

Woodland types and the butterflies and moths they support

The diverse climate and varied geology of Britain have combined to produce a wide range of woodland types, and all are capable of supporting at least some woodland Lepidoptera of concern.

While different botanical woodland types have their own butterfly and moth assemblages, for many threatened species it is the structural aspects of woodland that determine whether their habitat is present. Many species will occur in a range of different woodland types and there is often a considerable overlap in the assemblages associated with each. As a result, in identifying conservation priorities it is useful to consider Lepidoptera in terms of their broad association with either open habitats or with shaded closed canopy woodland.

Butterflies and moths of open areas in woodland

The declining species associated with this habitat usually feed on low-growing herbs or on the young regrowth of trees and shrubs. These open spaces can be such features as coppice, clearfells, young plantations, glades (both temporary and semi-permanent), rides and wood edges. The Lepidoptera will vary with geographical range and climatic factors, but the specific tree and shrub species present are often of very much secondary importance compared to the habitat structure. Although this habitat can potentially occur widely, the Lepidoptera associated with this type of woodland are amongst the most threatened.

Butterflies and moths of closed canopy woodland

David Green



The Dark Crimson Underwing breeds on mature oak trees and spends much of its life in the canopy

Only a few butterflies in the UK are associated with closed canopy or shaded woodland. They include the canopy feeding White-letter Hairstreak and Purple Hairstreak. In addition, the White Admiral and Silver-washed Fritillary breed on foodplants growing in shaded conditions. For all of these species, open areas are still important features in which to bask and find nectar. Closed canopy woodland is, however, one of the most significant habitats for many moths of concern, and both moth abundance and species richness may be highest in sheltered woodland. A huge number of species feed on the canopy of mature trees, whilst others require their foodplants to be growing in shaded conditions or use foodplants such as mosses or lichens which can only flourish in shade.

Butterflies and moths of specific woodland types

Some butterflies and moths will only be found in specific woodland types, and their needs should be considered separately. For example, the White-letter Hairstreak and other elm-feeding species will, of course, only occur in woodland types where elms form a part of the tree community. Other tree and shrub feeding species will similarly be restricted to those woodland communities supporting their own respective foodplants. This is not a comprehensive guide and concentrates on the habitats and woodland types most important for the declining or more notable species and assemblages. A few examples of particularly distinctive woodlands are given below.

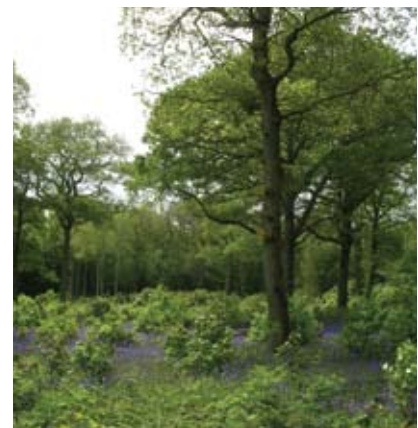


Keith Tailby

The Light Orange Underwing is associated with mature Aspen

Lepidoptera of concern and their associated woodland types

	Chequered Skipper	Dingy Skipper	Grizzled Skipper	Wood White	Brown Hairstreak	White-letter Hairstreak	Black Hairstreak	Duke of Burgundy	White Admiral	Purple Emperor	Small Pearl-bordered Fritillary	Pearl-bordered Fritillary	High Brown Fritillary	Silver-washed Fritillary	Heath Fritillary	UK BAP Priority moths	Other moths of concern
Aspen woods											●					●	●
Lowland beech and ash woodland		●	●		●			●	●	●						●	●
Lowland acidic beech and oak woodland		●	●			●		●	●	●				●	●	●	●
Lowland beech and yew		●	●		●			●	●	●						●	●
Lowland mixed broadleaved woods		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Lowland wood-pasture and parkland		●	●		●			●	●	●	●	●		●		●	●
Native pine forest											●					●	●
Upland ash woods	●	●				●		●			●	●	●	●		●	●
Upland birch woods	●										●	●				●	●
Upland oak woodland	●										●	●	●			●	●
Wet woodland	●										●						●
Planted woodland	●	●	●	●				●	●		●	●				●	●



Dan Hoare

Lowland broadleaved woodland with an active coppice cycle



Dan Hoare

Ancient woodlands often contain banks and other important archaeological features that can also be of value as wildlife habitats

Examples of distinctive woodlands



Bill Urwin



Tom Prescott



Kentish Glory by Robert Thompson

Aspen woodlands

Aspen is found throughout the UK and occurs widely in damp woods in south-eastern and central England. Aspen woodlands in Scotland are a true relict of the Boreal forest and host a unique biodiversity.

Aspen is an important foodplant for moths with nearly 50 associated species. There are two UK BAP Priority moths that feed solely on Aspen: *Phyllonorycter sagitella* and *Sciota hostilis*. Both are now extremely scarce. A third UK BAP Priority moth, the Dark Bordered Beauty, uses Aspen at its few Scottish sites. Here, the larvae feed on regenerating Aspen in open woodland clearings and edges where short suckers are plentiful. Other scarce and threatened moths feeding primarily on Aspen include the nationally scarce Light Orange Underwing and the micro-moths *Ancylis laetana* and *Epinotia maculana*.

In the last century, five moth species associated with Aspen became extinct in the UK: the micro-moths *Gibberifera simplana*, *Gypsonoma nitidulana* and *Paraleucoptera sinuella*, the Lesser Belle and the Clifden Nonpareil (although this moth may be in the process of recolonising this country).

The Lepidoptera of upland birch woods

The value of birch for Lepidoptera is often overlooked. Upland birch woods support many scarce and threatened moths including the UK BAP Priority species, the Argent & Sable, which feeds on young birches, the Cousin German and the bracket fungus feeding *Nemapogon picarella*. Other scarce moths associated with this woodland type are the Kentish Glory, Silvery Arches and Rannoch Sprawler, all of which feed on the foliage of birch trees themselves. *Archinemapogon yildizae* is another moth dependent on bracket fungus growing on old and dying trees. These mature and overmature birches can be vitally important. The Welsh Clearwing moth, feeds in the living trunks of birches but will only use large trees.

The Lepidoptera of native pine woodland

Native pine woodlands of self-sown Scots Pine are relicts of the ancient Caledonian Forest, which formerly covered much of the Scottish Highlands. In the past these indigenous forests may have covered more than 1.5 million ha of Scotland, but today they occupy only around 1% of this former range spread over 77 separate areas. The shrub understorey, where browsing levels are low, can be very rich and includes Common Juniper, Aspen, Holly and Hazel. The field layer is characterised by acid tolerant plants like Bell Heather, Bilberry and Crowberry.

Native pine woodlands support a distinctive moth fauna with many species not found elsewhere in the UK. The Pine Tree Lappet, only recently discovered as a breeding species, may be a long-overlooked resident. However, many of the species of concern are associated not with the pines themselves but with the scrub and field layer. These include the Kentish Glory, Rannoch Looper and Chestnut-coloured Carpet.



Dan Hoare

Lowland broadleaved woodlands

The various types of lowland deciduous woodland are potentially very rich habitats for butterflies of concern. If actively managed to produce a diverse structure with a continuous supply of open areas then many of the rarer species can potentially occur. In addition, Silver-washed Fritillary and White Admiral occur in the more shaded parts of many woods. The unshaded or partly-shaded shrub layer can support Brown and Black Hairstreak if Blackthorn is present and Purple Emperor if the wood contains sallows. Woods in southern and south-east England have the greatest diversity of species.

These types of wood are one of the richest for moths, the oak dominated woods of southern and central England being of particular value. The canopies of mature and veteran oaks found in these woods support a large and diverse community of moths, including the UK BAP Priority species the Common Fan-foot, Dark Crimson Underwing, Heart Moth, Light Crimson Underwing and Olive Crescent. The larvae of Goat Moth feed inside the living trunk and those of *Aplota palpella* upon mosses growing on the bark. Open spaces within these woods have the potential to support *Anania funebris*, Drab Looper, Barred Tooth-striped, False Mocha and Sloe Carpet. Many additional moths of conservation concern can be found in these woods including Great Oak Beauty, Scarce Merveille du Jour, The Triangle and White-line Snout.



Alan Reid / Forestry Commission

Planted woodlands

Timber plantations can be valuable for Lepidoptera, particularly during their establishment phase when they can support a rich ground flora and provide habitat for threatened butterflies such as Grizzled Skipper and Pearl-bordered Fritillary. However, as the crop grows the ground flora is quickly shaded out and becomes unsuitable for these species. Thicket-stage crops may then be suitable for White Admiral and Broad-bordered Bee Hawk-moth. Long-term habitat is largely restricted to plantation edges, ride networks or other open spaces. Fortunately, to facilitate access and timber extraction an extensive network of rides is often established at the time of planting. Management of habitat alongside streams can be important for Small Pearl-bordered Fritillary if these areas are left open, particularly in upland areas.

As non-native tree species have been established through planting, many moths have colonised the UK, apparently through natural immigration. A range of species, some with extremely restricted distributions, can be associated with plantation trees including Feathered Beauty, Dusky Peacock, Cloaked Pug and *Assara terebrella*. Poplars in plantings in south-east England can support Hornet Moth and Pale-lemon Sallow.

Where appropriate, replacing non-native trees with native species can be highly beneficial for wildlife. Benefits include increased availability of foodplants for tree and shrub feeding Lepidoptera, and the process of replanting can provide opportunities to improve structural diversity and connectivity.



Sam Ellis

Upland Ash woodlands

The upland Ash woodlands of the Morecambe Bay limestone are one the most important areas for butterflies in Britain. The open areas in these woods support significant populations of several threatened butterflies, including Dingy Skipper, Duke of Burgundy, Grayling, High Brown Fritillary, Northern Brown Argus, Pearl-bordered Fritillary, Small Pearl-bordered Fritillary and White-letter Hairstreak. The large populations of High Brown Fritillary here are now the last surviving woodland colonies in Britain. These woodlands are also home to at least two UK BAP Priority moths; the Barred Tooth-striped and *Anania funebris*. Many further rare moths such as Barred Carpet also occur.