

Habitat management for the Small Blue

Aim to maintain a mosaic of short and tall vegetation with a high density of flowering Kidney Vetch.

As Kidney Vetch is a short-lived poor competitor, regular provision of sparsely vegetated swards is required to enable seedlings to establish. At a landscape-scale, annual restoration or creation of new breeding habitat should be undertaken on rotation. Management is aimed at maximising the abundance of flowering Kidney Vetch and therefore some grassland management practices are generally incompatible with conserving the Small Blue (e.g. summer grazing and mowing). Tall grasses and/or topographical shelter (e.g. banks, ditches) are essential to provide male territories and roosting sites.

Grazing

Some Small Blue sites have no history of grazing, and grazing with the wrong type of livestock, at the wrong time of year, or at too high densities, can be disastrous. On brownfield sites grazing is often impractical and can be inappropriate unless the site is well vegetated.

Where appropriate, grassland habitat can be maintained by livestock grazing, creating more open swards, with broken bare ground providing suitable germination sites. Overgrazing should always be avoided, especially in the summer, as this can remove the flower heads where larvae are feeding as well as destroy roosting sites. Light cattle grazing in autumn and early winter is ideal, though year round extensive cattle grazing may suit large sites. Cattle hoof prints provide germination sites for the foodplant.

Pony and sheep grazing can result in a tight, closed sward, making germination less likely, and sheep target the palatable Kidney Vetch. For this reason only graze with sheep in autumn and early winter, with careful monitoring. Sheep tread Kidney Vetch seed into the ground encouraging germination, but as grazing the following year removes many of the young plants before flowering, only graze part of a site each year ensuring the Kidney Vetch flowers and sets seed before being grazed again. Rabbit grazing can be detrimental, as the flowers are palatable and plants may be uprooted.

Ground Disturbance

Periodic and/or patchy disturbance, especially on slopes, with a bulldozer, tractor, flail or hand tools can help maintain suitable breeding habitat. Regular disturbance on some sites is essential to maintain the supply of seedlings and continuity of flowering Kidney Vetch. Undertake ground disturbance on rotation at a relatively small-scale and on only a proportion of a site, avoiding known roosting areas and ensuring that species-rich swards are not damaged. The monitoring of Kidney Vetch seedling establishment and bare ground is a useful way of determining habitat continuity; the lack of seedlings in a closed turf is an early warning of future problems.

Habitat Creation

Breeding conditions for the Small Blue can be created by establishing butterfly banks or digging scrapes. These only provide suitable habitat for a few years and so should be created on a regular rotation. Ensure there are no archaeological features present and choose south-facing locations with nutrient poor soils or substrates, inverting any nutrient rich soil present in a butterfly bank. Use earth-moving machinery for large-scale operations but even small (1m x 1m) scrapes dug with hand tools can be beneficial. Sites can be allowed to colonise naturally, or seeded in autumn or winter with Kidney Vetch of local provenance harvested in late summer. Sowing at the top of a bank will encourage further seeding down slope. Plug-planting Kidney Vetch is less successful as plants may be dug up by rabbits and badgers, and require watering.

For more information on habitat creation techniques download the following Management Factsheets from Butterfly Conservation's website: *Creating a Butterfly Bank; Creating a Scrape; Seeding and Plug-planting for Butterflies.*

Connectivity

Due to the small size and increasing isolation of populations, the Small Blue is under threat. Local extinction events are probably commonplace due to the reliance on early successional habitat and in the past these would have been balanced by colonisations. However, due to loss and fragmentation of habitat, colonisations are becoming less frequent. Restoring connections between colonies, for example along disused railway lines, on derelict sites and quarries, on new road verges and along field margins, is vital for long-term conservation of this species. Even small habitat creation schemes such as butterfly banks and scrapes can provide important stepping stones in the landscape.

below Ideal brownfield habitat



**Butterfly
Conservation**

Saving butterflies, moths and our environment

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Appendix C NRW Pre Application Consultation

The following comments/queries were made by NRW during the Pre Application Consultation.

These comments/queries have been addressed in this LHMP.

NRW Pre Application Consultation Comment/Query	Relevant Sections
How the biodiversity enhancements mentioned in the Preliminary Ecological Appraisal Report (AECOM, 2019) will be delivered and monitored;	Section 5
How the lighting will be designed to avoid light spill onto adjacent Crymlyn Burrows SSSI habitats;	Section 5.2.3
The exact measures that will be employed to minimise dust during the construction works;	Section 5.2.3
The measures that will be in place to deal with pollution incidents efficiently;	Section 5.2.3
Details of long-term management, monitoring and maintenance of new and existing landscape and environmental features at the site;	Section 5
Details of replacement measures should any landscape or environmental features die, are removed or become seriously damaged or diseased within five years of completion of development;	Section 5
Details of management and maintenance responsibilities; and,	Section 6
How the loss of habitat will be compensated for.	Section 5.3.5

Appendix D Swansea University Biodiversity Action Plan

Conservation objectives from the Swansea University Biodiversity Action Plan (BAP) which are relevant to this Site are listed below. Where appropriate these will be included in this LHMP. The BAP is currently under review, during consultation with the Biodiversity Officer it was stated that the current objectives would be built upon and are still relevant.

- Semi-improved grassland - Maintain extent improve quality;
- Ephemeral short perennial - Maintain extent, improve quality for pollinating insects, use native flowers where possible;
- Introduced shrub - Maintain extent, improve quality for pollinating insects, use native flowers where possible and maintain rough, uncultivated areas to encourage birds, mammals and invertebrates;
- Moths (eight Section 7 species) – aim to record and increase knowledge of moth fauna;
- Future development of the campus should be managed to ensure that there is an overall biodiversity gain;
- The exposed coastal location presents natural constraints on the plants that can be expected to thrive, and any work undertaken at the Swansea University Bay Campus has to be carefully planned to ensure that the features of the SSSI are not adversely affected (e.g. by planting potentially invasive species);
- Future phases of the development of the Swansea University Bay Campus should incorporate best practice for biodiversity as standard;
- Review and embed grassland management into grounds management procedures for the benefit of biodiversity;
- Use native species in planting unless specified otherwise;
- Identify areas to be left "scruffy" and uncultivated on both campuses;
- Plant nectar rich native plant species to encourage pollinators;
- Create new habitat - wildflower meadow;
- Incorporate biodiversity gain into all new building projects - ensure Biodiversity Officer is consulted at an early stage.

