



Haycock & Jay Associates Ltd

C O N S U L T A N T E C O L O G I S T S

**Wentworth Castle Gardens,
Barnsley, South Yorkshire, S75 3ET**

Preliminary Roost Assessment Trees) and Climbed Tree Inspection Report

Submitted to:

National Trust – North Region

York Hub

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1.0 INTRODUCTION

1.1 Background

- 1.1.1 Haycock and Jay Associates Ltd was commissioned by National Trust – North Region during January 2019 to undertake a preliminary bat roost assessment (PRA) at nine trees and climbed inspection of a single fire-damaged mature sycamore (*Acer pseudoplatanus*) and a single yew (*Taxus baccata*) within Wentworth Castle Gardens, Barnsley, South Yorkshire (hereafter referred to as 'the site').
- 1.1.2 The assessment is required in order to identify any features offering opportunity for roosting bats, including the presence of bats themselves, and provide an assessment of the suitability of the trees for roosting prior to their felling and pruning to facilitate pre-opening works at the property. The tree works, and references to individual trees are as per the Treescapes Pre-development Arboricultural Report¹.
- 1.1.3 This report outlines the methodology and results of a preliminary bat roost assessment of eight trees and further climbed tree inspection undertaken on 15th January 2019. Conclusions and recommendations for progressing works at the site are also provided.

1.2 Site Context

- 1.2.1 Wentworth Castle Gardens are located within the civil parish of Stainborough, on the outskirts of Barnsley, South Yorkshire, approximately 3.5km to the south-west of Barnsley town centre. The ordnance survey national grid reference (OS) for the approximate centre of the site is SE 3207 0330.
- 1.2.2 The site comprises Wentworth Castle, a grade-I listed building which houses the Northern College of Residential and Community Education. The castle is surrounded by the Wentworth Castle Gardens which include Stainborough Park and are composed of grassland, formal gardens, scattered mature/veteran trees, broad-leaved woodland and ponds. A series of waterbodies named 'Serpentine River' are present to the east.
- 1.2.3 The Wentworth Castle Grounds are located to the south of Lowe Lane which runs north-east to south-west, with Stainborough Lane to the west and Shed Lane in the north. The site is set within a landscape of farmland and countryside dominated by arable and pastoral fields with associated hedgerows, trees and ponds; with an expanse of broad-leaved woodland to the north and further patches scattered throughout the area. Hood Green village is located to the west of the site and other residential buildings are interspersed throughout the landscape.

¹ Treescapes Consultancy Ltd. (December 2018). 'Pre-development Arboricultural Report - Wentworth Castle Gardens'. Treescapes Consultancy Ltd., Cumbria

2.0 LEGISLATION AND POLICY

2.1 Bats

- 2.1.1 All species of bats are legally protected, and as such there is a requirement that measures be taken to ensure that contravention of the relevant legislation is avoided. This may include the adoption of mitigation, including a Natural England licence where appropriate.
- 2.1.2 Relevant legislation in England is: the Wildlife and Countryside Act (1981) (as amended); the Countryside and Rights of Way Act (2000); the Natural Environment and Rural Communities Act (NERC Act, 2006); and, the Conservation of Habitats and Species Regulations (2017).
- 2.1.3 The law makes it an offence, inter alia, to: disturb a bat or groups of bats in their roost; damage or destroy a bat roosting place, even if there are no bats present at the time; obstruct access to a bat roost; or, to capture, injure or kill a bat or possess, advertise, sell or exchange a bat, or part of a bat dead or alive.
- 2.1.4 The UK Biodiversity Action Plan (UKBAP) sets out habitats and species action plans for conservation. Although now succeeded by the 'UK Post-2010 Biodiversity Framework', the UKBAP priorities and targets are retained under Section 41 of the NERC Act and as such are considered during the planning process.
- 2.1.5 Seven species of British bats are listed on the UK Biodiversity Action Plan (BAP); the barbastelle (*Barbastella barbastellus*), Bechstein's bat (*Myotis bechsteinii*), noctule (*Nyctalus noctula*), soprano pipistrelle (*Pipistrellus pygmaeus*), brown long-eared bat (*Plecotus auritus*), greater horseshoe (*Rhinolophus ferrumequinum*) and lesser horseshoe (*Rhinolophus hipposideros*).
- 2.1.6 Local priority species are set out in local BAPs. The local BAP for this site is the Barnsley BAP which lists all British bats occurring within the region as priority species, and outlines objectives to ensure the maintenance of the full range of bat species at natural population levels within the district, and improving habitats available to them.

2.2 Nesting Birds

2.2.1 With certain exceptions², all wild birds, their nests and eggs are protected by the Wildlife and Countryside Act 1981 (as amended). Therefore, it is an offence, inter alia, to:

- Intentionally take, damage or destroy the nest of any wild bird while it is in use or being built; or,
- Take or destroy the egg of any wild bird.

2.2.2 Bird species listed on Schedule 1 of the Act receive a higher level of protection under the Wildlife and Countryside Act 1981 (as amended), thus for these species it is also an offence to:

- Disturb any bird while it is nest building, or is at a nest containing eggs or young; or,
- Disturb the dependent young of any such bird.

2.2.3 The conservation status of bird species in the UK is classified in the 'Birds of Conservation Concern (BoCC)' publication³ as either Red, Amber or Green, based on recent and historical population decline, breeding status, international importance, status in Europe and other factors.

2.3 National Planning Policy Framework

2.3.1 Section 15 of the National Planning Policy Framework is titled 'Conserving and enhancing the natural environment' and sets out how planning authorities should endeavour to contribute to and enhance the natural and local environment.

"Planning policies and decisions should contribute to and enhance the natural and local environment by ... minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures".

² Some species, such as game birds, are exempt in certain circumstances.

³ Eaton, M.A., N.J. Aebischer, A.F. Brown, R.D. Hearn, L. Lock, A.J. Musgrove, D.G. Noble, D.A. Stroud & R.D. Gregory (2015) 'Birds of Conservation Concern 4: the population status of birds in the United Kingdom, Channel Islands and the Isle of Man'. British Birds 108: 708-746.

3.0 METHODOLOGY

3.1 Desk Study

- 3.1.1 A desk study to obtain records of bat roosts and other bat activity for up to a 2km radius from the site was undertaken with South Yorkshire Bat Group (SYBG).
- 3.1.2 Information identified during the desk study can provide contextual information pertaining to known bat roosts or activity within the vicinity, including the presence of activity or the historic use of buildings at the site.
- 3.1.3 While all bat records were considered, records older than 15 years were, in the main, discounted as being out of date. Full desk study records are provided at Appendix 1.

3.2 Preliminary Bat Roost Assessment

- 3.2.1 An inspection of nine trees within the site scheduled for felling/trimming as part of the Pre-development Arboricultural Report⁴ was undertaken on 15th January 2019 by Senior Ecologist Karl Harrison BSc (Hons) ACIEEM (Level 2 Class survey licence no. 2017-32750-CLS-CLS).
- 3.2.2 The inspection was carried out during daylight hours and in accordance with current published methodology⁵ from ground level using close focus binoculars (Nikon Prostaff 10 x 42) and a powerful torch (Cluson Clulite Clubman 1 million candle power).
- 3.2.3 Cavities, cracks, crevices or other potential roosting features (PRFs) which may offer potential emergence/access points or suitable roosting for bats were identified and, where accessible, were also searched. The inspection recorded any evidence of use by bats, including feeding remains, claw marks, staining from urine or fur, droppings or bats themselves.
- 3.2.4 A description of the trees including, species, age-class and details of any features with opportunity for roosting was recorded. This information was then used to assess the bat roost suitability of the trees and make recommendations for further ecological input in regard to the proposed works.

⁴ Treescapes Consultancy Ltd. (December 2018). 'Pre-development Arboricultural Report - Wentworth Castle Gardens'. Treescapes Consultancy Ltd., Cumbria

⁵ Bat Conservation Trust (BCT) (2016) 'Bat Surveys for Professional Ecologists: Good Practice Guidelines 3rd Edition'. BCT, London.

3.3 Climbed Tree Inspection

- 3.3.1 Following the identification of features with bat roost suitability at two trees (in the Treescapes report and confirmed during the PRA) climbed inspection to inspect these features was undertaken on 15th January 2019 by certified aerial tree climber David Watts CIEEM (Level 2 - Class Licence No. 2016-24731-CLS-CLS), under supervision of Natural England licensed bat surveyor and Ecologist Karl Harrison BSc (Hons) ACIEEM (Level 2 Class survey licence no. 2017-32750-CLS-CLS).
- 3.3.2 The inspection was carried out during daylight hours in accordance with the current published methodology⁵, where the tree was climbed, with all suitable features offering potential emergence/access points or suitable roosting for bats exhaustively searched where it was safe to do so, using a torch and an endoscope. Any evidence of use by bats, including feeding remains, claw marks, staining from urine or fur, droppings or bats themselves was recorded during the inspection.
- 3.3.3 Details of any features with opportunity for roosting and a description of the trees was recorded during the inspection. This information was used to assess the overall bat roost suitability of the tree and make recommendations for further ecological input with consideration to the proposed works.

4.0 RESULTS

4.1 Desk Study

- 4.1.1 Records received from SYBG identified 194 records of bats from within 2km of the site in the last 15 years. Two records with no date were also returned, and these have been included. Full records are provided at Appendix 1 and summarised below.
- 4.1.2 87 records of confirmed bat roosts were returned within the search area. Records which specified the type of roost comprise 34 hibernation, three maternity, one transitional, one summer breeding, and one abandoned roost. Records of roosting species include 35 Natterer's (*Myotis nattereri*), 21 brown long-eared bat, seven unidentified bat (*Vespertilionidae* sp.), six Daubenton's (*Myotis daubentonii*), five unidentified *Myotis* sp., five unidentified pipistrelle (*Pipistrellus* sp.), four common pipistrelle (*Pipistrellus pipistrellus*), two noctule (*Nyctalus noctula*) and two soprano pipistrelle (*Pipistrellus pygmaeus*) roosts.
- 4.1.3 Three records of unconfirmed/potential roosts were also returned comprising two unidentified bat species and one pipistrelle species; and two records of a visit to known roosts (Rockley Tramway Tunnel and St. James Church, Lowe Lane) where no bats were found.
- 4.1.4 There are records of several roosts within the site, with the closest to the inspected trees being: four records of two roosting *Myotis* sp. bats at Wentworth Castle Arched Barn (SE 320 033) and two records of an unknown number of brown long-eared bats at St. James Church (SE 320 032). Further roosts close to the inspected trees include 20-30 Natterer's and two soprano pipistrelles roosting at Stainborough Castle Folly Tower at SE 315 030; a pipistrelle species abandoned roost on Lowe Lane (SE 323 037) and a pipistrelle species roost where four bats were recorded at Nursery Cottage on Shed Lane (SE 318 035).
- 4.1.5 62 field records of bat activity, including foraging and commuting behaviour, were returned from the records search and comprise: 35 common pipistrelle, 14 soprano pipistrelle, four noctule, three Daubenton's, one *Myotis* sp., one pipistrelle species, one brown long-eared, one Natterer's, one whiskered/Brandt's bat and one *Nyctalus* sp. There are also records of bat activity within Wentworth Castle Gardens, comprising common pipistrelles and noctules. Most records within Wentworth Castle Gardens and neighbouring Stainborough Park are that of bat activity of common and soprano pipistrelles, noctules, Daubenton's, brown long-eared and whiskered/Brandt's bats.
- 4.1.6 10 records of casualties and trapped bats were returned, including three brown long-eared bats, two Natterer's, two unidentified bat species, one whiskered bat (*Myotis*

mystacinus), one common pipistrelle and one pipistrelle species. The nearest casualty to the site is at OSNGR SE 319 032, immediately north of the site, comprising a released whiskered bat.

- 4.1.7 30 records of bats were returned where the type of record is not specified, including those where the species was identified by 'close visual inspection'. These records comprise 19 Natterer's, five brown long-eared bats, two common pipistrelles, two unidentified bats, one unidentified pipistrelle species, and one *Myotis* sp.

4.2 Preliminary Bat Roost Assessment

- 4.2.1 An inspection of nine trees within the site, where tree works are proposed was undertaken, the results of which are provided in Table 4.1 below. The tree references correspond with the Treescapes report, which includes a location plan.

Table 4.1 - Results of Preliminary Roost Assessment

Tree ID (OS location)	Species	Age class	Proposed tree works which have the potential to impact roosts/roosting bats	Comments	Bat roost suitability
5 (SE 3203 0326)	Yew	Mature	Pruning, to give around 1m clearance of the building	~13m tall tree growing close to a building. No features with bat roost suitability were identified.	Negligible
6 (SE 3205 0327)	Sycamore	Mature	Felling, to facilitate ground works within the root protection area	~20m sycamore with fire damage at stem, several squirrel holes and wounds on the underside of branches.	See climbed inspection results (Section 4.3)
13 (SE 3208 0335)	Sycamore	Juvenile mature	Felling, to facilitate ground works	~8m tall, growing close to garden wall. No features with bat roost suitability identified	Negligible
14 (SE 3207 0336)	Yew	Juvenile mature	Felling, to facilitate ground works	~6m tall, growing close to garden wall. No features with bat roost suitability identified	Negligible
22 (SE 3204 0345)	Sycamore	Young mature	Felling, to facilitate ground works	~13m tall, small area of decaying bark on main stem at 2m, however no features with bat roost suitability identified	Negligible
23 (SE 3204 0347)	Yew	Mature	Felling, to facilitate ground works	~12m tall, small fluting cavity at ~4m high.	See climbed inspection results (Section 4.3)
24, 25, 26 (SE 3204 0346)	Hornbeam (<i>Carpinus betulus</i>)	Semi-mature	Felling, to facilitate ground works	Group of three semi-mature trees ~2m tall. All are in good condition with no features with bat roost suitability.	Negligible

4.3 Climbed Tree Inspection

4.3.1 Two trees with bat roost suitability were identified during the PRA. A climbed inspection of the trees and exhaustive search of their PRFs was undertaken. A description of these features as well as their bat roost suitability is provided in Table 4.2 below.

4.3.2 No evidence of roosting bats or field signs indicating their presence were identified during the survey. Two grey squirrels (*Sciurus carolinensis*) were frequently observed entering and exiting features at the tree.

Table 4.2 – Results of Climbed Tree Inspection

PRF	Location	Description	Suitability
Sycamore (Tree 6)			
1	18m high on underside of south secondary branch	A branch wound approximately 40cm in length extending 10cm into the wood, it has a damp substrate	Low
2	18m high at dogleg of south secondary branch	A callus growth with small cracks in bark, no cavities	Negligible
3	17m high on underside of south-west secondary branch	A branch wound approximately 40cm in length extending 40cm into the wood, it has a damp substrate	Moderate
4	17m high on underside of south-west secondary branch	A callus roll around a wound, 30cm long it does not form any cavities.	Negligible
5	15m high on underside of south-west secondary branch	Branch wound with a callus roll approximately 20cm in length, extending ~15cm into wood. Evidence of bird nesting material was noted.	Low
6	14m high on main limb, south side	A large tear out has formed a large wound exposing the core of the limb. The upper end of the open wound does not form any cavities.	Negligible
7	12m high on main limb, south side	A large tear out has formed a large wound exposing the core of the limb. The lower end of the open wound has a 30cm diameter opening at the top and extends vertically downwards into the main trunk, extending ~1m. Two grey squirrels were observed entering and exiting this feature frequently, as such it is considered to be used as a squirrel drey.	Low
8	12m high on underside of north main limb	A ~5cm diameter opening which extends 30cm into a small cavity. It is currently filled with bedding and considered to be a squirrel hole with a currently disused drey.	Low
9	12m high at dogleg of main limb	A small tear out wound, it does not extend beyond 5cm deep.	Negligible
10	8m high on south side of main stem	A small knothole wound with a ~5cm diameter opening it does not extend beyond 5cm deep.	Negligible
11	8m high on south secondary	A snap out wound with a 10cm diameter opening which extends	Moderate

PRF	Location	Description	Suitability
	branch	30cm into a cavity with a domed apex. Dry substrate was observed	
12	7m high on south east main branch	A small knothole which does not extend beyond 5cm deep.	Negligible
13	5m high on south secondary branch	A small tear out with a 10cm diameter opening which extends 20cm into a cavity. The cavity is open to the elements	Low
Yew (Tree 23)			
1	6m high on main stem	A small ~10cm long fluting fissure which does not extend beyond 5cm deep.	Negligible

5.0 CONCLUSIONS & RECOMMENDATIONS

5.1 Bats

- 5.1.1 Following the ground-level PRA seven trees were identified as being of negligible bat roost suitability (Trees 5, 13, 14, 22, 24, 25 and 26), as such works at these trees can proceed unconstrained with regards to roosting bats.
- 5.1.2 Two trees with bat roost suitability were identified during the PRA (Trees 6 and 23). A climbed inspection of these trees and exhaustive search of their PRFs was undertaken.
- 5.1.3 Following the climbed inspection, negligible bat roost suitability was confirmed at the single PRF identified at Tree 23, as such works at this tree can proceed unconstrained with regards to roosting bats.
- 5.1.4 A total of 14 PRFs identified at the mature Sycamore (Tree 6) were categorised, based upon their bat roost suitability, as: seven negligible (PRF 2, 4, 6, 9, 10 and 12), five low (1, 5, 7, 8 and 13) and two moderate (3 and 11). No evidence of roosting bats or field signs indicating their presence were identified during the climbed inspection.
- 5.1.5 Evidence of squirrel nesting was identified and two grey squirrels were observed frequently entering and exiting PRF 7. Due to the opening diameter of PRFs 3 and 11 (identified as moderate) and the presence of grey squirrels at the tree it is considered that the two PRFs identified as moderate are likely to be sub-optimal for roosting bats due to likely disturbance from grey squirrels and/or birds. In addition other PRFs were assessed as being of low or negligible bat roost suitability. It is therefore considered that Tree 6 is of low bat roost suitability.
- 5.1.6 The climbed inspection has confirmed the current absence of roosting bats at Tree 6, however PRFs with bat roost suitability have been confirmed and with consideration to the ephemeral nature of tree roosts, the potential for bats to be present at other times of the year cannot be ruled out. It is therefore recommended that another climbed inspection (totalling two visits) by a suitably qualified Ecologist is undertaken at Tree 6 immediately in advance of its felling, to confirm the continued absence of roosting bats at the tree.
- 5.1.7 Where roosting bats are identified during the climbed inspection, or at any point during tree works, then works must cease immediately and a suitability qualified Ecologist consulted on how to progress. Where a bat roost has been identified then a Natural England European Protected Species Licence will be required for works which will damage/disturb a bat roost or roosting bats.

- 5.1.8 In order to compensate for the loss of suitable roosting opportunities at Tree 6 it is recommended that six bat boxes (e.g. Schwegler 2F or similar) are installed on suitable trees and/or buildings within the site. The bat boxes should be positioned at a height of between 3 and 6m in an open sunny position (ideally a southerly aspect) and away from sources of artificial lights (e.g. windows and security lights).
- 5.1.9 Biodiversity enhancement opportunities, in line with planning requirements, should be incorporated into grounds management and design for the site, and should include the following:
- Sympathetic management of mature and veteran trees to retain decay and deadwood features to encourage the creation of features for roosting bats;
 - Planting of wildflower meadows, using native species of local provenance;
 - Creation of linear features and habitats, such as planting of hedgerows and lines of trees; and,
 - Creation of wetland features such as ponds and drains.

5.2 Nesting Birds

- 5.2.1 Tree works have the potential to impact upon nesting birds which may be present during the works. As such it is recommended that vegetation clearance (including felling or pruning) should be undertaken outside of the recognised nesting bird season (March to August inclusive).
- 5.2.2 Where this is not possible an inspection of vegetation to be removed should be undertaken by a suitably experienced Ecologist immediately in advance of the works. Where evidence of bird nesting is observed works will be delayed until after dependent young have fledged.
- 5.2.3 Biodiversity enhancement opportunities outlined above will also increase the foraging and nesting opportunities for birds at the site.