

Habitat Management for Butterflies



Resource requirements of butterflies



Parnassius mnemosyne Clouded Apollo



Zerynthia cerisy Eastern Festoon

Adult: nectar or other sources of nutrients (e.g. honeydew, over-ripe fruit, running sap, seepages and animal dung) are rarely limiting resources in Europe

Caterpillar: main growth stage and a supply of larval hostplants (or host ant in *Phengaris* butterflies) is critical. In many species, these must be growing in the right condition (e.g. preferred growth form, microhabitat): **only a subset of hostplant population is utilised**



Habitat quality for butterflies

Management should aim to maintain, restore or create the specific habitat preferred by the species concerned



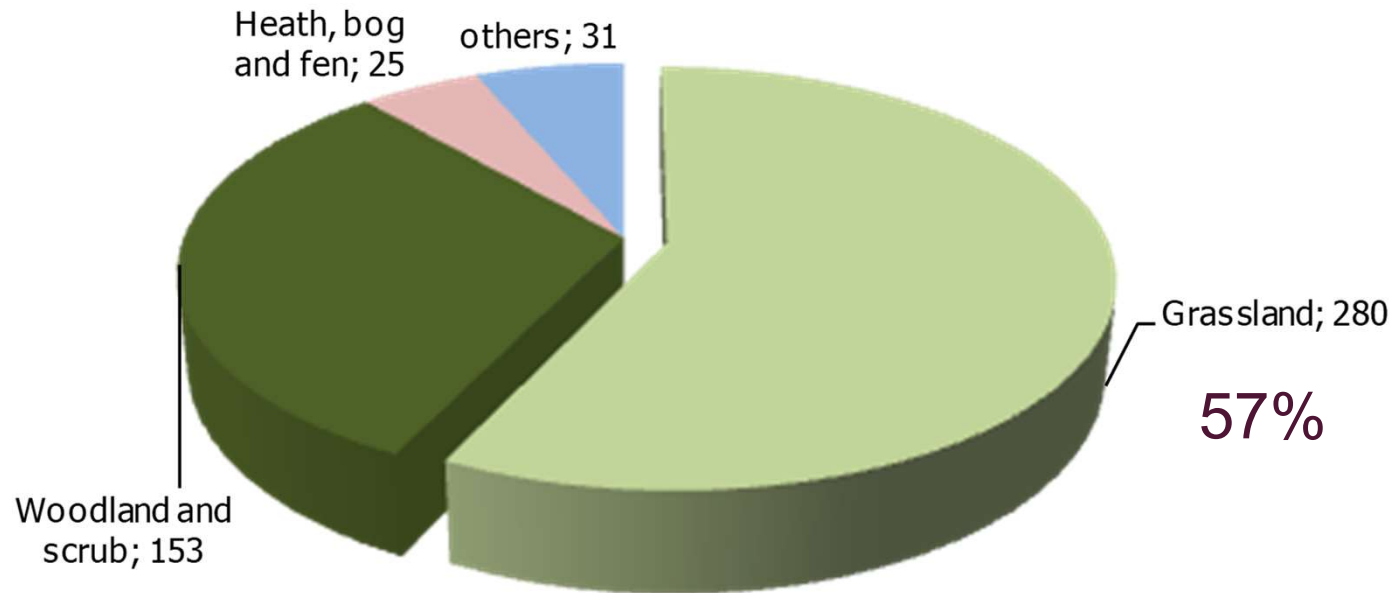
Succisa pratensis
Devil's-bit Scabious



Euphydryas aurinia Marsh Fritillary



Grassland: single most important habitat for butterflies



Semi-natural grasslands are dependent upon management to maintain them. Agricultural intensification, through ploughing, fertilisers or pesticides is still a major threat and should be avoided otherwise such habitat will be permanently lost

Abandonment is the single biggest threat to grassland butterflies



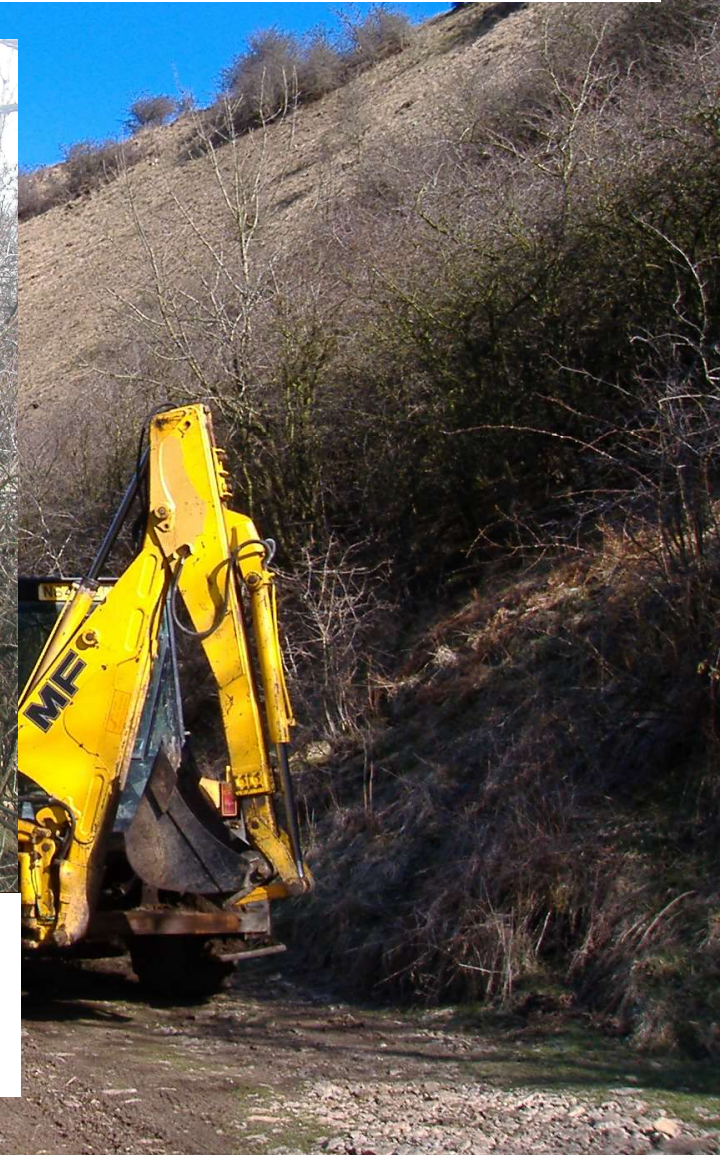


Active pastoral systems (livestock grazing or hay cutting) are needed to maintain open grassland habitats

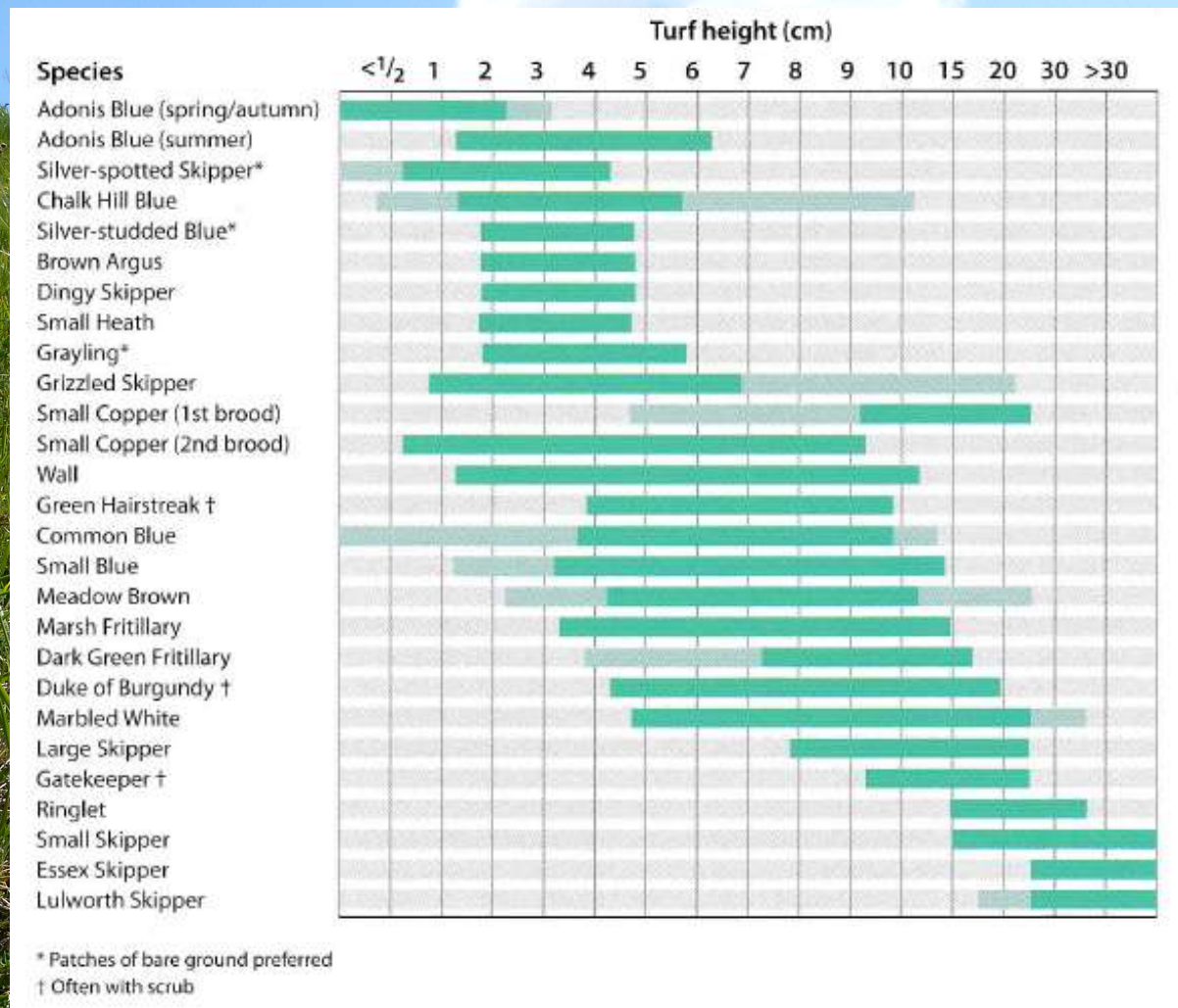
Restoration of abandoned grassland habitat (e.g. by scrub and woodland removal) is far more costly than maintaining it by active pastoral systems



Restoration of abandoned grassland habitat very effective for butterflies, but mechanisms must be in place to maintain it



Manage for variety



Turf height preferences in UK grassland butterflies, Dark bars indicate main preference and pale bars heights used more rarely. Updated from Butterflies Under Threat Team (1986)

Manage for variety



Livestock grazing key variables: livestock type; grazing intensity (livestock units); timing or seasonality; grazing system (e.g. extensive, rotational, transhumance)

Undergrazing: closed grassland with fewer germination sites, more coarse grasses, scrub invasion

Overgrazing: loss of structural diversity, larval hostplants may still be present but not in suitable growth form, limited nectar sources

Manage for variety



Sheep: more selective, target herbs, then fine grasses; avoid summer grazing or rotationally graze



Cattle: less selective, tend to target coarse grasses; better for summer grazing and restoration rank grassland



Ponies: more selective, but patchy grazing; some browsing; better for restoration rank grassland; stock husbandry less demanding



Goats: browse more than graze; better for scrub control

Manage for variety

Plebejus argus
Silver-studded Blue

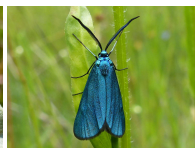


Localised mechanical disturbance: re-setting succession to provide more bare ground, more larval hostplants and fewer grasses

Avoid uniform management



Especially in hay meadows: vary cutting dates; mosaic of small scale cutting mimics traditional management before mechanisation



Habitat mosaics are crucial

Many butterflies use resources found in a range of habitat types. Some species breed along scrub or wood edges and so need a mixture of grassland and scrub; others breed in one habitat and nectar in another

Active woodland management is essential

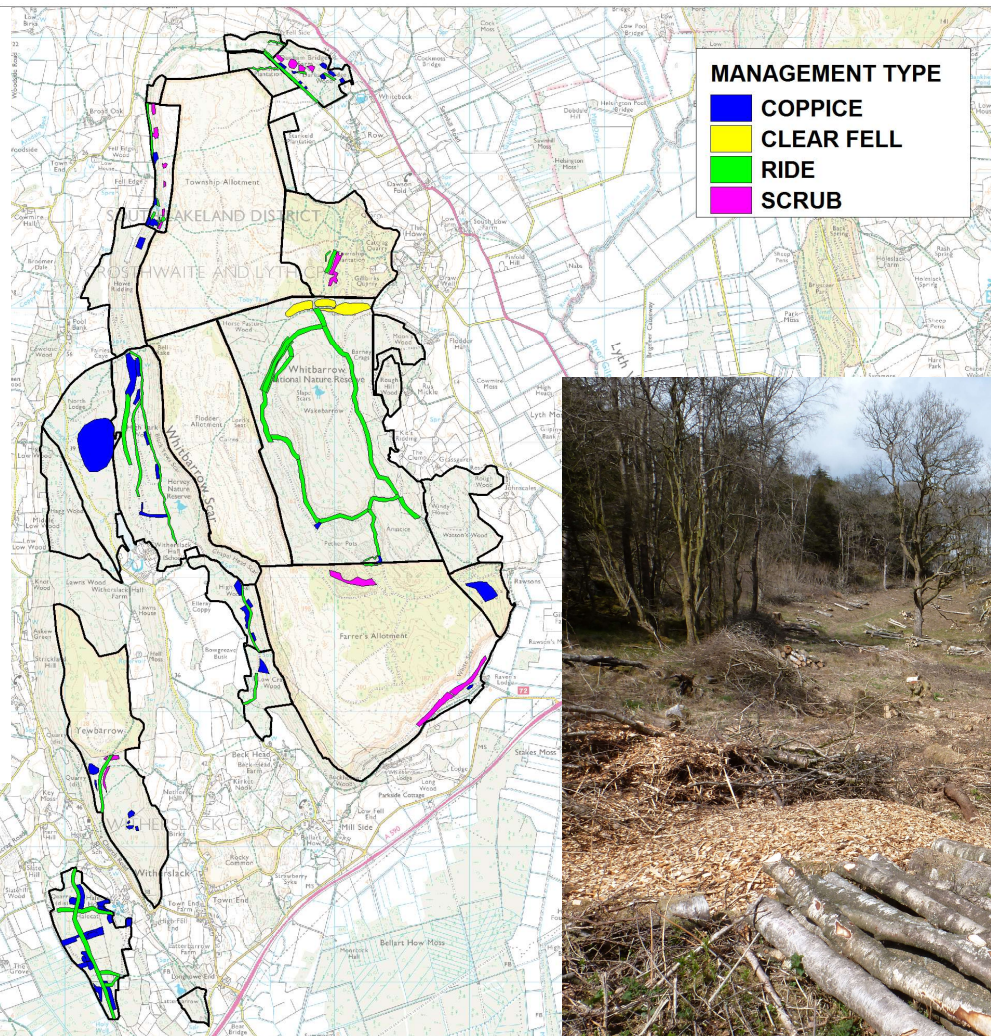


3-zone edges provide more structural diversity in woodland

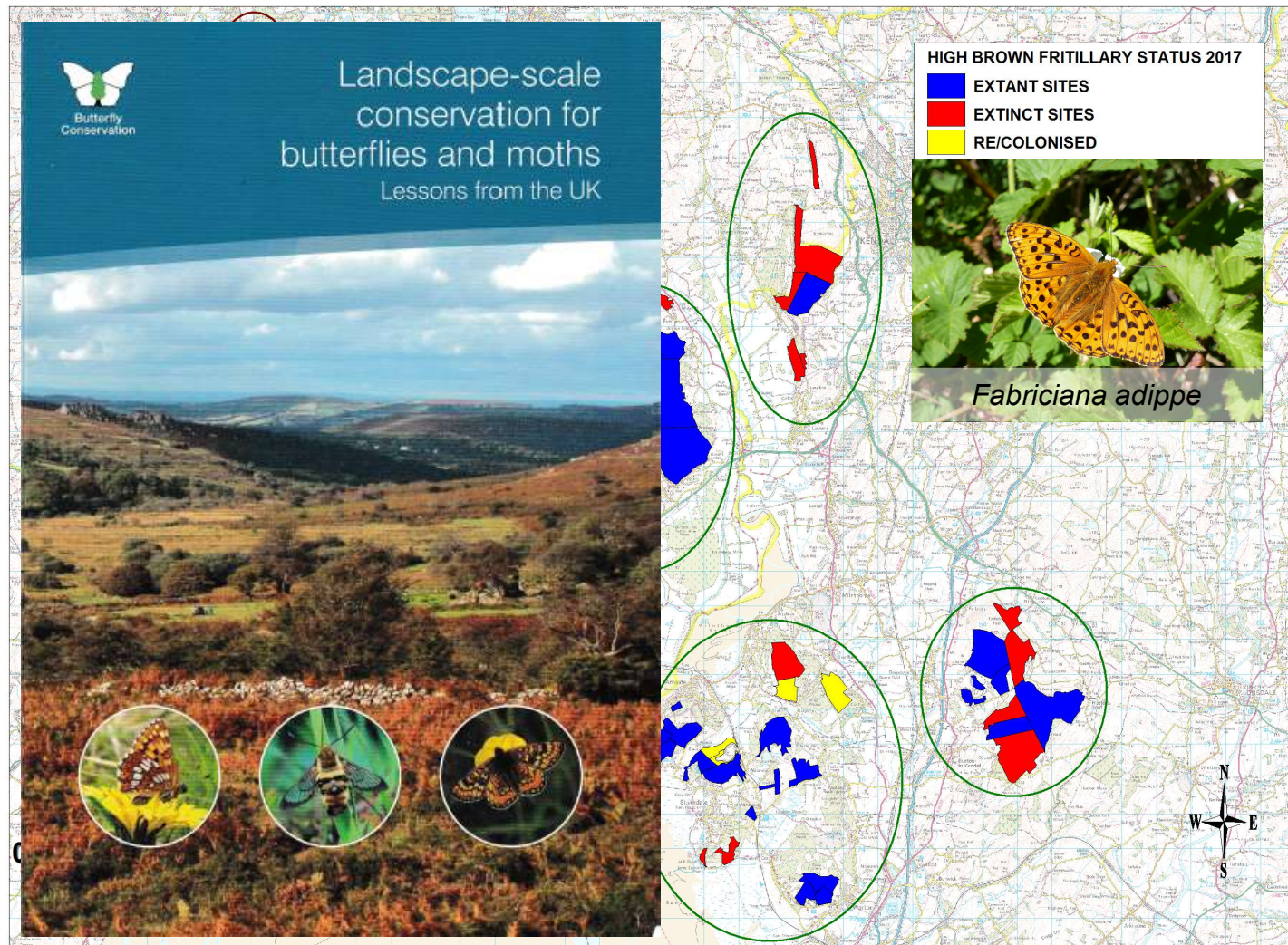
Manage metapopulations at a landscape-scale

Targeted management:

- Core sites (species still present)
- Former sites
- Potential sites
- Improve connectivity to maximise the chances of re/colonisation



Manage metapopulations at a landscape-scale



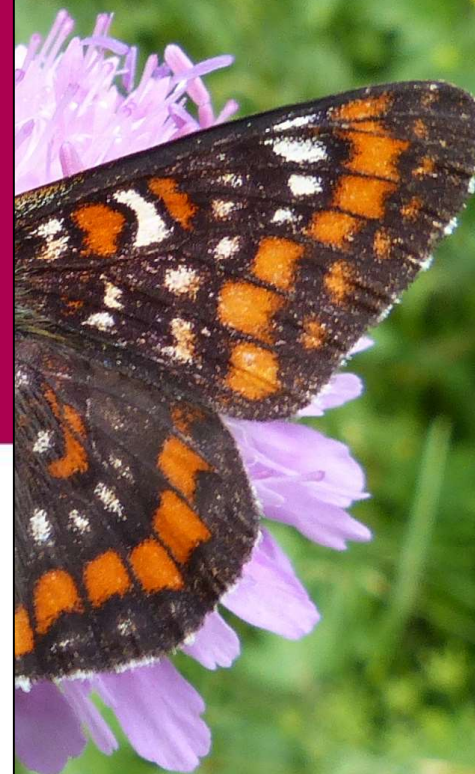
Smaller sites:
support smaller
local populations,
extinction more
likely

Isolated sites:
less likely to be
recolonised

Avoid restoring
unoccupied sites
which are more
than a few
kilometres from
nearest occupied
site



Do's and Don'ts for butterflies of
the Habitats Directive



Euphydryas maturna Scarce Fritillary

Habitat, ecology, threats

Habitat: clearings or forest fringes where young Ash *Fraxinus excelsior* trees are growing in open mixed woodland or where abundant privets *Ligustrum* spp. are present

Egg batches laid on Ash or Aspen *Populus tremula* 4-10m height

In continental mixed oak forests, larvae feed on Wild Privet *Ligustrum vulgare* 0.5-1m high pre-hibernation

Range of shrub and herb layer foodplants (privets, honeysuckles *Lonicera* spp., cow-wheats *Melampyrum* spp., plantains *Plantago* spp., speedwells *Veronica* spp.) in spring

Threats: typical species of open woodland and coppice, mostly threatened by changes in woodland management or felling/destruction of forests

Conservation actions

Euphydryas maturna

Do's

- Maintain open woodland habitat, preferably by coppicing.
- Cut part of the ash trees when they reach a height of 5 metres to allow younger saplings to proliferate.
- Maintain wide and diverse woodland edges and preserve wide open corridors along forest roads.
- Protect or re-create natural fringe vegetation around clearings and meadows.
- Keep flower rich meadows near larval habitats with late season hay-cutting.
- Manage habitats across the whole landscape scale with mosaics of woodlands, clearing and low intensity managed meadows.

Don'ts

- Remove all ash-trees or their saplings from clearings.
- Let the forest grow to closed canopy stage.
- Remove road edge vegetation mechanically during adult stage (from mid May to mid July).
- Replace deciduous forest with conifer trees.

Habitat creation

Seed low nutrient status substrates
with local provenance plants

Low maintenance: cost-effective
solution in the built environment
compared to traditional landscaping
techniques

Improves connectivity in fragmented
landscapes



Cupido minimus
Small Blue

Anthyllis vulneraria Kidney Vetch