



**Lepidoptera Conservation Bulletin  
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## 1. Introduction

In 2007 we produced what we thought would be the last Lepidoptera Conservation Bulletin. However, after a single year's break, in which we produced the *Conservation Review: 2000 - 2008*, we are pleased to be able to present Lepidoptera Conservation Bulletin Number 9. The format is broadly similar to previous editions covering work from the previous year, although there are a few minor changes, for example Landscape Projects, which formerly had their own section, are now incorporated within the updates from Scotland, Wales, Northern Ireland and the English regions.

There have been some significant developments in recent years. 2007 saw the revision of the UK Biodiversity Action Plan (BAP), with several species being downgraded, but many more added as Priority species. This includes a group Butterfly Conservation designated as "Research only" moths and butterflies, the majority of these being widespread and common, but rapidly declining species. Although these species are not covered here, efforts are underway to encourage researchers to look into the underlying factors influencing the broader declines, one current example being the study with WildCru, Oxford University, on moths in the farmland environment. The Bulletin concentrates on a broad selection of the more highly threatened species, including several that were added during the 2007 BAP revision. This demonstrates that we are actively developing new initiatives for many of these species, often incorporated within wider landscape scale projects in conjunction with our partners in other organisations.

Another major development has been the establishment of the Moths Count project, primarily funded by the Heritage Lottery Fund, incorporating the National Moth Recording Scheme. Many training and public events have now taken place, several conferences held and newsletters produced over the last two years. These efforts will continue in 2009/10 and work is now also underway on a Critical Species Guide and, excitingly, distribution maps are beginning to be produced, although coverage is not yet complete. For further information on the Moths Count project please see [www.mothscount.org](http://www.mothscount.org). The Moths Count website also includes an up to date list of County Moth Recorders.

Although 2007 & 2008 may be broadly described as difficult years for recording there have again been many significant publications, which are reflected in the Bibliography. Some of you may be aware of the recently published *The Climatic Risk Atlas of European Butterflies*, this makes fascinating reading and is available to view online in its entirety. Two other publications worth highlighting here are the *Concise guide to the moths of Great Britain and Ireland* and *British Moths and Butterflies, A Photographic Guide*, both volumes that will surely popularise moths further.

The above are just a few of the many projects and topics covered by this Bulletin, for additional information please see our website [www.butterfly-conservation.org](http://www.butterfly-conservation.org). We hope you agree that the Bulletin is an invaluable opportunity to provide feedback on a wide range of projects and we hope you find it of interest. If you have any comments on this Bulletin we would of course be pleased to hear from you. **In order to judge the value of this Bulletin we would like to hear from you; if you feel this annual update should be continued please email [lepconsbulletin@butterfly-conservation.org](mailto:lepconsbulletin@butterfly-conservation.org).**

**In the future this Bulletin will only be distributed electronically, please provide us with an up-to date email address (contact details below). Paper copies will be sent on request only (email [lepconsbulletin@butterfly-conservation.org](mailto:lepconsbulletin@butterfly-conservation.org) or telephone 01929 400209).**

Finally, another Early Day Motion has been put down in the House of Commons, by Bob Russell MP. Over 85 Members of Parliament have signed the Early Day Motion which registers their alarm at the decline in butterfly numbers and says thank you to all the volunteers who participate in the UK Butterfly Monitoring Scheme.

Mark Parsons, *Head of Moth Conservation* ([mparsons@butterfly-conservation.org](mailto:mparsons@butterfly-conservation.org)), Dr. Nigel Bourn, *Director of Species Conservation* ([nbourn@butterfly-conservation.org](mailto:nbourn@butterfly-conservation.org)) & Richard Fox *Moths Count Project Manager/Surveys Manager* ([rfox@butterfly-conservation.org](mailto:rfox@butterfly-conservation.org)). Butterfly Conservation, Manor Yard, East Lulworth, Wareham, Dorset BH20 5QP.

## 2. Acknowledgements

Butterfly Conservation is grateful for the continued support of the Government Agencies and their nominated officers: Natural England (David Sheppard), Countryside Council for Wales (Adrian Fowles), Scottish Natural Heritage (Chris Sydes) and Northern Ireland Environment Agency (Richard Weyl).

It would be impossible to thank all the individuals and organisations associated with the projects highlighted in this and previous Bulletins, but nevertheless, we would like to take this opportunity to express our gratitude to everyone who has made this work possible. Particular thanks are due to the County Moth Recorders, County Butterfly Recorders, Transect Co-ordinators, Butterfly Conservation Branch Moth and Conservation Officers, organisers of local moth groups and the many other individuals who have contributed time and expertise, for example by supporting Area Action Groups, the Moths Count project and assisting with individual conservation projects. Without your help only a fraction of the projects covered by these Bulletins would have been possible. Finally we would like to thank personally all the contributors to this Bulletin, both for their contributions and for their continued efforts to conserve Britain's moths and butterflies.

Mark Parsons, *Head of Moth Conservation* ([mparsons@butterfly-conservation.org](mailto:mparsons@butterfly-conservation.org)), Dr. Nigel Bourn, *Director of Species Conservation* ([nbourn@butterfly-conservation.org](mailto:nbourn@butterfly-conservation.org)) & Richard Fox *Moths Count Project Manager/Surveys Manager* ([rfox@butterfly-conservation.org](mailto:rfox@butterfly-conservation.org)).

## 3. Update on species covered by Schedule 5 of the Wildlife & Countryside Act; a summary for 2008

Those species which are fully protected under Schedule 5 of the Wildlife and Countryside Act and are also UK BAP Priority species are reported in section 4 (this includes Barberry Carpet *Pareulype berberata*, Black-veined Moth *Siona lineata*, Fiery Clearwing *Pyropteron chrysidiformis*, New Forest Burnet *Zygaena viciae argyllensis*, Reddish Buff *Acosmetia caliginosa*, Sussex Emerald *Thalera fimbrialis*, Large Blue *Maculinea arion*, Heath Fritillary *Mellicta athalia*, High Brown Fritillary *Argynnis adippe* and Marsh Fritillary *Eurodryas aurinia*). Large Copper *Lycaena dispar*, Essex Emerald *Thetidia smaragdaria* and Swallowtail *Papilio machaon* are not covered in this Bulletin.

### Fisher's Estuarine Moth *Gortyna borelii lunata*

Recent work, co-ordinated by Dr Zoë Ringwood, has concentrated on the creation of habitat around the Essex coast. This involves the planting of hog's fennel *Peucedanum officinale*, the sole larval foodplant. Over the past year, a further four sites for hog's fennel have been established, bringing the total to 19. 2008 also saw the start of a captive breeding programme at Colchester Zoo. This programme appears to have had a successful start, with higher than expected numbers of adults emerging. This is initially a three year programme.

Transect monitoring of adult populations at two sites on the Essex coast was undertaken with the mainland site on the sea wall producing disappointing results. However, the species' stronghold, Skipper's Island, produced counts of 55 and 73, the highest since records began.

Work is co-ordinated through the Centre for Environment and Rural Affairs at Writtle College, Essex, and is supported by Tendring District Council. Funding is provided by Natural England, the Environment Agency and the Cambridgeshire and Essex Branch of Butterfly Conservation.

Contributed by Alan Roscoe, Writtle College.

## 4. Conservation action for UK Biodiversity Action Plan moths and butterflies

### 4.1 Update on the UK Biodiversity Action Plan

There were significant changes to the UK Biodiversity Action Plan (BAP) listings for Lepidoptera in 2007, with 11 moth and three butterfly species being removed from the priority list and others, including several micro-moths, becoming UK BAP Priority species. This resulted in the new list comprising of 81 moths (a rise from the original 53 species) and 22 butterflies (a rise from the original 11 species). The changes are summarised in the tables below.

Additionally, 73 (71 moths, two butterflies) so-called 'widespread, but rapidly declining' species were given UK BAP status, although these are listed for 'research only'. It is hoped that research institutions will look into wider countryside issues that may be affecting the populations of these 'commoner' species. The list of these 71 moths is not provided below, but is published in *Atropos No. 32*.

2008 also saw a reporting round on the UK BAP species, the previous reporting round taking place in 2005. Reporting covered the original, remaining species listed; 36 moths and 8 butterflies. The reporting included topics such as status, trends, successes, constraints and progress. This information can be viewed at [www.ukbap-reporting.org.uk/](http://www.ukbap-reporting.org.uk/).

Slender Scotch Burnet <i>Zygaena loti scotica</i>	Dark Bordered Beauty <i>Epione vespertaria</i>	Sword Grass <i>Xylena exsoleta</i>
New Forest Burnet <i>Zygaena viciae argyllensis</i>	Belted Beauty <i>Lycia zonaria britannica</i>	Orange Upperwing <i>Jodia croceago</i>
Fiery Clearwing <i>Pyropteron chrysidiformis</i>	Black-veined Moth <i>Siona lineata</i>	Heart Moth <i>Dicycla oo</i>
Basil Thyme Case-bearer <i>Coleophora tricolor</i>	Straw Belle <i>Aspitates gilvaria</i>	White-spotted Pinion <i>Cosmia diffinis</i>
Dingy Mocha <i>Cyclophora pendularia</i>	Narrow-bordered Bee Hawk-moth <i>Hemaris tityus</i>	Marsh Mallow Moth <i>Hydraecia osseola hucherardi</i>
Bright Wave <i>Idaea ochrata</i>	Speckled Footman <i>Coscinia cribraria</i>	Brighton Wainscot <i>Oria musculosa</i>
Silky Wave <i>Idaea dilutaria</i>	Lunar Yellow Underwing <i>Noctua orbona</i>	Marsh Moth <i>Athetis pallustris</i>
Chalk Carpet <i>Scotopteryx bipunctaria</i>	Cousin German <i>Protolampra sobrina</i>	Reddish Buff <i>Acosmetia caliginosa</i>
Netted Carpet <i>Eustroma reticulata</i>	Northern Dart <i>Xestia alpicola alpina</i>	Light Crimson Underwing <i>Catocala promissa</i>
Barberry Carpet <i>Pareulype berberata</i>	Ashworth's Rustic <i>Xestia ashworthii</i>	Dark Crimson Underwing <i>Catocala spona</i>
Argent & Sable <i>Rheumaptera hastata</i>	Pale Shining Brown <i>Polia bombycina</i>	Four-spotted <i>Tyta luctuosa</i>
Drab Looper <i>Minoa murinata</i>	Bordered Gothic <i>Heliophobus reticulata marginosa</i>	Common Fan-foot <i>Pechipogo strigilata</i>
Barred Tooth-striped <i>Trichopteryx polyommata</i>	White Spot <i>Hadena albimacula</i>	Clay Fan-foot <i>Paracolax tristalis</i>
Netted Mountain Moth <i>Macaria carbonaria</i>	Striped Lychnis <i>Shargacucullia lychnitis</i>	Olive Crescent <i>Trisateles emortualis</i>

Small Lappet <i>Phyllodesma ilicifolia</i>	Double Line <i>Mythimna turca</i>	Scarce Blackneck <i>Lygephila cracca</i>
Essex Emerald <i>Thetidia smaragdaria maritima</i>	Toadflax Brocade <i>Calophasia lunula</i>	Buttoned Snout <i>Hypena rostralis</i>
Waved Carpet <i>Hydrelia sylvata</i>	Black-banded <i>Polymixis xanthomista statures</i>	White-line Snout <i>Schrankia taenialis</i>
Square-spotted Clay <i>Xestia rhomboidea</i>	Scarce Merveille du Jour <i>Moma alpium</i>	

<i>Stigmella zelleriella</i>	<i>Aplota palpellus</i>	Rest Harrow <i>Aplasta ononaria</i>
<i>Lampronia capitella</i>	<i>Agonopterix atomella</i>	Sussex Emerald <i>Thalera fimbrialis</i>

<i>Nematopogon magna</i>	<i>Agonopterix capreolella</i>	False Mocha <i>Cyclophora porata</i>
<i>Nemophora fasciella</i>	<i>Syncopacma albipalpella</i>	Scarce Pug <i>Eupithecia extensaria occidua</i>
Goat Moth <i>Cossus cossus</i>	<i>Syncopacma suecicella</i>	Grey Carpet <i>Lithostege griseata</i>
Forester <i>Adscita stactes</i>	<i>Scythris siccella</i>	Sloe Carpet <i>Aleucis distinctata</i>
<i>Eudarcia richardsoni</i>	<i>Celypha woodiana</i>	Scarce Vapourer <i>Orgyia recens</i>
<i>Nemapogon picarella</i>	<i>Grapholita pallifrontana</i>	Small Dark Yellow Underwing <i>Anarta cordigera</i>
<i>Phyllonorycter scabiosella</i>	<i>Epermenia insecurella</i>	Concolorous <i>Chortodes extrema</i>
<i>Phyllonorycter sagittella</i>	<i>Pyrausta sanguinalis</i>	White-mantled Wainscot <i>Archanara neurica</i>
<i>Coleophora hydrolapathella</i>	<i>Anania funebris</i>	Fenn's Wainscot <i>Chortodes brevilinea</i>
<i>Coleophora vibicella</i>	<i>Agrotera nemoralis</i>	Sandhill Rustic <i>Luperina nickerlii leechi</i>
<i>Coleophora wockeella</i>	<i>Sciota hostilis</i>	Shoulder-striped Clover <i>Heliothis maritima warneckeii</i>

**Table 4: Existing UK BAP Priority butterfly species retained (8 species)**

Chequered Skipper <i>Carterocephalus palaemon</i>	Large Blue <i>Maculinea arion</i>	Marsh Fritillary <i>Eurodryas aurinia</i>
Silver-studded Blue <i>Plebejus argus</i>	Pearl-bordered Fritillary <i>Boloria euphrosyne</i>	Heath Fritillary <i>Mellicta athalia</i>
Northern Brown Argus <i>Aricia artaxerxes</i>	High Brown Fritillary <i>Argynnis adippe</i>	

**Table 5: Former UK BAP Priority butterfly species (3 species)**

Silver-spotted Skipper <i>Hesperia comma</i>	Large Copper <i>Lycaena dispar</i>	Adonis Blue <i>Lysandra bellargus</i>
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**Table 6: New UK BAP Priority butterfly species added (16 species)**

Lulworth Skipper <i>Thymelicus acteon</i>	Small Blue <i>Cupido minimus</i>	Mountain Ringlet <i>Erebia epiphron</i>
Dingy Skipper <i>Erynnis tages</i>	Duke of Burgundy <i>Hamearis lucina</i>	Grayling <i>Hipparchia semele</i>
Grizzled Skipper <i>Pyrgus malvae</i>	White Admiral <i>Limenitis camilla</i>	Small Heath <i>Coenonympha pamphilus</i> (Research only)
Wood White <i>Leptidea sinapis</i>	Small Pearl-bordered Fritillary <i>Boloria selene</i>	Large Heath <i>Coenonympha tullia</i>
Brown Hairstreak <i>Thecla betulae</i>	Glanville Fritillary <i>Melitaea cinxia</i>	
White-letter Hairstreak <i>Satyrrium w-album</i>	Wall <i>Lasiommata megera</i> (Research only)	

## 4.2 Update on UK Biodiversity Action Plan moths and butterflies – a summary for the year 2008

Much of the work reported in the following species accounts was undertaken as part of *The Action for Threatened Moths* and the *Action for Threatened Butterflies Projects*. Unless specifically mentioned otherwise, work under the project is co-ordinated by Butterfly Conservation with contributory funding from Natural England.

Butterfly Conservation's work is funded by a wide range of funding partners, including Natural England, Countryside Council for Wales, Scottish Natural Heritage, Northern Ireland Environment Agency, the Heritage Lottery Fund, Countdown 2010, SITA Trust, GrantScape, the Tubney Charitable Trust, Esmée Fairbairn Foundation, Forestry Commission England, Forestry Commission Wales and Forestry Commission Scotland.



#### 4.2.1 Update on UK BAP moths

Highlights of work carried out on selected UK BAP species is provided below, including species which are fully protected on Schedule 5 of the Wildlife & Countryside Act.

Summary by Mark Parsons and Tony Davis, with contributions from Russel Hobson (Butterfly Conservation), John Hooson (National Trust), Dr. Mike Howe (Countryside Council for Wales), Dr. Jenny Joy (Butterfly Conservation), Bernadette Noake (Butterfly Conservation), Stephen Palmer (Lancashire Moth Group), Dr. Tom Prescott (Butterfly Conservation), Amber Rosenthal (Butterfly Conservation), Warren Spencer (Bristol Zoo), Dr. Dan Hoare (Butterfly Conservation), Maurice Hughes (Butterfly Conservation), Dr. David Wainwright (Butterfly Conservation) and Dr. Mark Young (University of Aberdeen). Factsheets for several of the species covered below are available as downloads from the Butterfly Conservation website, [www.butterfly-conservation.org/mothspeciesfactsheets](http://www.butterfly-conservation.org/mothspeciesfactsheets).

##### **Argent & Sable *Rheumaptera hastata***

2008 was another good year for Argent & Sable in Scotland with around 30 records received to date. Of these eight were from new 10km squares and several others were from new sites. The species has now been recorded from 125 10km squares in Scotland. The increase in Scottish records is due to the higher profile that this species has enjoyed over the last five years, this has resulted in records from 44 new 10km squares. We believe Argent & Sable is fairly widespread in the western half of Scotland and still remains under-recorded!

In England and Wales, the picture seems to be quite different as the moth continues an apparent decline and retreat from the south of Britain. Although there are records of Argent & Sable on circa. 30 sites from England and Wales since 2000, eight key sites have been identified in England to prioritise survey work. Argent & Sable was recorded at four of these sites in 2008. At one site in Somerset, further investigations were made into the use of bog-myrtle *Myrica gale* by larvae (a foodplant usually associated with Scottish colonies) in order to inform management. As a result there is now more sympathetic management taking place at this site. Further surveys are required in some areas of England, anyone wishing to help should contact Bernadette Noake ([bnoake@butterfly-conservation.org](mailto:bnoake@butterfly-conservation.org), 01929 406004).

There have been very encouraging findings of Argent & Sable in the extreme west of Northern Ireland, including records of larvae. The moth was recorded in 1902 at Lough Namanfin in Fermanagh but not again until 1997-99 when adults were recorded in four different localities. Four adults were subsequently recorded north of Garrison in 2007. Extensive larval searches of Ballintempo Forest (led by Allen & Mellon Environmental) in 2007 found 31 spinnings and again in 2008, involving the 'recruitment' of 14 Department of Agriculture and Rural Development (DARD) Forest Service staff, found a total 139 larval spinnings. A wide age-range of the caterpillars were found indicating a well-staggered emergence by adults earlier in the year.

An updated Argent & Sable species factsheet was produced in December 2007, please contact Butterfly Conservation (01929 400209, [info@butterfly-conservation.org](mailto:info@butterfly-conservation.org)) for a paper copy (there may be a charge for postage depending on the quantity required) or download it from Butterfly Conservation's website ([www.butterfly-conservation.org/mothspeciesfactsheets](http://www.butterfly-conservation.org/mothspeciesfactsheets))

##### **Barberry Carpet *Pareulype berberata***

(Also on Schedule 5 of the Wildlife & Countryside Act)

Butterfly Conservation contractors, staff and a small number of volunteers attempted to monitor all known localities for this moth in 2008. Larvae were recorded at six of the 11 native locations which were surveyed. Worryingly, larvae were not found at the only site in Dorset despite several searches; this will be a priority for re-survey in 2009. On a more positive note, an expansion to the area used by the Oxfordshire colony was recorded.

Presence of the species was confirmed at only one of the previous introduction sites, with larvae encouragingly found to be using an additional area of hedgerow, indicating that the moth is faring well at this site.

Inappropriate timing of hedge trimming and the removal of hedges appear to be the main threats to the species. The additional Oxfordshire area was discovered as a direct result of survey undertaken to inform a hedgerow-removal application. The discovery of larvae and an adult female using the hedge led to the refusal of the application. Inappropriately timed cutting of hedgerows was reported at three separate sites.

Follow-up work, in partnership with organisations such as Natural England, will continue to encourage planting of barberry *Berberis vulgaris* bushes within the known localities and surrounding areas to increase the plant resource for this moth, in addition to continued management advice to landowners with existing barberry hedges. Please contact Amber Rosenthal ([arosenthal@butterfly-conservation.org](mailto:arosenthal@butterfly-conservation.org), 01929 406029) for more information on this species.

### **Belted Beauty *Lycia zonaria britannica***

At the sole North Wales site counts were disappointingly low, with the lowest peak count since 1998; only eight females and three males were recorded. In addition to this none were found at the western end of the site. Additionally, neither translocation within the site or to Kinmel Dunes, Conwy, has proved successful.

On the sole Cheshire site, only one record of Belted Beauty was reported, a single adult recorded by the Wirral Council Ranger service. In January 2008, removal of the surface vegetation by a bulldozer took place over part of the area in an attempt to restore habitat. This will take a while before it becomes potentially suitable for the moth.

At the Lancashire site the monitoring (co-ordinated by Stephen Palmer) was altered for the 2008 season. Search effort at this large site had varied considerably over the previous six seasons making direct year to year comparisons of data impossible. It is hoped that the establishment of a straight line, 2m wide transect of approximately 100m length in the centre of the colony will enable direct comparison of data to be made in future years. Not unexpectedly, this produced reduced numbers of the moth in comparison to previous years. To ensure that the establishment of the transect style of recording did not coincide with a significant change in moth numbers, a general search was also undertaken in mid season. This indicated the numbers present appeared similar to an average year at this site. Seven transect visits took place during the moth's emergence period with a peak count of 13 females and five males.

### **Betony Case-bearer *Coleophora wockeella***

### **New UK BAP species**

*Coleophora wockeella* is only known from one site in Surrey, owned by Forestry Commission England. This micro-moth, whose larvae feed on the leaves of betony *Stachys officinalis*, is a high priority for partnership work between Butterfly Conservation and Forestry Commission England who own this woodland site. A large part of the moth's open grassland habitat at the site is leased from Forestry Commission England and managed by Butterfly Conservation. Forestry Commission England and the Surrey & South West London Branch of Butterfly Conservation funded a study in 2008 to examine the moth's distribution and habitat preferences. The larvae were more restricted in distribution across the site than the foodplant itself, and showed a strong preference for unshaded plants, in swards of between 12 and 42cm high in spring, growing in grassy clearings and ride edges. In 2008 at least, the phenology of the moth was different from that in published work, with larvae apparently feeding earlier in autumn (late July-September), hibernating earlier (from late September-March) and re-emerging to feed again in spring earlier (late March-end April) than previously thought. Management recommendations and further monitoring plans are now being developed for this, one of the most geographically restricted species on the UK BAP.

### **Black-veined Moth *Siona lineata***

(Also on Schedule 5 of the Wildlife & Countryside Act)

This long-running project continued in 2008, with monitoring (a combination of transects and timed counts) of the various populations being co-ordinated by Sean Clancy for Butterfly Conservation. 2008 has been a year of significant steps forward for this species. Firstly, the moth has re-colonised a former site where it had been lost due to inappropriate management. This re-colonisation follows the application of an agri-environment scheme by Natural England staff, with advice from Sean Clancy, which has resulted in favourable conditions for the moth. Additional good news came in the confirmation of a new colony, first identified in 2007, with seven adults being found there in 2008, along with the location of

another possible site, although further survey will be required to confirm this. Currently, it is considered that there are eight populations that are sufficiently separated from one another to be regarded as discrete colonies, compared to four sites as recently as 2005. In 2008, 109 adults were recorded on transects and 34 on timed counts. Site-related data has also been supplied to Natural England to assist with the enhanced targeting of agri-environment schemes.

This project is co-ordinated by Butterfly Conservation with the assistance of Natural England, Kent Wildlife Trust and Kentish Stour Countryside Project staff.

### **Bright Wave *Idaea ochrata***

Monitoring (a combination of transects and timed counts) of populations (confined to a 18km stretch of the Kent coast) has been co-ordinated annually by Butterfly Conservation since 2003. 2008 saw a rather dramatic drop in numbers compared to recent years, with 145 adults being recorded. However, this is likely to have been due to the unsettled windy conditions that prevailed during the survey period, rather than any detrimental habitat change. A long-standing planning permission was granted for two houses on one site, prior to the moth being discovered there. At another site 'beach-gardening' is taking place. We are in discussion with the District Council Ecologist over these two areas. Discussions are underway to designate a site that currently has no statutory protection as a Local Wildlife Site, this should offer some protection from development. A Moths Count training event, part funded by the Heritage Lottery Fund, also took place and was attended by 13 people. During the event over 25 **Rest Harrow** *Aplasta ononaria*, also a UK BAP Priority species, were recorded.

### **Chalk Carpet *Scotopteryx bipunctaria***

Very few records of Chalk Carpet were received in 2008, presumably due to the poor weather during the flight period. Despite this, a particularly noteworthy find was the rediscovery of the species at a site in Durham where it had not been seen since 1966. This discovery was made by an individual who had attended a Moths Count training workshop on the Chalk Carpet a few days previously. Another interesting rediscovery was made on the north Somerset coast, suggesting that the species may still be widespread in this area and possibly on the north Devon coast.

Surveys are still needed in many areas, particularly Yorkshire, Devon and the Chilterns, but also elsewhere. Anyone wishing to help should contact Tony Davis ([tdavis@butterfly-conservation.org](mailto:tdavis@butterfly-conservation.org), 023 9259 7612) for details of sites requiring survey.

### **Clay Fan-foot *Paracolax tristalis***

Surveys within the Rother Woods Project area (part of Butterfly Conservation's South East Woodlands Project) have shown that Clay Fan-foot is widespread within that part of East Sussex. There is increasing evidence that it has a preference for young sweet chestnut *Castanea sativa* coppice and this will be investigated further during 2009.

### **Common Fan-foot *Pechipogo strigilata***

This species is perhaps now confined to as few as 11 sites in the England. There are records of Common Fan-foot from at least six of these sites during 2008, including one site where it had not been seen since 2002. In the Tytherley Woods project area (part Butterfly Conservation's South East Woodlands project) Butterfly Conservation staff have been investigating the requirements of this moth at a privately owned site in Hampshire. Adults were found in late May, flying or easily disturbed by day from amongst recently coppiced hazel *Corylus avellana*. The site was revisited in mid September to look for the larval stage. During three (person) hours of searching one larva was found on dead oak *Quercus* spp. leaves on a large branch hanging from one of the standards and five larvae were found on much smaller branches that had fallen from oak trees dangling off the ground amongst the canopy of the hazel coppice understorey.

In the Wyre Forest, the research and monitoring project continued through the SITA Trust funded Back to Orange project, with good numbers being recorded.

## **Dark Bordered Beauty *Epione vespertaria***

Work on this species is undertaken in conjunction with the RSPB, who again provided financial support for this project in 2008. In England, monitoring at the Yorkshire site (co-ordinated by David Baker and Terry Crawford) showed a very late emergence compared to previous years. On 21<sup>st</sup> July, 64 adults were found along the transect, indicating a slight dip in numbers compared with recent years. In broad terms, the distribution of the moth along the transect route was similar to the previous year. During the 2008 monitoring, the moth was also found at a distance of nearly 1km from the next-nearest record in an area supporting a large stand of the foodplant, creeping willow *Salix repens*. Several experimental scrapes were created on the site in an effort to try to encourage large stands of the foodplant. These will be monitored in future years. An application to get the site managed through an agri-environment scheme has also been submitted. If successful this should ensure continued light sheep grazing and possibly introduce some light cattle grazing. An additional site in Northumberland was surveyed, although the moth was not found.

In Scotland the two sites were again monitored. The moth had a good year on Deeside, with at least 56 males being recorded on the two sub-sites on 5 August. Further to the apparent good numbers, an extension of one sub-site was located some 400m to the south of one of the known sub-sites. A volunteer work party in November cut back encroaching scrub from this new location as well as from the main site close by. It is proposed to create further areas of suitable habitat nearby through planting the foodplant in appropriate areas. Four other potential sites were also surveyed, but the moth was not found. In Speyside the usual low numbers of adults were again recorded, with a maximum of three males seen. Management has been undertaken to enhance this site with the creation of 20 new clearings, with funding obtained from the Cairngorms National Park Community Investment Programme. An additional potential site was surveyed, but the moth was not recorded, despite daytime and dusk searches, along with the running of light traps. Proposals to introduce the species to a further site are being progressed, with plans being developed over the winter of 2008/09.

## **Dingy Mocha *Cyclophora pendularia***

In 2008, a larval survey was carried out at the majority of sites with recent Dingy Mocha records in Dorset, the New Forest, Devon and Wales. Larvae were not found in the New Forest, Devon or Wales, but were recorded from 13 sites in Dorset (from seven 10km squares). Records of adults at two further sites in Dorset were also received (one of the sites was from an additional 10km square). It is possible that adverse weather conditions affected this species in 2008 and there were a few sites (with previous records of Dingy Mocha) which did not appear to have ideal habitat conditions at present. Additional targeted survey effort is therefore planned for 2009. More help is needed to search for adults and particularly larvae in Dorset and the New Forest, for more information and to help with survey work, please contact Bernadette Noake ([bnoake@butterfly-conservation.org](mailto:bnoake@butterfly-conservation.org), 01929 406004).

## **Drab Looper *Minoa murinata***

The survey of the moth in the Wyre Forest was continued through the SITA Trust funded Back to Orange project (see section 5.5). A number of records for this moth were also obtained as a result of survey work through the Herefordshire Wood White project (see section 5.5) also funded through the SITA Trust.

In Wales a new site for the species has been discovered on Ministry of Defence holdings at Caenwen, Monmouthshire. In Hendre Forest, also in Monmouthshire, numbers of adults were higher in the main windthrow, and less so along the rides than in 2007. Much potential habitat on the site is developing in clear-fell areas, although this is perhaps currently too exposed to be suitable.

In south-east England the situation for the Drab Looper remains precarious, despite the rediscovery of populations at single sites in Hampshire and West Sussex. It was noticeable that several sites with quite extensive ride-side foodplant in 2007 had little or none in 2008. This emphasises the need for continuous ongoing woodland management, but the recent sharp drop in timber prices threatens to cause the postponement or cancellation of beneficial works.

One strange observation during 2008 was that at one site in Kent, Drab Looper flew continuously from at least 23<sup>rd</sup> May to 24<sup>th</sup> July, with no evidence that this was anything other than an extended first brood. It seems plausible that the first brood had an extended emergence due to the poor weather.

### **Four-spotted *Tyta luctuosa***

Paul Waring reports that the numbers seen at the Werrington transect near Peterborough were the lowest since counts began in 2000. In 2008 there was an average of 2.1 individuals per positive count with a peak count of only six. This compares with an average of 10.1 and a peak count of 29 moths in 2004. The low numbers seen are despite favourable habitat management and vegetation conditions, but are probably due to unfavourable weather conditions. In Cambridgeshire and Essex there were considerably fewer site visits than previous years due to unfavourable weather conditions combined with the end of the Countdown 2010 grant that had supported efforts in 2006 and 2007. However, despite this, the moth was recorded at two sites. A field training day in Essex organised by Butterfly Conservation's East of England Regional Officer, Sharon Hearle, coincided with wet and windy weather and no moths were seen, but one of the participants did record a single moth at a known site later in the month. In Bedfordshire three moths were seen at a known site in June.

### **Grey Carpet *Lithostege griseata***

### **New UK BAP species**

A grant from SITA Trust was confirmed in November 2008 together with further support from Norfolk Biodiversity Partnership and Forest Heath District Council for a project to help conserve the Grey Carpet, a recent addition to the UK BAP. This project aims to work with land managers at 14 sites to create suitable conditions for the species, as well as other breckland moths. The objective of practical management will be ground disturbance to encourage colonisation by flixweed *Descurainia sophia*, the foodplant for the larva. In 2008, daytime searches confirmed the species' presence at several sites in Norfolk and Suffolk including field margins, field corners and disturbed ground on grassy heaths. At one site, Aspal Close, Suffolk, the moth was recorded on an area of disturbed ground less than 7m square with only a dozen flixweed plants.

### **Large Gold Case-bearer *Coleophora vibicella***

### **New UK BAP species**

Phil Sterling (Dorset County Council) and Butterfly Conservation staff have liaised closely with the MoD at the sole Dorset site to ensure appropriate protection and management for this moth. This site is atypical as grazing is not possible due to its use as a firing range. Consequently, the survival of this species will be dependant on a rotational mowing regime, otherwise the area will succumb to scrub invasion. In 2008 four transects were set up in an attempt to monitor the species' response to various mowing regimes. 41 cases were found along these transects in 2008. In the meantime advice is being provided on mowing and scrub clearance via regular twice yearly meetings.

In West Sussex a strong colony on the coast was intensively surveyed with nearly 500 cases being counted, including five at a site over 1km from the main colony. Changes in grazing practices at this site have the potential to greatly increase available habitat. It was noted that cases were not found in the most exposed areas and there also seemed to be a preference for foodplant growing in a more open form (rather than dense, compact patches), however, this latter observation was not in agreement with observations at the Dorset site. It is worth noting that cases were visible from early May until at least mid September.

In Hampshire, access permission could not be obtained at the National Nature Reserve which held a colony until at least 1992. At the other Hampshire site, 71 cases were found in a partial survey late in the season. On the Isle of Wight, one or more larvae were found at a previously known site. This is the first record on the Island for 30 years.

### **Least Owlet *Scythris siccella***

### **New UK BAP species**

This small moth is confined in the UK to a single site in Dorset where it occupies a stretch of land perhaps no more than 100m by 1m. Larvae were located in 2008, however, there was concern that some of the habitat was beginning to vegetate over. Consequently, a small area immediately adjacent to this strip of land was disturbed using a shovel by staff from Butterfly Conservation and Dorset County Council in the autumn, with the consent of Natural England and the Crown Estates, in the hope that this

will create additional habitat. In the meantime, the existing area will be monitored for any further change. This site is also potentially affected by plans for the Olympics in 2012. Preliminary discussions have taken place with Natural England to make them aware of the potential conflict. The site is a SSSI and Special Area of Conservation.

### **Marsh Mallow Moth *Hydraecia osseola hucherardi***

Sean Clancy, on behalf of Butterfly Conservation, undertook the regular survey and monitoring of Marsh Mallow Moth in 2008. It proved to be a year of contrasts for this moth. On the plus side, the species is now thought to survive in five colonies on the Romney Marsh area, with the confirmation of a small colony at a site that has been artificially created through extensive planting of the foodplant, marsh mallow *Althaea officinalis*. However, two of the five colonies now appear to be in decline, with the lowest counts since monitoring started. Stands of the foodplant at these two sites are also fragmenting and decreasing. In one case this decline appears to have been prompted by an over-grazing incident in 2003. Additionally there was concern over a third site, as over-grazing had been reported after the autumn surveys were undertaken. The cause for this was an outbreak of Blue-tongue, which resulted in the temporary restriction of movement of the sheep in the region. Fortunately, a site visit in early November revealed minimal impact to the main foodplant beds, but does highlight how susceptible these sites can be to unexpected events. A meeting with Natural England staff is due to further discuss management and future plans for this species on the marsh.

In an attempt to bolster the population of the foodplant at Rye Harbour Local Nature Reserve an additional 120 marsh mallow plants were planted amongst naturally growing plants. The moth was again recorded in the Medway, the other area known to support this moth.

A summary of efforts to conserve this species on Romney Marsh has recently been published (see Parsons & Clancy, 2008 in the Bibliography).

### **Marsh Moth *Athetis pallustris***

The adult moth was only recorded at Saltfleetby-Theddlethorpe National Nature Reserve (NNR), Lincolnshire, despite survey effort also at Gibraltar Point NNR. Eighteen larvae were found at the key breeding site on Saltfleetby NNR, compared with seven in 2007, and 82 in 2006. However, no larvae were again found at the more traditional site on the reserve (the species has not been found there since 2005). A Moths Count training event, led by Paul Waring, was held in September with 19 people attending, including Natural England staff. It is hoped that in future years Natural England staff will be able to continue the larval monitoring of this species at this NNR.

### **Mistletoe Marble *Celypha woodiana***

**New UK BAP species**

James McGill has been surveying for the larval mines of this species in Somerset during 2007 and 2008, locating several new sites, usually in orchards (both small and large), but also, significantly, on grazing levels. So far the mines have been found on mistletoe *Viscum album* on apple *Malus* spp. and hawthorn *Crataegus* spp., but in one case on mistletoe growing on crack willow *Salix fragilis*. In May a training event took place, with new sites for the species (also in Somerset) located as a result. During 2008, the National Trust were successful in gaining contributory funding through Countdown 2010 from Natural England for a Traditional Orchards project, with Butterfly Conservation being a partner organisation. To contribute to this project a database of records of *C. woodiana* is being compiled to highlight the sites supporting the species so that this can inform any management, raise the profile of the moth, its association with mistletoe, and also to encourage further survey. Circa 20 sites for the species, covering six vice-counties are known from 2000 onwards. If you have any records of the species contact Bernadette Noake ([бноake@butterfly-conservation.org](mailto:бноake@butterfly-conservation.org), 01929 406004).

### **Narrow-bordered Bee Hawk-moth *Hemaris tityus***

Further data collection continued in Wiltshire, focusing on the habitat conditions in which the larvae occur. This will be combined with data for a number of years helping us to build up knowledge of the requirements of this moth.

Butterfly Conservation's Two Moors project on Dartmoor is working in five areas to restore habitat landscapes. Grazing has been re-introduced, fencing has been erected and scrub has been cleared at many sites. To date, 250 ha of Rhôs pasture habitat are being managed and restored for this moth along with other UK BAP species, such as the **Marsh Fritillary** *Euphydryas aurinia*.

In Wales, a new site for the moth has been discovered in Neath Port Talbot, Glamorgan. Another potential site was surveyed, although no larvae and little suitable habitat were found. A few other sites were surveyed in Wales, although these searches were hampered by poor weather, and no larvae were found.

It was another good year for this species in Scotland with 17 reported sightings mainly from Argyll, Strathspey and the islands of Mull, Islay and Lismore. Three of these records are from new 10km squares. The highlight was undoubtedly two sightings in Grampian where it was rediscovered in 2006 for the first time in almost 40 years.

### **Netted Carpet *Eustroma reticulata***

In September 2008, the regular larval survey co-ordinated by Dr. Paul Hatcher (Reading University) was carried out in the Lake District. The success of habitat management means that a good number of volunteers are now essential to undertake the annual larval monitoring at the Coniston Water sites. Although the touch-me-not balsam *Impatiens noli-tangere* foodplant numbers were down on 2007 there was an exceptional larval count with a 20% increase over 2007 (which was then the highest ever). The cattle grazing regime will be modified over winter 08/09 to periodically rest each of the sites from grazing once in every three years. This is in order to see whether the controlled cattle trampling has a significant impact on pupal survival in the soil. Against expectations, survey of the Derwentwater re-introduction site found a small number of larvae. This means that at least some of last years translocated larvae must have successfully pupated and emerged as adults. The finding encouraged a further translocation from the very strong Coniston population to bolster the numbers and hopefully encourage this incipient colony to become firmly established. In conjunction with local Natural England staff, the potential for using agri-environment schemes to encourage new touch-me-not balsam colonies is being actively investigated. A press release relating to the re-introduction, led by the National Trust, was widely reported on. This project is led by John Hooson (National Trust) and Dr. Paul Hatcher (Reading University), with support from, amongst others, Natural England, and Butterfly Conservation. For more information about Netted Carpet and to help with survey work, please contact Bernadette Noake ([бноake@butterfly-conservation.org](mailto:бноake@butterfly-conservation.org), 01929 406004).

### **New Forest Burnet *Zygaena viciae argyllensis***

(Also on Schedule 5 of the Wildlife & Countryside Act)

Analysis of results from the mark-release-recapture study suggests that the population of adult moths has shown a marked decline and is now about 10% of the peak population in 2006. It is also at the lowest level since 1999. However, the habitat remains in good condition and it is thought that the decline is primarily due to poor weather conditions during the flight period in 2007. The moth continues to persist at the 2005 introduction site but numbers remain extremely low.

### **Olive Crescent *Trisateles emortualis***

The apparent expansion of this species continues with possibly as many as six colonies in Kent, five in East Sussex and three in Essex. Continuing larval studies by the RSPB in Essex found approximately 80% of larvae on oak *Quercus* spp. and 20% on sweet chestnut *Castanea sativa*. In a beech *Fagus sylvatica* wood in East Sussex, good numbers of larvae were found on dead beech leaves, with just two on oak, although there was very little oak on this site. At another site in East Sussex a larva was found on dead hornbeam *Carpinus betulus* leaves, the first time this foodplant has been recorded in Britain.

### **Richardson's Case-bearer *Eudarcia richardsoni***

**New UK BAP species**

In the early part of 2008 survey effort resulted in the larval case of this species being found at several sites on Portland, Dorset, extending its known range on the island. To identify management priorities, areas of *Cotoneaster* spp. and a few other invasive shrubs were mapped. A programme of scrub removal was initiated on several coastal areas of Portland with funding from Natural England and other

bodies, co-ordinated by the Portland Ranger (Portland Coast and Countryside Partnership). This management is also likely to benefit butterfly and bryophyte colonies. A survey of another potential site in Dorset, Gad Cliff, with Phil Sterling failed to locate the moth, which is still only known from two sites in the world, both in Dorset.

### **Reddish Buff *Acosmetia caliginosa***

(Also on Schedule 5 of the Wildlife & Countryside Act)

Several adults were recorded on two areas of the UK's sole known site (on the Isle of Wight) during 2009. A site visit was undertaken by members of the Hampshire and Isle of Wight Branch of Butterfly Conservation to check site conditions; the area is generally suitable for the species with plenty of the foodplant, saw-wort *Serratula tinctoria*, present, albeit patchily distributed. During 2009 the Hampshire and Isle of Wight Branch intends to undertake further survey work for the moth, and also to monitor site condition.

### **Scarce Vapourer *Orgyia recens***

**New UK BAP species**

The year started unexpectedly with livestock of this species being obtained and distributed to various individuals in areas where the species is known to occur, with the hope of rearing through to adulthood so that the virgin females could be used in an attempt to attract males. Despite this effort, unfortunately much of the stock died, possibly through inbreeding, although a few females were bred. Some of these were used at a known site in Norfolk and successfully attracted several males. Several other known sites in Norfolk were investigated without success, but it may be that the males are not often attracted later in the day. These appear to be the only records of Scarce Vapourer reported in 2008.

A factsheet on the species was produced during in 2008 which is available as a download on the Butterfly Conservation website ([www.butterfly-conservation.org/mothspeciesfactsheets](http://www.butterfly-conservation.org/mothspeciesfactsheets)).

### **Silky Wave *Idaea dilutaria***

Monitoring throughout the Avon Gorge sites for this species continued in 2008, undertaken by Warren Spencer from Bristol Zoo. A total of 163 adults were recorded between 10<sup>th</sup> June and 19<sup>th</sup> July. Regrettably inclement weather curtailed further investigation for the rest of July. In particular, transect monitoring was sustained on three established priority sub-sites, with adults being found at each of these. The 10<sup>th</sup> June appears to be the earliest known record in the UK for the moth. The highest number of adults found during one visit was 33. In addition, other sites identified by previous survey work on both the Gloucester and Somerset sides of the Avon Gorge were surveyed, with the moth recorded at nine sub-sites throughout the Gorge. This project is co-ordinated by Butterfly Conservation with assistance from Bristol Zoo Gardens, Natural England and Bristol City Council.

In Wales, the South Gower plots were monitored for the first time since 2006. The numbers found were lower than in 2006, but this is thought to be, at least in part, due to the unfavourable weather. Three of the five plots had reduced in size through gorse *Ulex* spp. encroachment and one plot, away from the Wildlife Trust reserve, had been heavily grazed with the gorse burnt off leaving little suitable foodplant. The population on the Great Orme was not surveyed in 2008 due to the poor weather during the flight period.

### **Slender Scotch Burnet *Zygaena loti scotica***

In 2008 Butterfly Conservation Scotland's work on Slender Scotch Burnet on Mull and Ulva was funded under Scottish Natural Heritage's Species Action Framework (SAF) programme. The excellent early, hot, spring weather meant that this burnet was probably out earlier in 2008 than normal. Unfortunately the good weather soon broke providing little opportunity to monitor colonies in suitable conditions during the usual flight period. Counts were either lower than normal or not undertaken. However, a couple of new satellite sites were found on the Ardmeanach peninsula. An island wide survey is planned on Ulva and the neighbouring island of Gometra in 2009.

The focus of the SAF project is on site management to bring sites into favourable condition. Work is currently planned, or underway at all colonies. The main focus has been at Kilninian where contractors and local volunteers have continued to remove cotoneaster *Cotoneaster* sp. that has dramatically



reduced the area of suitable habitat. At other sites, increased or more targeted grazing is being planned whilst at some sites the main issue is bracken *Pteridium aquilinum* encroachment.

### **Speckled Footman *Coscinia cribraria***

Concern continues for the Speckled Footman after just two individuals were recorded at separate sites in Dorset during 2008, despite considerable survey effort. This is an increase on the single individual recorded in 2007, but is well down on the total of 13 in 2006. The species has not been seen at one of its three recent sites since 2003.

### **Straw Belle *Aspitates gilvaria***

Since 2005 the species has been confined to two sites in Surrey and c.14 in Kent. There is concern for one of the Surrey sites, as numbers continue to be low, despite recent clearance of encroaching scrub. However, the population at the other Surrey site, managed by the National Trust with advice provided by Butterfly Conservation, is faring well. Low level sheep grazing in winter continues to produce a very rich sward with the mix of open structure, tall tussocks and bare ground that the moth relies upon. The site also supports important populations of **Chalk Carpet** *Scotopteryx bipunctaria*, **Dark Green Fritillary** *Argynnis aglaja* and **Silver-spotted Skipper** *Hesperia comma*, illustrating that careful management of grassland habitats with a mosaic structure can support species with varying requirements.

During 2008 18 sites/sub-sites on the North Downs between St Margaret's Bay and Peene were surveyed by Sean Clancy for Butterfly Conservation, with ten of these sites known to have records of the species in the last 20 years. Low numbers were encountered, possibly due to the windy conditions, with the moth only located at six sites. However, if the 2007 results are also taken into account, the species has been recorded from ten 1km squares in this area over the course of these two years.

Data on this species has been supplied to Natural England to assist with the enhanced targeting of agri-environment schemes.

### **Striped Lychnis *Shargacucullia lychnitis***

A survey of the known recent distribution of the Striped Lychnis was conducted in 2008, with input from staff and volunteers of both Butterfly Conservation and Hampshire Wildlife Trust. Suitable sites from 40 hectads were covered as a result of this combined effort but larvae were recorded in only 16 of these, compared with 22 in the 2003 survey (which also covered fewer hectads overall). This drop could be due to a number of factors, including the increasing difficulty (for Health & Safety reasons!) of surveying along busy roadsides and this year's poor weather which appeared to effect the longevity of the larval host plant, dark mullein *Verbascum nigrum*, and delayed the appearance of the larvae across much of its range. However, it could also indicate at least a partial decline in the distribution of the moth which seems to have been affected by inappropriate road-verge management at several key sites.

The distribution of larval records will be mapped to help inform Council road-cutting programmes. Contacts have already been established in Buckinghamshire through Peter Hall, with an offer from the Hampshire County Council Ecology Team to follow these maps up within their county. A 'cab-card' scheme has been used in Buckinghamshire, where contracting companies were issued with simple cards depicting the dark mullein plant and asking them to avoid cutting areas where it occurs. It is planned that this will be offered to further County Councils. A potential issue is the drive to cut management costs, which could result in frequent changes to the contractors used to cut the verges in some areas, so that continued efforts will be required to ensure the relevant information reaches the people on the ground each year.

Two successful Moths Count/Hampshire Wildlife Trust training events were run, generating volunteer records for a section of north-east Hampshire which added to the overall results for the year. Please contact Amber Rosenthal ([arosenthal@butterfly-conservation.org](mailto:arosenthal@butterfly-conservation.org), 01929 406029) for more information or if you wish to help survey for this species.

In addition to being listed on Schedule 5 of the Wildlife & Countryside Act, during 2007 the Sussex Emerald also became a UK BAP Priority species. In 2008, monitoring of the population on Dungeness, Kent, (by undertaking timed counts of larvae) was again undertaken by Sean Clancy for Butterfly Conservation. 125 larvae were found over 36 sub-sites, however, not all of these sub-sites supported larvae. This compares favourably with previous years, although there is concern that the population appears to be declining on parts of the site; several sub-sites have not supported larvae for several years. In these areas it is thought that ideal habitat is not available due to a relative lack of disturbance and an increasing rabbit population resulting in over-grazing of the foodplant. Nearly 170 adults were recorded at various light traps over the site, the total comparing favourably with the 2007 total, but less so than with other recent seasons.

Dungeness 'A' is being decommissioned and discussions between Butterfly Conservation, Sean Clancy, Natural England and Magnox have been undertaken to try to minimise any impact on the moth's population. Similar discussions have been held with British Energy over a proposed new nuclear power station development. Part of these discussions has resulted in small trial plots being established away from the power stations in the autumn of 2008, in an attempt to determine if it is possible to create potential habitat for the moth.

Much of the work undertaken on this species is currently funded by Magnox and British Energy, the operating companies of Dungeness 'A' and 'B' nuclear power stations respectively. We would like to take this opportunity to thank all concerned in trying to ensure the long-term survival of this species.

#### **White-spotted Pinion *Cosmia diffinis***

Huntingdonshire District Council provided funding for survey work around St Neots in 2008 which led to the discovery of a new site for the moth along a public byway at the edge of a large new housing development. The moth was also recorded at a known site, another wide green lane with surviving elm *Ulmus* spp. 3 miles distant. This part of Huntingdonshire still has several stands of surviving elm and many of these were mapped as part of the project and will hopefully be included in targeted survey in the future. There was further success in East Cambridgeshire as a result of recording effort, with the moth being recorded at four stands of elm where it had not been recorded before. Several of the recorders had attended a training session organised through the Moths Count project earlier in the year. At Longstanton, a known site was saved from housing development as a result of targeted survey work in 2006 and 2008.

#### **White-spotted Sable *Anania funebris***

#### **New UK BAP species**

In Lancashire, Stephen Palmer reports that the moth was most frequently encountered in glades and large clearings where scrub has been removed several years previously and where the foodplant can occur in open and sunny conditions with patchy low plant growth. Exposed sites and areas of recent scrub clearance were much less favoured. Similarly, densely vegetated, scrubby and shady areas did not seem suitable for the moth.

During 2007/08 two new sites have been found in Merionethshire. Both were abandoned farms with lots of scrub and no sheep grazing. One site has light cattle grazing which keeps some areas open.

#### **4.2.2 UK BAP moth email newsletter**

An email newsletter about UK Biodiversity Action Plan Priority moths is sent out during the field season, providing information about which species are being seen so that recorders can target those species in their area. To submit sightings/records of UK BAP moths for the newsletter or if you would like to be added to the mailing list, please contact Tony Davis [tdavis@butterfly-conservation.org](mailto:tdavis@butterfly-conservation.org).

### 4.2.3 Update on UK BAP butterflies

Highlights of work carried out on selected UK BAP butterflies is provided below. Further work on UK BAP butterflies is also reported in sections 5 (regional updates) and 7 (news and notes). Factsheets for each of the following species can be downloaded from [www.butterfly-conservation.org/butterfliesspeciesfactsheets](http://www.butterfly-conservation.org/butterfliesspeciesfactsheets).

Summary by Dr. Caroline Bulman, *Senior Species Ecologist* ([cbulman@butterfly-conservation.org](mailto:cbulman@butterfly-conservation.org)) and Bernadette Noake *Conservation Officer – threatened species* ([bnoake@butterfly-conservation.org](mailto:бноake@butterfly-conservation.org)) with contributions from Dr. Dan Hoare (*South East England Senior Regional Officer*), Russel Hobson (*Head of Conservation Wales*), Dr. Jenny Joy (*West Midlands Senior Regional Officer*), Amber Rosenthal (*Conservation Officer – threatened species*), Dr. David Wainwright (*Morecambe Bay Limestones Project Officer/Northern England Regional Officer*).

#### **Duke of Burgundy *Hamearis lucina***

#### **New UK BAP species**

In 2008 Butterfly Conservation organised a national sharing best practice day for its Branches, attended by more than 40 members, and began work on a national site dossier. Further work will continue over the coming season to verify the information collated to date (in the region of 300 sites with around 100 thought to be extant) and to plan for follow up projects in areas where required.

Progress has been made in the North York Moors with management work carried out at five sites and the highest adult counts since systematic recording began in the 1990s. There is also evidence of a slight range expansion (two sites colonised). This work is reported in section 5.4.

In the South East it is estimated that there are now only about 50 colonies in the whole region, with the majority of these in Hampshire. Butterfly Conservation gave management advice for at least 15 sites in Kent, Sussex, Hampshire and Buckinghamshire in 2008; ensuring suitable management at its remaining sites will be a high priority for 2009. Work by the Sussex branch of Butterfly Conservation over the last two years has confirmed that many Duke of Burgundy colonies have been lost in the last decade, and it is now extinct in East Sussex and restricted to a handful of sites in West Sussex. All of these sites have had positive management for the species implemented in 2007-08, with support from several organisations including the South Downs Joint Committee. The largest colony persists on a mixture of chalk grassland, woodland edge and scrub on which conifers and beech had been planted. The phased removal of some conifers since 2006, reconnecting two colonies and thinning out the plantation has seen an increase in butterfly numbers and improved the distribution of butterflies across the site. There are plans to trial low density winter cattle grazing to tackle rank Tor Grass which is encroaching on parts of the site. The apparent removal of large numbers of adult butterflies by collectors in 2008, trespassing on this private site, illustrates that habitat management is not the only threat facing our rarest species.

#### **Heath Fritillary *Mellicta athalia***

In the South West the species occurs on Exmoor and in the Tamar/Lydford Valley. We work closely with the National Trust wardens on Exmoor, assessing priorities for management, including the planning of the winter burning programme. The populations are stable on Exmoor with 11 extant colonies monitored in 2008. We have been working with Exmoor National Park, Crown Estate, Natural England and the National Trust to develop a specific project for the Grabbist Hill ridge/Alcombe Common site. This is a network of four colonies where further work is required to remove extensive conifer plantations, significant barriers to movement, and renew fencing to ensure existing areas of habitat can be managed through a combination of grazing and burning.

At the Tamar/Lydford Valley sites, the population at Lydford (a Butterfly Conservation reserve) is stable and present on two adjacent private sites, where the owner has been carrying out coppicing work. The areas owned by Forestry Commission England are managed by gradual felling of conifer plantations, widening rides and creating scallops and are included in the joint Forestry Commission England/Butterfly Conservation Lepidoptera conservation strategy. In the Tamar Valley the reintroduced population at Greenscoombe Wood (owned by the Duchy of Cornwall) continues to be monitored by a contractor (funded from Cornwall, Devon & Isles of Scilly Natural England). This detailed monitoring work is helping with the annual habitat management works. We are continuing to work with the Tamar Area of Outstanding Natural Beauty (AONB), Natural England and a local estate to restore another former site

nearby that became extinct in the 1990s. A trial re-introduction took place in 2007 and the species was recorded here in 2008. Management work continues annually at this site to ensure succession of suitable habitat.

In the South East, the Heath Fritillary monitoring of the Blean Woodlands recorded 28 colonies across the woodland complex and a further spread of the species within two of the woodland blocks where recent management has been carried out. Overall occupied area is however at its lowest level since the 1980s and some 11ha short of the BAP target of 28ha occupied by 2010. A monitoring report was produced by Butterfly Conservation and circulated to the key partners involved in management of the complex. The report included a greater emphasis on mapping of management and colony movement over the last few years and set out key recommendations by site. This was followed by a successful partnership meeting which addressed the majority of the concerns raised in the report, and for which it was particularly helpful to take advantage of the local knowledge of our South East Woodlands Project Officer for the nearby Denge Woods. The situation is now looking much more positive for this species here as much management work will take place over the next four years under a new Kent Wildlife Trust project.

The populations in Essex remain stable and continue to be monitored by the local Butterfly Conservation Branch volunteers.

### **High Brown Fritillary *Argynnis adippe***

The High Brown Fritillary is a major focus for Butterfly Conservation with large projects in each core area for this species; Dartmoor, Exmoor, the Malvern Hills; Herefordshire Commons and Morecambe Bay.

In 2008, The Two Moors Threatened Butterfly Project has focused on Roborough Common and Spitchwick Common on Dartmoor and the Heddon Valley on Exmoor. A management plan for Roborough Common has been prepared to inform a capital works plan for the next three years. This will result in scrub clearance, bracken disturbance/management, cutting and targeted grazing using licks. Work with Devon Wildlife Trust and commoners at Blackadon and Lucky Tor is aimed at reducing the density of bracken on the site by allowing livestock to move around the site breaking up the bracken litter, allowing violets to germinate. Liaison with local graziers has resulted in targeted spring grazing for two sites with a Natural England derogation allowing two graziers to turn out stock early on these areas. Hay was fed to the cattle in dense areas of Bracken litter that had been ignored by grazing stock over the past years. We are continuing to work with the National Trust to ensure that priority work, such as coppicing and scrub control, is being carried out. At Heddon Valley habitat assessments carried out by a local Branch volunteer in spring for most of the sites in the valley suggest that only small areas of suitable habitat are available, with large areas being very grassy, or dominated by gorse/dense bracken or bramble. The National Trust volunteer work parties have trialled trampling rather than cutting runnels this year to avoid creating wide grassy tracks and in April, volunteers cleared scrub and monitored the habitat condition.

The Morecambe Bay Limestones Project (which started in 2008 and constitutes a major increase in our conservation work on this species) is now delivering a programme of scrub clearance, coppicing and other woodland management which benefits the High Brown Fritillary as well as the **Pearl-bordered Fritillary *Boloria euphrosyne***, **Small Pearl-bordered Fritillary *Boloria selene*** and the **Duke of Burgundy *Hamearis lucina***. The project is working in partnership with Forestry Commission England, whose Woodland Officers are currently targeting sites identified by Butterfly Conservation staff with Woodland Improvement Grants (WIG). Project staff will oversee all work undertaken under this grant scheme, ensuring that all work will be targeted on areas most likely to benefit key butterfly species.

Numbers of High Brown Fritillary at the remaining Wales locality were down in 2008 but still well above previous numbers in late 1990's. See section 5.2 for more information about the work to conserve the High Brown Fritillary in Wales.

### **Large Blue *Maculinea arion***

Monitoring of the number and the distribution of adults was continued on all core sites in 2008. The restoration programme has been highly successful with the butterfly well established on 11 core sites. In Somerset the butterfly has now been estimated to be breeding on 20 sites within the Polden Hills, many of these are natural colonisations to newly suitable sites managed under the project. The Large Blue Poldens Action Group, a partnership of many organisations (led by Butterfly Conservation at present),

which was formally established in 2007 has continued to co-ordinate and develop volunteer effort; practical conservation management tasks were carried out by the group in January and February 2009 at two different sites with mixed scrub cleared to restore chalk grassland. For more information or to join the Poldens Large Blue Action Group, please contact Bernadette Noake ([bnoake@butterfly-conservation.org](mailto:bnoake@butterfly-conservation.org), 01929 406004).

### **Marsh Fritillary *Eurodryas aurinia***

Our priority has been to ensure conservation measures on a landscape scale, maintaining and restoring habitat networks wherever possible. Research has shown that this is the only effective way to halt the decline and maintain the butterfly's range in the long-term. The Two Moors Threatened Butterfly Project is working in priority areas to secure the remaining populations and ensure habitat is managed appropriately (see section 5.8).

In Cornwall the Mid Cornwall Moors LIFE Nature project came to an end in 2008 but we continue to be involved with these sites. We ran an MSc field trip from Exeter University, Cornwall Campus to visit the project sites and gave training on the ecology, habitat management and habitat condition monitoring for the Marsh Fritillary in November 2008. We are currently a CASE partner for a PhD student at this university who is working on genetics and dispersal. Our involvement with such a project ensures that the research is focused on conservation needs.

In Dorset we have continued to give advice and monitor populations across the county, including the key metapopulation in the Blackmoor Vale centred on Lydlinch, Rooksmoor and Deadmoor. These sites still hold populations of the butterfly but are not currently grazed. We have been working with Natural England to advise on grazing and scrub control. As a result, the Natural England local team has now secured grazing at Lydlinch Common with the successful negotiation for permission to fence this common.

In Cumbria, the reintroduced populations were monitored in 2008 and the results show that most of the colonies support sufficiently high numbers to be self-sustaining, at least in the short term. The next challenge is to encourage a landscape-scale approach to managing potential habitat in order to encourage the butterflies to move between sites and to colonise new areas. Again, initial successes suggest that this will prove possible.

In Wales, despite the new Natural Environment and Rural Communities (NERC) Act duty, Local Authorities are still seeking to develop semi-natural habitats adjacent to Marsh Fritillary sites as well as on them. Two developments threaten habitat within the Ystragynlais metapopulation on the Powys/Neath Port Talbot border. Butterfly Conservation staff and volunteers continue to be involved with monitoring the management at Morfa Harlech. Re-designating the SAC to include Marsh Fritillary as a feature seems to be the only answer to current problems. Plans for a landscape project in the area are on hold until these difficulties are overcome. The Mynydd Mawr Marsh Fritillary Project continues to work on conserving the Marsh Fritillary in the Mynydd Mawr Special Area of Conservation (SAC) at Cross Hands in Carmarthenshire (see section 5.2).

Conservation efforts for Marsh Fritillary in Northern Ireland are reported in section 5.3.

### **Pearl-bordered Fritillary *Boloria euphrosyne***

The majority of Butterfly Conservation's work for this species is delivered by our landscape projects working in the South East, Morecambe Bay, North York Moors, Wyre Forest, Herefordshire Commons and Dartmoor.

Management recommendations have been given for every known site in the South East for each of the last four years, but despite this the species may have been lost from three of its ten sites in the South East. In many cases insufficient management has been implemented too late, following several years in which no suitable habitat was created. This has led to dwindling populations, particularly at isolated sites, with the butterfly seemingly unable to take advantage when management is eventually implemented. The regular provision of even small amounts of suitable habitat is a common characteristic of the few thriving colonies, whether provided by rotational coppicing, conifer clearfells or targeted ride management. A reintroduction in 2005 into Abbots Wood in East Sussex illustrates this, with between

0.5 and 2ha of habitat created by Forestry Commission England each year since 2004 through coppicing, mulching of scrub and cutting and spraying of bracken. This has allowed the butterfly not only to build up the population at the original release site but also to colonise new areas up to one mile away where conifers have been felled in standard forestry operations.

In the West Midlands, the Wyre Forest continues to be the main regional stronghold for this butterfly where it continues to be monitored by a combination of timed counts (14 in 2008) and transects. Although numbers were well down on some sites in 2008 compared with 2007, good counts were still obtained on some warm south facing slopes and at least two new colonies were discovered. Butterfly Conservation continues to work very closely with Forestry Commission England in the West Midlands Region and there are now two forest landscape-scale Lepidoptera projects being run by Forestry Commission England as a result of funding from SITA Trust to help implement the Forestry Commission England & Butterfly Conservation Lepidoptera strategy *Lepidoptera on Forestry Commission land in England; Conservation Strategy, 2007 – 2017* (see section 7.4 for more details.). In the Wyre Forest the emphasis has been on management work to benefit fritillaries through the Back to Orange project (see section 5.5). The Herefordshire Wood White project (see section 5.5) is likely to benefit Pearl-bordered Fritillary at Haugh Wood. Other important areas for this butterfly in the West Midlands region include the Herefordshire Commons (some of these are currently covered by the Herefordshire Community Commons Project being run by the Herefordshire Nature Trust) and the Oswestry Hills (where Butterfly Conservation is working with key partners such as the Shropshire Wildlife Trust and Shropshire County Council to ensure appropriate management continues).

In Cumbria the Morecambe Bay Limestones Project is now delivering a programme of scrub clearance, glade creation and clear-felling which will benefit this species; further details are given in the High Brown Fritillary account above and in the regional update section (section 5.4).

In Wales, timed counts revealed numbers were down by two-thirds on 2007 figures at the remaining nine sites in Wales. Management continues by volunteers at Butterfly Conservation's reserve at Eyarth Rocks and two Ceredigion coast sites by the National Trust. Getting positive management on two landholdings is proving difficult where the land is not designated as a SSSI or where Pearl-bordered Fritillary is not a feature for which the site is designated.

### **Wood White *Leptidea sinapis***

### **New UK BAP species**

A national conservation project was set up in 2008, with two national meetings held and an e-mail news group established. The first of these meetings was an indoor session near Worcester, where most of the people involved in this butterfly nationally got together to exchange ideas about how conservation for this butterfly should go forward. The second meeting was a field event at Wigmore Rolls in Herefordshire where the site management was discussed and where some new Wood White egg recording forms were trialled. Since then, volunteers from Butterfly Conservation branches throughout the country have been sending in site details and egg data to help to inform a paper which will be produced later in 2009.

In 2008, a project was developed in Herefordshire by Forestry Commission England with support from Butterfly Conservation, called the Herefordshire Wood White project. Funding was obtained from SITA Trust to enable management work to take place on eight Forestry Commission England sites in Herefordshire (see section 5.5 for more details). This funding has also enabled Wood White monitoring schemes to be set up on all eight sites as well as some research work into the habitats occupied by the Wood White. Some of the initial findings of the Wood White research work (which was concentrated on two sites) were as follows:

- a) Despite poor weather, both sites studied produced a second brood.
- b) There was some suggestion that differing breeding areas and different foodplants were used by first and second brood Wood White. However the sample size was small and further work is needed to confirm this.
- c) At both sites, meadow vetchling *Lathyrus pratensis* was the most frequently recorded foodplant for egg-laying in the first brood. At both sites, birds-foot-trefoil *L. corniculatus* was the only other foodplant recorded as used for egg-laying.
- d) Eggs were laid within a wide range of surrounding vegetation heights, from a low of 13 cm to a high of 120 cm.
- e) At both sites there was no evidence that a large proportion of eggs are laid close to the ride edge where they would be strongly affected by track use and management.

- f) Searching for eggs, rather than by observing egg-laying, did bias results towards lower vegetation and also may miss eggs that are laid some distance from the ride edge.

(Clarke & Green, 2009).

In Shropshire, Forestry Commission England continue to coordinate the monitoring of three key sites by transects and a Clive Tate Memorial Fund Grant of £500 enabled further research work to be carried out in the Bury Ditches area by Sue Clarke. While this work was severely hampered by poor weather, bird's-foot-trefoil species *Lotus spp.* were found to be the most abundant and well distributed of the possible foodplants at Bury Ditches in both 2007 and 2008. Meadow vetchling *Lathyrus pratensis*, although generally uncommon at Bury Ditches, appeared to be more abundant and was recorded on more ride sections in 2008 than in 2007. Overall, at Bury Ditches (and Radnor Wood) most eggs were laid on bird's-foot-trefoil species, usually greater bird's-foot-trefoil *Lotus pedunculatus*. (Clarke, 2009).

In the South East, the Wood White has been able to benefit from improvements in woodland management at some sites. In 2008, poor weather in May meant that very few butterflies were recorded from the spring brood, with few sightings above single figures. It has become clear in recent years that the Wood White is double-brooded at all of its south-east sites, and 2008 showed that this can allow the species to recover from a poor first brood, with relatively good numbers being seen in late summer despite the spring wash-out. It occupies a broad range of habitats in the region including woodland rides, an abandoned railway line and a former brickworks site. In its woodland stronghold at Chiddingfold Forest the species has been able to benefit from the creation of new open habitat, initially provided for Pearl-bordered Fritillary. The creation of a series of ride-side scallops, where mature trees have been felled or scrub has been cleared, is providing a network of improved open space for a range of Lepidoptera, but Wood White has been one of the first species to respond and is already breeding in clearings created less than a year earlier.

### 4.3 Additional species factsheets

Priority species factsheets have been produced to raise awareness and give advice for land managers, detailing ecology, habitat management and survey methodologies for 33 moths and 17 butterflies. In 2007 and 2008 a number of new species factsheets were produced. The factsheets can be downloaded from [www.butterfly-conservation.org/mothspeciesfactsheets](http://www.butterfly-conservation.org/mothspeciesfactsheets) or [www.butterfly-conservation.org/butterfliesspeciesfactsheets](http://www.butterfly-conservation.org/butterfliesspeciesfactsheets). Paper copies can be obtained contacting Butterfly Conservation (01929 400209, [info@butterfly-conservation.org](mailto:info@butterfly-conservation.org)). Depending on the quantity required we may need to charge for postage.

## 5. Butterfly Conservation Country and Regional Updates

### 5.1 Butterfly Conservation in Scotland

#### Species Action Project

Butterfly Conservation Scotland, Scottish Natural Heritage and Forestry Commission Scotland have teamed up to help some of Scotland's rarest butterflies and moths. This new project focuses on four species (three butterflies and a moth), **Marsh Fritillary** *Eurodryas aurinia*, **Chequered Skipper** *Carterocephalus palaemon*, **Pearl-bordered Fritillary** *Boloria euphrosyne* and **Slender Scotch Burnet** *Zygaena loti scotica*, and builds on previous work.

In many cases the focus will be on landscapes rather than individual isolated sites as the project aims to link existing colonies to create networks of sites, allowing adults to move more readily between colonies making these populations more robust and sustainable. The project will focus on ten key landscape areas which have been identified as being some of the most important landscapes for butterflies and moths in Scotland.

It will also help the Scottish Government deliver its commitment to biodiversity as three of the species (Marsh Fritillary, Pearl-bordered Fritillary and Slender Scotch Burnet) are included on the Species Action Framework (led by Scottish Natural Heritage), launched last year to provide targeted action for 32 Priority species in Scotland. Whilst the two woodland butterflies, (Chequered Skipper and Pearl-bordered Fritillary), are priorities in the Scottish Forestry Strategy (led by Forestry Commission Scotland) that aims to help protect and enhance biodiversity.

These key species face a number of issues. The fate of Marsh Fritillary is linked to the future of farming and crofting in the remote and marginal areas that the species occurs. Many Pearl-bordered Fritillary and Chequered Skipper sites have deteriorated as regenerating trees and rank vegetation have developed. Whilst for Slender Scotch Burnet, bracken *Pteridium aquilinum* and scrub encroachment has severely reduced the area of suitable habitat.

To date work has focused on working with landowners and their advisors to access funding through Scotland's new Scottish Rural Development Programme (SRDP) to enhance their land for these key species. This has resulted in the production of site specific grazing or woodland plans.

Butterfly Conservation Scotland would like to thank Scottish Natural Heritage and Forestry Commission Scotland for part funding this exciting new project. We are also indebted to the co-operation and enthusiasm of all landowners and the many volunteers who survey and monitor these important colonies.

Contributed by Dr. Tom Prescott, *Species Conservation Officer – Scotland* ([tprescott@butterfly-conservation.org](mailto:tprescott@butterfly-conservation.org)).

### **Other activities**

Butterfly Conservation Scotland's core grant from Scottish Natural Heritage helps us carry out a range of other activities such as:

- co-ordinating monitoring and surveys for other UK BAP butterflies and moths,
- organising meetings for Butterfly Conservation members and volunteers,
- working on policy and media issues,
- raising the profile of Lepidoptera and of Butterfly Conservation Scotland.

Each autumn we now hold a Members' Day to celebrate what we have achieved during the year and to provide another opportunity for members across Scotland to meet up. In the spring we have a Recorders Gathering to provide feedback for those helping with surveys and monitoring and to look at priorities for the year ahead.

Much time is spent with other NGOs working on policy issues for agriculture, forestry and planning, in helping implement the Scottish Biodiversity Strategy, and influencing debates on energy and transport.

In recent years we have organised an annual postcard survey to encourage the public to record a common and (hopefully!) unmistakable butterfly and also to raise the profile of Butterfly Conservation Scotland. Following very successful surveys for **Orange-tip** *Anthocharis cardamines* and **Peacock** *Inachis io* in the north and west of Scotland, in 2009 we are running a Scotland-wide survey for the **Small Tortoiseshell** *Aglais urticae*.

Butterfly Conservation Scotland also attends Scotland's biggest Garden Show (just outside Edinburgh) each year and is now also working with Edinburgh Butterfly and Insect World to develop a butterfly garden.

Contributed by Paul Kirkland, *Director – Scotland* ([pkirkland@butterfly-conservation.org](mailto:pkirkland@butterfly-conservation.org)) and Shona Greig, *Administrative Officer – Scotland* ([sgreig@butterfly-conservation.org](mailto:sgreig@butterfly-conservation.org)).

## **5.2 Butterfly Conservation in Wales**

Butterfly Conservation is embarking on a new way of working in Wales. A consortium of wildlife organisations undertook a desk study of the flagship Tir Gofal agri-environment scheme, to see if it could help conserve a range of species. Later in the year the same consortium bid for, and was awarded, a contract by the Welsh Assembly Government to monitor the schemes' impact on the ground. The three butterflies selected were **Marsh Fritillary** *Eurodryas aurinia*, **Brown Hairstreak** *Thecla betulae* and **Small Pearl-bordered Fritillary** *Boloria selene*.

Nine butterflies and moths are included in a species targeting package as part of the current window of Tir Gofal applications. Over two days Project Officers and Farm Inspectors were given training in the new species' packages. Feedback for the indoor and field elements is helping to refine the information



we've provided and how to overcome any perceived management conflicts between species. To coincide with this work a bilingual Wales Farmland leaflet was produced with funding from the two Butterfly Conservation Branches in Wales and the Wales Biodiversity Partnership.

Extra moths have been added to the Wales Biodiversity Action Plan (BAP) in 2008. The **Welsh Clearwing** *Synanthedon scoliaeformis* is joined on the Section 42 list by three other species, two of which are only found in Wales (**Weaver's Wave** *Idaea contiguaria* and the **Silurian** *Eriopygodes imbecilla*) and the third (**Scarce Hook-tip** *Falcaria lacertinaria*) is found in both England and Wales. All three require further research into their ecology and the Silurian's sole breeding locality is threatened by windfarm development.

With the new UK BAP list, Butterfly Conservation has also undertaken a complete review of its Wales National Action Plan. The first plan was published in 1998 and while sections on key areas and sites remain relevant, the species and actions needed updating and disaggregating to Local Biodiversity Action Plan areas. The new Action Plan will help to prioritise our survey and conservation work over the next ten years. It will be published as a 'live' document on the Butterfly Conservation website.

We are currently re-negotiating the contract for forest monitoring work with Forestry Commission Wales. The aim is to take account of the new Wales BAP species and help ensure management work is efficiently directed and assessed. For instance Forestry Commission Wales owns most of the sites with **Drab Looper** *Minoa murinata* in Wales so has a key role in delivering targets for that species.

At Clocaenog Forest research on the **Small Pearl-bordered Fritillary** *Boloria selene* continues. Over eight years this has shown a dynamic metapopulation structure with on average 80% occupancy of up to 46 sites. The most transient populations are on clear fell but management is needed to keep riparian sites open. (Williams and Hobson, 2009).

As part of the United Kingdom Butterfly Monitoring Scheme (UKBMS), the number of transects in Wales has jumped from 27 to 49 since 2006. This means we can start to put together a robust butterfly indicator for Wales. Work is also on going to improve the quantity and quality of non-transect data for key species such as the Marsh Fritillary.

Further work is planned on the Brown Hairstreak by the South Wales branch. An application to Awards for All with match funding from Carmarthenshire County Council will mean more surveys and management at key sites. Signs will be provided to warn contractors of hairstreak hedges.

No year would be complete without the usual flurry of planning issues. One positive project has seen Butterfly Conservation working with Wrexham County Borough Council to help shape a Supplementary Planning Guidance for the huge industrial estate on the outskirts of the town. The estate has a significant proportion of Wales' **Grizzled Skipper** *Pyrgus malvae* colonies and is home to **Dingy Skipper** *Erynnis tages* and **White-letter Hairstreak** *Satyrrium w-album*. A local volunteer is also gathering moths trapped in factory lights to assess the assemblage of species present.

Butterfly Conservation's work in Wales is funded by the Countryside Council for Wales through the *Implementing Action Plans for Lepidoptera* project. The Clocaenog work is funded by Forestry Commission Wales and Forest Research. The *Implementing Site Management Recommendations and Monitoring* project is funded by Forestry Commission Wales. Significant support for these projects was also received from the Waterloo Foundation.

Contributed by Russel Hobson, *Head of Conservation Wales* and Clare Williams, *Conservation Officer*, ([wales@butterfly-conservation.org](mailto:wales@butterfly-conservation.org))

### **The Mynydd Mawr Marsh Fritillary Project**

The Mynydd Mawr Marsh Fritillary Project is a partnership between Butterfly Conservation and the Countryside Council for Wales (CCW). We work in a key but fragmented **Marsh Fritillary** *Euphydryas aurinia* population centred on the Mynydd Mawr Special Area of Conservation (SAC) at Cross Hands in Carmarthenshire, Southwest Wales.

CCW fund 5-year management agreements with the owners of Marsh Fritillary habitat – damp Rhôs pasture containing the butterfly's foodplant, devil's-bit scabious *Succisa pratensis*. We pay an annual management fee, and also can arrange grazing and fund fencing, water supplies and scrub clearance, as long as they agree to light summer grazing. Cattle or ponies create a mosaic of short turf where the butterflies lay their eggs amongst taller tussocky grass (usually purple moor-grass *Molinia caerulea*). 56ha of small fields are now in management agreements, and we are nearing agreement on another 54ha, including an unusually large single block of 36ha.

At the same time, Carmarthenshire County Council (CCC) and the Welsh Assembly Government (WAG) see Cross Hands as a high priority regeneration area, and much development has been at the Marsh Fritillary's expense. We are currently facing numerous applications for small to medium sized housing developments, as well as a large CCC/WAG scheme for a new road and business park. This will bisect the project area and, in combination with the previous development, will severely restrict movement within the metapopulation. CCW have advised us that, while only a small proportion of the Marsh Fritillary's habitat is included in the SAC, a threat to any part of the metapopulation is covered under the European Habitats Regulation. This gives strong protection to the Marsh Fritillary (and many other species such as otter *Lutra lutra* and dormouse *Muscardinus avellanarius*).

We are working with CCC and WAG to explore ways to avoid direct damage to Marsh Fritillary habitat, and to retain permeability throughout this landscape. We are optimistic that this will begin with extensive surveys of the surrounding landscape in 2009, to inform future discussions.

These are only the first steps, but we hope to set a strong precedent for Marsh Fritillary protection throughout the UK.

Contributed by Dr Deborah Sazer, *Mynydd Mawr Project Officer* ([dsazer@butterfly-conservation.org](mailto:dsazer@butterfly-conservation.org)).

## High Brown Brackenlands

The first phase of this **High Brown Fritillary** *Argynnis adippe* landscape project finished in 2006. It saw the successful restoration of 39ha of breeding habitat in its last locality in Wales, the Alun Valley and Old Castle Down, in the Vale of Glamorgan. An 18ha mosaic of bracken *Pteridium aquilinum* slopes and open woodland was also fenced and pony grazing introduced to slow down succession. The butterflies were seen mating and egg laying in the newly restored areas and larvae were found.

The second Phase of the project aims to maintain the core locality but also looks to restore the former network of sites within 25km. A small pot of funding enables the on-going volunteer management and monitoring work in the Alun Valley to continue. A Species Challenge Fund grant is enabling trial restoration of former sites outside of the Alun Valley identified in a feasibility study.

The furthest and closest sites to the Alun Valley were targeted in the first year. Ogmores Down is 0.5km from the current population and Y Graig, near Llantrisant, is 22km to the north east. At Ogmores Down a power scythe was used to restore areas of dense bracken and 0.16ha was cut. On the steep slope of Y Graig, 0.5ha of dense bracken litter was cleared with a power scythe and a water trough installed. The commoners have now re-introduced cattle grazing that will speed the restoration of the whole site and the project has engendered a great deal of local goodwill. In the short term the work will also benefit the Small Pearl-bordered Fritillary and **White-spotted Sable Moth** *Anania funebris*; two new Section 42 species and new UK BAP Priority species.

The project is funded by Vale of Glamorgan County Borough Council, Countryside Council for Wales and Butterfly Conservation. The Glamorgan Heritage Coast also provides additional staff time for management and monitoring.

Contributed by Russel Hobson, *Head of Conservation Wales* ([wales@butterfly-conservation.org](mailto:wales@butterfly-conservation.org)).

## Tonyrefail Rhôs Pasture Pilot Project

Over three years this project has brought 88ha of Rhôs pasture into sympathetic management for Marsh Fritillary. Much of the land around this small Rhondda valley town has recently been designated as a SSSI for the Marsh Fritillary and its species-rich grassland. This year a Project Officer is transferring

landowners with Butterfly Conservation's Land Management Agreements in to Section 15 agreements with Countryside Council for Wales, to ensure the habitat improvements are maintained.

A commuted sum has been secured from Rhondda Cynon Taff County Borough Council as part of a road development further south. As the road is in the same Marsh Fritillary metapopulation as Tonyrefail, the money will be used as match funding for other grant bids. This will expand the project across the entire metapopulation.

The project was the first to be developed out of the Coalfields Rhôs Pasture partnership and has been funded to date by Countryside Council for Wales, Welsh Assembly Government, Butterfly Conservation and Rhondda Cynon Taff County Borough Council.

Contributed by Russel Hobson, *Head of Conservation Wales* ([wales@butterfly-conservation.org](mailto:wales@butterfly-conservation.org)).

### 5.3 Butterfly Conservation in Northern Ireland

On several fronts 2008 was one of the most positive for several years in Northern Ireland, with several important priority species found to be surviving in greater numbers than previously thought, thanks to improved levels of searching and recording. In addition invaluable work has been carried out to increase the knowledge of the ecology of one unique species, **Real's Wood White** *Leptidea reali*.

Invaluable work by a Northern Ireland MSc student has produced the first detailed knowledge of the ecology of Real's Wood White in what is the United Kingdom's only population of this butterfly. Much of what has been written about the ecology of Wood White in the UK and Ireland has been based on the study of **Wood White** *Leptidea sinapis*. Nothing really had been studied specifically on the habitat preferences, food requirements or oviposition preferences of *Leptidea reali* in Northern Ireland. In 2008 Neal Warnock, studying Ecological Management and Conservation Biology at Queen's University undertook a detailed study of the species and its lifestyle and produced a thesis detailing important aspects of its ecology and is a significant contribution to the conservation of *L. reali*.

In addition to the work on Real's Wood White, two other species have been recorded on significant new sites, the **Argent & Sable** *Rheumaptera hastata* (reported in section 4.2.1) and the **Marsh Fritillary** *Euphydryas aurinia*.

With the Marsh Fritillary in decline across Europe and the United Kingdom every colony is important and an audit of potential sites (characterised by the fritillary's food-plant devil's-bit scabious *Succisa pratensis*) is a pre-requisite for conservation initiatives. By 2005 the number of known viable colonies in Northern Ireland had fallen to just eight, all but one were in the east of the Province, and all were monitored under the Marsh Fritillary Action Plan drawn up by Butterfly Conservation and the (then) Environment and Heritage Service.

Then in 2006 a number of webs were discovered during a Northern Ireland Environment Agency survey of purple moor-grass and rush pasture habitat in Co. Fermanagh and following a wider search it was estimated there could have been up to 1000 webs, potentially the biggest colony in Northern Ireland. This sparked a new wave of enthusiasm to identify potential sites and search for colonies with the result that there are now more than 20. Some of these have been declared new Areas of Special Scientific Interest (ASSIs).

A major Butterfly Conservation and Department of Agriculture and Rural Development (DARD) initiative in the search has been the 'recruitment' of DARD farm advisors in the west of the province. A workshop training event was organised with training in identification etc. to locate suitable patches of habitat on farms they visit and hopefully also adult butterflies and larval webs. This initiative will undoubtedly deliver many more populations in the years ahead.

Ironically, because many people would have a negative attitude to them, wind farms are proving a fruitful source of new finds. As their sites require rigorous Environmental Impact Assessments they are now subject to detailed audits that would probably not otherwise be carried out. Following the discovery of colonies on one in Fermanagh in 2007 a second, in West Fermanagh, was added to the growing list in 2008.

In Northern Ireland fingers are crossed that a very slight positive trend for **Wall Brown** *Lasiommata megera* revealed last year can be maintained. In 2007 only four individuals were recorded, on the coast north of Ardglass and in the eastern Mourne country. Last year following additional effort by the N.I. Branch of Butterfly Conservation the same general area of south and east Co. Down produced no fewer than 12 individuals from nine sightings! As a result a bigger programme of visits is planned for 2009, especially the coastal area between Portaferry and Carlingford Lough.

Contributed by Maurice Hughes, *Northern Ireland Senior Regional Officer* ([mhughes@butterfly-conservation.org](mailto:mhughes@butterfly-conservation.org)).

## 5.4 Butterfly Conservation in Northern England

### The North York Moors

Most work undertaken in the North York Moors in 2008 has focused on the **Duke of Burgundy** *Hamearis lucina*. There can be little doubt that the butterfly enjoyed one of its better years of recent times, at least within the Helmsley network where sites have been managed for several years. Summation of maximum adult counts from occupied sites was the highest since systematic monitoring began in the early 1990s. Furthermore, there was evidence of the butterfly expanding its range; colonisation of a small site occurred and Duke of Burgundy was seen at two sites from where it has long been absent. This is the first evidence that the remaining sites may be capable of functioning as a metapopulation, at least in years where adult numbers are sufficiently high.

Volunteers and staff continued to monitor occupied sites. Population data from 2008 suggest one site supported a large-sized colony (20+ adults) and two supported medium-sized colonies (10-20 adults and/or 6-25 egg sites and/or 11-50 eggs). The remaining eight sites supported small colonies (<10 adults and/or 1-5 egg sites and/or, 1-10 eggs).

Management activity undertaken in 2008 involved scrub and bracken control, glade expansion by felling, bracken bruising and cowslip planting, with most of the work undertaken by volunteers. In total, 5 sites were managed and further work is already scheduled for 2009.

A planned captive breeding programme was not undertaken due to the reappearance of the butterfly at the proposed release site in 2008. Further potential introduction sites have been identified in the Thornton-le-Dale area. The butterfly will not be introduced at these sites until a five year period of absence has been confirmed, even though two of the sites currently have suitable habitat.

Butterfly Conservation has been awarded a £9000 grant from the North York Moors National Park's Sustainable Development Fund. This money will be used to produce an "opportunities map" that will highlight sites where management work could improve habitat quality sufficiently to permit colonisation or introduction of the butterfly. Once these sites and necessary work have been identified, fundraising work will then be undertaken in order to raise the capital necessary to undertake landscape-scale management of sites.

### The Morecambe Bay Limestones Project

Much of the work undertaken in this area has focused on a four-year landscape-scale project designed to conserve the **High Brown Fritillary** *Argynnis adippe* and **Pearl-bordered Fritillary** *Boloria euphrosyne* through a programme of scrub clearance, coppicing and other woodland management. Work has now commenced and, at the time of writing, has been completed on 14 out of 27 earmarked sites. A partnership has been forged with Forestry Commission England, who are currently targeting sites identified by Butterfly Conservation staff with Woodland Improvement Grants (WIG).

Applications for WIGs have now been approved for a total of nine sites. Benefits will be twofold. Firstly, approximately three times as much work will be undertaken on these sites as was originally envisaged. Secondly, GrantScape funds will be "freed up" and this will ensure that additional work on other key sites will now be undertaken. Project staff will oversee all work undertaken under this grant scheme, ensuring that all work will be targeted on areas most likely to benefit key butterfly species.

A part-time Project Officer (Martin Wain) has been appointed. Martin's initial role will be to develop volunteer participation, as this will be essential if the impetus of this project is not to be lost upon the expiry of the four-year funding package. In the meantime, some of the work earmarked for contractors will be undertaken by Martin's volunteers, meaning that contractors are able to target greater effort at a reduced number of sites.

This work cannot be undertaken too soon. Data from twenty-eight transects undertaken in 2008 show that populations of High Brown Fritillary, Pearl-bordered Fritillary, **Small Pearl-bordered Fritillary** *Boloria selene*, Duke of Burgundy, **Dingy Skipper** *Erynnis tages* and **Grayling** *Hipparchia semele* are all undergoing substantial declines, although most have shown a slight improvement on 2007 figures (the exceptions being Dingy Skipper and Small Pearl-bordered Fritillary). One can only hope that all these species respond positively to new management regimes implemented through the project.

The continued work on **Marsh Fritillary** *Eurodryas aurinia* in Cumbria is reported in section 4.2.3.

Contributed by Dr. David Wainwright, *Morecambe Bay Limestones Project Officer/Northern England Regional Officer* ([dwainwright@butterfly-conservation.org](mailto:dwainwright@butterfly-conservation.org)).

## 5.5 Butterfly Conservation in the Midlands

### Landscape level projects successfully working with the Forestry Commission in the West Midlands

There is no doubt that Forestry Commission England and Butterfly Conservation have a very close and successful working relationship in the West Midlands. There are now two forest landscape scale Lepidoptera projects being run by Forestry Commission England as a result of funding from SITA Trust on key forests in the region to help implement the Butterfly Conservation/Forestry Commission England 10 year national conservation strategy (*Lepidoptera on Forestry Commission Land in England; Conservation Strategy, 2007-2017*). Forestry Commission England have also recently provided Butterfly Conservation with funds to enable us to develop even more forest projects elsewhere in the region. This successful relationship has resulted from many years of collaboration with the efforts of local volunteers having played a key part in this process.

The first of these two forest landscape projects, the Back to Orange Project, is allowing work to take place to conserve the fritillaries of the Wyre Forest with SITA Trust funding of £73,000. This project is now well underway with extensive management work having been undertaken on a number of sites in two out of the six management areas. This work has involved the opening up of large areas, extensive ride and pipeline widening and starting to create better links. The work is also phased over three years so that it fits in with ongoing forestry thinning operations to minimise costs.

The project is not restricted to management work alone and also involves an annual survey and monitoring programme (for three years) as well as a research programme based around key Lepidoptera. Some highlights of this programme to date include very good **Pearl-bordered Fritillary** *Boloria euphrosyne* timed counts on many sites, new insights into the wet flushes occupied by **Small Pearl-bordered Fritillary** *Boloria selene* (as a result of study by the local entomologists in the Wyre Forest Study Group), and good numbers of **Common Fan-foot** *Pechipogo strigilata* recorded by Dave Grundy. In 2008 we were also able to try out some platform sampling for the first time to attempt to gain new insights into the importance of the tree canopy. Research also began to try to assess the impact of PAWS (Plantation on Ancient Woodland Site) restoration on Lepidoptera. Other parts of this project involve building up the records database (which thanks to Dave Grundy now stands at 56,000 records) and assessing the long term open space requirements of key Lepidoptera.

The Back to Orange Project is also part of a much larger landscape partnership scheme being led by Forestry Commission England called 'Grow with Wyre'. This scheme has just been awarded a grant of nearly £2 million from the Heritage Lottery Fund to help to restore the unique landscape of Wyre and celebrate its rich working history through the delivery of 18 projects. The Back to Orange component of the Grow with Wyre scheme will involve setting up a programme of training events to hopefully result in many more local people being involved in Lepidoptera survey and monitoring work in this area in the future. At present, most of our records from this area come from a small number of West Midlands

branch volunteers, many of whom are not local to the area. This is unsustainable in the long term so the aim is to develop a much more local active group.

2008 also saw the start of the second forest landscape project in the region entitled 'Herefordshire's Wood White Butterflies'. SITA Trust funding of £88,000 will allow management work to benefit this butterfly to take place on eight Forestry Commission England sites, including Haugh Wood and Wigmore Rolls. Much of this management work is currently underway and includes coppicing work, the creation of new rides and glades, ride side management and improving linkage. As with the Back to Orange project, this project is also enabling wider work to take place including baseline vegetation survey work (which has been carried out by Forestry Commission England staff in all the project work areas), baseline **Wood White** *Leptidea sinapis* monitoring and some habitat assessment work. Sadly the summer of 2008 was not the best time to start this habitat assessment work as it was going to be based on observations of egg laying females and these were in very short supply due to the poor weather conditions. The work on the Herefordshire Wood Whites also became part of the wider national Wood White conservation project organised by Jenny Joy and Stephen Jeffcoate. This project got off to a successful start in 2008 with two events, lots of input from Butterfly Conservation Branches from all over the country and plans to produce a first paper early in 2009 which will include a number of observations from Herefordshire.

Thanks to all Forestry Commission England staff who have made joint working such a pleasure. Thanks also to the SITA Trust and Heritage Lottery Fund for funding for this vitally important work.

Contributed by Dr. Jenny Joy, *West Midlands Senior Regional Officer* ([jjoy@butterfly-conservation.org](mailto:jjoy@butterfly-conservation.org)).

### **Brownfield butterfly and moth work in the Midlands**

The Brownfields for Butterflies and Moths project culminated in a successful conference in Stratford upon Avon on 4<sup>th</sup> February 2008. It was attended by 77 delegates from a wide variety of sectors including the water, rail and aggregates industries, environmental consultancies, councils and ecologists.

From March onwards work focussed on securing funding for a Bringing Back the Small Blue project to manage, restore and recreate habitats on 18 sites around Southam in Warwickshire where the last three colonies in the West Midlands still remain. So far Butterfly Conservation has been successful in obtaining a large proportion of the money required from SITA Trust, Cemex, Stratford Community Fund and Network Rail. The three year project started in March this year.

Other work during 2008 included providing management advice and encouraging suitable management of Brownfield sites, for example, 4ha of dense scrub were cleared at Stockton Cutting, Warwickshire, with a grant from the Cemex Community Fund. Volunteers, including a Barclays Bank team and two school parties planted over 1000 kidney vetch *Anthyllis vulneraria* plants. Crushed limestone has been laid along a footpath through the area and should provide some good egg laying sites. A large patch of creeping cinquefoil *Potentilla reptans* has developed which should help the small colony of **Grizzled Skipper** *Pyrgus malvae* to expand. A new transect has been established here for 2008. Work will continue over the next three years as part of the Bringing Back the Small Blue project.

Comments were provided on strategic documents including the Rutland Minerals Core Strategy and Warwickshire Biodiversity Strategy. Brownfield displays and leaflets were provided at key events including a Biodiversity Day at a Tarmac Quarry and a brownfield workshop at a Biodiversity Day for Nottinghamshire and Derbyshire. A talk was also given to the Soil and Groundwater Technical Association. Additionally, Butterfly Conservation provided the Lepidoptera content to Buglife's publication *Managing Aggregates Sites for Invertebrates*.

Two training days were held for Network Rail staff. One event was held in Peterborough to train staff to look for **Four-spotted** *Tyta luctuosa*, Grizzled Skipper and **Dingy Skipper** *Erynnis tages* and another event was held in Stoke on Trent to help staff to identify Dingy Skipper.

Advice has been given on various development proposals including Chatterley Whitfield Former Colliery Site which is to be turned into a country park. The site supports the largest known colony of Dingy Skipper in Staffordshire. A number of mitigation measures will be put in place as part of the restoration

works and plans for the site now focus on developing habitat for rare brownfield invertebrates including Dingy Skipper.

In the East Midlands advice has been given to various landowners including on Four-spotted, Dingy Skipper and Grizzled Skipper to Castle Cement at Ketton and Leicestershire and Rutland Wildlife Trust on Ketton Quarry SSSI. Links have been forged with the Aggregates Industry at Bardon Hill Quarry with plans for East Midlands Branch volunteers to survey the site in 2009.

Contributed by Jane Ellis, *Regional Brownfields Officer (East and West Midlands)* ([jellis@butterfly-conservation.org](mailto:jellis@butterfly-conservation.org)).

## 5.6 Butterfly Conservation in the East of England

Partnership working with Network Rail confirmed several new sites for **Grizzled Skipper** *Pyrgus malvae* in Hertfordshire and several colonies at a 34.4ha area of old railway sidings at Connington in Cambridgeshire. Network Rail has undertaken to manage these sites for Grizzled Skipper in the long term. A successful training day was held near Peterborough for Network Rail maintenance staff to enable them to identify key butterflies and moths and potential habitat along the rail network throughout the East of England. A short talk about this partnership work was given at the Local Biodiversity Action Plan (LBAP) conference in Cambridge in July. Sites occupied by the Grizzled Skipper continue to be under threat from development in the Eastern Region. This is especially the case in Bedfordshire where several colonies may be lost in the Marston Vale area if a proposed new Eco Town goes ahead.

There is concern over reduced numbers of **Dingy Skipper** *Erynnis tages* along the woodland rides in Norfolk and Suffolk Breckland, exacerbated by a wet and cold spring. Plans by the Forestry Commission England to widen rides and create additional bare ground should help improve the situation in 2009. Dingy Skipper remained stable along the south facing Devil's Dyke chalk embankment in Cambridgeshire thanks to continued work by Butterfly Conservation's Cambridgeshire and Essex branch.

There has been further bad news for **Small Blue** *Cupido minimus* in Cambridgeshire with none seen at any of the former known sites. However, in Bedfordshire at Totternhoe Quarry, Sundon Quarry and Kensworth Quarry numbers remained high. The long term potential at all chalk quarries remains very good due to the continual supply of bare chalk and kidney vetch *Anthyllis vulneraria*. Detailed work on Small Blue at Totternhoe by the Wildlife Trust for Bedfordshire, Cambridgeshire, Northamptonshire and Peterborough has identified management to benefit this species. A project funded by Cemex identified a large population of Small Blue at Kensworth Quarry near Dunstable and plans have been developed to secure long term restoration to benefit Small Blue as the quarry is worked and restored over the next 30 years.

Numbers of **Chalkhill Blue** *Lysandra coridon* at Devil's Dyke in Cambridgeshire have continued to spread along the site wherever the foodplant is found. This butterfly has benefited from a 5 year Heritage Lottery funded Wildlife Trust project (which has now finished) to clear scrub and re-introduce mainly autumn sheep grazing. At Therfield Heath in Hertfordshire overgrazing by sheep during the summer severely reduced Chalkhill Blue numbers in 2007 and 2008 but a break from grazing in 2008 on part of the site should hopefully see numbers restored by 2009.

**Silver-studded Blue** *Plebejus argus* generally had a better year in Norfolk and Suffolk than 2007. The translocation by the Suffolk Branch at Blaxhall Common was successful in year one but numbers remain low at the three urban heaths around Ipswich.

A substantial amount of moth conservation work has been undertaken in the region, much of which is reported elsewhere in this bulletin including survey and monitoring work for **Four-spotted Tyta** *luctuosa*, **White-spotted Pinion** *Cosmia diffinis* and **Chalk Carpet** *Scotopteryx bipunctaria*.

### Working to Save the Brecks

The development of a Brecks Landscape area project to benefit scarce butterflies and moths saw its first success with a £38,000 grant from SITA Trust to undertake a project to create bare ground strips on grass heaths and forest rides to benefit **Grey Carpet** *Lithostegia griseata* moth and other scarce

breckland species dependent on bare ground and ruderal species. The Grey Carpet is a new UK Biodiversity Action Plan (BAP) Priority species only found in the Breckland area of Norfolk and Suffolk. This project was also supported by Forest Heath District Council and Norfolk Biodiversity Partnership and started in November 2008. Further fundraising work is underway to secure the project beyond 2009.

The presence of bare ground is an important feature of heathlands and dry grasslands and vital for many scarce Lepidoptera in the Brecks of Norfolk and Suffolk. In recent years sheep grazing and mowing combined with some very wet summers has led to a decline in bare ground on heathland sites and forest rides.

The grant from SITA trust is helping to reverse this trend by funding the creation of over 40 bare ground plots at 14 different sites across the Brecks landscape. There are five different treatments being used; turf stripping, forest plough, agricultural plough, rotovation and disc harrow. The forest plough creates two ridges of bare soil up to 10 inches high with a patch of undisturbed vegetation in the middle. Most of the plots are 150m long and 3m wide.

There are many butterflies and moths that might benefit from this type of habitat management. Survey work by Gerry Haggett on **Basil Thyme Case-bearer** *Coleophora tricolor* a micro moth which is only found in the Brecks of Norfolk and Suffolk confirmed that creating bare ground was essential for the moth and results in 2008 confirmed the largest ever number recorded along scarified rides at King's Forest.

Another moth that can build up numbers in one season is the Grey Carpet which depends on flixweed *Descurainia sophia* growing in disturbed soils. In the longer term Dingy Skipper and Grizzled Skipper might benefit from the short turf and abundant flowers that will hopefully eventually cover the bare soil. At Cranwich Heath there are two treatment plots side by side at a former Dingy Skipper site now invaded by wood small reed *Calamagrostis epigejos* a highly invasive grass that has become a major problem at many breckland sites.

This project will also enable wider work to take place including butterfly and moth surveys and vegetation monitoring throughout the spring and summer. Survey work includes several sites with agri-environment schemes such as cultivated margins. There should be a much better indication of the distribution of moths and butterflies in the Brecks and the value of bare ground as a result of the project.

Contributed by Sharon Hearle, *East of England Regional Officer* ([shearle@butterfly-conservation.org](mailto:shearle@butterfly-conservation.org))

## 5.7 Butterfly Conservation in South East England

2008 saw the first full year of the South East Woodlands Project, which aims to tackle the precipitous decline of many of our woodland butterflies and moths by promoting the sustainable management on which they depend. Butterfly Conservation's biggest ever conservation project is funded by the Heritage Lottery Fund and the Tubney Charitable Trust and is a partnership with Forestry Commission England and a host of other organisations.

The project is now funding four staff in the region. Dan Hoare is the Senior Regional Officer working across the south east, while three project officers deliver conservation focused on key landscape areas; Fran Thompson in the Denge Woods of Kent, Steve Wheatley in the Rother Woods of East Sussex and Kate Dent in the Tytherley Woods on the Hampshire/Wiltshire border. Woodland Lepidoptera such as the **Pearl-bordered Fritillary** *Boloria euphrosyne* and **Drab Looper** *Minoa murinata* have long been a focus of Butterfly Conservation's work in South East England, but this project brings a new capacity to influence management through a combination of focused habitat improvements in landscape-scale demonstration areas and the promotion of best-practice management across the whole region.

Over three years, until spring 2011, project staff are providing four tiers of training to provide information and support in woodland management for biodiversity at all levels: to the general public, to new and existing volunteer groups, to woodland management professionals and to individual site owners. While staff provide site- and species-specific management recommendations to enhance habitats for butterflies and moths, a volunteer network assists with surveys to highlight key species and with work parties to directly improve habitat. The project also helps woodland owners find ways to cover the costs of management, from economic forestry to special grants through the Landfill Communities Fund. We are



also assessing the effectiveness of enhanced Forestry Commission grants, through the English Woodland Grant Scheme, which target grant aid at important areas for biodiversity.

In its first year the project has given management advice at more than 90 sites in the region and more than 1000 people took part in 55 events organised by the South East Woods project team. In addition volunteers have already contributed 200 days' work to the project through targeted surveys, running public events and practical work parties. Notable successes achieved through the increased level of recording in the project have included the discovery of unknown colonies of **Dingy Skipper** *Erynnis tages*, **Duke of Burgundy** *Hamearis lucina* and **Black-veined Moth** *Siona lineata*, as well as new sites for **Olive Crescent** *Trisateles emortualis*, **Clay Fan-foot** *Paracolax tristalis* and **White Admiral** *Limenitis camilla*.

Other UK Biodiversity Action Plan Priority species work in the region is reported in section 4.2. This includes work on Pearl-bordered Fritillary, **Wood White** *Leptidea sinapis* and Duke of Burgundy (section 4.2.3) and **Betony Case-bearer** *Coleophora wockeella* and **Straw Belle** *Aspitates gilvaria* (section 4.2.1). The Duke of Duke of Burgundy has been a particular focus in 2008, and the region hosted a national action day in April to share experience of conservation work for this species.

Contributed by Dr. Dan Hoare, *South East England Senior Regional Officer* ([dhoare@butterfly-conservation.org](mailto:dhoare@butterfly-conservation.org)).

## 5.8 Butterfly Conservation in South West England

### The Two Moors Threatened Butterfly project

The project is working on Dartmoor and Exmoor to restore large, well-connected habitat landscapes for three UK Biodiversity Action Plan (BAP) species; the **Marsh Fritillary** *Euphydryas aurinia*, the **High Brown Fritillary** *Argynnis adippe*, and the **Heath Fritillary** *Mellicta athalia*.

Priority areas were identified that consist of relatively intact habitat landscapes where resources are best spent to achieve sustainable populations for the target species of the project. In these areas habitat management advice is given to landowners and funding for habitat management is secured, mostly through Environmental Stewardship. More than 100 sites have been visited to date and the project has provided advice on habitat management on an area of almost 1500ha. As a result more than 875ha of habitat have been managed for the fritillaries over the past three years. More than 20 Environmental Stewardship agreements have been set up, more than 15km of fencing were erected to aid grazing management and while 20ha of scrub were cleared at 40 sites.

For example, the Fernworthy - Long Lane system on Dartmoor is a large 16-site habitat network. After three years, 80% of the habitat is now being managed for the Marsh Fritillary and other wildlife through a wide range of works including fencing, re-introduction of grazing, scrub control and burning. Four Higher Level Stewardship agreements are in place as a result of the project.

The Heddon Valley priority area on Exmoor comprises a network of 11 sites (about 50ha of habitat) forming the remaining stronghold of the High Brown Fritillary on Exmoor. The project is working closely with conservation organisations, private landowners and volunteers to restore an extensive habitat network. Higher Level Stewardship Agreements have been secured for two sites. Capital work programmes have been set up under existing agri-environment agreements. Habitat restoration and management programmes are now in place for all sites in the system.

The landscape-scale management achieved as a result of the project benefits a wide range of other wildlife, including threatened species such as **Pearl-bordered Fritillary** *Boloria euphrosyne*, **Narrow-bordered Bee Hawk-moth** *Hemaris tityus*, Dormouse *Muscardinus avellanarius* and Barn Owl *Tyto alba*.

Contributed by Anja Borsje, *Two Moors Project Officer* ([aborsje@butterfly-conservation.org](mailto:aborsje@butterfly-conservation.org)).

## The Neroche Scheme (south Somerset)

As this landscape project spanning the border of Somerset and Devon, approaches two and a half years into its four year run, it is possible to report the great deal of work done and the successes being achieved in this part of the Blackdown Hills Area of Outstanding Natural Beauty.

This partnership project lead by Forestry Commission England with strong support from local funding partners such as Taunton Dean Borough Council and Natural England, was awarded £2 million from the Heritage Lottery Fund. Within a 35 square mile area it is delivering a diverse conservation, access, community and skills programme, which has 23 inter-related themes which aim to:

- invest in the natural, built and cultural heritage of the area
- make the landscape more accessible to everyone
- improve people's ability to sustain the qualities of the landscape

Of particular interest to Butterfly Conservation has been the reinstating of open habitats around the established grassland enclaves which our Somerset and Bristol Branch volunteers had nurtured for many years. The refuges for **Marsh Fritillary** *Euphydryas aurinia*, **Duke of Burgundy** *Hamearis lucina* and **Small Pearl-bordered Fritillary** *Boloria selene* now have the support of extensive surrounding forest grazing units in which the scheme's herd of 60 plus Long-horn cattle are helping shape the emerging grassland and scrub communities. These include wood pasture created by thinning out conifer crops, into which **Wood White** *Leptidea sinapis* is already expanding. From such a relatively weak population and during years in which woodland butterflies have particularly suffered the effects of the poor weather, this is a heartening result.

The first felling began in 2006 and by the following spring the cattle were out amongst the brash, browsing and grazing a surprising range of the forage including the bulky pendulous sedge *Carex pendula* and ever persistent bramble *Rubus fruticosus* agg.. The past two summers have not provided ideal weather for the butterflies to take advantage of the new areas, but have helped grass growth. With plenty of forage in the developing forest grazing units the tentative re-grazing of the grassland enclaves has progressed well. Early results for the butterflies include the dispersal of various grassland species including **Dingy Skipper** *Erynnis tages*. This newly available habitat arrives at a critical time for the Marsh Fritillary population which has dwindled to a level that might be unable to recover from the effects of the past two summers. Butterfly Conservation's survey and monitoring of the area's key Lepidoptera by contractors and volunteers continues.

Contributed by John Davis, *Head of Reserves* ([jdavis@butterfly-conservation.org](mailto:jdavis@butterfly-conservation.org)).

## 6. Lepidoptera Recording Updates

### 6.1 Moths Count Project – National Moth Recording Scheme

Over the past two years the Moths Count project has gone from strength to strength. The purpose of Moths Count is to widen the appeal of moths, encourage moth recording and to establish a long-term National Moth Recording Scheme covering the c.900 species of larger (macro) moths in the UK, Isle of Man and Channel Islands.

In excess of 2500 people have experienced the fascinating world of moths via our public moth events and our Garden Moths Count online survey. In addition to this almost 1000 moth recorders have attended our free training workshops. Listings for our public moth events and training workshops can be found on the Moths Count website ([www.mothscount.org](http://www.mothscount.org)).

The National Moth Recording Scheme (NMRS) database now contains 4.75 million moth records from 70 vice-counties. Local datasets have been submitted to the NMRS by County Moth Recorders, enabling the production of the first provisional distribution maps! These maps will soon be available on the Moths Count website. Many thanks to everyone involved, in particular County Moth Recorders and individual lepidopterists. To see your moth records on distribution maps send them to your County Moth Recorder. **An up-to-date list of County Moth Recorders can be found on the National Moth Recording Scheme page of the Moths Count website ([www.mothscount.org](http://www.mothscount.org)).**

Two major national datasets of moth records are being made available to County Moth Recorders and ultimately the NMRS. An estimated 10 million moth records from the Rothamsted light-trap network are currently being repatriated to County Moth Recorders. We are very grateful to Rothamsted Research and Ian Woiwod in particular, for this contribution to the NMRS. Additionally, more than 600,000 moth records have been computerised by the Biological Records Centre from the previous Lepidoptera Recording Scheme. Eventually these records will be incorporated into local datasets and the NMRS database. We thank Dr. Mark Hill and his team for this fantastic contribution towards county datasets and the NMRS.

Historical records will provide a base-line to enable accurate assessment of species distribution change. Additionally, they will highlight “white holes” where recording effort is low and, therefore, encourage targeted recording of these under-recorded areas.

Two Moth Recorders’ Conferences were held during winter 2008/09, one in Northern Ireland and the other in England. Both were successful and well attended. A recorders’ gathering is planned for 18 April 2009 in Scotland and further moth recorders’ conferences are planned for Wales during 2009. To be kept informed of all Moths Count and NMRS progress, sign up to the Moths Count mailing list by contacting 01929 406009 or [nmrs@butterfly-conservation.org](mailto:nmrs@butterfly-conservation.org).

Moths Count is a partnership of many organisations, individuals and businesses, led by Butterfly Conservation. Principal funders include the Heritage Lottery Fund, Butterfly Conservation, Environment Agency, British Entomological and Natural History Society, City Bridge Trust, Countryside Council for Wales, Natural England, Northern Ireland Environment Agency, Royal Entomological Society, RSPB and Scottish Natural Heritage.

Contributed by Zoë Randle, *Moth Recording Co-ordinator* ([zrandle@butterfly-conservation.org](mailto:zrandle@butterfly-conservation.org)).

## 6.2 Butterflies for the New Millennium

Butterflies for the New Millennium (BNM), the national recording scheme for butterflies in Britain and Ireland, is now in its 15th year. Each of the first two five-year recording periods (1995-99 and 2000-04) yielded over 1.5 million butterfly distribution records and over 95% coverage of 10km squares, a great achievement. Recording has continued and the third period (2005-09) is now entering its final field season. Thanks to this ongoing data collection, the BNM project recently passed an important milestone when the five-millionth butterfly record (a **Small White** *Pieris rapae* in Surrey) was added to the BNM database.

It is apt that this landmark record is of such an ordinary species. It highlights the fact that the BNM is about all butterflies in all types of habitat, not just the rare species and protected sites. Although the BNM plays an important role in identifying butterflies at risk and helping to implement effective conservation (for example through the UK Biodiversity Action Plan [BAP]), it is also about the ordinary species. It is the records of these species that have provided many groundbreaking insights into the effects of climate change on our wildlife. Also it is from among these common and widespread butterflies that unexpected dramatic declines, such as that of the **Wall** *Lasiommata megera*, may appear in the future. Whether from garden buddleia *Buddleja* spp. or a remote mountain top, records of all butterfly species are important when put to use through the BNM project.

This is the final year of the current recording period and, therefore, the final year before we will attempt another assessment of the changing fortunes of butterflies. As such, 2009 is an important year, not least because poor weather hampered recording over recent summers. Please record any butterflies that you see and get in touch with your County Recorder / BNM local co-ordinator to see if there are any specific species or areas near you that are in need of recording. Above all, please pass all of your butterfly records for this year, and any previous years, to your BNM co-ordinator. Their contact details can be obtained by phoning Butterfly Conservation (01929 400209) or from the recording and monitoring section of the Butterfly Conservation website [www.butterfly-conservation.org/recordingcontacts](http://www.butterfly-conservation.org/recordingcontacts).

Butterfly Conservation is very grateful to the John Ellerman Foundation for its funding of the Butterflies for the New Millennium project.

Richard Fox, *Surveys Manager* ([rfox@butterfly-conservation.org](mailto:rfox@butterfly-conservation.org)).

## 6.3 Butterfly monitoring update – the UK Butterfly Monitoring Scheme enters a new phase

2008 marked the eleventh year of national collation of butterfly transect data by Butterfly Conservation, and the end of a major 3¼ year research and development project; the UK Butterfly Monitoring Scheme (UKBMS), run jointly by Butterfly Conservation and the Centre for Ecology and Hydrology and funded by a consortium of governmental agencies led by Defra.

The major highlights from the UKBMS between 2005 and 2008 have been:

### 1. A single scheme for monitoring the changing abundance of UK butterflies

- The scheme comprises an integrated network of over 1500 transect and 250 non-transect monitored sites, with more than 900 sites monitored each year.
- The monitoring network has undergone significant expansion, especially in Wales and Northern Ireland where, for example, transect coverage has improved by 400%.
- The UKBMS project has enabled the network of monitored sites that can be collated by a single co-ordinator (now at Butterfly Conservation) to increase from 140 sites in 2004, to ~870 in 2007.
- The level of annual electronic data entry in Transect Walker has increased from ~60% in 2004 to ~95% by 2006.

### 2. An expanded dataset for reporting on species population trends

- There has been a large (551%) increase in the number of sites used to compile national species abundance indices, with the increase evident in all UK countries.
- There has also been an increase in reliable annual indices and population trends for resident and regular migrant butterflies in the United Kingdom from 41 to 49 species.

### 3. New assessments of species status

Over the UKBMS project there have been a number of important analyses completed. These include:

- Assessment of species qualifying for inclusion on the revised UK Biodiversity Action Plan (BAP) Priority Species list.
- Assessment of long-term trends in UK butterflies for a major new review of status, through the *State of Butterflies in Britain and Ireland*, published in 2006.
- A re-assessment of the status of butterflies on agriculturally managed land in and outside of agri-environment scheme agreements.
- Compilation and annual updates to Government adopted Biodiversity Indicators.

### 4. The development of Government adopted Butterfly Biodiversity Indicators

- Butterfly Biodiversity Indicators have been published for England, Scotland and the United Kingdom. The UKBMS has also contributed to international initiatives, including a European Butterfly Indicator.

### 5. A scheme for monitoring butterflies in the wider countryside

- A new scheme that is both scientifically valid and efficient has been developed, field tested and piloted using volunteer recorders (see the article by Katie Cruickshanks in section 6.4).

### 6. A plan to further develop the UKBMS in future years

- A plan has been developed to take the UKBMS forward in future years, with further efficiency savings.

The development plan for the UKBMS was endorsed by the consortium of funding bodies and work on the three-year UKBMS II project began in the summer of 2008. The UKBMS II project has three main linked objectives:

#### Objective 1. To maintain ongoing monitoring and surveillance activities, for three years.

- Under this objective the current network of transect and other annually monitored sites will continue to be supported and the data collated by Butterfly Conservation.
- The project will seek to maintain and improve efficiency of data capture and reporting, and refine the data collection and analysis methodology to better identify trends in under-represented species (e.g. canopy species).
- Wherever possible, data on individual sites will be made available via the National Biodiversity Network (NBN) Gateway and other web-based media.

## **Objective 2. Annual reporting, assessment and interpretation of population trends for butterflies, for three years.**

- Site, UK and where possible country level indices and trends, for each butterfly species (including UK BAP species), will be compiled annually and published via the UKBMS website ([www.ukbms.org](http://www.ukbms.org)) and the UKBMS report to recorders.
- Existing biodiversity indicators for the UK, England and Scotland will be updated each year and new indicators will be developed for Wales and Northern Ireland to enable assessment of the biodiversity impacts of climate change.

## **Objective 3. The production of a costed development plan for the future of butterfly surveillance and monitoring, within one year.**

- A costed development plan for future monitoring and surveillance of butterfly populations will be produced by spring 2009.
- Subject to funding, the plan recommendations will be implemented over 2009/10 and beyond.

Contributed by Dr. Tom Brereton, *Head of Monitoring* ([tbrereton@butterfly-conservation.org](mailto:tbrereton@butterfly-conservation.org)).

### **6.4 Wider Countryside Butterfly Survey update**

In 2008, Butterfly Conservation and the Centre for Ecology and Hydrology received three further years of funding from a multi-agency consortium led by Defra to support and develop the UK Butterfly Monitoring Scheme (UKBMS). This enabled the continued development of the Wider Countryside Butterfly Survey (WCBS) method through field testing and research in a third field season.

The new method has been developed in partnership with the British Trust for Ornithology (BTO) and is based on the highly successful Breeding Bird Survey. The survey will complement the existing transect network through representative sampling of the countryside on random 1km squares in just 2-4 visits per year. The WCBS will provide more representative national trends for common butterfly species through a scientifically robust, efficient and popular method. With widespread support amongst Butterfly Conservation and BTO recorders, the new Wider Countryside Butterfly Survey method will be rolled out across the UK in 2009.

#### **2008 Pilot Survey**

In 2008 the aims for the wider countryside project were to (1) validate the method by resurveying the 310 random squares visited in 2007, (2) finalise methods for monitoring a broader variety of insects and (3) assess the changing condition of butterfly resources in wider countryside habitats such as farmland margins and hedgerows.

During another year of unsettled weather, encouragingly nearly two thirds of the 1km squares were revisited in 2008. In total 40 species were recorded, with five species lost compared to 2007 and three species gained. Species lost and gained between the two pilot years were habitat specialists and not the focus of this method. Importantly all 23 target species were detected in both pilot years which means that trends can be analysed to see if transects provide a truly representative picture of butterflies in the UK landscape as a whole.

Broadening the wider countryside method to include other insect species as an option could provide valuable information with little extra effort for recorders. Experts have suggested the insect species that perform ecosystem services, such as predation and pollination, are surveyed through quick flower-head and foliage searches. This will be launched in the future.

The butterfly resource recording method was developed for lowland mixed farmland and methods for other habitats will be developed and tested in the future. The method involves sampling the last section of the survey route for features such as shelter, aspect, grazing signs, bare ground cover, margin width of four sub-habitats (crop field, crop margin, improved grass field, hedgerow).

Importantly, the results from the 2008 field testing will feed into a butterfly monitoring strategy for the future, to be completed by the spring. The strategy will make a clear case for the future of the WCBS to funding bodies and stakeholders.

Further information on the project development can be obtained from the UKBMS website ([www.ukbms.co.uk/wider\\_countryside\\_pilot](http://www.ukbms.co.uk/wider_countryside_pilot)).

Contributed by Dr. Katie Cruickshanks, Wider Countryside Co-ordinator, ([kcruickshanks@butterflyconservation.org](mailto:kcruickshanks@butterflyconservation.org)).

## 7. News and Notes

### 7.1 Butterfly Conservation Europe: Progress 2007- 08

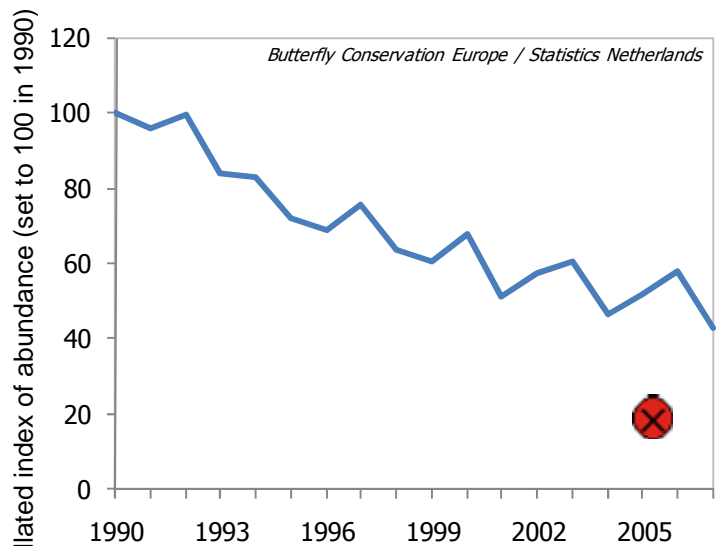
Butterfly Conservation Europe was established in 2004 to act as an umbrella organisation to promote and co-ordinate the conservation of butterflies and moths across Europe. The small Board has met twice annually and has developed several major projects as well as organising two meetings of Network Partners. In December 2008, I passed on the chairmanship of the organisation after a four year term to Dr. Josef Settele, of Helmholtz Centre for Environmental Research, Germany.

A total of 35 organisations from 32 countries have now been appointed as Network Partners, creating a unique body of expertise across Europe. A highly successful Inaugural Meeting was held in Germany in October 2007 and identified priorities and best ways of working together. Proceedings of this meeting and other projects are available on the website: [www.bc-europe.org](http://www.bc-europe.org).

Major projects run over the last two years include the books *Prime Butterfly Areas in Bulgaria* and *Prime Butterfly Areas in Serbia* and a similar project for Turkey which will start in 2009. Another project has been to co-ordinate transect data to create the first European trends for an insect group. Transect data are now available for 11 countries, with schemes for another seven countries planned soon. A Grassland Butterfly Index for Europe shows that numbers of 17 widespread species have declined drastically, by over 60% from 1990-2006 (Van Swaay & Van Strien, 2008). The index will feed into a set of indicators being developed under the Streamlining European Biodiversity Indicators (SEBI 2010) group run by the EU Topic Centre on Nature Conservation.

A key development in December 2008 was the publication of two reports aimed at identifying and predicting the impact of climate change on butterflies. *The Climatic Risk Atlas of European butterflies* is the first comprehensive attempt to quantify the impact of climate change on butterflies, while *Developing a methodology for a European Butterfly Climate Change Indicator* attempts to quantify what changes have already occurred in populations of butterflies. The studies show that climate change has already had a major impact on butterflies and is likely to have an even bigger impact in the future, even under the most optimistic climate change scenarios.

The results show that climate change could be disastrous for many European species. However, it is not too late to take action that would help. The Atlas recommends that we need to expand our conservation effort and place far more emphasis on maintaining large, diverse populations on existing habitats while re-connecting habitats to allow species to move across the landscape. We need to work closely with farmers and planners to achieve this, together with well resourced and targeted agri-environment schemes and enlightened planning policies. *The Climatic Risk Atlas of European butterflies* can be viewed online at [www.pensoftonline.net/biorisk](http://www.pensoftonline.net/biorisk).



The European Grassland Butterfly Indicator shows a strong decline: since 1990 numbers have dropped by almost 60%, outweighing the small annual variations, mainly caused by weather effects. The traffic light is red, indicating a deteriorating situation (from Van Swaay & Van Strien, 2008).

The second meeting of Butterfly Conservation Europe partners was held at Laufen in January 2009. The meeting was split into two parts: the first dealing with the new draft Red List of European butterflies being compiled under a contract from IUCN; the second dealing with Butterfly Conservation Europe plans and activities. A central challenge remains the core funding of Butterfly Conservation Europe as few potential funders have been identified to develop the network and provide the essential support for partners.

Contributed by Dr. Martin Warren, *Chief Executive* ([mwarren@butterfly-conservation.org](mailto:mwarren@butterfly-conservation.org)).

## 7.2 Update on Butterfly Conservation Reserves in 2008

In 2008, Butterfly Conservation secured its 32<sup>nd</sup> reserve – Ewyas Harold Meadows in Herefordshire. Like our first owned reserve it was donated to Butterfly Conservation. Almost all of these reserves are looked after by Butterfly Conservation's Branch volunteers, who are also involved in the management of as many 'partnership' reserves – sites that belong to other organisations or individuals.

Our owned and leased reserves were selected for the important species they support. Though there have been some inevitable losses, overall, most reserves have managed to retain their key species – a difficult task in times of habitat deficit. We can also show examples of population increases for some key species, and how their prospects in the locality have been improved through extending the reserves or influencing the management of adjacent land. Over half of our reserves are actively involved in some degree of landscape-scale habitat conservation.

Three quarters of the current 24 UK Biodiversity Action Plan (BAP) Priority butterfly species can be found on Butterfly Conservation's reserves. Of these 18 species the most frequently represented are **Dingy Skipper** *Erynnis tages* (on nine sites), **White Admiral** *Limenitis camilla* (on eight sites) and **Grizzled Skipper** *Pyrgus malvae* (on seven sites). The assemblages of more common butterflies present can be quite rich with over 30 species recorded.

The most threatened UK BAP Priority species on our reserves include **Pearl-bordered Fritillary** *Boloria euphrosyne*, **Marsh Fritillary** *Eurodryas aurinia* and **Duke of Burgundy** *Hamearis lucina*, which can be quite challenging to manage for. Some of our reserves are significant refuges for threatened species, supporting the only or strongest populations in their area; e.g. Prees Heath Common Reserve for the **Silver-studded Blue** *Plebejus argus* and Eyarth Rocks with the Pearl-bordered Fritillary. Our Lydford Old Railway reserve became the last site for the **Heath Fritillary** *Mellicta athalia* in the Tamar Valley and thus the only source for a conservation re-introduction in that area.

There are also a number of priority moths, for which we are actively managing certain Butterfly Conservation reserves. This includes much of the only known UK site (leased from Forestry Commission England) for **Betony Case-bearer** *Coleophora wockeella* (see section 4.2.1 for more details), managing sallow to benefit **Dingy Mocha** *Cyclophora pendularia* at one reserve and management to benefit **Striped Lychnis** *Shargacucullia lychnitis* on two reserves. In addition we are managing one of the key sites in the country for the **Small Dotted Footman** *Pelosia obtusa*.

On most reserves restoring or enhancing habitats has been the main occupation, but on a few we have also been re-creating the habitats required. The chalk grassland re-creation projects at two reserves have been a great success and already benefit **Small Blue** *Cupido minimus* and other wildlife.

Butterfly Conservation's process of review and appraisal of reserves aims to sustain successes and to identify the means of making further conservation gains or preventing declines. This is shaping our reserves strategy, which includes both the consolidation of existing holdings and making further acquisitions in target landscapes and perhaps for species and habitats not currently represented on our holdings. The many successful 'partnership reserves' and management areas outside of our own reserves, also allow us to see other means of securing the habitat conservation results needed.

Contributed by John Davis, *Head of Reserves* ([jdavis@butterfly-conservation.org](mailto:jdavis@butterfly-conservation.org)).

### 7.3 National Moth Night 2008

National Moth Night (NMN) 2008, organised jointly by Atropos and Butterfly Conservation, took place on 7th June. This year there were three target species, namely the pyralid **Anania funebris**, **Narrow-bordered Bee Hawk-moth** *Hemaris tityus* (both UK BAP priority species) and the presumed-extinct **Bordered Gothic** *Heliophobus reticulata*. Also for 2008, we introduced for the first time a target habitat, orchards (a UK Biodiversity Action Plan Priority habitat).

Migrant lepidoptera numbers remain well down from the exceptional immigrant year of 2006. A total of 13 immigrant species were recorded, with **Silver Y** *Autographa gamma*, **Diamond-back Moth** *Plutella xylostella* and **White-point** *Mythimna albipuncta* heading the list by a big margin in both abundance and distribution.

The main highlight of NMN 2008 was the rediscovery of **White Prominent** *Leucodonta bicoloria* in Ireland. A full account of this rediscovery can be found in the Autumn 2008 issue of *Atropos*. As is customary with NMN, a number of new vice-county records are being verified and accepted.

At the time of writing data processing and verification is still taking place; however, although moth numbers are generally down, the recording effort has dramatically increased over previous years, in terms of numbers of recorders and sites recorded, proving the increased popularity of NMN. The full results will appear in the spring 2009 issue of *Atropos*.

The date for NMN 2009 is now set as 18<sup>th</sup> – 19<sup>th</sup> September with migration being the main theme over the two nights instead of specific target species. Full details will be made available at [www.nationalmothnight.info](http://www.nationalmothnight.info) in due course. If you are organising an event that you would like to include on the website please send details to [events@nationalmothnight.info](mailto:events@nationalmothnight.info).

Contributed by Les Hill, *Data Manager, National Moth Recording Scheme* ([lhill@butterfly-conservation.org](mailto:lhill@butterfly-conservation.org)).

### 7.4 Implementing the Butterfly Conservation and Forestry Commission England joint Conservation Strategy

In May 2007, the joint '*Lepidoptera on Forestry Commission land in England, Conservation Strategy 2007-2017*' was launched in partnership with Forestry Commission England. We are now implementing this strategy. The Strategy details 140 Forestry Commission England managed sites known to be important for butterfly and moth species. Of these, 77 have been graded A because they support Priority species such as the **Pearl-bordered Fritillary** *Boloria euphrosyne* and **Argent & Sable** *Rheumaptera hastata* that depend specifically on sustained woodland management. A further 33 sites are graded B and support either fewer Priority species or species that are not as reliant on urgent woodland management such as the **Grizzled Skipper** *Pyrgus malvae*. Finally, 30 sites are graded C because they support more generalist priorities or species of conservation concern. The sites identified cover up to 8,000 ha of woodland and associated open habitats such as heathland and limestone pavement.

Two of the key objectives of the Strategy are to raise awareness of the woodlands identified and to ensure that these sites feature as priorities in both the forest design planning process and the daily management of the woodlands. To share and promote good management practices and to ensure the profile of the strategy is maintained, email newsletters are produced at least once a year. Articles have included topics such as the work carried out by Forestry Commission England to benefit **High Brown Fritillary** *Argynnis adippe* on priority sites in south Cumbria, North West Forest District, and the conservation of the Pearl-bordered Fritillary in Abbots Wood, South East Forest District. The newsletters are distributed to Forestry Commission England staff and relevant Butterfly Conservation volunteers.

During 2008 Butterfly Conservation staff have carried out surveys, provided management advice, organised events and in some cases facilitated/contributed to management on a number of Forestry Commission England sites across England (much of this work has already been reported earlier in this Bulletin – see section 5 in particular). In addition to this work, three district wide review meetings were held with Forestry Commission England in 2008/09; in the South East, Northants and East Anglia Forest Districts. Each meeting was attended by relevant Forestry Commission England staff, including Wildlife Rangers, Beat Foresters, District Planners, Ecologists and often the District Manager. In addition to



Butterfly Conservation staff, Butterfly Conservation contractors and volunteers involved in monitoring these sites were also able to offer valuable insight and advice at two of the meetings. During meetings, progress with habitat management and constraints to progress were discussed and advice on appropriate management (often during the site visits) was provided.

For more information about the Strategy, Butterfly Conservation's work on Forestry Commission England sites, or to receive a copy of the newsletter, please contact Bernadette Noake ([bnoake@butterfly-conservation.org](mailto:bnoake@butterfly-conservation.org), 01929 406004).

Contributed by Dr. Caroline Bulman, *Senior Species Ecologist* ([cbulman@butterfly-conservation.org](mailto:cbulman@butterfly-conservation.org)) and Bernadette Noake, *Conservation Officer – threatened species* ([bnoake@butterfly-conservation.org](mailto:bnoake@butterfly-conservation.org)).

## 7.5 Butterfly Conservation publicity highlights

2008 was Butterfly Conservation's 40<sup>th</sup> Anniversary and as such, much of Butterfly Conservation's press coverage focused on this significant achievement, including a series of five programmes on BBC One's 'The One Show'.

Butterfly Conservation worked closely with the BBC on its Radio 4 series 'World on the Move', setting up electronic survey forms for the **Painted Lady** *Vanessa cardui* and **Humming-bird Hawk-moth** *Macroglossum stellatarum* to allow the general public to become involved in reporting sightings of these species (visit [www.butterfly-conservation.org/migrantwatch](http://www.butterfly-conservation.org/migrantwatch)). Richard Fox made regular contributions to the programme throughout 2008 to discuss recent sightings, migration and how the general public can become involved with surveying and monitoring.

The Two Moors Project was featured on BBC Radio 4's 'Open Country' in August. The ½ hour programme included interviews from the Project Officer, as well as one of our Branch volunteers. The programme covered the problems that the priority species are facing on Dartmoor and Exmoor, how the project is working and the benefits to both the landowners and biodiversity.

In January 2009 Mark Parsons was interviewed for 'Open Country' at Portland, discussing this important area for moths, including **Eudarcia richardsoni**. Another Radio 4 programme that we contributed to was 'Shared Earth' (broadcast in June), where Caroline Bulman was interviewed about the Tamar Valley **Heath Fritillary** *Malitaea athalia* re-introduction project.

In April we publicised the results of the UK Butterfly Monitoring Scheme focusing on the poor numbers recorded during 2007. This created coverage on BBC One *Breakfast News*, BBC morning news and the ITN lunchtime news. We had coverage in the national press including The Times, Daily Mail, Daily Express, Daily Telegraph, The Independent and The Scotsman, regional newspapers and on national and local radio, including BBC Radio 4's 'Today Programme'.

Save Our Butterflies week took place in July and the main focus for 2008 was the importance of landscape-scale projects with the launch of our 'Butterfly Survival Zones'. This was announced by our president, Sir David Attenborough, at the Natural History Museum along with an address from Tom Tew, Natural England's Chief Scientist. There was coverage on Sky News, BBC Breakfast News, Channel Five, BBC South and BBC Look North and CBBC Newsround. The Daily Telegraph, The Times, Daily Mail, Daily Mirror and many of the Scottish newspapers carried a feature on this. It was also picked up by a number of the regional newspapers and on both national radio, such as Radio 4's 'Farming Today' and many of the local radio stations.

Butterfly Conservation has been developing web-based information for children; in September the new 'Learn' section of our website ([www.butterfly-conservation.org/text/8/learn.html](http://www.butterfly-conservation.org/text/8/learn.html)) was launched by Schools Minister, Jim Knight MP. The website is aimed at developing and encouraging children's fascination with butterflies and is also intended as an aid for teachers and schools.

Butterfly Conservation has worked in collaboration with the University of Oxford on the decline of the **Small Tortoiseshell** *Aglais urticae* particularly in the south of England. This subject was broadcast in March on BBC One's 'Inside Out' programme in the south of England with an interview by Martin Warren and the Oxford research team. A joint press release with the Universities of Durham and York on

experimental work on the response of butterflies to climate change and assisted migration resulted in some coverage in the national press and an interview on BBC Radio Newcastle's evening news.

Our landscape-scale project '*Re-connecting the Culm*' came to an end in March 2008 but this work continues in partnership with Devon Wildlife Trust's '*Working Wetlands Project*'. We have been involved with two joint press releases. The most recent, in February 2009, publicising the removal of plantation woodland to restore Culm grassland was taken up by the local BBC news in Devon '*Spotlight South West*'. Tree felling was filmed and interviews from Butterfly Conservation, DWT and Natural England.

Contributed by Dr. Caroline Bulman, *Senior Species Ecologist* and Louise Keeling, *Senior Publicity Officer*, ([lkeeling@butterfly-conservation.org](mailto:lkeeling@butterfly-conservation.org)).

## 7.6 Legacies

Finally, if you have enjoyed this Bulletin and are encouraged by the work being undertaken to conserve Lepidoptera in the UK, please consider supporting Butterfly Conservation with a gift in your will. For more information about leaving a legacy email [dbridges@butterfly-conservation.org](mailto:dbridges@butterfly-conservation.org) or write to David Bridges, Butterfly Conservation, Manor Yard, East Lulworth, Dorset BH20 5QP.

## 8. Selected Bibliography

### Lepidoptera literature 2007 and 2008 – Mark Parsons & Richard Fox

This section is a selective bibliography of references on conservation and taxonomy of butterflies and moths published during 2007 or 2008. This is not comprehensive and it is probable that we have overlooked some references, for example there are useful articles in newsletters of local moth groups that have not been included. If there are any significant oversights, please let us know and we will endeavour to include them in subsequent updates. **Unfortunately, we are not able to offer a reference service.**

Butterfly Conservation produces *Butterfly*, three times a year, which includes illustrated articles on a wide range of Lepidoptera and their conservation. The 2006 and 2007 Annual Exhibitions of the British Entomological and Natural History Society are summarized in the *British Journal of Entomology and Natural History*, **20**: 155-198 and **21**: 155-186 respectively. There are also many useful records in the field meetings reports in that journal. Paul Waring produces a column on moths for each edition of *British Wildlife* magazine, covering many aspects of moth recording and conservation. Nick Bowles and Richard Fox produce a similar column for butterflies in the same journal. The results of National Moth Night 2006 are covered by M. Tunmore and L. Hill in *Atropos*, No. **31**: 46-54 & 54-64 and the results from National Moth Night in 2007 are reported by the same authors in *Atropos*, No. **34**: 42-61. The Microlepidoptera Review of 2006 by J.R. Langmaid & M.R. Young is published in the *Entomologist's Record and Journal of Variation*, **119**: 241-266.

### Additions to the Lepidoptera fauna of the British Isles

Agassiz, D. 2007. *Prays peregrina* sp. n. (Yponomeutidae) a presumed adventive species in Greater London. *Nota Lepidopterologica*, **30**: 407-410.

Beaumont, H.E. 2007. *Epinotia granitana* (Herrich-Schäffer, 1851) (Lepidoptera: Tortricidae, Olethreutinae) new to Britain. *Entomologist's Gazette*, **58**: 268-270.

Bradley, P.G. 2007. Shining Marbled *Pseudeustrotia candidula* (D. & S.): A moth new to Britain. *Atropos*, No. 31: 15-16.

Bryant, T. & Bond, K.G.M. 2008. *Bactra venosana* (Zeller, 1847) (Lep.: Tortricidae) new to the British Isles from Ireland. *Entomologist's Record and Journal of Variation*, **120**: 97-99.

Clancy, S. 2007. Sorcerer *Aedia leucomelas*: new to Britain. *Atropos*, No. 31: 71.

Davis, T. & Miller, D. 2007. *Uresiphita reversalis* (Guenée, 1854) (Lep.: Pyralidae) new to Britain and Europe. *Entomologist's Record and Journal of Variation*, **119**: 59-61.

- Elliott, B. 2008. *Hypatopa binotella* (Thunberg, 1794) (Lepidoptera: Blastobasidae) new to the British Isles. *Entomologist's Gazette*, **59**: 274-276.
- Goodey, B. 2008. *Aethes fennicana* (M. Hering, 1924) (Lep.: Tortricidae) new to the British Isles. *Entomologist's Record and Journal of Variation*, **120**: 89-90.
- Hammond, M. 2008. Tamarisk Plume *Agdisits tamaricis* (Zell.) – A plume moth new to the Channel Islands. *Atropos*, No. 34: 38-40.
- Heming, R. & Grundy, D. 2007. The first British record of Silvery Gem *Eucarta virgo* (Treit.). *Atropos*, No. 31: 3-5.
- Holt, P. 2007. Latreille's Latin *Methorasa latreillei* (Dup.) at Samphire Hoe, Kent. *Atropos*, No. 31: 71-72.
- James, T. 2008. Common Forest Looper *Pseudocoremia suavis* (Butler): A new species to Britain. *Atropos*, No. 33: 13-16.
- Knill-Jones, S.A. 2007. *Aedia leucomelas* (Linnaeus, 1758) (Lepidoptera: Noctuidae) new to Britain. *Entomologist's Gazette*, **58**: 180-182.
- Langmaid, J.R. & Corley, M.F.V. 2007. *Phyllocnistis ramulicola* sp. nov. (Lepidoptera: Gracillariidae) in England and Portugal. *Entomologist's Gazette*, **58**: 227-237.
- Langmaid, J.R., Porter, J. & Collins, G.A. 2007. *Buccularix ulmifoliae* M. Hering, 1931 (Lep.: Bucculatricidae) resident in England. *Entomologist's Record and Journal of Variation*, **119**: 195-201.
- Long, R. 2007. Two moths new to Britain and the Channel Islands. *Atropos*, No. 31: 73. [Covers *Peribatodes umbraria* and *Dryobotodes roboris*.]
- Long, R. 2008. The Feline *C. erminea*: A new moth for Britain and the Channel Islands. *Atropos*, No. 35: 67.
- Manning, D. 2007. *Clepsis coriacana* (Rebel, 1894) (Lep.: Tortricidae) new to Britain. *Entomologist's Record and Journal of Variation*, **119**: 235-237.
- Peet, T. 2007. Sombre Brocade *Dryobotodes tenebrosa* (Esp.): New to Britain and the Channel Islands. *Atropos*, No. 31: 78.
- Reid, J. 2008. Raspberry Clearwing moth *Pennisetia hylaeiformis* (Laspeyres, 1801) (Lep.: Sesiidae) in south Cambridgeshire and north Hertfordshire. *Entomologist's Record and Journal of Variation*, **120**: 165-170.
- Sterling, P.H. & Costen, P.D.M. 2007. Water Betony *Shargacucullia scrophulariae* (D. & S.) (Lep.: Noctuidae) new to the Channel Islands. *Entomologist's Record and Journal of Variation*, **119**: 97-102.
- Sterling, P. & Parsons, M. 2007. *Zelleria oleastrella* (Millière, 1864): A new micro-moth recorded in the British Isles. *Atropos*, No. 30: 44-45.
- Sterling, P.H. & Parsons, M.S. 2007. *Zelleria oleastrella* (Millière, 1864) (Lepidoptera: Yponomeutidae) in the British Isles. *Entomologist's Gazette*, **58**: 239-243.
- Truscott, L. 2007. *Conogethes punctiferalis* (Guenée): A new moth to Britain and Europe. *Atropos*, No. 32: 24-25.
- Truscott, L. 2007. *Conogethes punctiferalis* (Guenée, 1854) (Lepidoptera: Crambidae) at light in Cornwall, newly recorded for Europe. *Entomologist's Gazette*, **58**: 203-204.
- Tunmore, M. 2007. *Uresiphita reversalis* (Guen.): A moth new to Britain and Europe? *Atropos*, No. 31: 9-31.

## **County and local lists**

Barbour, D., Moran, S., Mainwood, T. & Slater, B. 2008. *Atlas of butterflies in Highland and Moray*. Butterfly Conservation Highland Branch and Highland Biological Recording Group.

Barnett, R.J., Andrews, R.M., Bailey, M.A., Corner, T., Higgins, R.J. & Martin, J.P. 2008. *Moths of the Bristol Region*. Bristol Regional Environmental Records Centre, Bristol. (Wildlife of the Bristol Region: 3).

Plant, C.W. 2008. *The Moths of Hertfordshire*. Hertfordshire Natural History Society, Welwyn Garden City.

Shaffer, M. 2008. *Channel Islands Lepidoptera*. Privately published.

## **Identification**

Natural History Museum new website for British Macrolepidoptera, see [www.nhm.ac.uk/research-curation/projects/cockayne/](http://www.nhm.ac.uk/research-curation/projects/cockayne/)

Benham, P. 2008. Identification tip: Separating Heart & Dart *Agrotis exclamatoris* and Heart & Club *A. clavis*. *Atropos*, No. 35: 70.

Bland, K.P. 2008. The distribution of *Leucoptera orobi* (Stainton, 1870) in Britain and its separation from *L. lathyrioliella* (Stainton, 1866) (Lepidoptera: Lyonetidae). *Entomologist's Gazette*, **59**: 139-143.

Brown, D.C.G. 2008. Identification workshop: Separating the Peacock Moths *Macaria* spp. *Atropos*, No. 34: 35-37.

Clifton, J. 2007. The separation of Knot Grass *Acronicta rumicis* (Linn.) and Scarce Dagger *A. auricoma* (D. & S.). *Atropos*, No. 31: 22-23.

Manley, C. 2008. *British Moths and Butterflies. A Photographic Guide*. A & C Black, London.

Riley, A.M. 2007. *British and Irish butterflies. The complete identification, field and site guide to the species, subspecies and forms*. Brambleby Books. Luton.

Robineau, R. ed. 2007. *Guide des papillons nocturne de France*. Delachaux & Niestlé, Paris. (Les Guides Entomologique).

Slamka, F. 2008. *Pyraloidea of Europe (Lepidoptera) Volume 2. Crambinae & Schoenobiinae*. F. Slamka, Bratislava.

Thomas, J. 2007. *Guide to Butterflies of Britain and Ireland*. Philip's, London.

Tolman, T. & Lewington, R. 2008. *Collins butterfly guide. The Most Complete Field Guide to the Butterflies of Britain and Europe*. Harper Collins, London.

Townsend, M. & Waring P. 2007. *Concise guide to the moths of Great Britain and Ireland*. British Wildlife Publishing. Gillingham.

## **UK BAP Priority species - Butterflies**

(See also Butterfly Conservation reports section below)

Anthes, N., Fartmann, T. & Hermann, G. 2008. The Duke of Burgundy butterfly and its dukedom: larval niche variation in *Hamearis lucina* across Central Europe. *Journal of Insect Conservation*, **12**: 3–14.

Brook, S., McCracken, M., Bulman, C.R., Camp, P. and Bourn, N.A.D. 2007. Post-burn bracken *Pteridium aquilinum* control to manage habitat for the heath fritillary butterfly *Mellicta athalia* on Exmoor, Somerset, England. *Conservation Evidence*, **4**: 81-87.

- Bulman, C.R., Wilson, R.J., Holt, A.R., Gálvez Bravo, L., Early, R.I., Warren, M.S. & Thomas, C.D. 2007. Minimum viable metapopulation size, extinction debt, and the conservation of a declining species. *Ecological Applications*, **17**: 1460-1473. [Covers Marsh Fritillary].
- Friberg, M., Vongvanich, N., Borg-Karlson, A-K., Kemp, D.J., Merilaita, S. & Wiklund, C. 2008. Female mate choice determines reproductive isolation between sympatric butterflies. *Behavioral Ecology and Sociobiology*, **62**: 873–886. [Covers Wood White & Real's Wood White].
- Harris, J.E. 2008. Translocation of the silver-studded blue *Plebejus argus* to Cawston Heath, Norfolk, England. *Conservation Evidence*, **5**: 1–5.
- Porter, K. 2007. The Marsh Fritillary *Euphydryas aurinia* (Rott.) in Cumbria: Turning the tide. *Atropos*, No. 31: 34-43.
- Prater, B. 2007. Progress with conservation of the Dingy Skipper *Erynnis tages* (Linn.) and the Grizzled Skipper *Pyrgus malvae* (Linn.) in the East Midlands. *Atropos*, No. 30: 18-23.
- Saastamoinen, M. 2007. Life-history, genotypic, and environmental correlates of clutch size in the Glanville fritillary butterfly. *Ecological Entomology*, **32**: 235–242.
- Slater M. 2007. Creation of a drystone wall to create egg-laying habitat for grizzled skipper *Pyrgus malvae* at Ryton Wood Meadows Butterfly Conservation Reserve, Warwickshire, England. *Conservation Evidence*, **4**: 35-40.
- Thomas, C.D., Bulman, C.R. & Wilson, R.J. 2008. Where within a geographical range do species survive best? A matter of scale. *Insect Conservation and Diversity*, **1**: 2–8. [Covers Marsh Fritillary].
- Verovnik, R. & Glogovčan, P. 2007. Morphological and molecular evidence of a possible hybrid zone of *Leptidea sinapis* and *L. reali* (Lepidoptera: Pieridae). *European Journal of Entomology*, **104**: 667–674.
- UK BAP Priority species – Moths**  
(See also Butterfly Conservation reports section below)
- Buckingham, S. 2008. Heart Moth *Dicycla oo* (L.) (Lep.: Noctuidae) re-found in Middlesex. *Entomologist's Record and Journal of Variation*, **120**: 141-142.
- Leverton, R. 2007. Captive rearing of Netted Carpet *Eustroma reticulatum* (D. & S.). *Atropos*, No. 32: 17-22.
- Leverton, R. 2007. The larva of Pale Shining Brown. *Atropos*, No. 32: 56-57.
- Parsons, M.S. & Clancy, S.P. 2008. Conservation of the Marsh Mallow Moth *Hydraecia osseola hucherardi* Mabille (Lepidoptera: Noctuidae) on Romney Marsh. *British Journal of Entomology and Natural History*, **21**: 61-74.
- Parsons, M. & Davis, T. 2007. Revisions to the moths included within the UK Biodiversity Action Plan. *Atropos*, No. 32: 4-11.
- Parsons, M.S. & Haggett, G.M. 2007. The distribution, ecology and conservation of the Lunar Yellow Underwing *Noctua orbona* (Hufnagel) in the Breck district of Norfolk and Suffolk. *Entomologist's Record and Journal of Variation*, **119**: 203-211.
- Spencer, W. 2008. *The Silky Wave moth* *Idaea dilutaria* (Hübner, 1799) (Lepidoptera, Geometridae) *Avon Gorge, Bristol, survey 2008*. Bristol, Clifton & West of England Zoological Society, Bristol.
- Thomas, K. 2007. Cattle grazing of woodland to conserve the Netted Carpet moth. *British Wildlife*, **18**, 325-326.

Townsend, M.C. & Merckx, T. 2007. Pale Shining Brown *Polia bombycina* (Hufn.) (Lep.: Noctuidae) re-discovered in Oxfordshire in 2005 and 2006 – a nationally significant population of a UK Biodiversity Action Plan Priority species. *Entomologist's Record and Journal of Variation*, **119**: 72-74.

Waring, P. 2007. News on the conservation of some moths listed in the UK Biodiversity Action Plan and two additional British Red Data Book species. *Entomologist's Record and Journal of Variation*, **119**: 124-132.

Waring, P. 2008. Barberry Carpet *Pareulype berberata* (D. & S.) successfully colonises small bushes planted around a mature stand of the larval foodplant, Barberry *Berberis vulgaris* L. *Atropos*, No. 34: 23-26.

Waring, P. & Hopkins, D. 2008. Larva of the White-spotted Pinion moth *Cosmia diffinis* (L.) (Lep.: Noctuidae) found in light woodland hedgerow situation at Witcham, Cambridgeshire. *Entomologist's Record and Journal of Variation*, **120**: 29-31.

### **Other Lepidoptera references**

Note: Some references may cover UK BAP species in part.

#### **General**

Bulman, C.R. 2007. Woodlands – a vital habitat for butterflies and moths. *Quarterly Journal of Forestry*, **101**: 29-38.

Bulman, C.R., Bourn, N.A.D. and Warren, M.S. (eds.) 2008. *Conservation Review, 2000 – 2008*. Butterfly Conservation, Wareham

Butterfly Conservation & Forestry Commission England. 2007. *Lepidoptera on Forestry Commission Land in England; Conservation Strategy, 2007 – 2017*. [Butterfly Conservation, Wareham].

Chapman, J.W. & Nesbit, R.L. 2008. Mysteries of Lepidoptera migration revealed by entomological radar. *Atropos*, No. 35: 28-36.

Early, R. & Thomas, C.D. 2007. Multispecies conservation planning: identifying landscapes for the conservation of viable populations using local and continental species priorities. *Journal of Applied Ecology*, **44**: 253-262.

Whitehouse, A.T. 2008. *Managing Aggregates Sites for Invertebrates: a best practice guide*. Buglife – The Invertebrate Conservation Trust, Peterborough.

#### **Climate Change**

Davey, P. 2007. The impact of the warming trend on Lepidoptera species in the UK. Part 1. New immigrant species. *Atropos*, No. 31: 24-31.

Dennis, R.L.H. & Sparks, T.H. 2007. Climate signals are reflected in an 89 year series of British Lepidoptera records. *European Journal of Entomology*, **104**: 763–767.

Menéndez, R., González-Megías, A., Collingham, Y., Fox, R., Roy, D.B., Ohlemüller, R. & Thomas, C.D. 2007. Direct and indirect effects of climate and habitat factors on specialist and generalist butterfly diversity. *Ecology*, **88**: 605-611.

Settele, J., Kudrna, O., Harpke, A., Kuhn, I., van Swaay, C., Verovnik, R., Warren, M., Wiemers, M., Hanspach, J., Hickler, T., Kühn, E., van Halder, I., Veling, K., Vliegthart, A., Wynhoff, I. & Schwiger, O. 2008. *Climatic Risk Atlas of European Butterflies*. Pensoft Publishers, Sofia.

Sparks, T.H., Dennis, R.L.H., Croxton, P.J. & Cade, M. 2007. Increased migration of Lepidoptera linked to climate change. *European Journal of Entomology* **104**: 139–143.

Van Swaay, C.A.M. & Van Strien, A.J. 2008. *The European Butterfly Indicator for Grassland species 1990-2007*. Report VS2008.022, De Vlinderstichting, Wageningen

Van Swaay, C.A.M., Van Strien, A.J., Julliard, R., Schweiger, O., Brereton, T., Heliölä, J., Kuussaari, M., Roy, D.B., Stefanescu, C., Warren, M.S., & Settele, J. 2008. *Developing a methodology for a European Butterfly Climate Change Indicator*. Report VS2008.040, De Vlinderstichting, Wageningen.

Wilson, R.J., Gutiérrez, D., Gutiérrez, J. & Monserrat, V.J. 2007. An elevational shift in butterfly species richness and composition accompanying recent climate change. *Global Change Biology*, **13**: 1873–1887.

## Butterflies

Abadjiev, S. & Beshkov, S. 2007. *Prime Butterfly Areas in Bulgaria*. Pensoft Publishers, Sofia.

Predrag, J. 2008. (eds.) 2008. *Prime Butterfly Areas in Serbia*. HabiProt, Serbia.

Brereton, T.M., Warren, M.S., Roy, D.B. & Stewart, K. 2008. The changing status of the Chalkhill Blue butterfly *Polyommatus coridon* in the UK: the impacts of conservation policies and environmental factors. *Journal of Insect Conservation*, **12**: 629-638.

Davies, H., Brereton, T.M., Roy, D.B. & Fox, R. 2007. Government targets for protected area management: will threatened butterflies benefit? *Biodiversity and Conservation*, **16**: 3719-3736.

Fox, R., Warren, M.S., Asher, J., Brereton, T.M. & Roy, D.B. 2007. *The state of Britain's butterflies 2007*. Butterfly Conservation and the Centre for Ecology and Hydrology, Wareham, Dorset.

Hardy, P.B. & Dennis, R.L.H. 2008. Resources for British butterflies (Lepidoptera: Hesperioidea, Papilionoidea). The alien consumer component and its significance for butterfly habitats. *European Journal of Entomology*, **105**: 649-657.

Hardy, P.B., Sparks, T.H., Isaac, N.J.B. & Dennis, R.L.H. 2007. Specialism for larval and adult consumer resources among British butterflies: Implications for conservation. *Biological Conservation*, **138**: 440-452.

Menéndez, R., González-Megías, A., Lewis, O.T., Shaw, M.R. & Thomas, C.D. 2008. Escape from natural enemies during climate-driven range expansion: a case study. *Ecological Entomology*, **33**: 413-421. [Covers Brown Argus].

Rundlöf, M., Bengtsson, J. & Smith, H.G. 2008. Local and landscape effects of organic farming on butterfly species richness and abundance. *Journal of Applied Ecology*, **45**: 813-820.

## Moths

Allen, D. Mellon, C. Hughes, M. Telfer, M. & Waring P. 2008. The rediscovery of the White Prominent *Leucodonta bicoloria* (D. & S.) in Ireland in 2008. *Atropos*, No. 35: 3-8.

Biggs, D.T. & Knill-Jones, S.A. 2007. Moths which have colonized the Isle of Wight in recent years (Part 2). *British Journal of Entomology and Natural History*, **20**: 249-254.

Burmar, R. & Jones, G. 2008. The Sandhill Rustic: A conservation flagship. *Atropos*, No. 35: 38-44.

Chapman, J.W., Reynolds, D.R., Mouritsen, H., Hill, J.K., Riley, J.R., Sivell, D., Smith, A.D. & Woiwod, I.P. 2008. Wind selection and drift compensation optimize migratory pathways in a high-flying moth. *Current Biology*, **18**: 1–5.

Currie, M. & Scott, A. 2008. *Ethmia pyrausta* in East Ross. *Atropos*, No. 35: 68-69.

Freed, T. 2007. Recent changes in the distribution and status of the Toadflax Brocade *Calophasia lunula* (Hufn.) (Lep.: Noctuidae) in Britain. *Entomologist's Record and Journal of Variation*, **119**: 274-276.

- Gould, P. 2007. Confirmation of the hybrid status of the Autumnal Snout *Schrankia intermedialis* Reid (Lep.: Noctuidae). *Entomologist's Record and Journal of Variation*, **119**: 193-194.
- Kiddie, R. 2007. Pine-tree Lappet *Denrolimus pini* (L.) (Lep.: Lasiocampidae) possibly resident in Scotland. *Entomologist's Record and Journal of Variation*, **119**: 231-233.
- Kiddie, R. 2008. Pine-tree Lappet *Dendrolimus pini* confirmed as a British breeding species. *Atropos*, No. 35: 65.
- Leverton, R. 2007. Current status of Stout Dart *Spaelotis ravidia*. *Atropos*, No. 32: 60.
- Leverton, R. 2008. Response to Stout Dart *Spaelotis ravidia* inquiry. *Atropos*, No. 35: 70-71.
- Palmer, S. 2007. Moths and moth recorders in Lancashire – a changing scene. *Entomologist's Record and Journal of Variation*, **119**: 277-282.
- Salama, N.K.G., Knowler, J.T. & Adams, C.E. 2007. Increasing abundance and diversity in the moth assemblage of east Loch Lomondside, Scotland over a 35 year period. *Journal of Insect Conservation*, **11**: 151-156.
- Waring, P., Anthony, M. & Price, A. 2007. Wild pre-hibernation larvae of the Silurian *Eriopygodes imbecilla* (Fabr.) discovered in Britain for the first time. *Atropos*, No. 31: 6-8.
- Wolton, R.J., Spalding, A. & Henwood, B.P. 2007. The Double Line *Mythimna turca* (L.) (Lep.: Noctuidae): Notes on its habitats, foodplants and suggested management in England and Wales. *Entomologist's Record and Journal of Variation*, **119**: 133-142.
- Wright, S. 2008. Welsh Clearwing *Synanthedon scoliaeformis* discovered at Sherwood Forest NNR, Nottinghamshire (VC56). *Atropos*, No. 35: 61.

### **Butterfly Conservation reports (2008)**

(Note: three reports from 2009 which are cited in the Bulletin are also included).

#### **General**

- Borsje, A., Aylward, K. & Bulman, C.R. 2008. *The Two Moors Threatened Butterfly Project, progress report 2007-08*. Butterfly Conservation, Wareham. (Report No. S08-08).
- Borsje, A. & Bulman, C.R. 2008. *The Two Moors Threatened Butterfly Project, progress report April to September 2008*. Butterfly Conservation, Wareham. (Report No. S08-26).
- Bulman, C.R., Bourn, N., Parsons, M., Davis, T., Noake, B. & Brook, S. 2008. *Action for butterflies and moths 2007 – 2013, Linking landscapes, people & biodiversity. Butterfly Conservation report to Natural England, summary of progress April 2007 to March 2008*. Butterfly Conservation, Wareham. (Report No. S08-09).
- Burgess, P., Bulman, C.R., Bourn, N. & Warren, M.S. 2008. *The Re-connecting the Culm Project: methods & achievements 2005 – 2008*. Butterfly Conservation, Wareham. (Report No. S08-24).
- Joy, J. & Williams, M. *Butterfly Conservation Regional Action Plan for the West Midlands*. Butterfly Conservation, Wareham. (Report No. S08-19).
- Noake, B., Bulman, C., Parsons, M. & Bourn, N. 2008. *Contract between Forestry Commission England and Butterfly Conservation for the implementation of the 'Lepidoptera on Forestry Commission Land in England: Conservation Strategy 2007-2017'*. Butterfly Conservation, Wareham. (Report No. S08-23).
- Williams, C. 2008. *Priority Butterflies and Moths of Forestry Commission Wales (FCW) Forest Holdings. Phase 2 – Implementing Site Management Recommendations and Monitoring*. Butterfly Conservation, Wareham. (Report No. S08-17).



## Butterflies

- Brook, S., Bulman, C., Shreeves, W., Middlebrook, I. & Warren, M.S. 2008. Review of the status of Marsh Fritillary in Dorset from 1985-2007. Butterfly Conservation, Wareham. (Report No. S08-04).
- Clarke, S.A. 2008. *Grayling* (*Hipparchia semele*): *Monitoring and assessment on the Malvern Hills 2007*. Butterfly Conservation, Wareham. (Report No. S08-14).
- Clarke, S.A. 2009. *Wood White* *Leptidea sinapis* (*Linnaeus, 1758*) *habitat in south Shropshire 2008*. Butterfly Conservation, Wareham. (Report No. S09-13)
- Clarke, S.A. & Green, D.G. 2008. *A preliminary investigation into Wood White* *Leptidea sinapis* (*Linnaeus, 1758*) *habitat in south Shropshire 2007*. Butterfly Conservation, Wareham. (Report No. S08-15).
- Clarke, S.A. & Green, D.G. 2008. *Malverns Heritage Project Research and Monitoring 2007*. Butterfly Conservation, Wareham. (Report No. S08-12).
- Clarke, S.A. & Green, D.G. 2009. *Wood White* *Leptidea sinapis* (*Linnaeus, 1758*) *habitat in Herefordshire Forestry Commission woodlands, 2008 Interim report*. Butterfly Conservation, Wareham. Butterfly Conservation Report No. (Report No. S09-11)
- Ellis, S. & Wainwright, D. 2008. *Conservation of the High Brown Fritillary* *Argynnis adippe* *and Pearl-bordered Fritillary* *Boloria euphrosyne* *butterflies in North West England*. Butterfly Conservation, Wareham. (Report No. S08-27).
- Joy, J. 2008. *Ironbridge Way Mound, Lawley, Telford Dingy Skipper Translocation Report 2007*. Butterfly Conservation, Wareham. (Report No. S08-11).
- Joy, J. 2008. *Summary of the Pearl-bordered Fritillary Re-introduction to the Forest of Feckenham area 2005-2008*. Butterfly Conservation, Wareham. (Report No. S08-22).
- Noake, B., Bulman, C. & Bourn, N. (eds.). 2008. *Action for the Duke of Burgundy: Sharing Good Practice – Proceedings from a Butterfly Conservation Seminar*. Butterfly Conservation, Wareham. (Report No. S08-33).
- Smith, R. 2008. *A Feasibility Study of Options for Restoration and Management of Sites for the High Brown Fritillary in South Wales*. Butterfly Conservation, Wareham. (Report No. S08-25).
- Wainwright, D. 2008. *Conservation of the Duke of Burgundy* *Hamearis lucina* *Butterfly on the North York Moors in 2008*. Butterfly Conservation, Wareham. (Report No. S08-30).
- Williams, C. & Hobson, R. 2009. *A summary of the 2008 field results and overview of the eight-year monitoring period: the status of the Small Pearl-bordered Fritillary* *Boloria selene* *colonies at Clocaenog Forest*. Butterfly Conservation, Wareham. (Report No. S09-02).
- Vulliamy, B. & Bulman, C. 2008. *Monitoring the population & dispersal of the Heath Fritillary* (*Mellicta athalia*) *in Greenscoombe Wood SSSI in 2008, two years after reintroduction*. Butterfly Conservation, Wareham. (Report No. S08-28).

## Moths

- Clancy, S.P. 2008. *The Marsh Mallow Moth* (*Hydraecia osseola* *Stgr. ssp. hucherardi* *Mab.*). Butterfly Conservation, Wareham. (Report No. S08-32).
- Clancy, S.P. 2008. *The Sussex Emerald Moth* (*Thalera fimbrialis* *Scop.*). *Habitat Survey 2007*. Butterfly Conservation, Wareham. (Report No. S08-16).
- Clancy, S.P. 2008. *The Sussex Emerald Moth* (*Thalera fimbrialis* *Scop.*) *Survey 2008*. Butterfly Conservation, Wareham. (Report No. S08-29).

- Davis, A.M. 2008. *The status and conservation of the Drab Looper moth (Minoa murinata) in SE England*. Butterfly Conservation, Wareham. (Report No. S08-01).
- Green, D.G. 2008. *Argent & Sable Rheumaptera hastata and Welsh Clearwing Synanthedon scoliaefomis (Borkhausen, 1789) Cannock Chase surveys 2007*. Butterfly Conservation, Wareham. (Report No. S08-13).
- Grundy, D. 2008. *A Study of Wormwood Shark Larvae Cucullia absinthii in the Black Country 2007*. Butterfly Conservation, Wareham. (Report No. S08-20).
- Grundy, D. 2008. *The Argent & Sable Moth Rheumaptera hastata in Staffordshire 2007*. Butterfly Conservation, Wareham. (Report No. S08-21).
- Haggett, G.M. 2008. *Basil Thyme Case-bearer Moth (Coleophora tricolor Walsingham, 1899) in the Norfolk and Suffolk Breck. Research and Survey 2007*. Butterfly Conservation, Wareham. (Report No. S08-05).
- Haggett, G.M. 2008. *The Barred Tooth-striped Moth Trichopteryx polycommata (Denis & Schiffermüller) Norfolk Brecks Survey 2007*. Butterfly Conservation, Wareham. (Report No. S08-07).
- Haggett, G.M. 2008. *Lunar Yellow Underwing Noctua orbona (Hufnagel), Larval Survey in Norfolk and Suffolk Breckland 2007-2008*. Butterfly Conservation, Wareham. (Report No. 08-34).
- Hatcher, P.E. 2008. *Netted Carpet Moth Eustroma reticulatum ([Denis & Schiffermüller]) Lake District Survey, September 2007*. Butterfly Conservation, Wareham. (Report No. S08-31).
- Waring, P. 2007. *The Marsh Moth Athetis pallustris (Hübner) in Lincolnshire: Research and survey in 2007*. Butterfly Conservation, Wareham. (Report No. S08-03).
- Waring, P. 2008. *Four-spotted Moth Tyta luctuosa (D. & S.): Survey work in the East Midlands in 2007*. Butterfly Conservation, Wareham. (Report No. S08-02).
- Waring, P. 2008. *The Barberry Carpet Moth Pareulype berberata ([Denis & Schiffermüller], 1775). Confidential Summary Report of Fieldwork in Wiltshire, Gloucestershire, Northamptonshire, Lincolnshire and Yorkshire in 2007*. Butterfly Conservation, Wareham. (Report No. S08-10).
- Waring, P. 2008. *The White-spotted Pinion Cosmia diffinis (L.): Research and survey in 2005*. Butterfly Conservation, Wareham. (Report No. S08-06).