

Anacamptis morio (L.) Bateman,
Pridgeon & Chase

Green-winged Orchid

Anacamptis morio is an orchid of damp to dry unimproved grassland on base-poor to base-rich soils, flowering from April to June. Flowers vary in colour from white to deep-purple, and have distinctive green lines on the outer tepals. It has suffered substantial declines, particularly in central, southern and eastern England, as a result of habitat loss, cessation of traditional management, and eutrophication. Always a rare species in Scotland, it is thinly scattered along the Welsh coastline, and widespread but localised in central and south-west Ireland. It is assessed as Near Threatened in Great Britain, of Least Concern in Wales, but Vulnerable in England.



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IDENTIFICATION

Anacamptis morio populations often display a wide variation in flower colour, ranging from white, through pink, to deep-purple. The 3-lobed labellum (6-10 mm) has a dark-spotted central region, and as the common name suggests, the laterally spreading ('winged') outer tepals have distinctive fine green (occasionally purple) parallel lines. Plants have unspotted, narrowly elliptic-oblong acute leaves with a mucronate tip. Leaves are produced in the autumn and die off shortly after flowering.

SIMILAR SPECIES

Occasionally, the leaves of *Orchis mascula* (Early-purple orchid) do not have obvious transverse spots, and so when not in flower such plants could be confused with *A. morio*. If spots

are not present, *O. mascula* leaves can be differentiated by a more or less rounded apex and the absence of a mucronate tip (Poland & Clement 2009).

HABITATS

In Britain and Ireland *A. morio* is found across a wide edaphic gradient, from base-poor to base-rich soils and from short damp alluvial grassland to open dry lowland grassland.

It is most frequently found in unimproved NVC MG5 *Cynosurus cristatus*-*Centaurea nigra* hay meadows and pastures, grazed CG3 *Bromopsis erectus* grassland, unimproved coastal grassland mosaics, as well as on the thin soils of restored gravel pits and quarries, and unimproved grassland of churchyards, roadside verges and lawns.

Habitats across the rest of its global range include xerothermic grassland on porphyry outcrops (central Germany) and alpine pastures in the Picos de Europa (Spain).

BIOGEOGRAPHY

A. morio is widespread throughout Europe, as well as Morocco, Belarus, Georgia, Ukraine, central Russia, Turkey, Cyprus, Lebanon, Israel, Syria, Jordan, and northern Iraq, with range limits in southern Norway and northern Iran.

In Britain and Ireland, core populations are scattered throughout southern England and the Welsh coastline and across a central belt in Ireland from west Galway to county Dublin and south to south Tipperary, with outliers in county Down in the north-east and west Cork in the far south-west. *A. morio* populations have experienced substantial declines across much of northern, central, south-western and eastern England and, to a lesser extent, the lowlands and coastal



Anacamptis morio at Upwood Meadows NNR, Huntingdonshire.
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regions of Wales, and possibly the central belt of Ireland, although recent data is required for much of the latter area.

It has always been rare in Scotland, restricted to a handful of sites around Troax, Ayrshire, most of which are protected within the Bennane Head Grasslands SSSI. A new sub-population in this area was recently discovered, possibly arising as a result of scrub clearance works (David Lang pers. comm.). There are also confirmed historical records from Banffshire and Westernness, but these populations have not been recorded since 1958 and 1943 respectively.

ECOLOGY

A. morio is a small (to 40cm), tuberous, wintergreen perennial herb, flowering from mid-April to early June. It was included in the genus *Orchis* until phylogenetic studies based on DNA sequences demonstrated a closer relationship to *Anacamptis* (Bateman et al. 1997).

Plants produce one inflorescence, which typically has 15-20 (-25) flowers, each with two pollinia. Flowers are self-compatible but rely on pollinator visits to set fruit (Nilsson 1984). As the spur does not provide floral rewards, pollination depends upon deception. A conspicuous flowering display in early spring combined with the sweet scent of the flowers lures exploratory visits from queen bumblebees slow to detect true nectar-producing plants because they have only recently emerged from hibernation (Jersakova & Kindlmann 1998).

Each fruit contains many thousands of dust-like seeds that are wind dispersed, but only a small proportion of seeds will

travel more than a metre from the parent plant (Jersakova & Malinova 2007). Although little is known about seed germination and seedling establishment in the wild, there is anecdotal evidence that *A. morio* seems capable of colonising new or recently disturbed grassland habitats (e.g. Stroh et al. 2007). Ex-situ studies have demonstrated that propagation by seed requires a penetrative fungus that forms a mycorrhizal association with the developing seedling (Fay & Rankou 2010). Mycorrhizal associates are known to include *Epulhoriza repens* and *Moniliopsis solani* (Lievens et al. 2010).

Each year, new tubers replace the tubers that have been exhausted of food reserves during the flowering process.

Anacamptis morio was once thought to be monocarpic, but a long-term study of its flowering dynamics showed that individuals may flower for up to 17 years (Wells et al. 1998).

In Britain the hybrid with *A. laxiflora* (*A.* x *alata*) has been recorded from Jersey. Elsewhere, two populations of a sterile hybrid between *A. morio* and *A. papilionacea* (*A.* x *gennarii*) have been reported from the slopes of Mount Vesuvius near Naples, Italy, and the Cilento and Vallo of Diano National Park in southern Campania, Italy (Aceto et al. 1999).

THREATS

Habitat loss and destruction via the application of inorganic fertilisers in the latter half of the twentieth century decimated the conservation interest of lowland unimproved grasslands, with hay meadows and ridge & furrow fields hit particularly hard (Silvertown et al. 1993). Many *A. morio* populations are now within protected sites, and so today the main threats are likely to relate to a prolonged absence of grazing or cutting (i.e. abandonment), leading to a dominance of tall, competitive vegetation and a reduction or eventual absence of this shade-intolerant orchid.

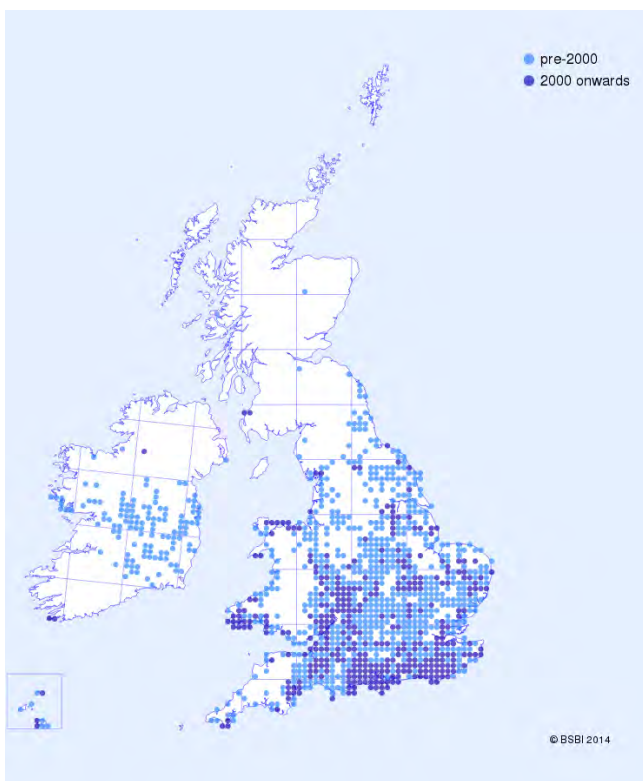
MANAGEMENT

Where a cutting regime is in place, cutting once or twice a year after flowering can improve flowering performance over time, although other biological interests of the site should be taken into account if a summer cut is planned.

Cattle are often used for aftermath grazing, but for sites where it is not possible to cut and bale e.g. where there is prominent ridge & furrow interest, or the presence of large ant hills, grazing is usually undertaken in mid-late summer. Rabbits and other small mammals can supplement livestock grazing, and in some cases may be the only means of retaining a short sward.

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Distribution of *Anacamptis morio* in Great Britain and Ireland.

Anacamptis morio (L.) Bateman, Pridgeon, & Chase

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AUTHOR VERSION

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