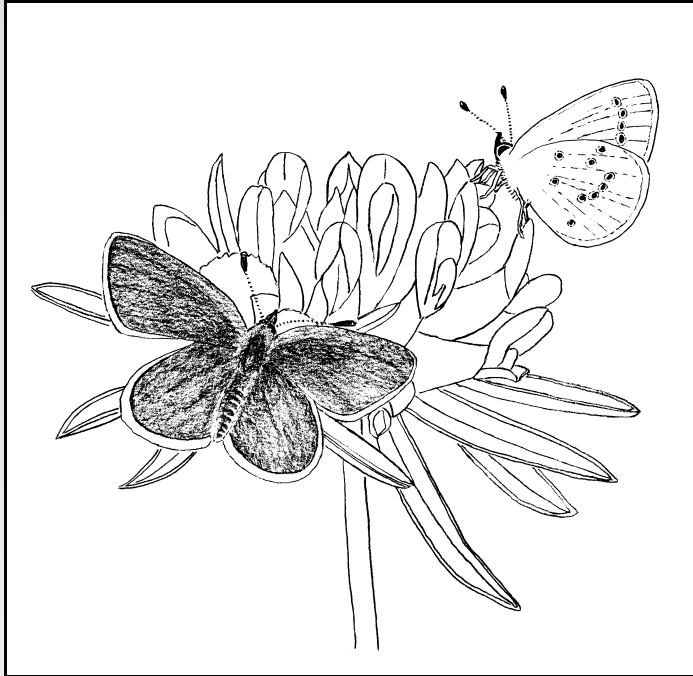


# Small blue

*Cupido minimus*



**National lead organisation(s):**  
Butterfly Conservation

Small blue is well described in the popular butterfly guides. Its small size and silvery-grey underside make it easily distinguishable from other species.

**County lead organisation(s):**  
Butterfly Conservation,  
Bedfordshire Natural History Society

The main flight period is in June and early July with a second smaller flight period in late July and early August but butterflies can often be seen at any time between late May and early August.

The larvae feed in the flower heads of kidney vetch (*Anthyllis vulneraria*) and the winter is spent in this stage on the ground.

## Current status

### National status

In Britain Small blue is widely distributed from the south coast of England to the north of Scotland but a recent survey (Asher et al., 2000) showed a decline in the number of colonies despite a substantial increase in recording effort.

### Local status

The main sites for the Small blue in the north Chilterns are in Bedfordshire. It exists mainly in localised colonies on chalk downland and in quarries, both active and abandoned, where kidney vetch grows. The main distribution of Small blue in Bedfordshire lies south-west from Sharpenhoe Clappers, including Sundon Quarry, Houghton Regis Chalk Quarry, Sewell Cutting, the Totternhoe area and Kensworth Quarry. It is also found on the chalk downs around Luton, e.g. Bradgers Hill, Dallow (Runley) Downs and Galley & Warden Hills. Numbers on Whipsnade and Dunstable Downs have declined and none have been reported since 1997. The strongest colonies are in Sundon Quarry, the Totternhoe area where it is widespread across the Knolls, the Old Quarry and the cliffs of the main quarry, and in Kensworth Quarry. Small colonies have been found on the banks of recent road developments, such as the Barton by-pass, and on the old railway line at Skimpot. Outlying colonies occur in Arlesey at the Blue Lagoon CWS and in a small abandoned pit in the village.

## Current factors affecting Small blue

- **Habitat requirements** - Small blue requires kidney vetch growing in situations which are sheltered and sunny but not so dry that the kidney vetch is regularly killed during drought conditions. The cliff at Totternhoe, which probably contains the largest colony in the county, faces north-west. The best habitats also contain a mosaic of short and long turf and an abundance of flowers.
- **Requirements of the larval foodplant** - Kidney vetch, which is a perennial, is an early coloniser of bare or disturbed ground on the chalk. It readily becomes suppressed and then eliminated as other competing vegetation grows up. This is why the strongest colonies of Small blue are often in quarries where there is still sufficient bare ground for kidney vetch to thrive. Without suitable management to maintain the kidney vetch, the butterfly may be lost from sites with a more mature sward as the foodplant disappears. At a landscape level, new sites at an early stage of plant succession are continuously needed to maintain a spread of foodplant through the area.
- **Size of colonies** - Although some Small blue colonies are large (more than 600 individuals) others are small (less than 40 individuals) and are therefore very vulnerable to extinction. The size of colonies is affected by the year-to-year variability in the flowering of kidney vetch. Grazing by sheep or rabbits during the summer of the flower heads in which the larvae feed may reduce numbers and lead to extinction of a colony.
- **Isolation of colonies** - Although this butterfly is said to be sedentary it does seem able to locate new patches of kidney vetch

even when these are several kilometres from known colonies. Thus development of new patches of kidney vetch near to existing colonies would provide an opportunity for new colonies to become established before an existing colony may become lost.

- **Pollution** - Some of the existing Small blue colonies in Bedfordshire are vulnerable to drift of pesticides from adjacent agricultural land. This is particularly so in Totternhoe Quarry where arable abuts the base of the cliff.
- **Lack of knowledge** - Small blue is a relatively easy species to monitor and some colonies are already included in butterfly transect walks. Kidney vetch has been recorded away from the main areas on the chalk and not all of these sites have been surveyed for Small blue.

More information is needed on management techniques to ensure the survival of kidney vetch, and the minimum size of a patch that is needed to sustain a long-term colony is uncertain. (Thomas and Lewington (1991) have however suggested that colonies can exist for generations on two dozen kidney vetch plants in an area of only 200m<sup>2</sup>).

The importance of the role of ants is unclear. It is thought that the larvae are attractive to ants but are not attended because few native ants will climb to the flower heads. Ants will also gather and bury pupae in earth cells.

More knowledge about the vulnerability of larvae and pupae on the ground may also prove useful, although it is thought that about 30% of over-wintering larvae may die, mostly through disease. What other factors affect their survival rate is unclear.

## Current action

### Legal

Small blue is listed on Schedule 5 of the 1981 Wildlife and Countryside Act (for sale only). This means that it is a criminal offence to sell, offer or expose for sale, or possess or transport for the purposes of sale, whether alive or dead, any wild specimen and parts or derivatives of them; or for anyone to publish or cause to be published any advertisement indicating or suggesting that they buy or sell such things.

### Management, research and guidance

#### *Surveys, ecological research and monitoring*

Apart from those colonies included in transect walks, most colonies are monitored on a casual basis most years. Changes in the local distribution of kidney vetch are not monitored. Monitoring seedling establishment may give early warning of site deterioration. Information on the biology and habitat requirements of Small blue is included in a number of publications, e.g. Asher et al. (2000) and Bourn & Warren (2000).

#### *Management work*

In Bedfordshire no regular management work is done specifically for Small blue, though several of the main colonies are on sites managed for the benefit of wildlife in general by the National Trust, the Wildlife Trust and Luton Borough Council. However the strongest colonies are on private land at Totternhoe and Kensworth quarries, which both have large amounts of bare chalk.

## *Species management guidance*

Management for Small blue has three components:

1. managing the site to provide optimal conditions for the continued survival of adequate areas of kidney vetch;
2. managing the site to provide shelter and sunny conditions while preventing the encroachment of scrub;
3. managing both the site and its surroundings to reduce isolation of colonies.

All these aspects are dealt with elsewhere in this Action Plan but more detail can be found in Bourn & Warren (2000).

## *Advice*

Advice on management for Small blue in Bedfordshire can be obtained from the County Ecologist (Bedfordshire County Council), the Beds and Northants Branch of Butterfly Conservation, the Recorder for Butterflies for the Bedfordshire Natural History Society, the Wildlife Trust and the Field Centre and Conservation Officer at Luton Borough Council.

## **Action plan objectives and targets**

### **Objective**

To ensure the survival of a viable population of Small blue in Bedfordshire by promoting development of its larval foodplant, kidney vetch.

### **Targets**

- A. Develop a programme which will maintain a total of at least 15ha of land optimum for the development of kidney vetch, over all known Small blue colonies. The programme to be in full operation by the year 2010.
- B. By the year 2010 - have in place measures to ensure that site restorations involving bare chalk exposures include establishment of kidney vetch of local provenance.

<b>Proposed action</b>	
<b>Abbreviations</b> BC Butterfly Conservation BCC Bedfordshire County Council BNHS Bedfordshire Natural History Society IOCP Ivel and Ouse Countryside Project WT Wildlife Trust for Bedfordshire	
<b>Action</b>	
<b>Policy and legislation</b>	
a).	Lobby for improved financial incentives to encourage appropriate management of chalk grassland that will benefit the Small blue.
<b>Site safeguard and management</b>	
a).	Ensure that owners and site managers are aware of this species action plan, and have all the available information that they need to enable their sites to be managed for the benefit of Small blue.
b).	Ensure that owners and managers of land adjacent to Small blue colonies are aware of the potentially harmful effects of pesticide drift and are encouraged to minimize its effects.
<b>Species management and protection</b>	
a).	Ensure that the needs of Small blue are accommodated within the overall site management at existing, and potential, Small blue sites. Recommended actions include: <ol style="list-style-type: none"> <li>1. creating small areas of bare chalk and/or disturbed soil to increase the areas of kidney vetch on each site by hand or mechanical means or by allowing grazing cattle to poach the land in winter;</li> <li>2. in areas where kidney vetch occurs creating a mosaic or turf heights by suitable grazing or cutting;</li> <li>3. ensuring that scrub does not encroach and shade out kidney vetch;</li> <li>4. ensure grazing by sheep and rabbits does not remove flower heads of kidney vetch during the summer.</li> </ol>
b).	Encourage the development of kidney vetch on privately-owned sites and on road verges managed by the Highway Authority and local authorities. Banks of exposed chalk created during roadworks and quarrying should not be covered with topsoil, or seeded with grasses, but should be left as bare chalk to colonize naturally, or be seeded with kidney vetch from local stock.
	IOCP, WT
	IOCP, NT, WT
	BCC, IOCP, WT

# Small blue

Action	Implemented by
<b>Advisory</b>	
a). Maintain regular contact between all parties involved with the conservation of Small blue to discuss progress and to plan actions.	BC, IOCP, NT
b). Produce a brief, practical guide on habitat management for Small blue, incorporating this with management for other wildlife.	BC
<b>Future research and monitoring</b>	
a). Develop methods for monitoring the distribution and abundance of kidney vetch.	WT
b). Establish and map the status of populations of Small blue and kidney vetch at all the currently known sites and maintain annual monitoring. This action could be carried out mainly by expert volunteers.	BC, BNHS, IOCP, WT
c). Conduct surveys to discover new colonies. This action could be also carried out mainly by expert volunteers.	BC, BNHS
d). Encourage submission of records to the Biodiversity Recording and Monitoring Centre (BRMC)	BC, BNHS, IOCP
e). Review the action plan annually and update when necessary. Ensure that it takes account of significant national developments.	BC
f). Assess the role of invasive human activities, such as off-road bikes and vehicles, on the maintenance of open habitat suitable for the development of kidney vetch. If possible, incorporate any lessons learnt into site management.	
g). Develop methods for assessing the long-term viability of Small blue colonies, and use to advise on the direction of conservation efforts.	BC
<b>Communication and publicity</b>	
a). Raise awareness of the importance of kidney vetch to the survival of Small blue and the measures needed to conserve both the butterfly and its larval foodplant.	BC, IOCP

# Complementary plans

This action plan should be considered in conjunction with the Bedfordshire and Luton Action Plan for Lowland calcareous grassland and the Butterfly Conservation Species Action Plan for Small Blue (Bourn and Warren 2000).

## Acknowledgements

This species action plan has been written by Greg Herbert and Charles Baker, representatives of Beds & Northants Branch of Butterfly Conservation and Bedfordshire Natural History Society, and edited by Keith Balmer at the Wildlife Trust. Keith also provided the illustration.

## References

Arnold, V.W., Baker, C.R.B., Manning, D.V., Woiwod, I.P. (1997). **The Butterflies and Moths of Bedfordshire**. Bedfordshire Natural History Society.

Asher, J., Warren, M., Fox, R., Harding, P., Jeffcoate, G., Jeffcoate, S. (2000) **The Millennium Atlas of Butterflies in Britain and Ireland**. OUP

Bourn, N.A.D. and Warren, M.S. (2000). **Species Action Plan Small Blue *Cupido minimus***. Butterfly Conservation.

Thomas, J. and Lewington, R. (1991). **The Butterflies of Britain and Ireland**. Dorling Kindersley.

UK Biodiversity Steering Group (1995). **Biodiversity: the UK Steering Group Report. Volumes 1 and 2**. HMSO.

Small blue