Fernwood Woodland - Ecological Walkover Survey	
Job reference & client	#717 – Fernwood Woodland, Fernwood Parish Council
Ecologist	Jake Hill BSc (Hons), Ecologist
Date of issue	16/08/2022

Background & Methodology

EMEC was commissioned by Fernwood Parish Council to complete an Ecological Walkover Survey, including the Preliminary Roost Assessment (PRA) of several trees within an area of woodland off Rubys Avenue, Fernwood, Newark, Nottinghamshire. A General Tree Assessment undertaken by Forest Farm Tree Services in November 2020 identified ten trees that needed to be felled due to the amount of dead wood present, consequently resulting in a health and safety risk. Fernwood Parish Council commissioned EMEC to assess these ten trees for the potential to support roosting bats, undertake a general ecological walkover of the woodland and to provide further assessment and recommendations in regard to bats and other species within the woodland.

An Ecological Walkover Survey and Preliminary Roost Assessment for bats was completed. The potential of habitats to support legally protected and/or notable species was also undertaken, including the recording of important ecological features including sightings, signs, evidence and potential habitat for legally protected and/or notable species.

The survey followed the Guidelines for Accessing and Using Biodiversity Data in the UK (CIEEM, 2020), the Guidelines for Preliminary Ecological Appraisal, the Guidelines for Ecological Report Writing (CIEEM, 2017 a & b), and the British Standard BS42020:2013 'Biodiversity – Code of practice for planning and development.

A ground level tree assessment (GLTA) was undertaken on the ten trees to identify potential roosting features (PRFs) including hollows, cracks and cavities within trunks and branches (e.g. old woodpecker holes), crevices behind loose bark and ivy growth. Each tree was assessed individually by a licenced and suitably experienced ecologist and graded as to their suitability for supporting roosting bats in line with best practice guidelines (Collins, 2016) (Appendix A).

The survey was undertaken on 3rd August 2022 by Jake Hill BSc (Hons) (Natural England Level 1 Bat Licence 2022-10609-CL17-BAT), Lorna Griffiths MRes BSc (Hons) ACIEEM (Natural England Level 2 Bat Licence 2016-19884-CLS-CLS CL18) and Ed Donell. The survey was undertaken in suitable weather conditions, a temperature of 20°C, a light breeze (1 on the Beaufort Scale), 40% cloud cover and no precipitation.

The woodland is located in the centre of Fernwood Village, Newark, Nottinghamshire and is approximately 0.8ha in area. The woodland mainly consists of ornamental and introduced species including turkey oak (*Quercus cerris*), western red cedar (*Thuja plicata*), atlas cedar (*Cedrus atlantica*), tree of heaven (*Ailanthus altissima*) and wellingtonia (*Sequoiadendron giganteum*). Several native species including yew (*Taxus baccata*), English oak (*Quercus robur*), holly (*Ilex aquifolium*), field maple (*Acer campreste*) and beech (*Fagus sylvatica*) were also present.

The woodland has some, albeit limited, terrestrial connectivity due to being completely surrounded by a sub-urban residential area; however, there will be some connectivity via the residential gardens for aerial species such as bats and birds. There is connectivity to Fernwood Woodland North and Fernwood Woodland South to the west, and the Fernwood RAF Woods to the south, although connectivity does not extend further beyond these woodlands (see Figure 1).

Figure 1 – Aerial image of the site[1]

Results and Recommendations

The ten trees identified as needing to be felled were inspected for their potential to support roosting bats and other species. A summary of the roosting potential for each of the trees has been provided in the table below alongside recommendations to help reduce potential impacts and, where necessary, further survey requirements.

Tree Number and Species	Results	Recommendations and Further Survey Requirements
811 - Western Red Cedar	Some minor cavities present, **Low** potential for roosting bats.	Soft fell[2].
812 - Sycamore	Several tear outs that do not extend into cavities, **Low** potential for roosting bats	Soft fell.
821 - Western Red Cedar	Some minor cavities, **Low** potential for roosting bats.	Soft fell.
823 - Yew	**Negligible** potential for roosting bats.	Do not fell entirely. Pollard at 6 m and neaten up side-stems off the main stool, remove smaller deadwood branches at the end of stems. Standing dead wood will provide habitat for a variety of invertebrates.
853 - Horse Chestnut	Some cavities present which appear to extend into the tree. **Low** to **Moderate** potential for roosting bats. Unsafe to climb to fully inspect features.	Single dusk nocturnal survey for bats with the use of infrared camera. Survey needs to be undertaken in the peak activity season between May and the end of August.

[1] (Imagery ©2021 Google, Imagery ©2021 Getmapping plc, Infoterra Ltd & Bluesky, Maxar Technologies, The GeoInformation Group, Map data ©2021)

[2] The tree is carefully dismantled in sections and each section slowly lowered to the ground the leave any potential bat roosting habitat intact.

		Following further survey, pollard at 6 m and retain standing dead wood.
857 - Western Red Cedar	Some minor cavities, **Low** potential for roosting bats.	Soft fell.
869 - Tree of Heaven	Multiple large cavities present, including tear outs, lifted bark, deadwood and woodpecker holes. **High** potential to support roosting bats. Unsafe to climb to fully inspect features.	Three nocturnal surveys, consisting of two dusk emergence and one dawn re-entry survey, with the use of infrared camera. At least two of the surveys need to be undertaken within the peak activity season between May and the end of August. Following further surveys, pollard at 6 m and retain standing deadwood (where safe to do so).
875 - Sycamore	Some minor cavities, **Low** potential for roosting bats.	Soft fell.
885 - Sycamore	Already felled	N/A
886 - Sycamore	Already felled	N/A

Further Recommendations

- Log and brash piles should be created at strategic points within the woodland using arisings from the tree felling and pollarding procedures. These will provide habitat suitable for invertebrates, birds and small mammals. These should 4 m in length or width and 1.5 m tall, it is better to have several smaller piles than one large pile.
    - Larger logs could be left in sunlit open areas, such as the 'wildflower' area just north of the woodland and turned into invertebrate 'hotels' by the partial drilling of holes of a variety of sizes into the log.
- The 'wildflower' area, just north of the woodland, which currently consists of creeping thistle, nettle, bramble and species poor grassland, should be managed to improve the area for biodiversity. It is recommended half is retained in its current state and cut once a year. The other half should be stripped bare, including the top layer of soil, and sown with a native wildflower seed mix such as the Standard General Purpose Wildflower mix EM2F from Emorsgate. This wildflower meadow should be cut twice a year, once in August when the arisings should be left to dry and shed seed for 7 days before being removed, and once again in late winter with the arisings removed immediately.
- Bat and bird boxes could be installed on the trees within the woodland.
    - Bat boxes such as the Improved Crevice Bat Box and the Improved Cavity Bat Box from www.nhbs.com could be utilised. These should be placed at least 4 m from the ground on southwest or southeast facing aspects with a clear flight path, on mature trees at the woodland edge or open rides within the woodland, with one of each style of box per tree.
    - Bird boxes such as the Vivara Pro Seville Woodstone Nest Box 28 mm and 32 mm from www.nhbs.com could be utilised. These should be placed at height of at least 3 m, on south or east facing aspects on mature trees within the woodland.
- Areas of the woodland should be thinned to allow more light onto the woodland floor to promote the growth of ground flora, particularly in the eastern section of the woodland where there are closely planted semi-mature sycamore.
- Trees with deadwood should be retained where possible, unless they are overhanging footpaths and public rights of way and are a public health and safety risk.
- The creation of a Woodland Management Plan would provide detailed long term management for the woodland which would benefit biodiversity in the area as well as the general health of the woodland.

Report prepared by: Jake Hill BSc (Hons), Ecologist
Report QA by: Lorna Griffiths MRes BSc (Hons) ACIEEM
Date: 16/08/2022
Contact details: EMEC Ecology, The Old Ragged School, Brook Street, NG1 1EA www.emec-ecology.co.uk

Appendix A: Categories for Assessing Bat Roost Potential and Legislation

Bat Roost Potential Level	Roosting Habitats	Foraging and Commuting Habitats
Confirmed	Evidence of roosting bats in the form of bats, bat droppings, urine stains, grease marks and scratch marks	N/A
High	A structure or tree with one or more potential roosting sites that are obviously suitable for use by larger numbers of bats on a more regular basis, and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.	Continuous high quality habitat that is well connected to the wider landscape that is likely to be used regularly by commuting bats such as river valleys, streams, hedgerows, lines of trees and woodland edge. High quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats, such as broadleaved woodland, tree-lined watercourses and grazed parkland. Site is close and connected to known roosts.
Moderate	A structure or tree with one or more potential roosting sites that could be used by bats due to their size, shelter, protection, conditions, and surrounding habitat but unlikely to support a roost of high conservation status.	Continuous habitat connected to the wider landscape that could be used by bats for commuting, such as lines of trees and scrub or linked back gardens. Habitat that is connected to the wider landscape that could be used by bats for foraging, such as trees, scrub, grassland or water.
Low	A structure with one or more potential roosting sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitats to be used on a regular basis or by a larger number of bats (i.e. unlikely to be suitable maternity or hibernation). A tree of sufficient size and age to contain potential roosting features but with none seen from the ground, or feature seen with only very limited roosting potential.	Habitats that could be used by small numbers of commuting bats such as a gappy hedgerow or unvegetated stream, but isolated i.e. not very well connected to the surrounding landscape by other habitat. Suitable, but isolated habitat that could be used by small numbers of foraging bats such as a lone tree (not in a parkland situation) or a patch of scrub.
Negligible	No features on site likely to be used by roosting bats	No features on site likely to be used by commuting or foraging bats.

Conservation of Habitats and Species Regulations 2020 (as amended)	Deliberately capture, injure or kill a bat; Deliberate disturbance of bats; Damage or destroy a breeding site or resting place used by a bat. The protection of bat roosts is considered to apply regardless of whether bats are present.
Wildlife and Countryside Act 1981 (as amended)[4] S.9	Intentionally or recklessly obstruct access to any structure or place used for shelter or protection or disturb a bat in such a place.