

# Ecology Surveys of West Boathouse, Glasgow Green

## Report

Version 1.2

May 2017



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## Introduction

Freelance Ecologist Max Carstairs was commissioned on the 21<sup>st</sup> April 2017 to undertake an ecological assessment of West Boathouse and the surrounding grounds. Renovation works to the building are currently planned as well as either a new set of steps or a pontoon to facilitate access to the river. The survey was undertaken on the 14<sup>th</sup> May 2017. The habitats surrounding the building were surveyed using the extended Phase 1 methodology (Nature Conservancy Council, 2003). Invasive species were also searched for and mapped. The boathouse is located along the banks of the River Clyde and therefore signs of water voles and otters were searched for up to 50m and 250m from the building respectively. A survey of the exterior and interior of the building was undertaken to assess the potential of the roof space in particular for use as a suitable roosting habitat for bats and to establish if bats were currently using the building. All surveys were carried out with reference to guidance provided in the Bat Workers' Manual (Mitchell-Jones & McLeish, 2004) and the Bat Conservation Trust's Good Practice Guidelines (Hundt, 2016).

## Relevant Legislation

UK and European legislation currently make it an offence to:

1. Deliberately capture, injure or kill a bat
2. Intentionally or recklessly disturb a bat in its roost or deliberately disturb a group of bats
3. Damage or destroy a bat roosting place (even if bats are not occupying the roost at the time)
4. Intentionally or recklessly obstruct access to a bat roost
5. Allow invasive species listed on Schedule 9 of the Wildlife & Countryside Act to spread to neighbouring land or into the wild.
6. Deliberately or recklessly kill, injure or take (capture) an otter
7. Deliberately or recklessly disturb or harass an otter
8. Damage, destroy or obstruct access to a breeding site or resting place of an otter (i.e. an otter shelter)
9. Damage, destroy or obstruct access to any structure or place which water voles use for shelter or protection, and;
10. Disturb water voles while they are using such a place.

## Surveys

### *Methodology*

Habitats within 50m of the boathouse were mapped using the Nature Conservancy Council Methodology (NCC, 2003). This survey was extended to include protected animal species and invasive plants. The boathouse is located along the banks of the River Clyde and therefore signs of water voles and otters were specifically searched for up to 50m and 250m from the building respectively. Invasive species listed on Schedule 9 of the Wildlife & Countryside Act were also searched for and their locations mapped.

The interior of the boathouse including the attic space was searched for bats and signs of bats including droppings, urine stains and greasy marks. Approximately 95% of the attic space was surveyed although the northeast corner was avoided due to the presence of a large wasp nest (Photo 1). Such colonies can be dangerous in attics where it is not always possible for surveyors to exit the loft space quickly.



Photo 1 Wasp nest in northeast corner of attic. Light patches are holes in the roof.

Emergence surveys were carried out for 60 minutes before and 120 minutes after sunset, which was at approximately 21:20.

In order to cover different aspects of the boathouse, two bat surveyors were positioned at opposite corners of the building so that each surveyor could see two sides of the structure.

The temperature was 17°C at the start of the survey and had dropped to 13°C by the end. Wind speed was less than 10 mph and there was no rainfall. The surveys were undertaken using 8 x 42 Nikon Prostaff binoculars, Pettersson D240x bat detectors and a Roland R-05 Wave/MP3 sound recorder. Bat sounds were recorded in Time Expansion mode and analyzed using BatSound software version 4.21.

## *Results*

### **Extended Phase 1 Habitat Survey**

Glasgow Green is predominantly a network of closely mown amenity grassland with scattered trees lining tarmacked roads. The riverbank is composed of a mosaic of tall ruderal herbs and scrub with a narrow strip of marginal vegetation in places at the

water edge (Figure 1). Descriptions of each habitat are provided below with the Nature Conservancy Council Phase 1 Habitat code presented next to the habitat title.

#### Amenity Grassland (J1.2)

The amenity grassland was dominated by Italian rye grass (*Lolium perenne*), daisy (*Bellis perennis*) and dandelion (*Taraxicum officinale*).

#### Parkland and Scattered Trees (A3)

Parkland trees near the boathouse were a mixture of willow (*Salix sp.*) and hawthorn (*Crataegus monogyna*).

#### Tall Ruderal Herbs (C3.1)

The lower riverbank was generally reinforced with hard materials with a thin layer of soil over the top in places. A tall ruderal herb community dominated by giant hogweed (*Heracleum mantegazzianum*), great willow herb (*Epilobium hirsutum*) and nettle (*Urtica dioica*) was present at the boathouse.

#### Scrub (A2)

Scrub along the riverbank was dominated by willow (*Salix sp.*), alder (*Alnus glutinosa*), ash (*Fraxinus excelsior*) and sycamore (*Acer pseudoplatanus*). Two stands of Japanese knotweed (*Fallopia japonica*) were found around 60m upstream from the boathouse. It is possible that giant hogweed is also present in this location although the density of the scrub precluded a thorough search.

#### Marginal Vegetation (F2.1)

The narrow strip of marginal vegetation was entirely composed of common reed (*Phragmites australis*).

There were no signs of otter or water vole and the reinforced banks offered limited potential for habitation. The invasive signal crayfish (*Pacifastacus leniusculus*) was not observed though they are known to be present in the River Clyde catchment.

### **Bat Survey**

Bats and their signs were not observed during the interior survey of the building. The attic roof had numerous holes through which light spilled and which could provide access for bats into the building. The exterior riverside face of the building also had wooden balconies attached to the upper floor and these are now dilapidated and have suitable sized gaps that could allow access for bats (Photo 2).



Photo 2 Wooden balcony with open space under floorboards

Gaps were also noted in the barge boards, fascias and soffits (Photo 3). Species such as pipistrelles in particular prefer to roost in spaces between buildings and exterior structures such as cladding and the riverside face of the boathouse is highly suitable for this species. The proximity of the boathouse to the river bank means that there is a natural animal commuting route present for bats. A common toad (*Bufo bufo*) and a red fox (*Vulpes vulpes*) were observed using this corridor in the daytime and evening respectively. The river itself will provide valuable feeding habitat for species which feed on insect life over open water e.g. soprano pipistrelle. The presence of numerous park trees and park grassland nearby can also provide appreciable amounts of insect biomass for bats to feed on even if insect species diversity is low.



Photo 3. Gaps in the bargeboards, fascias & soffits

Bats were not recorded emerging from the building during the evening survey although Soprano Pipistrelles (*Pipistrellus pygmaeus*) were feeding continuously around the western gable end of the building from 10:05pm onwards (Figure 2). Generally one individual and occasionally two flew in a circle between the building and nearby bushes. It is likely that this area was selected as it was the most sheltered on the evening of the survey during which a light breeze was present.

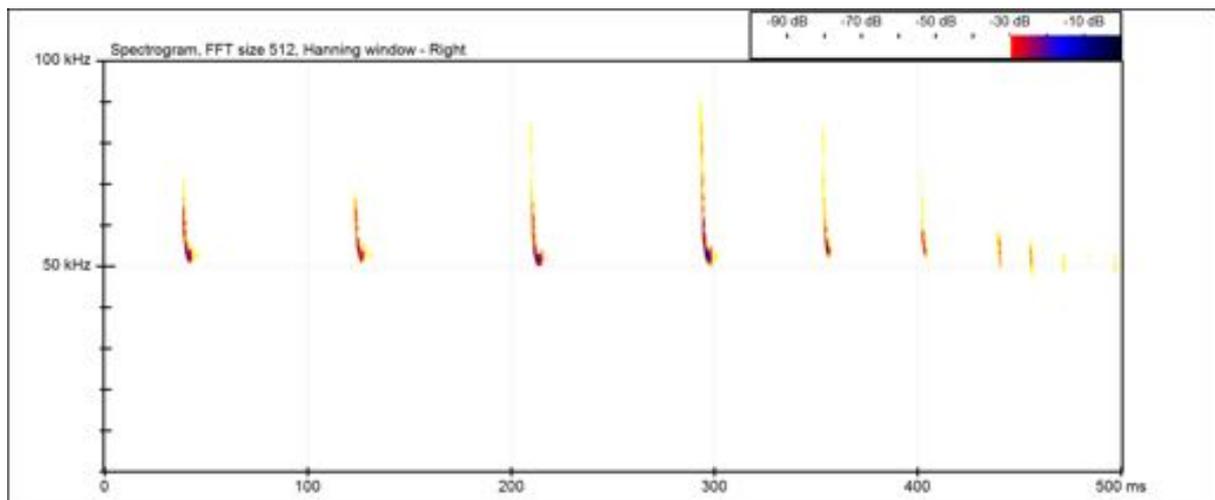


Figure 2. Spectrogram of Soprano Pipistrelle echolocation calls recorded 14<sup>th</sup> May.

## Discussion and Recommendations

### Invasive species

Giant hogweed (Photo 4 & front cover picture) contains large amounts of poisonous sap which, on contact with the skin and in the presence of sunlight, causes severe irritation, swelling and painful watery blisters. This reaction can occur up to 24 hours after exposure to sunlight. Contact with eyes can cause temporary blindness.



Photo 4 Giant hogweed growing through the boathouse riverside steps.

The root system of Japanese knotweed (Photo 5) can extend several metres from the original plant and grow up to 2m deep. The plant spreads rapidly through growth of its root system and because fragments of its stem or root can grow to form new plants. The plant is strong enough to damage foundations, walls, roads and drainage pipework.



Photo 5. Large stand of Japanese knotweed upstream of the boathouse

In order to avoid infringement of the wildlife legislation, care must be taken to avoid moving plant seeds and fragments including those in surrounding soil unless as part of an eradication program. Given the extent of giant hogweed in the grounds of the boathouse it may be desirable to initiate an eradication program prior to the construction phase in order to prevent transport of vegetative material off site e.g. on the wheels or tracks of construction plant.

SEPA have recently requested general biosecurity measures on construction sites in south west Scotland which involves pressure washing construction plant tracks & wheels prior to arrival on, and departure off site. In addition, they require photographic records to be kept with an associated register of construction plant movements and washing history. This policy was primarily adopted to reduce the risk of spreading signal crayfish eggs and hasn't been launched nationally yet (*pers comm*, John Gorman SEPA, 29/05/17) although it should be followed for the boathouse project given the risks associated with the site.

The current location of Japanese knotweed is unlikely to conflict with the boathouse renovations but the plant's distribution should be monitored in case new growth occurs nearer to the boathouse.

## Bats

The boathouse has a high potential to support roosting bats given the ease of access to the structure and the suitability of riverside and parkland habitat for foraging and commuting bats.

In order to establish likely presence/absence for buildings with high roosting potential a total of three separate surveys are recommended in the BCT 2016 guidelines. The

survey undertaken on the 14<sup>th</sup> May 2017 counts as one survey.

Out of the three surveys, one dusk and one separate dawn survey (i.e. not the morning after a dusk survey as the surveys need to be separated by at least two weeks before they count as being separate) must be undertaken. The final survey can be either dawn or dusk.

Surveys are to be undertaken from May to September with at least two of the surveys occurring between May & August.

The BCT guidelines do not state a timeframe over which bat surveys remain valid but indicate that factors such as changes in building condition should be taken into account. It is recommended in this report that emergence surveys are conducted during the summer prior to renovation in order to minimize the period between surveying and construction.

## **Conclusions**

Renovation of the building can be undertaken successfully without detrimentally affecting wildlife and the natural environment. Even if, during future surveys, bats are found to be using the building for roosting purposes, those renovations would be able to go ahead under a Scottish Natural Heritage bat mitigation license. However, all that is recommended at this stage is completion of the suite of presence/absence bat surveys and initiation of an invasive plant species eradication program.

## **References**

*Bat Surveys: Good Practice Guidelines* (2016) Hundt L. 2<sup>nd</sup> Edition. Bat Conservation Trust

Handbook for Phase 1 Habitat Survey: *A Technique for Environmental Audit*. Nature Conservancy Council 2003.

*The Bat Workers' Manual* (2004) A. J. Mitchell-Jones, A. P. McLeish. 3<sup>rd</sup> Edition, JNCC

*British Bats* (2003) Altringham J. New Naturalist. Collins