

Background

The UK Biodiversity Action Plan (BAP) Priority species listing has been a significant driving force for biodiversity conservation in the UK, with the first moth Action Plans being produced in 1995 (Anon, 1995). Fifty-three species were covered by Action Plans. These plans generally included actions covering survey, monitoring, research, site management and protection, as well as publicity. Butterfly Conservation (BC) was given the Lead Partner role for the majority of these species and has co-ordinated implementation of the Action Plans since 1999 when funding from English Nature (now Natural England) enabled *The Action for Threatened Moths Project* (see Butterfly Conservation's website: http://www.butterfly-conservation.org/text/915/saving_britains_moths.html).

As a result of the UK BAP process we have gained a much better understanding of the status and autecology of many of the species listed, with distribution maps for the UK BAP species being produced for the period 1999-2004 (Parsons, Hoare, Davis & Green, 2005).

In 2004 planning for a revision of the UK BAP invertebrates started in earnest. Stage 1 of the review was to produce a list of species which met fixed criteria:

- International threat;
- International responsibility and a >25% decline in the UK;
- >50% decline in the UK;
- Other important factor(s), such as the species is declining and is a good 'indicator' or 'flagship' that highlights a conservation issue).

The results of the study of the Rothamsted data, identifying trends in Britain's larger moths, became available during the course of the UK BAP revision process (see Conrad *et al*, 2006). Seventy-one species were identified as rapidly declining and meeting the criteria for the IUCN "Vulnerable" and "Endangered" categories and were listed in *The State of Britain's Larger Moths* report (Fox *et al*, 2006). These met the criteria for consideration for inclusion on the UK BAP and were put forward.

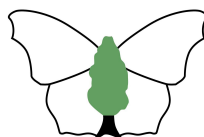
The species submitted for Stage 1 were assessed by the UK Invertebrate Review Group in relation to the criteria above with a revised listing of species produced in late autumn 2006.

Stage 2 determined if conservation action for each proposed species was appropriate and could be delivered, this included practical, policy and social factors. The final stage of the review was a "signposting" exercise to identify the broad types of conservation action needed for each species.

This whole process was completed during 2007, with Joan Ruddock MP Minister for Climate Change, Biodiversity and Waste, Michael Russell MSP Minister for Environment, Scotland, Jane Davidson AM Minister for Environment, Sustainability and Housing, Wales and Arlene Foster MLA Minister of the Environment, Northern Ireland signing off the revised UK BAP for the relevant countries.

For further information about the UK Biodiversity Action Plan see www.ukbap.org.uk.

www.butterfly-conservation.org



The results of the UK BAP review (2007) for moths

i. The original UK BAP species

Tables 1 to 4 summarise the changes. Table 1 lists those species from the original listing that have been retained. Table 2 highlights the 11 species that have been downgraded as priorities at the UK level. Many of these will still receive conservation effort at the local or regional level. The reasons for downgrading include species shown to be more widely distributed than was previously thought, or occur on habitats where there is considered to be minimal threat, or where the species has been considered extinct for over 10 years.

Table 1: UK BAP Priority species from the original listing retained at the 2007 review

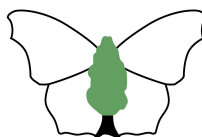
Slender Scotch Burnet <i>Zygaena loti scotica</i>	Cousin German <i>Protolampra sobrina</i>
New Forest Burnet <i>Zygaena viciae argyllensis</i>	Northern Dart <i>Xestia alpicola alpina</i>
Fiery Clearwing <i>Pyropteron chrysidiformis</i>	Ashworth's Rustic <i>Xestia ashworthii</i>
Basil Thyme Case-bearer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

Total: 42 species

Table 2: Former UK BAP Priority species downgraded by the 2007 review

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

Total: 11 species



ii. The additions at the 2007 review

Table 3 lists the 39 UK BAP Priority species added by the 2007 review, which combined with those in Table 1 gives total of 81 species (up from the previous 53 species). These are the species which require most urgent conservation effort. Over half of the additions are micro-lepidoptera, a group that was not covered during the initial selection of UK BAP species (with the exception of the **Basil Thyme Case-bearer** *Coleophora tricolor*). Many of the species listed occur, or are thought to occur, on very few sites (often less than five).

Table 3: UK BAP Priority species (scarce, threatened and declining moths) added by the 2007 review.

<i>Stigmella zelleriella</i>	<i>Grapholita pallifrontana</i>
<i>Lampronia capitella</i>	<i>Epermenia insecurella</i>
<i>Nematopogon magna</i>	<i>Pyrausta sanguinalis</i>
<i>Nemophora fasciella</i>	<i>Anania funebris</i>
Goat Moth <i>Cossus cossus</i>	<i>Agrotera nemoralis</i>
Forester <i>Adscita statices</i>	<i>Sciota hostilis</i>
<i>Eudarcia richardsoni</i>	Rest Harrow <i>Aplasta ononaria</i>
<i>Nemapogon picarella</i>	Sussex Emerald <i>Thalera fimbrialis</i>
<i>Phyllonorycter scabiosella</i>	False Mocha <i>Cyclophora porata</i>
<i>Phyllonorycter sagitella</i>	Scarce Pug <i>Eupithecia extensaria occidua</i>
<i>Coleophora hydrolapathella</i>	Grey Carpet <i>Lithostege griseata</i>
<i>Coleophora vibicella</i>	Sloe Carpet <i>Aleucis distinctata</i>
<i>Coleophora wockeella</i>	Scarce Vapourer <i>Orgyia recens</i>
<i>Aplota palpellus</i>	Small Dark Yellow Underwing <i>Anarta cordigera</i>
<i>Agonopterix atomella</i>	Concolorous <i>Chortodes extrema</i>
<i>Agonopterix capreolella</i>	White-mantled Wainscot <i>Archanara neurica</i>
<i>Syncopacma albipalpella</i>	Fenn's Wainscot <i>Chortodes brevilinea</i>
<i>Syncopacma suecicella</i>	Sandhill Rustic <i>Luperina nickerlii</i> ssp. <i>leechi</i>
<i>Scythris siccella</i>	Shoulder-striped Clover <i>Heliopsis maritima</i> ssp. <i>warneckei</i>
<i>Celypha woodiana</i>	

Total: 39 species

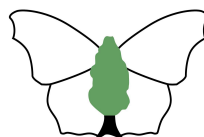
Table 4, covers those widespread and common, but rapidly declining species that have met the UK BAP criteria. For reasons that are unclear two qualifying species are missing from the formal listing signed up to by the ministers, the **Large Wainscot** *Rhizedra lutosa* and **White-lined Dart** *Euxoa tritici*. It is anticipated this will be rectified in due course.

Table 4: UK BAP species (common and widespread, but rapidly declining moths) added by the 2007 review - Research only

Ghost Moth <i>Hepialus humuli</i>	Dark-barred Twin-spot Carpet <i>Xanthorhoe ferrugata</i>
Pale Eggar <i>Trichiura crataegi</i>	Shaded Broad-bar <i>Scotopteryx chenopodiata</i>
Lackey <i>Malacosoma neustria</i>	Galium Carpet <i>Epirrhoe galiata</i>
Oak Hook-tip <i>Watsonalla binaria</i>	Grey Mountain Carpet <i>Entephria caesiata</i>
Oak Lutestring <i>Cymatophorima diluta</i>	Dark Spinach <i>Pelurga comitata</i>
Small Emerald <i>Hemistola chrysoprasaria</i>	Spinach <i>Eulithis mellinata</i>
Blood-vein <i>Timandra comae</i>	Small Phoenix <i>Ecliptopera silaceata</i>
Mullein Wave <i>Scopula marginepunctata</i>	Pretty Chalk Carpet <i>Melanthia procellata</i>
Oblique Carpet <i>Orthonama vittata</i>	Grass Rivulet <i>Perizoma albulata</i>
Red Carpet <i>Xanthorhoe decoloraria</i>	Streak <i>Chesias legatella</i>

www.butterfly-conservation.org

The UK Biodiversity Action Plan – moths



Butterfly Conservation

Saving butterflies, moths and their habitats

Broom-tip *Chesias rufata*
V-moth *Macaria wauaria*
Latticed Heath *Chiasmia clathrata*
August Thorn *Ennomos quercinaria*
Dusky Thorn *Ennomos fuscantaria*
September Thorn *Ennomos erosaria*
Brindled Beauty *Lycia hirtaria*
Figure of Eight *Diloba caeruleocephala*
Garden Tiger *Arctia caja*
White Ermine *Spilosoma lubricipeda*
Buff Ermine *Spilosoma luteum*
Cinnabar *Tyria jacobaeae*
White-line Dart *Euxoa tritici*
Garden Dart *Euxoa nigricans*
Autumnal Rustic *Eugnorisma glareosa*
Small Square-spot *Diarsia rubi*
Neglected Rustic *Xestia castanea*
Heath Rustic *Xestia agathina*
Double Dart *Graphiphora augur*
Dot Moth *Melanchra persicariae*
Broom Moth *Melanchra pisi*
Hedge Rustic *Tholera cespitis*
Feathered Gothic *Tholera decimalis*
Powdered Quaker *Orthosia gracilis*
Shoulder-striped Wainscot *Mythimna comma*
Minor Shoulder-knot *Brachylomia viminalis*

Sprawler *Asteroscopus sphinx*
Brindled Ochre *Dasypolia templi*
Deep-brown Dart *Aporophyla lutulenta*
Green-brindled Crescent *Allophyes oxyacanthae*
Dark Brocade *Blepharita adusta*
Flounced Chestnut *Agrochola helvola*
Brown-spot Pinion *Agrochola litura*
Beaded Chestnut *Agrochola lychnidis*
Centre-barred Sallow *Atethmia centrago*
Sallow *Xanthia icteritia*
Dusky-lemon Sallow *Xanthia gilvago*
Grey Dagger *Acronicta psi*
Knot Grass *Acronicta rumicis*
Mouse Moth *Amphipyra tragopoginis*
Dusky Brocade *Apamea remissa*
Large Nutmeg *Apamea anceps*
Rosy Minor *Mesoligia literosa*
Ear Moth *Amphipoea oculea*
Rosy Rustic *Hydraecia micacea*
Haworth's Minor *Celaena haworthii*
Crescent *Celaena leucostigma*
Large Wainscot *Rhizedra lutosa*
Rustic *Hoplodrina blanda*
Mottled Rustic *Caradrina morpheus*
Anomalous *Stilbia anomala*

Total: 71 species

There is clearly potential for confusion with the listing of the rapidly declining species, as many are still “common” and “widespread” and can occur in many recorders own back gardens. However, it is hoped that this listing will encourage study by research bodies, such as universities etc., to look at the wider changes in our countryside that may be affecting moth populations. Such effects could impact adversely on the populations of other organisms, such as bats and birds that use moths and other insects as prey. Examples of these wider changes include agricultural intensification, light pollution, changes in gardening practices etc. These species will not be treated through formal individual Action Plans and are not intended to play a role in site protection.

References

Anon. 1995. *Biodiversity: The UK Steering Group Report. Volume 2: Action Plans*. HMSO, London.

Conrad K.F., Warren M.S., Fox R., Parsons M.S., Woiwod I.P. 2006. Rapid declines of common, widespread British moths provide evidence of an insect biodiversity crisis. *Biological Conservation*, **132**:279-291.

Fox, R., Conrad, K.F., Parsons, M.S., Warren, M.S. & Woiwod, I.P. 2006. *The state of Britain's larger moths*. Butterfly Conservation and Rothamsted Research, Wareham, Dorset.

Parsons, M.S., Hoare, D., Davis, T. & Green, D. 2005. The distribution of the UK Biodiversity Action Plan Priority moth species, 1999 to 2004. *Atropos*, No. 25: 5- 20.

www.butterfly-conservation.org