



Life cycles of Common, Small and Holly Blue butterflies

In Scotland we have three blue butterflies: the **Common, Small and Holly Blue**. However there are other species which are only found in southern parts of the UK. As the name suggests, these species are mostly blue in colour, but the females are usually darker in appearance, and the Small Blue is hardly blue at all. Many blue butterflies (and other species within the Lycaenid group) interact with ants by making a sugary substance from the honey gland in their bodies. The ants seem to offer protection to them (similar to the way ants can 'farm' aphids), but as far as we know, none of the Scottish species live within ant nests, unlike the amazing Large Blue which can only pupate inside ant nests, after devouring some ant grubs. Nice house guest!

Common Blue: The common blue is the most widespread of the blue species in the UK. It can be found almost anywhere that its caterpillar foodplants (mainly **Bird's-foot trefoil, but also Greater Bird's-foot Trefoil**) grow. Those plants mainly grow in sunny places, so the butterfly is associated with sunny areas of short grassland in a wide variety of habitats including open grassland, quarries, sand dunes, road verges and even mountainsides.

Males of this species are the most conspicuous as the upperwings are a clear sky-blue colour, fringed at the edges with black and white margins. Females are much less obvious, and are mainly brown on the upper surface, with variable amounts of blue and some orange markings too. Both sexes have pale brown undersides with mixes of black, white and orange patterns (our other two blue species have pale blue-grey undersides, with fine black dots).

In Scotland, Common Blue begin to emerge around the beginning of June and peak in July. After they have mated, the female flies low over the vegetation and will land occasionally and test them to see if they are suitable by drumming her antennae on the leaves, and tasting them with her feet. On suitable plants she lays eggs singly on the uppersides of the leaves. All our blue butterflies have small white eggs which look flattened and have a very intricate microsculpture on the surface.

The caterpillars are quite slow-growing, and in Scotland they typically feed for over month and shed their skin twice, then go into hibernation at the base of the foodplant. They resume feeding the following spring as the plants grow again, finally forming a pupa in a little cell on the ground, or just under the surface. The cell is held together with a few strands of silk and

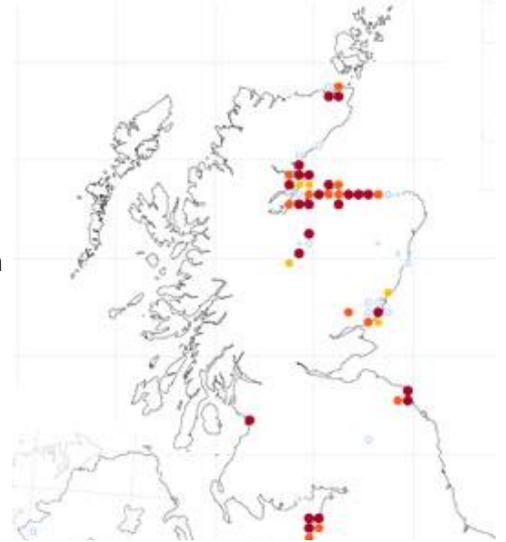
as the butterfly develops inside, the blue of the wings can be seen. The adults emerge after a couple of weeks.

Common Blue caterpillar (Peter Eeles)



Top-bottom: Common Blue male (Peter Withers) Female on Bird's-foot trefoil (Tim Melling) and undersides Ivan Lynas).

Small Blue: The Small Blue is the UK's smallest species of butterfly, and this is reflected in its scientific name, *Cupido minimus*. The Cupido part comes from the strange habit of naming butterflies after characters from Greek and Roman mythology (the Common Blue's name is *Polyommatus icarus*), and the minimus part reflects its small size. Really, they are small! I tell people they are about as big as an adult thumbnail, with a wingspan up to 27mm (so each wing is less than 13mm across). They are technically a blue butterfly, but most males only have a few blue scales on the otherwise black upperwings, and females look brown. The underwings are a pale grey-blue, with fine black dots. My advice on separating the blue butterflies is that if you see a small butterfly that looks blue, it's not the Small Blue.



Small Blues require warm, open habitats with plenty of bare ground where they get plenty of sunlight but are sheltered from the wind.

Their only caterpillar foodplant here is **Kidney Vetch**, which is a low-growing plant with masses of yellow flowers with white hairs around them. In Scotland this species is mostly found on the east coast with populations in Berwickshire, Angus, Morayshire and Thurso, though there are a few populations inland near Glamis, in the Cairngorms, and on river shingle in Perthshire near Ballinluig. There's also a colony in Ayrshire, at the SWT reserve at Gaile's Marsh which was reintroduced several years ago. Habitats include sand dunes, railway embankments, river shingle and similar disturbed, dry places.



The Small Blue can emerge at greatly different times of year here, often due to the spring weather affecting development. Emergence of adults is usually from mid-May, peaking in June and finishing by July. In Scotland we only have a single generation per year, but southern parts can have two generations.



Females lay their eggs on the flowers of Kidney Vetch, and it is possible to find these. The caterpillars burrow into the flower and feed on it and the developing seeds. As it grows it leaves the original flower and begins to feed on other flowers. If they run out of food they can eat other caterpillars of the same species! They are small, and a reddish colour with a black head. They feed for about a month before going into hibernation at the base of plants. In springtime they don't feed at all, but form a pupa on vegetation and emerge after a couple of weeks.



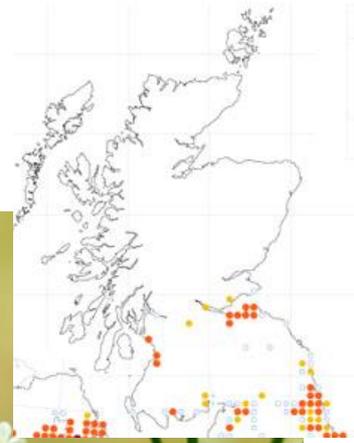
Small Blue (Iain Leach, Tamas Nestor and Peter Eeles)

Holly Blues are possibly the rarest of the blue butterfly species in Scotland, despite being very common in Ireland and southern parts, where it is a common garden species. In Scotland it is mostly known from the borders and into Edinburgh, with some scattered colonies in Dumfries and Galloway and Ayrshire.

In some ways, Holly Blues are like a mix between the Common and Small Blue; the adults are blue on the uppersides, while the undersides are pale grey with black dots. Females tend to have a black patch at the end of the upperside of the wings. Superficially they are similar to Common Blue, but have very different habits and habitats: they usually fly higher, around head-height near trees and shrubs, whereas Common Blue are always low-down in open grassland.

Populations of Holly Blue are understood to fluctuate greatly on a four-year cycle, related to parasitism of the butterflies by a small parasitic wasp, *Listrodomus nyctemerus* which only lays its eggs in Holly Blue larvae. As the levels of the wasp increase, Holly Blue populations crash, causing the wasp populations to crash the following year. Holly Blues can then increase for a while, before wasps build up again.

Holly Blues are mostly found in Scotland in spring, emerging from around April. At this stage, females lay their eggs on Holly flowers. However it's fair to see that we don't know much about this species exact requirements in Scotland, and it also uses Dogwood in spring in other parts. If there is a second generation here (and there might be – the butterfly has been seen in late summer) then it may be using Ivy or Snowberry. So if you see this butterfly, get a photo of it and the plants around it! If the spring generation overwinters instead of emerging in summer, it does so as a pupa and can spend over 200 days in this state.



Holly Blue photos by Iain Leach



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