

The distribution and status of important butterfly species around Lough Carra, Co. Mayo.

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Introduction

What is known of the butterflies of Lough Carra suggests that the site is an important area for several species considered to be rare or of conservation concern in Ireland, as well as being unusually rich in species. The lakeshore and the islands in the lake support a wide variety of habitats which carry an impressive inventory of butterfly species. However, little is known of the distribution and status of those of importance and previous work has suggested that habitat loss and degradation is a significant threat to their continued survival.

A knowledge of current status of key species would assist in assessing the level of threat and in identifying possible remedial or protective measures.

Objectives

The objectives of this project were:

- To assess the distribution and status of key species of butterfly for the Lough Carra cSAC
- To establish whether or not the Purple hairstreak occurs in the area

Methods

Suitable habitat and known sites for the following species were searched in good weather, with records mapped at the four hectare grid square (200m x 200m) level:

Real's wood white (two known sites)
Holly blue (one known site)
Grayling (four known sites)
Dingy skipper (two known sites)
Marsh fritillary (three known sites)

In each location where one of these species was found, and where appropriate and feasible, an assessment was made of the population size, area of suitable habitat, frequency/abundance of larval food plants and potential threats to continued existence of the population. An attempt was made in some cases to estimate the population size

using capture/mark/recapture techniques. However, in all such cases the onset of inclement weather prevented continuation of the exercise after the initial marking of individuals. Nonetheless, at least this initial marking allowed a minimum estimate of population size in the case of the most important population of Marsh fritillary.

Lakeshore areas of woodland containing mature oak trees were surveyed in late summer for presence of Purple hairstreak. These areas included the Doon peninsula, the Partry House Estate and Church Island. Two other potential sites, the Derrinrush peninsula and the Moore Hall area, were not surveyed because of the lack of suitable weather. There was only one day in August without rain, and just two such days in the first half of September.

Surveys were carried out on a total of 31 days:

April 23,26.

May 1,4,5,7,8,11,12,13,15,16,18,20,25,28,30,31.

June 2,3,6,8,9,10,14,15,16,18.

August 8,22,31.

n.b. It should be noted that throughout this report it is assumed that the species recorded was Real's wood white rather than the Wood white. The basis for this assumption is the positive identification (by dissection) of one specimen (at Kilkeeran) by Ken Bond (personal communication).

Results

Real's wood white

This species was known previously from just two sites, but good numbers were found in several locations, indicating that it is both more abundant and more widespread than previously recorded. A total of 31 individuals were recorded in a variety of habitats between 13 May and 6 June. The distribution of the records of this species is shown in Map 1.

The larval food plants for this species are various species of legume including Meadow vetchling *Lathyrus pratensis*, Tufted vetch *Vicia cracca* and Common bird's-foot trefoil *Lotus corniculatus*, all of which are widespread and relatively abundant in the habitats around the lakeshore.

Holly blue

This species also proved to be much more widespread than previously recorded, with 25 individuals observed between 4 and 31 May in several locations. The sites where they were recorded are shown in Map 2.

The main larval food plants, Holly *Ilex aquifolium* and Ivy *Hedera helix*, are extremely abundant in many of the lakeshore habitats.

Grayling

Difficult weather conditions prevented as comprehensive a survey of this species as had been planned, with only three specimens recorded (see Map 3). The Grayling has now been recorded from four locations, all of which are limestone pavement habitats. An attempt in early August to assess the populations of two sites using capture/mark/recapture was curtailed by inclement weather. However, it is clear from this survey and previous records that this species is not abundant. In none of the sites were more than two individuals recorded on any occasion.

The larval food plants Sheep's fescue *Festuca ovina*, Red fescue *Festuca rubra* and Tufted hair-grass *Deschampsia cespitosa* all occur in the limestone grassland habitats around the lakeshore. However, no systematic assessment has been made of their distribution or abundance.

Dingy skipper

This species was previously known from just two lakeshore sites. In this survey, ten individuals were recorded from nine sites scattered around the lake (see Map 4).

The main larval food plant Common bird's-foot-trefoil *Lotus corniculatus* is common and quite abundant on unimproved grassland. However, it should be noted that there has been (and still is) an ongoing reduction in the extent of this habitat in this area.

Marsh fritillary

Twelve individuals of this species were recorded in ten locations, with the distribution clumped into three areas (see Map 5). However, one area where this species had been found previously was searched without success.

The main larval food plant Devil's-bit scabious *Succisa pratensis* is extremely widespread and abundant in the fens and wet grassland habitats around the lakeshore.

Green hairstreak

This species had never been recorded at Lough Carra before, although it is known to occur within a few kilometres of the lake. Two, freshly emerged specimens were found on the Kilkeeran peninsula (see Map 6).

Common bird's-foot-trefoil and Gorse *Ulex europeaus*, the two main larval food plants, are both common in suitable habitats around Lough Carra. It is notable that the Kilkeeran peninsula has a vigorous growth of the latter species. Other areas with Gorse were searched for this species, but without success.

Purple hairstreak

No specimens of this species were found during the brief time spent watching suitable oak trees on the Partry House Estate, the Doon peninsula and Church Island in August. However, weather conditions during the anticipated flight period for this species were generally unfavourable and prevented comprehensive coverage of potential sites.

Discussion and Conclusions

Real's wood white

Although one specimen from Lough Carra has been positively identified as this species (*Leptidea reali*), Fox et al. (2006) report that the Wood white (*Leptidea sinapis*) occurs on “the scrubby woodland of the Burren and adjoining areas”. Since the Lough Carra lakeshore is more or less the northern extremity of the Burren-type habitats (and an extension of the carboniferous limestone on which such habitats occur), it seems strange that it should be Real's wood white that occurs here. This aspect might warrant further investigation.

In view of the general paucity of butterfly records for this area, it seems probable that this species has previously been under-recorded, especially since to many people “white” butterflies are all “cabbage whites”. There is plenty of suitable habitat around the lakeshore and larval food plants are certainly not scarce. It is concluded that the Real's wood white is relatively common around Lough Carra and is not of conservation concern.

Holly blue

This species was not recorded from this region of Ireland (see Asher et al, 2001 and Fox et al, 2006) prior to 2007 when single specimens were seen on the Doon peninsula and the nearby Deer Island. Fox et al (2006) reported a general “northward spread” of this species and suggested that a “warming climate” might be the cause.

While none of the populations of Holly blue appeared to contain large numbers, the relatively widespread distribution suggests that the species is comparatively secure. There are relatively short distances between the populations and larval food plants are abundant in many areas around the lake. It is concluded that the Holly blue is well established in several areas around Lough Carra and that neither the abundance nor distribution of larval food plants is a limiting factor. This species has been expanding its range in Ireland in recent years and has also been recorded as having multiple generations, especially in the East of the country. It seems probable that the apparent increase in numbers around Lough Carra is due to both this nationally observed increase and previous under-recording.

Grayling

Although the records are insufficient to draw definite conclusions, it seems likely that this species is not common or numerous around Lough Carra. The Millenium Atlas (Asher et al., 2001) does not show it as recorded in this region of Ireland and Fox et al. (2006) report just one sighting in one of the 10 km grid squares in which Lough Carra occurs. It is clear from these publications that the Grayling is on the edge of its range here, although it is likely also to have been under-recorded (as with many species). There are much larger areas of limestone pavement around neighbouring Lough Mask where it is possible that stronger populations occur. Indeed it seem possible that the small and isolated populations in the four locations around Lough Carra are “outliers” of a larger population on the extensive limestone habitats to the southwest.

The apparently precarious populations on the Lough Carra lakeshore deserve closer attention and further loss of habitat must be prevented if this species is to survive here.

Dingy skipper

Another species that appears to be on the edge of its range at Lough Carra, the Dingy skipper has been recorded primarily on the grassland habitats of the carboniferous limestone around the Burren. Substantial declines in the UK have led to this species being identified as a priority species for the Biodiversity Action Plan. Fox et al. (2006) report that the distribution of the Irish population is “stable”, although numerical data to support a similar conclusion for populations are not available. With the ongoing reduction in suitable habitat, it seems likely that a species on the edge of its range should be of some conservation concern.

Marsh fritillary

This species is generally acknowledged to be of conservation concern with distribution retracting and populations declining throughout much of its range in western Europe, primarily as a result of habitat loss and overgrazing (especially by sheep). Fox et al. (2006) report its distribution trend in Ireland to be a “severe decrease”, perhaps due to continued land drainage. The Lough Carra metapopulation seems to be centred on the relatively large area of fen vegetation to the south of Kilkeeran. The grazing management of this area, which is thought to be largely commonage, is somewhat variable and erratic. In some years it has been heavily overgrazed throughout the year (by horses). Some areas are heavily grazed by cattle in summer, and there is some sheep grazing, although this is primarily on improved grassland.

The outlying sub-populations seem to occur on small areas of limestone grassland or fen and are probably quite variable in both location and size. It is hoped that further work will establish the overall range of the species around Lough Carra. Meanwhile, the priority for conservation action for this species is to establish appropriate management of the key area. The species is sensitive to both over-grazing and

undergrazing, and so the management regime requires careful specification if the butterfly is to flourish.

There are known to be other populations in the general area, including a few kilometres to the north of the Lough, and it seems that the species has probably been seriously under-recorded in the past. The weather in this part of Ireland is such that, with its relatively early flight period, the species could easily go unnoticed in some years.

Green hairstreak

This species was not recorded from this part of the country in the Millenium Atlas, but single records were included in Fox et al. (2006). Since the overall trend for this species in Britain and Ireland is a decline, it seems probable that these new records arise from increased observation rather than an expansion of range. The addition of this species to the Lough Carra inventory brings the total to 24, making it clearly an important site for butterfly diversity.

Purple hairstreak

The failure to find any evidence of this species during this survey does not preclude the possibility that it occurs in one or more of the woodlands around Lough Carra. The weather conditions during the expected flight period of this species were atrocious with heavy rainfall and strong winds on many days. Rainfall in July at a location in the Lough Carra catchment (and a few kilometres from the lakeshore) was 160.9 mm, around double the average for this month. There are suitable, mature oak trees in several locations and, given good weather conditions, further time spent searching might reveal the presence of a population.

General

The presence of good populations of Marsh fritillary, Holly blue and Real's wood white, together with the presence of Dingy skipper, Grayling and Green hairstreak, suggest that the Lough Carra lakeshore habitats are a nationally important butterfly site. This is especially so when taken with the fact that many of the more common and widespread species are also abundant in the area. In particular, the Silver-washed fritillary, Brimstone, Small copper and Common blue occur in relatively large numbers, and the Wall brown has also been recorded. Although not found during this survey, it seems quite possible that the Purple hairstreak might occur since it is known from woodlands adjacent to neighbouring Lough Mask.

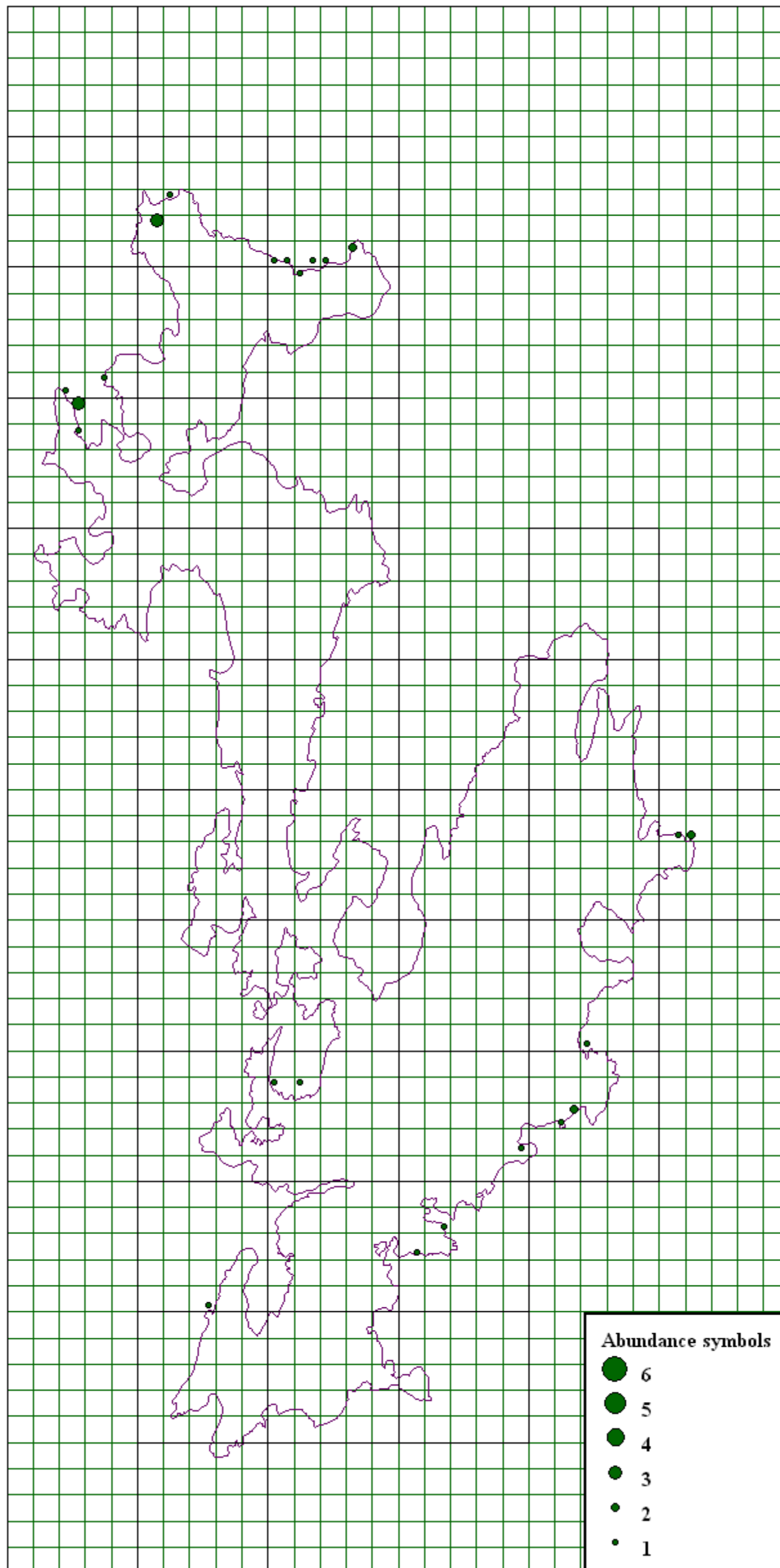
The species requiring further investigation with a view to formulating and promoting improved habitat management is the Marsh fritillary.

References

Asher, J. et al., 2001. The Millenium Atlas of Butterflies in Britain and Ireland. Oxford University Press. UK.

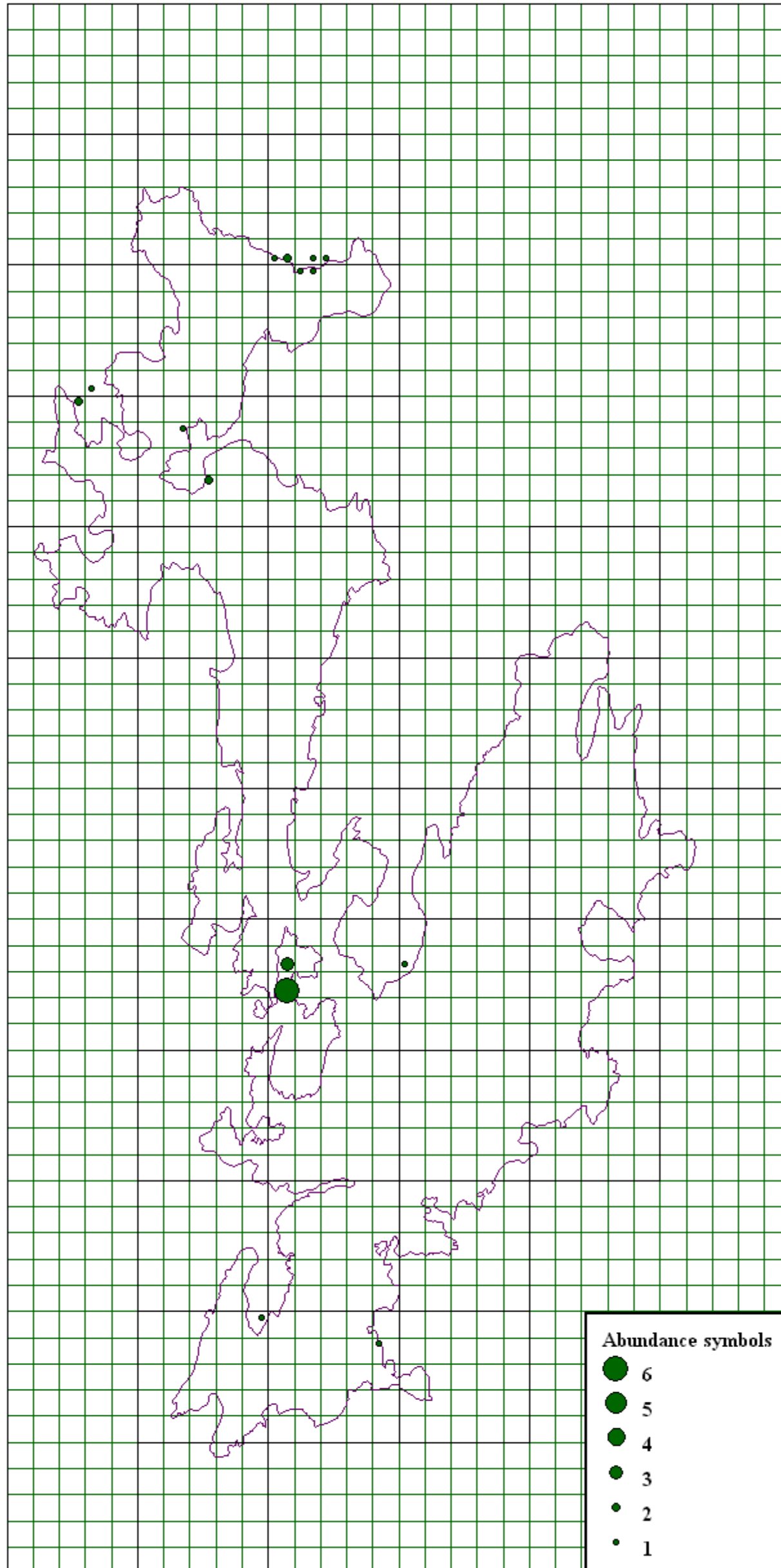
Fox, R. et al., 2006. The State of Butterflies in Britain and Ireland. Pisces Publications. UK.

Real's wood white



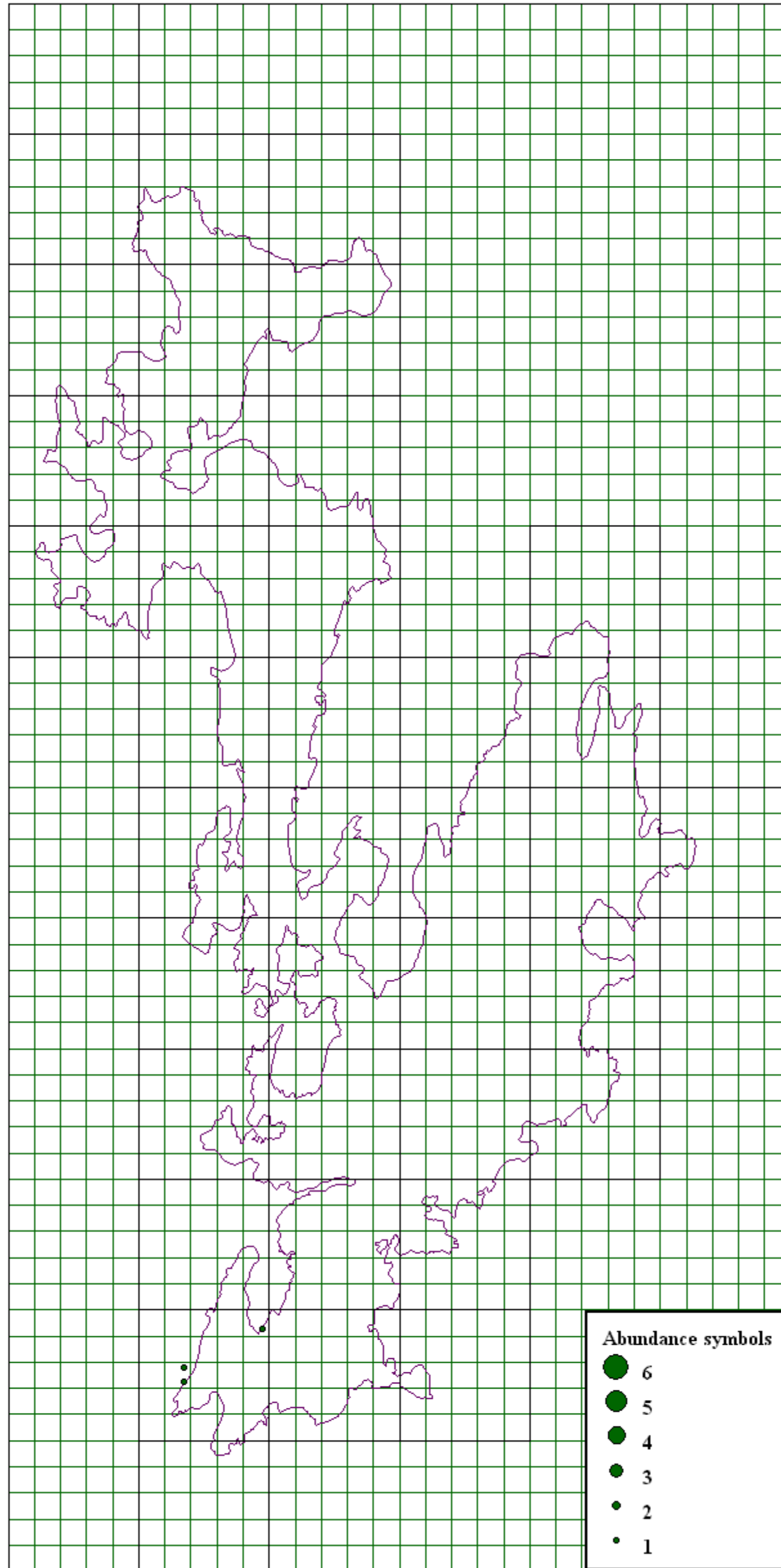
Map 1

Holly blue



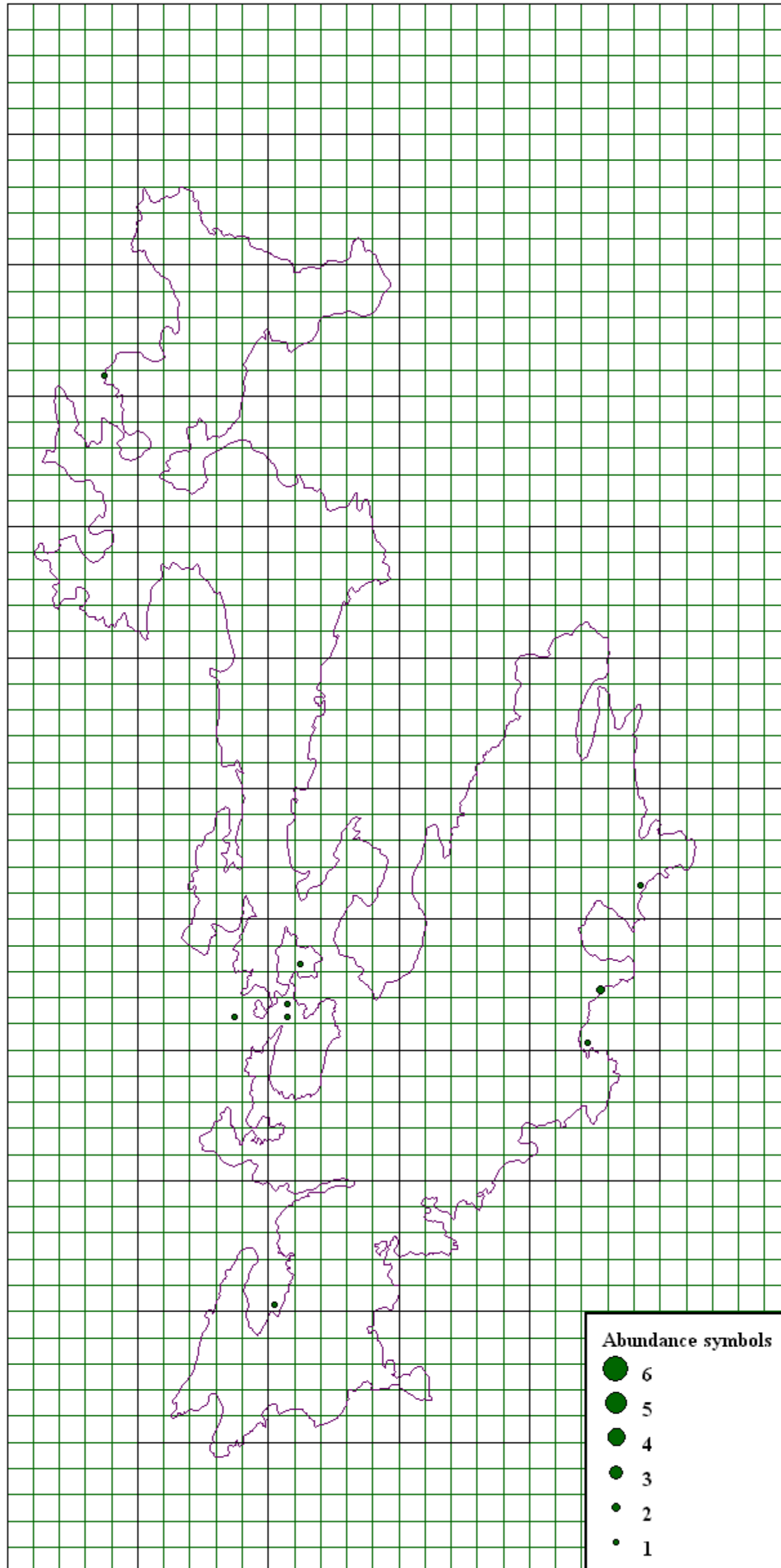
Map 2

Grayling



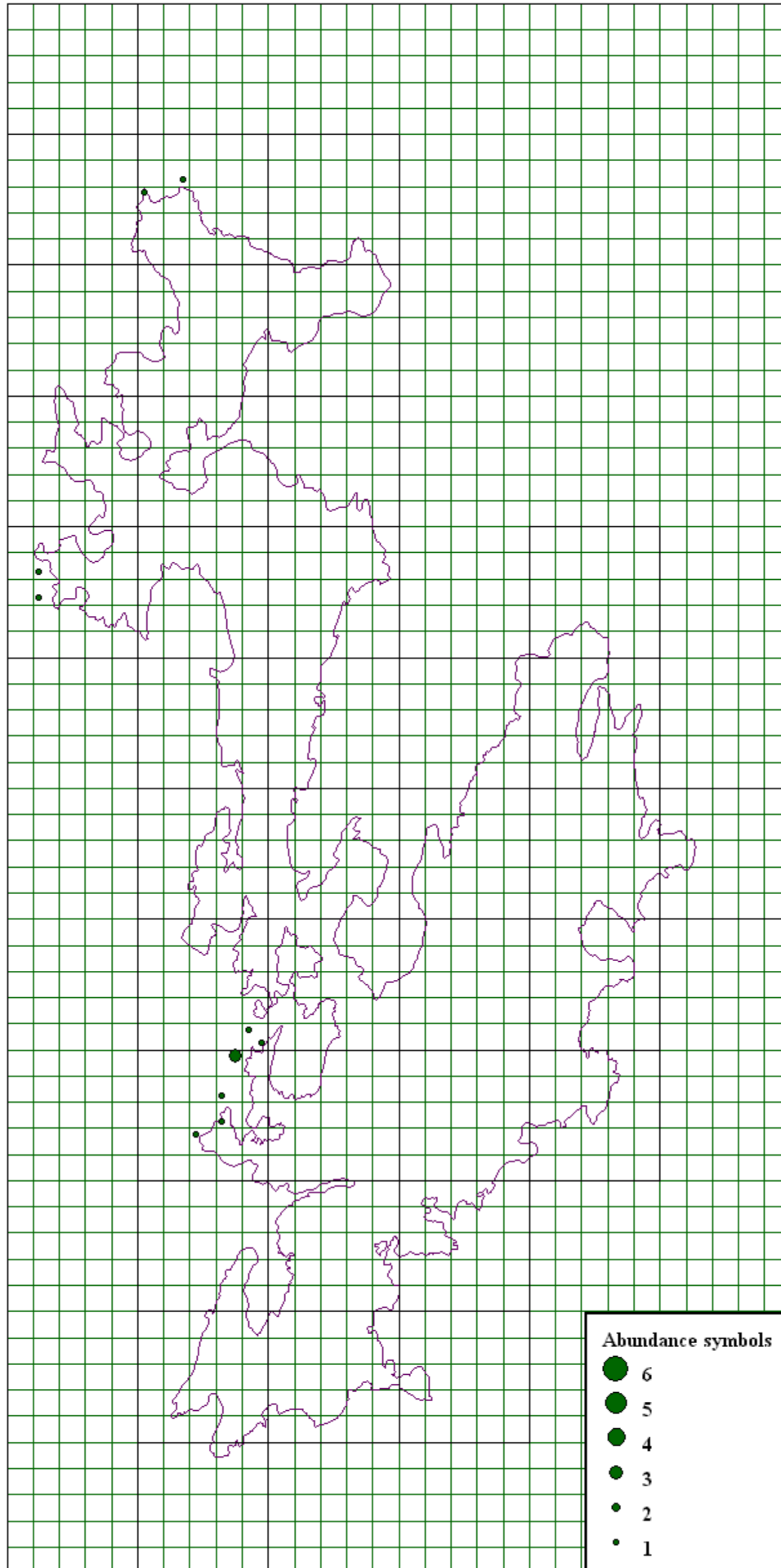
Map 3

Dingy skipper



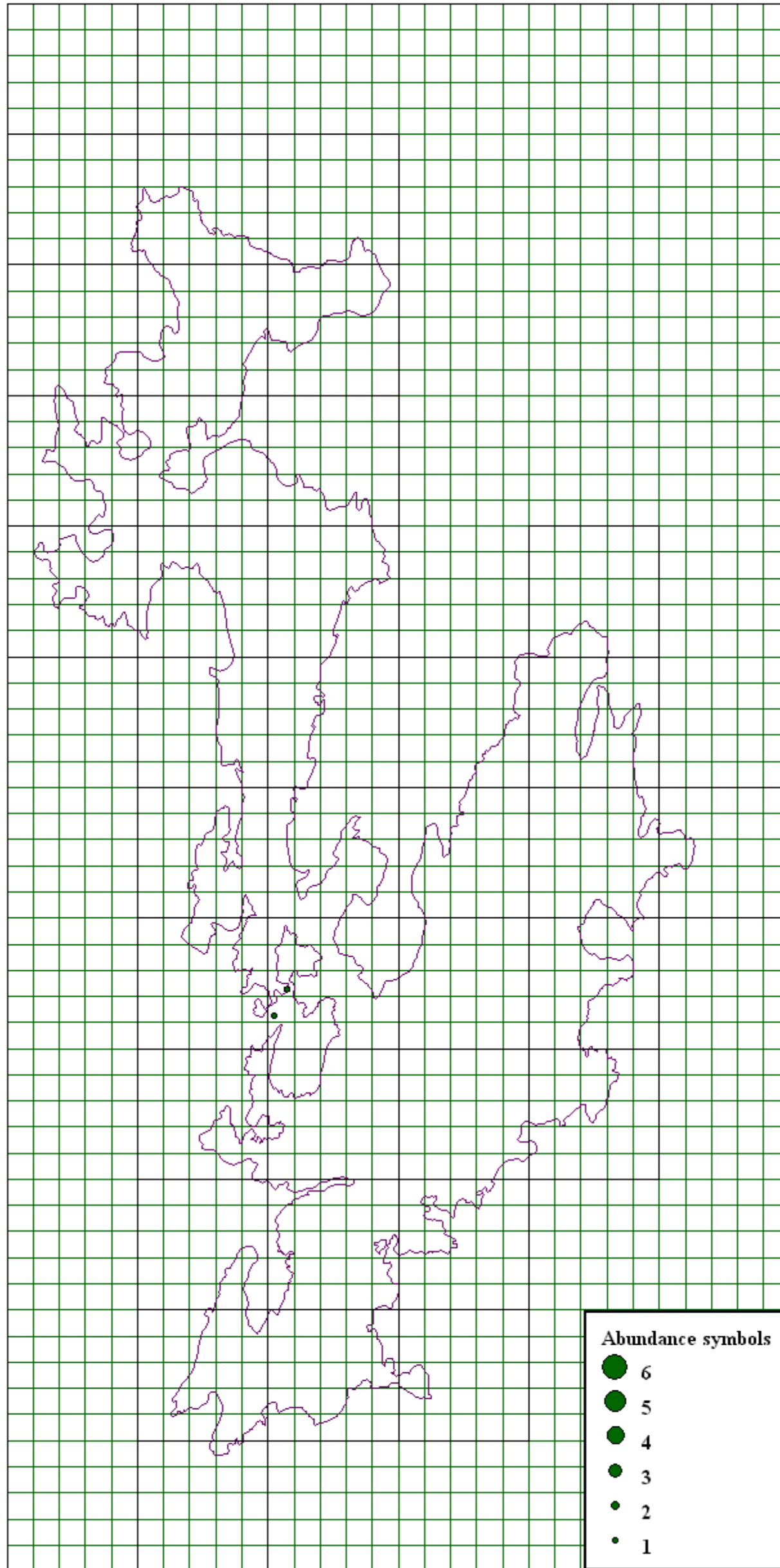
Map 4

Marsh fritillary



Map 5

Green hairstreak



Map 6