of males? ...467: 162-66

Hodge, Peter & Cole, Stuart

Beetle survey at Haumont, Tarn et Garonne, France.....468: 216-219

Hodge, Peter & May, Peter

AES Bognor field trip report.....468: 200-208

Hodges, D.

Harmonia axyridis Pallas in Hertfordshire467: 145

Holford, Nick

AES AGM and Members' Day468: 183

Collecting centipedes and millipedes467: 154-61

Data Protection Act.....464: 47-49

Exhibition reports.....466: 103-111

From the Registrar464: 47-49

Members' discount on publications468: 192-93

Some personal observations on *Prionus coriarius* (L.) (Coleoptera: Prionidae),
also called the Tanner Beetle or the Sawyer Beetle, and a summary of

current knowledge about it468: 209-215

I

ICN articles

News, Views and General Information

Biodiversity Action Plan: publication of the UK Steering Group Report...ICN 50: 7-8

Citrus Longhorn beetle; a new pest in Britain?.....ICN 49: 4

Concern about loss of biodiversity in UK residential areas.....ICN 50: 4-6

Cypermethrin sheep dips banned from sale in the UK.....ICN 50:5-7

Formation of Bumblebee Conservation Trust.....	ICN 50: 2-3
Giant earthworms in Australia and the USA	ICN 50: 3-4
Good brownfield sites: features to look for	ICN 49: 4
Landscape-scale management for butterflies.....	ICN 51: 2
Re-organisation of governmental conservation and research in the UK.....	ICN 51: 3
UK: River Invertebrate Monitoring for Anglers Initiative	ICN 51: 2
<i>Sites and species of interest</i>	
A UK BAP moth in the wild at London Zoo.....	ICN 49: 9
Adonis blue butterfly in the Cotswolds, SW England	ICN 51: 8
<i>Anisodactylus poeciloides</i> : a coastal carabid beetle in England	ICN 51: 4
Barkflies (wild booklice): new recording scheme in the UK	ICN 51: 9
British beetles: status of priority species	ICN 51: 8-9
Decline of British moths: data from the Rothamsted Survey	ICN 49: 8-9
Fisher's Estuarine moth in England	ICN 50:11-12
Gwent Wildlife Trust: insect survey.....	ICN 49: 11
Heath Fritillary butterfly in SW England: habitat management.....	ICN 51: 5
Invertebrates of dynamic sand dunes in SW Wales.....	ICN 49: 9-10
Island Marble butterfly: candidate for the US Endangered Species Act.....	ICN 50: 10-11
<i>Malacosoma americanum</i> : a parallel with the ragwort story?	ICN 50: 9-10
Marsh Fritillary: mixed fortunes in parts of England and Wales	ICN 49: 6-7
Pearl-bordered fritillary at Pamber Forest, southern England	ICN 49: 7-8
Return of wetland species to former conifer plantations in the New Forest.....	ICN 51: 5-6
The Aspen hoverfly in NE Scotland.....	ICN 51: 7
The Great Yellow bumblebee in north and west Scotland	ICN 51: 6
Thursley Common, Surrey, SE England.....	ICN 51: 4
Update on Stag beetle survey.....	ICN 50: 8-9
<i>Vertigo moulinsiana</i> and the Newbury bypass.....	ICN 51: 7
<i>Research notes</i>	
Evidence for decline in populations of pollinating insects	ICN 51: 11-12
New research on toxic effects of transgenic maize pollen.....	ICN 51: 9-11
<i>Publication reviews</i>	
Ants of Surrey.....	ICN 49: 11-12
Managing Woody Debris in Rivers and Streams	ICN 49: 12-13
<i>Past UK meetings</i>	
National Insect Week 2006	ICN 51: 11
<i>Future UK meetings</i>	
Butterfly Conservation and Atropos; National Moth Night, 23 Sept. 2006.....	ICN 50: 13
Conference for National Societies and Recording Schemes	ICN 51: 13
Epping Forest Field Centre, 16 Jul. 2006	ICN 50: 13
Riverfly partnership.....	ICN 51: 13
The 2006 Invertebrate Link Conference	ICN 50: 12-13
Wiltshire Wildlife Trust, 19 Aug. 2006.	ICN 50: 13
J	
John, Eddie	
Book review: <i>Butterflies of West Africa</i> by Torben B. Larsen	465: 93-96
Butterfly (and other) recording in Cyprus.....	469: 227

Jones, Adrian & Wilkins, Phil
Hummingbird hawkmoth *Macroglossum stellatarum* (Linnaeus)469: 239

K

Keen, David

Letter from Spain - first of a series466: 115-118
Letter from Spain - third of a series - our first summer in the sun469: 251-52
Locations of *Uroceras gigas* Linnaeus469: 248
Volucella inanis (Linnaeus) and *V. zonaria* (Poda) (Diptera: Syrphidae)469: 246

Koryszko, Jan

A most interesting observation467: 172
A very early Flounced Chestnut467: 147
An interesting colour form of Bee moth at light465: 83
An interesting hibernation and roosting site465: 54
Butterfly decoys and lures469: 244-245
In praise of *Buddleia* "Golden Glow"466: 134-135
South facing walls - profitable for larvae hunting467: 161
Staffordshire Humming-bird hawkmoths465: 81
Sugaring notes from an Edwardian naturalist468: 198-99

L

Lester, L.

Evolution of size467: 170-72

Lewis, Dafydd

Book review: *A List of Terrestrial Fauna and Flora from the Azores*,
ed. P.A.V. Borges et al.466: 136-139

Lewis, Keith C.

Arhopalus rusticus (Linnaeus 1758) in Scotland & records of *Arhopalus tristis*
(Motschulsky 1845)469: 253-58
Carabus granulatus Linnaeus 1758. Middlesex site of the late Peter Cribb's
beetles identified465: 84-85
Further notes on *Athous campyloides* (Newman 1833) = *Orthathous difformis*
Biosduval & Lacordaire 1835 (in Joy)469: 249-50
Locations of *Uroceras gigas* Linnaeus. Hymenoptera, Siricidae, *Sirex gigas* in
old literature. The Great Horntail Woodwasp465: 86-88
Records of *Arhopalus rusticus* Linnaeus 1758 in the British & other museums,
also records for East & West Sussex - Part 4467: 178-81
Records of *Arhopalus rusticus* Linnaeus 1758 in Hampshire, Isle of Wight,
Dorset, Cornwall & Somerset - Part 5469: 242-43

Lonsdale, David

Book review: *Ants of Surrey* by John Pontin465: 96-98

M

Majerus, Michael E.N.

Pallid Painted Lady469: 228

Majerus, Mike; Hassan, S. & Hanell, Y.

Inter-specific hybrid mating by female *Acraea sotikensis* due to lack of males? ...467: 162-66
York Exhibition 2006466: 100-2

Mann, Darren	
Dung beetles and cockroaches in Borneo	468: 186-87
May, Peter	
Treasurer's Report for the year ending 31st December 2005	467: 143
Wants and Exchange table at the Exhibition	467: 141-42
Book review: <i>The Living Tropical Greenhouse - Creating a Haven for Butterflies</i> by John & Maureen Tampion.....	468: 222-223
Book review: <i>The Butterflies of Yorkshire</i> , ed. Howard M. Frost	468: 223-224
May, Peter & Hodge, Peter	
AES Bognor field trip report.....	468: 200-208
McCann, Frank	
Chamomile plants	468: 197
McDermott, D.	
Preservation of endangered butterfly species	465: 52-54
McKellar, J.	
HBRG website (Highlands Biological Recording Group)	465: 66
Morris, R.K.A. & Ball, S.G.	
Hoverfly atlas 2010	465: 70-75

P

Parker, R.	
Field meeting in Suffolk - 27th August 2005	
Mauritius and its butterflies.....	465: 82-83
Mauritius and its butterflies.....	465: 76-81
Partridge, Rob	
Camouflage in the larvae of the Iron Prominent, & an interesting pupation site.	469: 247-48

S

Simpson, M.	
AES/RES York Exhibition.....	464: 4
Butterfly bonanza in 2006	468: 194-97
Steele, R.	
Roadtrip 2004	467: 173-78
Diary notes: Bushy Park, Middlesex (1999-2005)	464: 37-46
The history of entomological recording in Bushy Park, Middlesex: a personal perspective.....	464: 5-9
Sutton, P.G., Baldock, D. & Denton, J.	
The larger Brachycera and Conopidae of Bushy Park, Middlesex	464: 10-17
Sutton, P.G. & Browne, D.	
Ainsdale Sand Dunes NNR	469: 233-38

V

Vickery, Patrick	
The entomologist Blether.....	468: 220-221

W

Ware, Remy L.

The Harlequin Ladybird: an update on Britain's newest invasive species468: 183-84

Waring, Paul

Caterpillars of Magpie Moth *Abraxas grossulariata* (L.)

abundant at the Ring of Brogar, Orkney Isles, 1st June 2005469: 229-231

Moths recorded 30 April - 3 May 2004, Langenfeld suburbs,

Dusseldorf, Germany465: 89-90

On digging for moth pupae, as featured on BBC Radio 4, 20 February 2006...466: 112-114

Testing the new "Moonlander" design of light-trap466: 120-123

Wilkins, Phil

Book review: *Bumblebees* (New Naturalist Series) by Ted Benton465: 92-93

Wilkins, Phil & Jones, Adrian

Hummingbird hawkmoth *Macroglossum stellatarum* (Linnaeus)469: 239

Williams, K.F.

Catocala nupta at Banbury, Oxfordshire469: 238

Z

Zompro, Oliver

Book review: *Phasmida species File: catalogue of Stick and Leaf Insects of the World*

by D. Otte & P.D. Brock.....466: 136-37

SUBJECT INDEX

Issue / Pages

AES

AES AGM and Members' Day	468: 183
Back issues of the Bulletin.....	468: 193
The business of the AGM, commencing at 12.00 noon	468: 187-91
Conservation Report for 2005.....	468: 189-90
Corrections to AES Bulletin Vol. 65 No. 467, Aug. 2006	468: 199
Data Protection Act.....	464: 47-49
Election of Council Members 2006-9	468: 191
Members' discount on publications	468: 192-93

Afro-Tropical region

Wild about South African game farms.....	465: 64-65
--	------------

Agriculture

Cypermethrin sheep dips banned from sale in the UK.....	ICN 50: 5-7
New research on toxic effects of transgenic maize pollen.....	ICN 51: 9-11

Aquatic insects

Managing woody debris in rivers and streams	ICN 49: 12-13
Return of wetland species to former conifer plantations in the New Forest, SE England	ICN 51: 5-6
UK: River invertebrate monitoring for anglers initiative	ICN 51: 2

Australia

Old notes: Australian insects.....	465: 55-63
Old notes: Australian insects	466: 124-133
Testing the new "Moonlander" design of light-trap	466: 120-123
Giant earthworms in Australia and the USA.....	ICN 50: 3-4

Bees *see*: Hymenoptera

Behaviour

A most interesting observation	467: 172
Butterfly decoys and lures	469: 244-245
Camouflage in the larvae of the Iron Prominent, & an interesting pupation site	469: 247-48
Glowin' in the rain.....	467: 146-47
Inter-specific hybrid mating by female <i>Acraea sotikensis</i> due to lack of males?.....	467: 162-166

Biodiversity

Biodiversity Action Plan: publication of the UK Steering Group Report.....	ICN 50: 7-8
Concern about loss of biodiversity in UK residential areas	ICN 50: 4-5
Evidence for decline in populations of pollinating insects	ICN 51: 11-12

Blattaria
Dung beetles and cockroaches in Borneo468: 186-87

Bolivia
Beetles in Bolivia468: 184-86

Book reviews

Book Author/Title
Benton, Ted/Bumblebees [New Naturalist Series]465: 92-93
Borges, P.A.V. et al./A list of terrestrial fauna (Mollusca and Arthropoda) and flora
(Bryophyta, Pteridophyta and Spermatophyta) from the Azores466: 137-139
Frost, Howard M. (Ed.)/The butterflies of Yorkshire.....468: 223-24
Larsen, Torben B/Butterflies of West Africa465: 93-96
Mott, Nick/Managing woody debris in rivers and streamsICN 49: 12-13
Otte, D. and Brock, P.D./Phasmida species file: Catalogue of stick and leaf insects of
the world466: 136-137
Pontin, John/Ants of SurreyICN 49: 11-12
Pontin, John/Ants of Surrey465: 96-98
Tampion, John & Tampion, Maureen/The living tropical greenhouse: Creating a haven
for butterflies468: 222-223

Borneo
Dung beetles and cockroaches in Borneo468: 186-87

Brachycera see: Diptera

Brownfield sites
Good brownfield sites: Features to look for.....ICN 49: 4

Cimbicidae see: Hymenoptera

Classic Entomological Sites
Ainsdale Sand Dunes NNR469: 233-38

Cockroaches see: Blattaria

Coleoptera

Arhopalus rusticus (Linnaeus 1758) in Scotland & records of
Arhopalus tristis (Motschulsky 1845)469: 253-58
Beetle Survey at Tarn et Garonne, France468: 216-219
Beetles in Bolivia468: 184-86
British beetles: status of priority species.....ICN 51: 8-9
Carabus granulatus Linnaeus 1758. Middlesex site of the late Peter Cribb's
beetles identified465: 84-85
Citrus Longhorn beetle: a new pest in Britain?ICN 49: 4-5
Dung beetles and cockroaches in Borneo468: 186-87

Further notes on <i>Athous campyloides</i> (Newman 1833) = <i>Orthathous difformis</i> Biosduval & Lacordaire 1835 (in Joy).....	469: 249-50
Glowin' in the rain.....	467: 146-47
Harlequin Ladybird: an update on Britain's newest invasive species.....	468: 183-84
<i>Harmonia axyridis</i> Pallas in Hertfordshire.....	467: 145
Locations of <i>Uroceras gigas</i> Linnaeus. Hymenoptera, Siricidae., <i>Strex gigas</i> in old literature. The Great Horntail Woodwasp	465: 86-88
Locations of <i>Uroceras gigas</i> Linnaeus.....	469: 248
Records of <i>Arbopalus rusticus</i> Linnaeus 1758 in the British & other museums, also records for East & West Sussex - Part 4.....	467: 178-81
Records of <i>Arbopalus rusticus</i> Linnaeus 1758 in Hampshire, Isle of Wight, Dorset, Cornwall & Somerset - Part 5	469: 242-43
Saproxylic Coleoptera of Bushy Park, Middlesex.....	464: 18-28
Some personal observations on <i>Prionus coriarius</i> (L.) (Coleoptera: Prionidae), also called the Tanner Beetle or the Sawyer Beetle, and a summary of current information about it.....	468: 209-215

Conopidae see: Diptera

Conservation

Evidence for decline in populations of pollinating insects	ICN 51: 11-12
Formation of Bumblebee Conservation Trust	ICN 50: 2-3
Preservation of endangered butterfly species	465: 52-54
Re-organisation of governmental conservation and research in the UK	ICN 51: 3

Cyprus

Butterfly (and other) recording in Cyprus.....	469: 227
--	----------

Diptera

A most interesting observation	467: 172
Aspen hoverfly in NE Scotland	ICN 51: 7
Hoverfly atlas 2010	465: 70-75
Larger Brachycera and Conopidae of Bushy Park, Middlesex.....	464: 10-17
<i>Volucella inanis</i> (Linnaeus) and <i>V. zonaria</i> (Poda) (Diptera: Syrphidae)	469: 246

England

AES Bognor field trip report.....	468: 200-208
An early Meadow Brown.....	469: 240
Additions to the list of aculeate Hymenoptera for Bushy Park, Middlesex	464: 29-36
Adonis blue butterfly in the Cotswolds, SW England.....	ICN 51: 8
Ainsdale Sand Dunes NNR.....	469:233-38
<i>Carabus granulatus</i> Linnaeus 1758. Middlesex site of the late Peter Cribb's beetles identified	465: 84-85
<i>Catocala nupta</i> at Banbury, Oxfordshire	469: 238
<i>Cimbex connatus</i> (Shrank) (Hymenoptera: Cimbicidae) in North Hampshire	465: 69
Diary notes: Bushy Park, Middlesex (1999-2005)	464: 37-46
Field meeting in Suffolk - 27th August 2005	465: 82-83

Heath Fritillary butterfly in SW England: habitat management	ICN 51: 5
History of entomological recording in Bushy Park, Middlesex: a personal perspective.....	464: 5-9
Larger Brachycera and Conopidae of Bushy Park, Middlesex.....	464: 10-17
Return of wetland species to former conifer plantations in the New Forest, SE England.....	ICN 51: 5-6
Roadtrip 2004.....	467: 173-78
Saproxylic Coleoptera of Bushy Park, Middlesex.....	464: 18-28
Some observations of moths in Surrey	469: 241
Staffordshire Humming-bird Hawkmoths.....	465: 81
The Hummingbird Hawkmoth <i>Macroglossum stellatarum</i> (Linnaeus).....	469: 239-240
Thursley Common, Surrey, SE England.....	ICN 51: 4
<i>Vertigo moulinsiana</i> and the Newbury bypass	ICN 51: 7-8

Entomologists

The Entomologist Blether.....	468: 220-221
-------------------------------	--------------

Equipment

Collecting centipedes and millipedes.....	467: 154-161
Geographic variations.....	465: 67-69
Testing the new "Moonlander" design of light-trap	466: 120-123

Evolution

Evolution of size	467: 170-72
-------------------------	-------------

Fieldtrips

AES Bognor field trip report.....	468: 200-208
Field meeting in Suffolk - 27th August 2005	465: 82-83

Fleas see: Siphonaptera

Foodplants

Chamomile plants.....	468: 197
-----------------------	----------

France

Beetle survey at Haumont, Tarn et Garonne, France.....	468: 216-219
--	--------------

Gardening

In praise of <i>Buddleia</i> "Golden Glow".....	466: 134-135
---	--------------

Genetic modification

New research on toxic effects of transgenic maize pollen.....	ICN 51: 9-11
---	--------------

Germany

Moths recorded 30 April - 3 May 2004, Langenfeld suburbs, Dusseldorf, Germany	465: 89-90
--	------------

GM see: Genetic modification

Habitats

Ainsdale Sand Dunes NNR	469: 233-38
Good brownfield sites: features to look for.....	ICN 49: 4
Landscape-scale management for butterflies	ICN 51: 2
Heath Fritillary butterfly in SW England: habitat management	ICN 51: 5
Invertebrates of dynamic sand dunes in SW Wales.....	ICN 49: 9-10
Managing woody debris in rivers and streams	ICN 49: 12-13
Return of wetland species to former conifer plantations in the New Forest, SE England	ICN 51: 5-6

Hoverflies *see*: Diptera

Hymenoptera

Additions to the list of aculeate Hymenoptera for Bushy Park, Middlesex	464: 29-36
<i>Cimbex connatus</i> (Shrank) (Hymenoptera: Cimbicidae) in North Hampshire	465: 69
Formation of Bumblebee Conservation Trust	ICN 50: 2-3
Great Yellow bumblebee in north and west Scotland.....	ICN 51: 6
Locations of <i>Urocerus gigas</i> Linnaeus. Hymenoptera, Siricidae, <i>Sirex gigas</i> in old literature. The Great Horntail Woodwasp	465: 86-88
Locations of <i>Urocerus gigas</i> Linnaeus.....	469: 248
Old notes: A tool-using wasp and other insects in Indian Sal Forest	467: 148-53

ICN:

News, views & general information

Biodiversity Action Plan: publication of the UK Steering Group Report.....	ICN 50: 7-8
Concern about loss of biodiversity in UK residential areas	ICN 50: 4-5
Cypermethrin sheep dips banned from sale in the UK.....	ICN 50: 5-7
Formation of Bumblebee Conservation Trust	ICN 50: 2-3
Giant earthworms in Australia and the USA.....	ICN 50: 3-4

India

Old notes: A tool-using wasp and other insects in Indian Sal Forest	467: 148-53
---	-------------

Invertebrates [other than insects]

Collecting centipedes and millipedes.....	467: 154-161
Giant earthworms in Australia and the USA.....	ICN 50: 3-4
Invertebrates of dynamic sand dunes in SW Wales.....	ICN 49: 9-10
UK: River invertebrate monitoring for anglers initiative	ICN 51: 2
<i>Vertigo moulinsiana</i> and the Newbury bypass	ICN 51: 7-8

Immature stages

Black forms of Privet Hawk moth larvae	469: 232
Caterpillars of Magpie Moth <i>Abraxas grossulariata</i> (L.) abundant at the Ring of Brogar, Orkney Isles, 1st June 2005	469: 229-231
On digging for moth pupae, as featured on BBC Radio 4, 20 February 2006.....	466: 112-114
South-facing walls - profitable for larvae hunting.....	467: 161

Jersey

A few notes of items of interest from a week's holiday in Jersey, August 2005	465: 91
---	---------

Legislation

Cypermethrin sheep dips banned from sale in the UK.....ICN 50: 5-7

Lepidoptera

Adonis blue butterfly in the Cotswolds, SW England.....	ICN 51: 8
An early Meadow Brown.....	469: 240
A very early Flounced Chestnut.....	467: 147
Black forms of Privet Hawk moth larvae.....	469: 232
Butterfly (and other) recording in Cyprus.....	469: 227
Butterfly bonanza in 2006.....	468: 194-97
Butterfly decoys and lures.....	469: 244-245
Caterpillars of Magpie Moth <i>Abraxas grossulariata</i> (L.) abundant at the Ring of Brogar, Orkney Isles, 1st June 2005.....	469: 229-231
<i>Catocala nupta</i> at Banbury, Oxfordshire.....	469: 238
Decline of British moths: data from the Rothamsted Survey.....	ICN 49: 8-9
Heath Fritillary butterfly in SW England: habitat management.....	ICN 51: 5
Interesting colour form of Bee moth at light.....	465: 83
Interesting hibernation and roosting site.....	465: 54
Inter-specific hybrid mating by female <i>Acraea sotikensis</i> due to lack of males.....	467: 162-166
Landscape-scale management for butterflies.....	ICN 51: 2
The Hummingbird Hawkmoth <i>Macroglossum stellatarum</i> (Linnaeus).....	469: 239-240
Marsh Fritillary: mixed fortunes in parts of England and Wales.....	ICN 49: 6-7
Mauritius and its butterflies.....	465: 76-81
Moths recorded 30 April - 3 May 2004, Langenfeld suburbs, Dusseldorf, Germany.....	465: 89-90
On digging for moth pupae, as featured on BBC Radio 4, 20 February 2006.....	466: 112-114
Pallid Painted Lady.....	469: 228
Preservation of endangered butterfly species.....	465: 52-54
Roadtrip 2004.....	467: 173-78
Small Pearl-bordered Fritillary at Pamber Forest, southern England.....	ICN: 49: 7-8
Some observations of moths in Surrey.....	469: 241
South-facing walls - profitable for larvae hunting.....	467: 161
Staffordshire Humming-bird Hawkmoths.....	465: 81
UK BAP moth in the wild at London Zoo.....	ICN: 49: 9

Mauritius

Mauritius and its butterflies.....465: 76-81

Methodology

Geographic variations.....	465: 67-69
Sugaring notes from an Edwardian naturalist.....	468: 198-99

Migration

The Hummingbird Hawkmoth *Macroglossum stellatarum* (Linnaeus).....469: 239-240

Orthoptera

Dung beetles and cockroaches in Borneo468: 186-87

Physiology

Evolution of size467: 170-72

Pollination

Evidence for decline in populations of pollinating insectsICN 51: 11-12

Psocoptera

Bark flies (wild booklice): new recording scheme in the UK.....ICN 51: 9

Recording schemes

Bark flies (wild booklice): new recording scheme in the UK.....ICN 51: 9

Decline of British moths: data from the Rothamsted Survey.....ICN 49: 8-9

Gwent Wildlife Trust: Insect survey.....ICN 49: 11

HBRG website (Highland Biological Recording Group).....465: 66

Hoverfly atlas 2010465: 70-75

Research

Re-organisation of governmental conservation and research in the UKICN 51: 3

Research notes

Evidence for decline in populations of pollinating insectsICN 51: 11-12

New research on toxic effects of transgenic maize pollen.....ICN 51: 9-11

Inter-specific hybrid mating by female *Acraea sotikensis* due to
lack of males?.....467: 162-166

Scotland

Arhopalus rusticus (Linnaeus 1758) in Scotland & records of *Arhopalus tristis*

(Motschulsky 1845)469: 253-58

Aspen hoverfly in NE ScotlandICN 51: 7

Caterpillars of Magpie Moth *Abraxas grossulariata* (L.) abundant at the Ring of Brogar,
Orkney Isles, 1st June 2005469: 229-231

Great Yellow bumblebee in north and west ScotlandICN 51: 6

HBRG website (Highland Biological Recording Group).....465: 66

Siphonaptera

Fleas on a Chilean Puda, *Puda puda* (Molina 1782), Mammalia, Cervidae466: 119

Where are all the Welsh fleas?467: 167-69

Siricidae *see*: Hymenoptera

South Africa

Wild about South African game farms.....465: 64-65

Spain

- Letter from Spain - first of a series466: 115-118
Letter from Spain - third of a series - our first summer in the sun469: 251-52

Syrphidae *see*: Diptera

Sites and species of interest

- Adonis blue butterfly in the Cotswolds, SW England.....ICN 51: 8
Anisodactylus poeciloides: a coastal carabid beetle in England.....ICN 51: 4
Aspen hoverfly in NE ScotlandICN 51: 7
Decline of British moths: data from the Rothamsted Survey.....ICN 49: 8-9
Euschloe ansonides insularisICN 50: 10-11
Fisher's estuarine moth in England.....ICN 50: 11-12
Great Yellow bumblebee in north and west Scotland.....ICN 51: 6
Gwent Wildlife Trust: Insect survey.....ICN 49: 11
Heath Fritillary butterfly in SW England: habitat managementICN 51: 5
Invertebrates of dynamic sand dunes in SW Wales.....ICN 49: 9-10
Island Marble butterfly: candidate for the US Endangered Species ActICN 50: 10-11
Malacosoma americanum: a parallel with the ragwort story?ICN 50 : 9-10
Marsh Fritillary: mixed fortunes in parts of England and Wales.....ICN 49: 6-7
Return of wetland species to former conifer plantations in the New Forest,
SE EnglandICN 51: 5-6
Small Pearl-bordered Fritillary at Pamber Forest, southern England.....ICN: 49: 7-8
Thursley Common, Surrey, SE England.....ICN 51: 4
UK BAP moth in the wild at London ZooICN: 49: 9
Update on Stag beetle survey.....ICN 50 : 8-9

United Kingdom *see also*: England, Jersey, Scotland & Wales

- Re-organisation of governmental conservation and research in the UKICN 51: 3

USA

- Giant earthworms in Australia and the USA.....ICN 50: 3-4

Variations

- Black forms of Privet Hawk moth larvae469: 232
Interesting colour form of Bee moth at light.....465: 83
Pallid Painted Lady469: 228

Wales

- Gwent Wildlife Trust: Insect survey.....ICN 49: 11
Invertebrates of dynamic sand dunes in SW WalesICN 49: 9-10

Wasps *see*: Hymenoptera

INDEX TO SCIENTIFIC NAMES:

This index only includes organisms named prominently in the titles/articles.

(B) = Botanical name

Organism	Issue: pages / illustrations
<i>Abraxas grossulariata</i> (L.)	469: 229-231
<i>Acantholophus spinosus</i>	465: Plate 4
<i>Acraea sotikensis</i>	467: 162-66
<i>Agionome spinicollis</i>	465: Plate 4
<i>Agrilus biguttatus</i>	464: Plate 6
<i>Agrochola belvola</i>	467: 147
<i>Amphimallon solstitialis</i>	464: Plate 5
<i>Ampulex compressa</i>	467: 149-50
<i>Andrena cineraria</i>	464: Plate 2
<i>Andrena fulva</i>	464: Plate 2
<i>Anisodactylus poeciloides</i>	ICN 51: 4
<i>Anoplophora chinensis</i>	ICN 49: 4-5
<i>Anoplophora glabripennis</i>	ICN 49: 4-5
<i>Aphomia sociella</i>	465: 83
<i>Archaeopsylla E. erinacei</i>	466: 119
<i>Argema mimosa</i>	465: Plate 5
<i>Argiope bruennichi</i>	468: 202, 203 [Araneae: Araneidae]
<i>Argynnis aglaia</i>	469: Plate 3
<i>Arbopalus rusticus</i>	467: 178-81; 469: 242-43; 469: 253-58
<i>Arbopalus tristis</i>	469: 253-58
<i>Athous campyloides</i>	469: 249-50
<i>Austropotamobius pallipes</i>	ICN 50: 5-6
<i>Blepharotes coriarius</i>	465: Plate 4
<i>Boloria selene</i>	ICN 49: 7-8
<i>Bombus distinguendus</i>	ICN 51: 6
<i>Bombylius major</i>	464: Plate 2
<i>Calopteryx splendens</i>	464: Plate 1
<i>Carabus granulatus</i>	465: 84-85
<i>Catocala nupta</i>	469: 238
<i>Cerura vinula</i>	469: Plate 3
<i>Charaxes guderiana</i>	465: Plate 1
<i>Chauliognathus lugubris</i>	465: Plate 4
<i>Chloromyia formosa</i>	464: Plate 2
<i>Chorthippus albomarginatus</i>	464: Plate 3
<i>Chorthippus brunneus</i>	464: Plate 3
<i>Chrysolophus spectabilis</i>	465: Plate 4

<i>Chrysops caecutiens</i>	464: Plate 2
<i>Chrysotoxum bicinctum</i>	465: 72
<i>Cicindela hybrida</i>	469: Plate 3
<i>Cimbex connatus</i>	465: 69
<i>Colydiium elongatum</i>	464: Plate 7
<i>Conocephalus discolor</i>	468: 203-04, 208
<i>Conops quadrijasciata</i>	464: Plate 4
<i>Creophbilus erythrocephalus</i>	465: Plate 4
<i>Cryphia algae</i>	469: 241
<i>Cycones undatus</i>	464: Plate 7
<i>Cyntbia cardui ab. pallida</i>	469: 228
<i>Cyria imperialis</i>	465: Plate 4
<i>Denticollis linearis</i>	464: Plate 6
<i>Dioctria rufipes</i>	464: Plate 2
<i>Doratifera vulnerans</i>	465: Plate 3
<i>Driloleirus maceffreshi</i>	ICN 50: 3-4
<i>Dydineis lunicornis</i>	468: 203, 207
<i>Elater ferrugineus</i>	464: Plate 6
<i>Epilachna argus</i>	464: Plate 4
<i>Euchloe ausonides insulanus</i>	ICN 50: 10-11
<i>Eumenes pyriformis</i>	467: Plate 10
<i>Euphydryas aurinia</i>	ICN 49: 6-7
<i>Euplagia quadripunctaria</i>	469: 241
<i>Gortyna borelii</i>	ICN 50: 11-12
<i>Hammerschmidtia ferruginea</i>	ICN 51: 7
<i>Harmonia axyridis</i>	467: 145; 468: 183-84
<i>Hedychridium coriaceum</i>	464: 29, Plate 4
<i>Hedychrum niemelai</i>	464: 29-30
<i>Helaeus tuberculatus</i>	465: Plate 4
<i>Hesthesis ferruginea</i>	465: Plate 4
<i>Hoplia philantbus</i>	464: Plate 5
<i>Hyperna rostralis</i>	ICN 49: 9
<i>Hyperion schroeteri</i>	465: Plate 4
<i>Iolaus sidus</i>	465: Plate 2
<i>Ischnura elegans</i>	464: Plate 4
<i>Lampyrus noctiluca</i>	467: 164-47
<i>Lasius flavus</i>	464: Plate 2
<i>Lophostephus dumolimi</i>	465: Plate 6

<i>Lucanus cervus</i>	ICN 50: 8-9; 464: Plate 5
<i>Lymexylon navale</i>	464: Plate 6
<i>Lysandra bellargus</i>	ICN 51: 8
<i>Macroglossum stellatarum</i>	465: 81; 69: 239-240
<i>Malacosoma americanum</i> (B)	ICN 50: 9-10
<i>Malthodes frontalis</i>	464: Plate 7
<i>Maniola jurtina</i>	269: 240
<i>Mateleye fragilis</i>	ICN 51: 7-8
<i>Mellicta athalia</i>	ICN 51: 5
<i>Melolontha melolontha</i>	464: Plate 5
<i>Myathropa florea</i>	465: 71
<i>Nomada latbburiana</i>	464: Plate 2
<i>Notodonta dromedarius</i>	469: 247-48
<i>Nysisius senecionis</i>	468: 203
<i>Orthobous difformis</i>	469: 249-50
<i>Oxybelus uniglumis</i>	464: 42
<i>Oxystoma cerdo</i>	468: 202, 204
<i>Pamborus alternans</i>	465: Plate 4
<i>Phyllobrotica quadrimaculata</i>	464: Plate 4
<i>Porrostoma rhipidium</i>	465: Plate 4
<i>Prionus coriarius</i>	468: 209-215
<i>Psillogramma menophron</i>	465: Plate 3
<i>Pterobelaenus planus</i>	465: Plate 4
<i>Puda puda</i>	466: 119 [Mammalia: Cervidae]
<i>Quedius truncicola</i>	464: Plate 6
<i>Ranatra linarius</i>	464: Plate 4
<i>Reduvius personatus</i>	464: Plates 6, 8
<i>Rhantus suturellus</i>	ICN 51: 7-8
<i>Ringia campestris</i>	465: 74
<i>Rhyssonotus nebulosus</i>	465: Plate 4
<i>Salmo salar</i>	ICN 50: 5-6 [Pisces: Salmonidae]
<i>Sirex gigas</i>	465: 86-87
<i>Spaerophoria scripta</i>	465: 73
<i>Specodes</i> sp.	464: Plate 2
<i>Sphinx ligustri</i>	469: 232
<i>Stenobothrus lineatus</i>	464: Plate 3
<i>Stilbum cyaneum</i>	467: Plate 10

