# Large Blue Maculinea arion

Conservation status

Section 41 species of principal importance under the NERC Act in England UK BAP: Priority Species Butterfly Conservation priority: High European status: Endangered

The Large Blue is the largest and rarest of our blue butterflies, distinguished by the unmistakable row of black spots on its upper forewing. The Large Blue has a remarkable life cycle that involves spending most of the year within the nests of the red ant *(Myrmica sabuleti)*, where the caterpillars feed on ant grubs. The species has always been rare in Britain but declined rapidly during the twentieth century and became extinct in 1979. It has since been reintroduced successfully with livestock from Sweden as part of a major partnership conservation programme underpinned by science. The Large Blue is declining throughout its world range and is listed as a Globally Endangered species but in the UK there are now five large, core populations which have begun to naturally colonise whole landscapes.

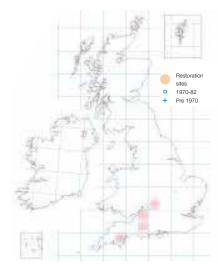
#### Life cycle

The Large Blue is single brooded with adults flying from early June until mid July. Eggs are laid on the young flower buds of Wild Thyme and Marjoram. The eggs hatch five to ten days later and the tiny caterpillars then burrow into a Thyme or Marjoram flower to feed on the pollen and developing seed. When the caterpillars reach their fourth instar they drop to the ground and wait to be found by foraging red ants (Myrmica sabuleti), attracting them with sweet secretions from a minute honey gland. The caterpillars are picked up by the ant and placed below ground within the brood chamber. The caterpillars then feed on ant grubs to achieve most of their final body weight. The caterpillar pupates within the nest and by pupation, in mid-May, the caterpillar is 100 times heavier than its weight at adoption, having consumed up to 1,200 ant grubs. Pupation lasts only a few weeks and the newly emerging adults then crawl up above ground before expanding their wings.



#### **Colony structure**

Most Large Blue colonies are relatively small and discreet, but in good years they are able to travel distances of up to 3km to form new populations. Male Large Blues are not territorial but will zig-zag up and down a slope looking for newly emerged females. Unmated females will move to the foot of the slope and wait to be found by a searching male.

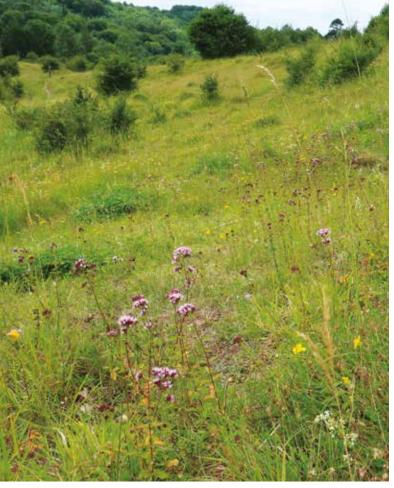


#### Habitat

Prior to its extinction

in the UK, the Large Blue bred on sites offering warm well-drained acidic grassland (North Devon, Cornwall Coast and Dartmoor) or limestone grassland (Polden Hills and Cotswolds). The Large Blue requires closely-grazed grassland where foodplants and the host ant are found in abundance. A tall grass sward results in a cooler ground temperature, where the heat loving ant *Myrmica sabuleti* is quickly replaced by other species of ant. Typical sites are on south-facing slopes that receive the full benefit of the sun.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Egg												
Caterpillar					1			R				
Chrysalis								1		1	1942 - Land	
Adult												







# Habitat management

The overall aim is to produce a short sward 2-8cm in height with an abundance of Wild Thyme and/or Marjoram and *Myrmica sabuleti*. Scrub can be an important component, providing shelter, so small patches should be retained in the correct locations.

## Grazing

Grazing is essential to produce suitable short turf conditions and a combination of native breed sheep, cattle and ponies is recommended. The most important factor is to produce short turf during the spring and autumn to provide a warm micro-climate for *Myrmica sabuleti*. Removal of grazing animals in May will allow Thyme, Marjoram and other flora to flower and returning livestock from early August will reduce sward height by late autumn.

## **Scrub control**

Scrub control is necessary on most Large Blue sites, be they acidic coastal grassland or limestone grassland, but it is important to retain some scrub to provide shelter. During restoration of sites dense scrub should be cleared and stumps treated with an appropriate herbicide to reduce regrowth. After restoration scrub should be managed on rotation with the aim of maintaining a scrub cover of 10-15%. It is important to look at each site individually and a scrub management plan may be required.



Top Left Ideal limestone grassland with both Wild Thyme and Marjoram Top Right Large Blue egg on Thyme Middle Right Mating Pair Bottom Right Egg laying female on Thyme



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nited by guarantee, registered in England (2206468). VAT No. GB 991 2771 89 Compiled by Sarah Meredith, David Simcox, and Jenny Plackett Photographs by Sarah Meredith and David Simcox

