

Large Heath Butterfly (*Coenonympha tullia*)



Large heath butterfly on bracken (Pteridium aquilinum)
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The large heath is a small to medium-sized butterfly of lowland raised bog and upland wet moorland. It was once widespread on the region's formerly extensive mosslands, where the large-spotted ('davus') form was first discovered and named 'Manchester argus'.

The butterfly requires wet areas where its main larval food plant, the hare's tail cotton grass (*Eriophorum vaginatum*) grows.

Favoured sites usually also contain cross-leaved heath and this provides an important nectar source for the adult (1).

Males and females are similar in appearance. Both are a dingy orange/brown colour with darker dots on the upper and lower wings. Almost no two butterflies are identical but each population has spot patterns that are characteristic of that general location. There is a strong association between the number and size of the dots and the average number of hours of local sunshine (2,3).

Adults fly from late June to late July and their life expectancy is usually between 3 and 5 days. The large heath overwinters as a caterpillar and begins to pupate from late May onwards, the adults emerging 3 - 4 weeks later. Further north some individuals have a two-year life cycle (3).

The butterfly occurs as a chain of sub-species across central and northern Europe through Asia, across to Canada and western USA (1). In the UK the large heath occurs in two distinct forms *scotica* and *davus*. An intermediate form *polydama* is also found.

Main Habitat(s): Lowland raised bogs; upland blanket bogs; damp acid moorland.

National status

Large Heath is one of only two British butterflies that are on the European List of threatened species (4).

The species was formerly widespread but many colonies have been lost in the south of its range. The current strongholds are in Northumberland, Cumbria, Northern Ireland and north and west Scotland.

The form *Scotica* is found in the north of Scotland and the Hebrides. *Polydama* predominates in southern Scotland, Northumberland, Cumbria, Ireland, Wales and parts of Yorkshire, Lincolnshire and one Lancashire site. *Davus* is found in parts of lowland Cumbria, the Shropshire/Clywd border and one site in Lancashire. The species has been estimated to be declining in range at a rate of around 25% in 25 years, with the largest losses recorded from Northumberland, Wales and Cumbria (1).

Regional status

The large heath occurs in only 2% of North West tetrads. It is absent from Cheshire and Isle of Man. The contraction of range over the last 25 years is 41% (by 10 km squares) (5). This butterfly is found in the coastal plain mosses of north Cumbria and in a band through the north Pennines and into strongholds in Northumberland (3). A number of colonies are also found in the coastal mosslands of south and west Cumbria and north Lancashire.

Local status

In Lancashire the large heath is restricted to two isolated sites, one upland and one lowland.

A medium sized population (of the *davus* form) is recorded from Winmarleigh Moss, situated 5 km north-west of Garstang (SD4447). The population here is possibly made up of more than one colony, separated by an area of unsuitable habitat (6).

The upland colonies (of the *polydama* form) in the Forest of Bowland AONB extend south from Goodber Common⁵ into the Bowland Fells SSSI (from SD6363 to SD5963). So far the

butterfly has been found in seven tetrads in two 10 km squares at altitudes from 250 m to over 400 m. The colony may extend much further.

Current factors affecting the species

The major overall threat to this species is probably habitat loss. Across the species' range loss of land to reclamation for agriculture and afforestation and for peat extraction has meant a loss of suitable habitat ⁽¹⁾.

Extensive afforestation poses a threat. However, limited afforestation may benefit the species, especially if there are wide rides providing open, yet, sheltered habitat.

Nationally, available habitat has been further reduced by drainage, heavy grazing, burning and natural succession ⁽¹⁾.

Together these factors cause fragmentation and isolation of colonies and suitable habitat. The species is largely sedentary. Colonies need to be close together to allow for dispersal and recruitment ⁽¹⁾.

Both the Lancashire sites for this species are privately owned. Winmarleigh Moss affords some protection as a SSSI. It is the largest remaining area of mossland in Lancashire ⁽⁷⁾. There was an extensive fire at the site in early summer 2000. However, surveys later in the season suggested that the fire did not appear to have had a drastic negative impact upon the large heath population (Sivell, Pers comm.).

Current Action / Mechanisms

Butterfly Conservation's national action plan for large heath gives medium national priority to the species but the organisation regards its conservation as being of high priority in North West England ⁽¹⁾. The national priority is under review following publication of the European Red List (4) and is likely to be revised upwards by Butterfly Conservation (Bourn, Pers comm.).

The species was surveyed in Lancashire and Cumbria in 1996-97 on behalf of EN, BC, Cumbria Wildlife Trust and Forest Enterprise ⁽⁸⁾.

Lancashire Branch of Butterfly Conservation gained access to Goodber to survey the population in 1999 and 2000. At Winmarleigh Moss casual counts and some survey work have been undertaken in the 1990s ⁽⁹⁾.

Winmarleigh Moss is a SSSI. English Nature and the site owners have entered an agreement to remove scrub and re-wet some areas of the moss. This should benefit the large heath by increasing the amount of suitable habitat on the site. It is hoped that this work will also create linkages between the two separate colonies. The site is covered by the Countryside Stewardship Scheme ⁽⁵⁾.

The Bowland colony is adjacent to a 30 year old conifer plantation that is about to be felled. Contact has been established with the forestry agent to highlight the nearby presence of this species.

Objectives, targets and proposed actions for large heath in Lancashire

Broad Objective:	A. Maintain viable populations of the species at its existing known sites.			
Operational	Action Required (Priority)	Partners	Time-scale	Type

Objective				
1. Monitor population at Winmarleigh Moss	1. Ascertain effect of accidental fire on the population. (High).	BCL	S	RM
	2. Introduce an annual monitoring scheme for the species at this site. (High).	BCL, Fleetwood Museum	M	RM
2. Monitor population in Bowland	1. Arrange access for annual monitoring and survey visits. (High).	BCL	M	RM
	2. Survey the population in Bowland to ascertain the size and extent of colonies. (High)	BCL, Fleetwood Museum	M	RM
	3. Introduce an annual monitoring scheme for the species at this site. (High).	BCL	M	RM
3. Protect the colonies at Winmarleigh Moss	1. Review management plan/agreement in the light of habitat change due to fire in 2000. (High)	EN, Land-owners, BCL, MAFF	S	P, LM
	2. Monitor effects of recent management works. (Medium)	EN, BCL	M	RM
	3. If management proves effective, continue programme of dense scrub removal and re-wetting. (High)	EN, Land-owners, BCL, MAFF	O	LM
4. Protect the colonies in Bowland.	1. Liaise with landowners to ensure maintenance of habitat and population by avoiding overgrazing and burning. (Medium)	BHSP, LCC, BCL	M	A, LM
	2. Encourage applications for agri-environment grants to support beneficial management. (Medium)	BHSP, LCC, BCL	M	PR, LM

	3. Seek opportunities to extend area of habitat adjacent to existing colonies (Medium)	BHSP, LCC, BCL	M	PR, LM
Broad Objective:	B. Promote the large heath as a flagship species in the Lancashire BAP			
Operational Objective	Action Required (Priority)	Partners	Time-scale	Type
1. Produce material aimed at the general public that explains the importance of the large heath.	1. Include information about the large heath in upland and lowland areas in newsletters, and leaflets. (Low)	WT, BCL, Fleetwood Museum, Wyre BC	O	PR

Related Action Plans:

- Mosslands HAP
- Moorland & Fell HAP.

References & additional reading:

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