
Land at Llangollen Road, Acrefair
Further Protected Species Surveys

5th July 2023

INTRODUCTION

Following an ecological survey completed at the Llangollen Road, Acrefair site carried out in June and July 2021, Kingdom Ecology have completed a further set of reptile surveys, bats activity surveys and butterfly surveys (focusing on the Dingy Skipper and the Grizzled Skipper). Surveys were undertaken by Richard Roe (BSc, MSc, MIEEM, CEnv).

The findings of the 2023 further surveys build upon the previous Kingdom Ecology Report- '*Llangollen Road, Acrefair- Ecology Assessment dated 22nd September 2021*'.

HABITATS SUMMARY

The study site comprises of a former car park site located on Llangollen Road, Acrefair, LL14 3HN (National Grid Reference SJ 2812 4324). The study site measures approximately 1.3ha. The car park formed part of the adjacent Air Products factory which closed down approximately 10 years ago.

Surrounding landuses include further post-industrial brown field land with the main former Air Products site located immediately to the southwest of the study site. The adjacent site was cleared approximately 10 years ago and now comprises of a habitat mosaic of neutral grassland, scrub and tall herb vegetation.

In summary, habitats at the study site comprise of principally of areas of former tarmacked carpark with mounds of stored soil and crushed rubble. In locations some vegetation has pushed through the tarmac creating small grassy islands of red fescue and Yorkshire fog with tall herbs. There are also some shipping containers, Portakabins and building materials stored at the site.

The stored rubble mounds have been recently brought onto the site (in 2021/2022) and have begun to develop young scrub and tall herb vegetation with species including rosebay willow herb, prickly lettuce, feverfew, ragwort, spear thistle, herb Robert and broadleaved dock.

There are further areas of level, crushed rubble near the western boundary of the site which have developed a further sparse vegetation of regenerating birch scrub with buddleia, willow and bramble. The scrub is interspersed with patches of tall grasses comprising principally of false oat-grass with Yorkshire fog, common bent and rough meadow grass with further patches of tall herb. There are patches of Virginia creeper located amongst the rubble mounds at the eastern end of the site.

A band of broadleaved woodland is located on a steep embankment beyond the southern boundary of the site. The trees present include semi mature and mature sycamore, with willow, elder, birch, hawthorn and ash. The woodland has an understorey of bramble and ivy. This woodland continues beyond the site boundary to link with a larger block of woodland located to the east of the site. The wooded embankment would be retained as part of the final development.

Photographs of current habitats are provided in the Appendix.

BUTTERFLY SURVEY

Introduction

The Dingy Skipper is listed on Section 42, a Species of Principal Importance, under the NERC Act in Wales, it is also listed as a UKBAP Priority Species and by Butterfly Conservation as a High Priority. Dingy Skipper colonies occur in open, sunny habitats such as woodland rides and clearings, chalk downland, coastal habitats, disused quarries and waste ground. Suitable conditions occur where larval foodplants (bird's-foot trefoil and greater bird's-foot trefoil) grow in sparsely vegetated areas, often with patches of bare ground in sunny, sheltered locations. Taller vegetation is also required for shelter and roosting.

The Grizzled Skipper is also listed on Section 42, a Species of Principal Importance, under the NERC Act in Wales, it is also listed as a UKBAP Priority Species and by Butterfly Conservation as a High Priority. Grizzled Skipper colonies are mainly found in habitats such as woodland rides and clearings, unimproved grasslands and recently abandoned industrial sites such as disused mineral workings, spoil heaps, railway lines where larval foodplants such as agrimony, creeping cinquefoil and wild strawberry are present.

Butterfly Survey Methods

The survey and assessment were undertaken on a number of visits throughout the butterflies flight period.

The study area was visited on six occasions throughout the flight period of the two butterflies (May – early-July) and other populations in the area were known to on the wing during this period. All visits were undertaken in accordance with the United Kingdom Butterfly Monitoring Scheme (UKBMS), Fixed-route Transects climatic protocols (<http://www.ukbms.org/methods.aspx>) and were walked between 11.00 and 16.00 during periods with temperatures above 14°C, low winds and at least 60% sunshine.

The site was walked such that all areas of the site were recorded from at least a 2m vantage point and areas of potential ovipositing and/or nectaring habitat surveyed.

Butterfly Survey Results

The site is considered to support habitats of some suitability for dingy and grizzled skipper. However, habitats are considered to be sub-optimal owing to the relatively limited extent of vegetation present with few larval food plants.

There are some scattered patches of bird's-foot trefoil at the site but these are relatively limited in extent and largely located on the areas of crushed rubble near the western edge of the site. No other larval food plants for either grizzled or dingy skipper were recorded. The site supports some nectaring opportunities for butterflies within areas of tall herb habitat and the site is relatively sheltered with areas of open ground on the recently stored rubble mounds.

Habitats on the southern boundary of the site are well shaded by the band of broadleaved woodland which runs along the site's southern boundary with much of the site comprising of bare tarmac and recently stored crushed rubble piles.

The adjacent Air Products site supports extensive carpets of bird's-foot trefoil across the open grassland habitats offering extensive nectaring and larval foodplants. This grassland has developed on crushed rubble and is relatively sparse. The adjacent site is considered to offer much higher quality habitats for brownfield butterflies.

The butterfly survey was undertaken under ideal conditions on the six survey visits. No dingy or grizzled skipper were recorded during surveys. Butterfly species recorded along with survey weather conditions are provided in Table 1 below.

Table 1- Survey Results

Date	Weather	Results
3/5/23- 3pm	Sunny, l. breeze, clear 15°C	Peacock, green veined white, orange tip.
14/5/23- 11am	Sunny, calm, clear 15°C	Green veined white, holly blue, orange tip, comma, speckled wood
21/5/23- 11am	Sunny, l. breeze, clear 18°C	Green veined white
1/6/23- 11am	Sunny, calm, clear 17°C	Green veined white, common blue
13/6/23- 2pm	Sunny, calm, clear 26°C	Green veined white
03/07/23 - 3.30pm	Sunny, l. breeze, 30% cloud, 17°C	Small tortoiseshell, green veined white, ringlet

REPTILE SURVEY

Methods

Reptile surveys were conducted May-July 2023. Surveys used two complimentary methods comprising of visual surveys and the use of artificial refuges.

The visual surveys and artificial refuge surveys were carried out in accordance with methods described in the Herpetofauna Workers' Manual (JNCC, 2003) and Froglife Advice Sheet 10, 'Reptile Surveys' (Froglife 1999).

Nine visual surveys were undertaken. These surveys involved slowly walking across the study area during suitable weather conditions and watching for basking reptiles and searching beneath other refugia such as logs, stones, discarded corrugated sheeting etc for sheltering reptiles.

Reptiles must bask in the morning and evening before becoming active. Artificial refugia surveys take advantage of this need by providing artificial basking and sheltering habitat. The artificial refugia used for this survey comprised of black corrugated and roofing sheets measuring 0.5m x 0.5m.

25 artificial refugia were deployed in suitable locations and habitats across the site with refugia deployment focusing on the areas of tall herb and young scrub located in the centre and the southern boundary of the site.

The refugia were deployed on the 26th April 2023 and allowed to bed down for 1 week before being checked on nine suitable occasions for the presence of reptiles.

Results

The study site mostly comprises of sealed surface hardstanding with scattered patches of young scrub plus mounds of soil and rubble which have been recently brought onto the site. Therefore, the site is considered to support habitats of sub-optimal value for reptiles owing to a lack of cover and limited foraging opportunities within the areas of carpark hardstanding.

The embankment on the southern boundary of the site offers suitable habitat for slow worm however this would not be affected by development proposals.

More suitable reptile habitat is offered within the adjacent main Air Products site to the west which supports more established habitats with a mosaic of grasslands, bare ground, scrub and tall herb. A slow worm was recorded on the adjacent site during survey work carried out in 2021.

The 2023 surveys did not record any evidence of reptiles at the site. Survey dates and weather conditions are provided below.

Table 2- Survey Results

Date	Weather	Results/Notes
3/5/23- 4pm	Sunny, l. breeze, clear 15°C	-
14/5/23- 11am	Sunny, calm, clear 14°C	-
21/5/23- 11am	Sunny, l. breeze, clear 18°C	-
1/6/23- 11am	Sunny, calm, clear 15°C	-
8/6/23- 6.30pm	Sunny, calm, clear 20°C	-
14/6/23- 6.30pm	Sunny, calm, clear 20°C	-
13/6/23- 2pm	Sunny, calm, clear 26°C	-
29/6/23- 6.30pm	Sunny, l. breeze, clear 18°C	-
03/07/23 - 3.30pm	Sunny, l. breeze, 30% cloud, 17°C	-

BAT ACTIVITY SURVEY

Methods

The main development site is considered to be of limited value for bats comprising of areas of hardstanding and young scrub. Much more suitable bat foraging, commuting and potential roosting habitat is offered within the area of mature woodland located along the southern boundary embankment of the site.

An Anabat Express Static bat detector was originally deployed on this woodland edge habitat overnight on the 6th June 2021.

An Anabat Express Static bat detector was again deployed along the woodland edge of the site from the 29th June until the 3rd July 2023 to further record species assemblages at the site.

Results

The survey conducted in 2021 recorded intermittent bat activity along the woodland edge throughout the night. This activity principally comprised of common pipistrelle passes with occasional soprano pipistrelle and noctule. However, two lesser horseshoe bat registrations were also recorded at 22.57 and 00.16.

The 2023 surveys recorded similar levels of bat activity across the four nights, however no lesser horseshoe bat were recorded. Nevertheless, the woodland edge habitat is considered to be a valuable feature for bats with two species recorded across the 2021 and 2023 surveys which are particularly sensitive to increases in light levels (lesser horseshoe and brown long-eared bat). It will therefore be important to limit increases in light levels on to the adjacent woodland habitat and to retain a suitable dark corridor.

Summaries of the 2023 survey results are presented in Table 3 below.

Table 3- Automated Bat Detector Results

Date	Sunrise/Sunset	Results Summary
29.06.23	Sunset 21.43 Sunrise 04.50	First Bat (common pipistrelle) recorded at 21.59 Last bat common pipistrelle) recorded at 04.24 Intermittent common pipistrelle activity recorded all evening. Noctule pass recorded at 0007 and Brown long-eared bat pass recorded at 0120
30.06.23	Sunset 21.42 Sunrise 04.51	First Bat (common pipistrelle) recorded at 21.50 Last bat (common pipistrelle) recorded at 04.23 Intermittent common pipistrelle activity recorded all evening. Noctule pass recorded at 0221

Date	Sunrise/Sunset	Results Summary
01.07.23	Sunset 21.42 Sunrise 04.51	First Bat (common pipistrelle) recorded at 21.53 Last bat (common pipistrelle) recorded at 04.23 Intermittent common pipistrelle activity recorded all evening. Soprano pipistrelle pass recorded at 22.51
02.07.23	Sunset 21.42 Sunrise 04.52	First Bat (common pipistrelle) recorded at 22.04 Last bat (common pipistrelle) recorded at 04.22 Intermittent common pipistrelle activity recorded all evening.

Bat Recommendations

As recommended in the previous 2021 Ecology Assessment report, the new development should include provision for roosting bats. Bat boxes can be built into the new structures at the site.

Bat boxes should be located on buildings located near the southern boundary of the site. They should be positioned at a height of at least 4m, face a more-or-less southerly aspect and be positioned with a clear flight path to the bat box entrance. A suitable model of bat box would be the Habibat 003 bat box.

Further bat boxes should be installed on retained trees within the woodland habitats located on the site's boundaries.

Where possible, additional street lighting should be avoided. If additional street lighting is required, then a bat friendly lighting plan would need to be produced by a lighting designer and ecologist to limit any increased light spill onto the adjacent woodland habitats.

The lighting plan should be based upon recommendations provided within The Institution of Lighting Professional's Guidance Note 8 'Bats and Artificial Lighting' which provides recommendations for limiting the negative effects of lighting on bats.

The lighting plan would need to ensure that dark corridors are retained along the site's southern boundary and that light-spill into the wider countryside is limited. The woodland is used by foraging and commuting lesser horseshoe bats and brown long-eared bat. These species are particularly sensitive to increases in light levels.

Any other artificial lighting at the site should be kept to a minimum. Where it is required, any artificial lighting will need to ensure that the bat and bird boxes are not illuminated of an evening.



Likewise, measures will need to be implemented to prevent light trespass on to the adjacent woodland habitats from the rear gardens of adjoining properties. The adjacent woodland is located on an embankment above the main site, therefore the impact of any additional lighting within the rear on the tree canopy layer will already be limited. Light impacts can be further reduced by the use of appropriate bat friendly-lighting, using downward angled fixtures and the use of suitable screens.

Photographs

Photograph 1- Aerial view of site looking west to east (26th April 2023)



Photograph 2- Aerial view of site looking towards eastern boundary (26th April 2023)



Photograph 3- Aerial view of woodland habitats on the southern boundary of site (26th April 2023)



Photograph 4- Tall herb and scrub habitats developing on rubble mounds (July 2023)



Photograph 5- Scrub and Tall herb habitats developing on crushed rubble near Western boundary of site (July 2023)



Photograph 6- Habitats at site looking east to west (July 2023)

