Cryptic colouring provides the Grayling with excellent camouflage, making it difficult to see when at rest on bare ground, tree trunks or rocks. The wings are kept closed when not in flight and the forewings are usually tucked behind the hindwings, concealing the eyespots and making the butterfly appear smaller. In flight this is a distinctive, large butterfly with a strong looping and gliding flight, during which the paler bands on the upperwings are visible. Grayling regulate their temperature, leaning sideways-on to the sun when it is too cold and perching on tiptoes head to the sun when it is too hot. The Grayling is widespread on the coast and southern heaths, but is declining in many areas, particularly inland.

**Life cycle**

There is one generation a year and the butterfly is usually on the wing from early July into September. The butterfly spends most of its time basking on bare ground or rocks and spends little time nectaring but is attracted to muddy puddles and sap from tree trunks. Spherical white eggs are laid singly on fine-leaved grasses, usually very small tussocks, growing in full sun and surrounded by bare ground. After 10 – 20 days the eggs hatch and the small cream coloured larvae feed on grass leaves at night then spend the winter hibernating in grass tussocks. In spring the feeding begins again and larvae become fully grown in June. Pupation then usually takes place in a silk-lined cavity just below the surface of the ground.

**Colony structure**

Grayling colonies can range in size from fewer than 50 adults to thousands on larger stretches of suitable habitat. Little is known about their dispersal ability, but they appear to be highly colonial and adults are rarely seen away from their breeding areas. The males are very territorial whilst the females are secretive, and are generally only seen when flying between tufts of grass to lay eggs.

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**Conservation status**

Section 41 & 42 (NERC Act, 2006).
Scottish Biodiversity List. Northern Ireland Priority Species.
Priority Species in UK Biodiversity Action Plan.

**Foodplants**

The main foodplants include Sheep’s-fescue (Festuca ovina), Red Fescue (F. rubra), Bristle Bent (Agrostis curtii) and Early Hair-grass (Aira praecox). Coarser grasses such as Tufted Hair-grass (Deschampsia cespitosa) and Marram (Ammophila arenaria) are occasionally used.

**Habitat**

Grayling require a warm microclimate and occur on a wide range of dry, well-drained soil types. Habitats are characterised by sparse vegetation, sheltered sunny spots and plenty of bare ground in open situations. Many colonies occur in coastal habitats such as sand dunes, saltmarsh, undercliffs and clifftops. Inland colonies are found on lowland heathland, limestone pavement, scree and brownfield sites such as old quarries, railway lines and derelict industrial areas. Less commonly, the Grayling still occurs on calcareous grassland or in open woodland on stony ground.
Habitat management for the Grayling

The main aim of habitat management is to maintain areas of open, sparse, vegetation with abundant fine-leaved grasses and plenty of bare ground.

Coastal habitats: cliff tops, undercliffs, sand dunes, saltmarsh

Scrub Control
Coastal habitats are rarely managed intensively. Landslips, erosion, exposure and salt deposition usually combine to maintain the sparse vegetation required by the Grayling. However, occasional scrub control may be required on sand dunes and cliff top habitats, especially where the extent of the latter is limited by adjacent intensive farmland. Cliff top habitats may be threatened by agricultural intensification up to cliff edges, so buffer zones of rough grassland are desirable to maintain habitat continuity as cliffs erode.

Grazing
Dunes and saltmarshes may be grazed by cattle, sheep or ponies, which is likely to help create or maintain suitable habitat for the Grayling. Dunes do not usually require management, but can be grazed if they have become too stable and bare ground and sparse vegetation has been lost.

Ground Disturbance
Bare ground can be created on dunes by turf removal and small-scale rotovation. If there is too much erosion, fencing off areas can allow vegetation to regenerate until a patchwork of bare and grassy areas is created.

Inland habitats: lowland heathland, calcareous grassland, brownfield sites

Scrub Control
Scrub cover should be sparse, although some light well-spaced scrub can provide valuable shelter on more exposed sites. Periodic scrub control may be necessary on some sites and should be cut on rotation. Where scrub reduction is required, stumps should be treated with herbicide to prevent re-growth. Raking off the litter layer after scrub control can help expose more bare ground.

Grazing
Lowland heathland and calcareous grassland are generally best managed through grazing. Cattle and ponies are preferred as they create a varied sward structure with more localised ground disturbance. However, all types of livestock can provide breeding habitats by creating paths with some bare ground.

Cutting and Burning
Heathland can be managed through rotational cutting and burning at intervals of 5-30 years depending on the rate of re-growth and other management objectives. The size of cut and/or burnt areas should be small, creating a structurally diverse habitat mosaic, which incorporates the bare ground and sparse vegetation required.

Ground Disturbance
Periodic and/or patchy disturbance can help maintain or create suitable breeding habitat by increasing bare ground. In the absence of grazing, bare ground can be achieved by mechanical scrapes using a bulldozer or by hand on a small-scale. However, this will only be successful if nutrient levels are sufficiently low to prevent rapid re-growth of ranker vegetation. In these circumstances, rotational topsoil stripping will help reduce nutrients and revert the habitat to an earlier successional stage.

above Grayling can be found on cliff top habitats

above Lowland heathland with open sparse vegetation and plenty of bare ground can be suitable Grayling habitat

top right Grayling spends time basking on bare ground, showing its excellent camouflage