



Butterfly  
Conservation  
Scotland



# Kentish Glory

*Endromis versicolora*

### Conservation status

Included on the Scottish Biodiversity List as considered to be of principal importance for biodiversity conservation in Scotland and in most urgent need of conservation action.

Wingspan Male 27-30, Female 34-39mm

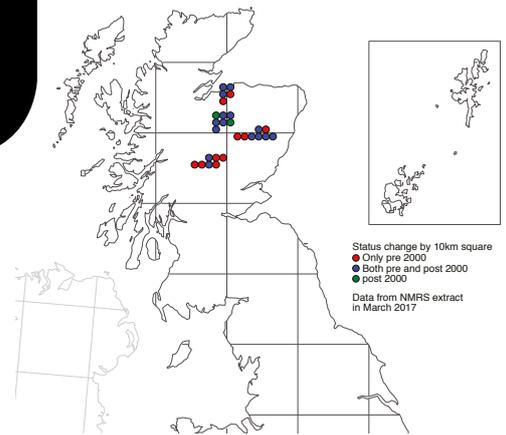
**Kentish Glory is a large, beautiful, iconic moth that formerly occurred south of the border where it was last recorded in 1969/70. However, despite its name, it is currently confined in the UK to Scotland where its distribution is restricted to Badenoch, Strathspey, Deeside, Culbin Forest on the Moray coast and Highland Perthshire (where it has not been seen since 2000). Concerns have grown over its conservation status due to its relatively ephemeral habitat requirements, low powers of dispersal, few records away from two or three core sites, habitat fragmentation and resulting isolation of populations.**

### Identification

The adults are unmistakable and cannot be confused with any other species. Males and females are readily told apart, with the females on average being 25% larger, having much bigger, bulkier bodies with a wingspan of 34-39mm, whilst the smaller males possess very feathery antennae, and have a wingspan of 27-30mm. Overall the male is darker in colour with an orangey-brown hindwing compared to the lighter female's whitish-brown hindwing.

### Life cycle

The adult flight season tends to be from mid-April to the third week of May and coincides with birch bud-burst. Males fly on sunny or warm days between mid-morning and mid-afternoon, and again from dusk when they come readily to light traps, whilst females are only thought to fly short distances at night. Both sexes can be found at rest by day usually on the end of birch twigs, mimicking a dead leaf. Neither sex feeds as adults. The females lay their eggs in batches of 10-20 eggs on low birch scrub, usually on the outer twigs around 1-2cm in from the tips, at a mean height of 1.2m and seldom higher than 2m even when taller trees are available. They prefer sheltered, unshaded saplings. The larvae feed at first gregariously and then singly, on the leaves of Silver Birch but also occasionally Downy Birch and rarely Alder. In late summer the larvae descend to pupate underground where they can remain for one to three years, possibly more, before emerging.



### Foodplants

The main larval foodplant is Silver Birch *Betula pendula*, although Downy Birch *Betula pubescens* is also used. However, difficulties in positively identifying the two birches and their tendency to hybridise producing trees with characteristics of both parents confuses the matter. Larvae have very occasionally been recorded on Alder *Alnus glutinosa*.

### Habitat

Kentish Glory is a moth of open birch woodland, woodland edges, wayleaves, rides and tracksides, and plantation clearfell where birch up to 2.5m grows in an open unshaded woodland structure.

### Below Kentish Glory egg batch



	J	F	M	A	M	J	J	A	S	O	N	D
Egg				■	■							
Caterpillar					■	■	■	■	■			
*Pupa	■	■	■	■	■				■	■	■	■
Adult				■	■							

\*Can overwinter twice or more as a pupa

## Habitat management for Kentish Glory

Aim to provide a regular supply of short (1-3m high) birches in open, sheltered and sunny locations.

The moth's requirement for low birches means it is reliant on the early successional stage of woodland development. However, this is an ephemeral habitat especially where natural tree regeneration is being encouraged as the birch progressively becomes too dense or tall to remain suitable. Conversely, many woodlands are too over-grazed or over-browsed by stock or deer to allow suitable birch trees to become established. Restoring/creating connections between colonies is also vital for the long-term conservation of Kentish Glory.

### Connectivity

On emerging, despite their size, female Kentish Glory tend to crawl rather than fly as they are so weighed down with eggs, therefore, their first couple of egg batches are laid close to where they pupated. Although it is unclear how far females will subsequently disperse it is recommended that newly created habitat is within 1km of currently occupied sites. Males are thought to be more mobile. Fortunately, even small patches of habitat, including individual trees, can provide breeding habitat and important stepping stones in the landscape as long as they are sufficiently close to existing colonies and linked.

### Management of clearfell

Birch, being a pioneer species, is usually the first tree to become established after clearfell operations providing there is an adjacent seed source. However, intervention is often required to prevent the birch regeneration becoming too thick and/or tall for Kentish Glory.

#### Management options include;

1. Thinning and/or felling small coups within the clearfell once the habitat becomes marginal. On large clearfell areas several coups could be created that are of different ages and stages of succession.
2. Careful planning of new clearfell locations ensuring they are sufficiently close and linked to allow Kentish Glory to colonise, once suitable habitat develops.
3. It is important to ensure that there is always suitable habitat present.

### Management of rides, tracksides and wayleaves

These linear features can act as useful corridors to link areas of suitable habitat as well as being breeding locations themselves. However, they often require regular thinning or cyclical clearance. The latter is best deployed on shorter sections, ensuring that segments of suitable habitat are always present. Creating and maintaining sheltered scalloped bays and box junctions along and at the junctions of these linear features, ideally on the sunnier and south-facing north side, on those that run east-west, will be particularly beneficial.

Left Kentish Glory larva

Right Kentish Glory habitat

### Woodland restructuring

Many of our woodlands are even-aged and lack a varied woodland structure. Developing a more dynamic approach to woodland management can create opportunities for Kentish Glory. This can be achieved by thinning to make woodlands more porous to Kentish Glory to aid dispersal, coup felling to create suitable glades into which birch can regenerate and, as outlined above, encouraging birch regeneration along linear features. Enhancing the structure of woodlands will also benefit other important birch dependant Lepidoptera including Rannoch Sprawler and *Ancylis tineana*.

### Exclosures

At many sites the background grazing or browsing pressure is too great, or the ground vegetation too thick, to allow birch to become established. However, by erecting small exclosures (minimum 5m x 5m) to exclude livestock, and possibly deer, birch regeneration can be encouraged. In some cases scarification or ground disturbance and scattering of seed may speed up the process. Once suitable birch has become established the fence can be moved or dismantled and the habitat maintained by thinning or grazing.

### Grazing/browsing

At other sites the aim of management is to maintain suitable habitat and this can be achieved through grazing with stock and/or browsing by deer. Light poaching and trampling by cattle will enhance conditions for birch seedling establishment whilst grazing/browsing will limit and slow its establishment, while keeping an open woodland structure.

### Habitat Creation

The current incentives to establish new woodlands through planting and regeneration schemes should be seen as an ideal opportunity to create Kentish Glory habitat. In the establishment phase these new woodlands could provide large areas of suitable habitat as well as linking neighbouring colonies. Ideally small areas in sheltered and sunny locations should be identified where suitable habitat can be maintained.

### Survey and Monitoring

The vagaries of the Scottish spring weather make surveying for Kentish Glory difficult, whilst its annual phenology can change by up to a month. Adults are regularly recorded by light trapping and males fly actively in warm, sunny conditions searching for females from mid-morning to mid-afternoon. In late April and May, daytime searches for egg batches and adults can be successful by carefully checking the outer twigs of suitable birches. The eggs are custard yellow once laid turning purplish brown in a few days, matching the colour of birch twigs, making them more difficult to locate.

The young gregarious larvae leave characteristic feeding damage with small areas devoid of leaves but with the leaf-stalks remaining. Closer inspection is then required to locate the larvae, or find their hatched egg batch which resembles tiny bubble-wrap. Kentish Glory males can be "assembled" to caged virgin females, but this requires access to freshly emerged females that have been purposely reared. Butterfly Conservation Scotland is trying to develop a pheromone lure with Canterbury Christchurch University in the hope that this may become a useful survey, and possibly monitoring, technique.



Saving butterflies, moths and our environment

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Registered Office: Manor Yard, East Lulworth, Wareham, Dorset, BH20 5QP  
Charity registered in England and Wales (254937) and in Scotland (SCO39268)  
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