

BAT SURVEYS
in
BERWICK-upon-TWEED
June to August 2006

A report on surveys at
The Avenue / Palace Green area
The Ramparts from Bay Terrace to Brass Bastion
and the Summerhill Terrace area
by
Berwick Wildlife Group
December 2006

ACKNOWLEDGEMENTS

The following members of Berwick Wildlife Group took part in the survey work: Fiona Aungier, Leslie Cook (licensed bat worker, also a member of the Northumberland Bat Group), Felicity Cooklin, Molly Hardie, David Johnson, Philomena Johnson, Jennifer Knell, Priscilla Simpson, Anne Thompson, Enid Turnbull and Margaret Williams.

This report was written by, and the accompanying sketch plans were prepared by Leslie Cook.

INTRODUCTION

A series of bat surveys was conducted by Berwick Wildlife Group in 2005 to affirm, or otherwise, the presence of bats at locations for which there was anecdotal evidence or where habitat and environment were seemingly suitable.

Those sites surveyed in 2005 were in the lower part of Berwick (The Avenue), the Dock Road area at Spittal, Tweedmouth West End and at East Ord.

The presence of bats was recorded at each location, both visually, and by sound detection using heterodyne bat detectors.

AIMS OF SURVEYS

The surveys, both in 2005 and 2006, were carried out broadly in terms of the procedures outlined in the Bat Workers Manual, third edition, Walsh and Catto, 2004.

The purpose of surveying bat populations includes the discovery of bat sites and the mapping of species distribution, key bat roosting / hibernating sites and feeding areas.

The first aim of the surveys was to ask what bat species were present in given areas, such knowledge being important because it can be related to land use and can provide valuable information on the relative value of areas for bats. The data obtained can be used to assist in the process of Environmental Assessment and for issues of planning and land use.

The second aim is to ask where bats are roosting, hibernating or feeding in a given area and how many of these sites exist. This has two main purposes: first

to improve our knowledge of the ecology of bats and second, to improve the identification of important sites for special protection.

The third and increasingly important aim is to track how sites and bat numbers are changing over time, so that declines and potential threats to populations can be identified at an early stage. Tracking changes in distribution of species over time is also a valuable method in assessing the status of populations.

The detectors used during all surveys were Batbox III heterodyne ultrasonic bat detectors. (Batbox Ltd).

SURVEYED SITES - 2005

- 1) The Avenue / Palace Street East / Palace Green, Berwick
- 2) Dock Road and the 'Goody-patchy' area, Spittal
- 3) Part of Hiveacres adjacent to East Ord Caravan Park
- 4) Riverdene / railway viaduct strip, West End, Tweedmouth

SURVEYED SITES - 2006

- 1) The Avenue / Palace Street East / Palace Green, Berwick
- 2) The Ramparts from Bay Terrace to Brass Bastion, Berwick
- 3) Summerhill Terrace / parkland, west of Berwick Railway Station

The sketch maps provided in the report are not to scale: for location purposes, OS grid references are noted.

SURVEY RESULTS

In 2006, attention was focused initially on the area comprising The Avenue / Palace Street East / Palace Green, where a strong bat presence had been detected during the 2005 survey. It was recognised, however, that the Ramparts, from Bay Terrace to the Barracks, would also require to be surveyed to determine how far the bats' feeding area extended beyond the first survey area.

June 1st (21.0 to 23.00)	A general area survey was made along Ravensdowne, from the Parade, and around the Ramparts from Bay Terrace to the Barracks. A brief static survey was made on The Avenue.
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No pre-emergence activity could be detected on Ravensdowne, neither could any traces of bat droppings be found on window glazing, or sills, nor on the pavement immediately below eaves.

No bat activity was recorded on The Avenue, in part, probably because of a quite brisk, cool, westerly breeze and, possibly, because this part of the survey, terminated at 22.15, shortly after sunset, may have been too early for the emergence of bats. In the later evening, one or two batcalls were registered in the area between houses on Cleet Court and Kipper Hill house. From the gable of the latter building to the town allotments, above the recently tree-planted area, and around the adjacent mature trees beside the Ramparts pathway, bat flight patterns were identified, both visually and by sound; some bats were observed to fly towards, and return from, the area of mature trees, below the Ramparts and adjacent to King's Mount. Within the ditch (or sunken way) around the Ramparts, from the Magazine to the Barracks, continuous bat activity was detected – calls indicating low level flight in what would be a protected feeding area, given the prevailing weather conditions. (See sketch maps, nos. 01, 02a)

June 8th
(21.00
to
23.00)

A full evening, static survey in The Avenue, and in the garden to the rear of No. 3, logged much bat activity, seemingly centred on an area within what was formerly the Governor's Garden, that has become a dense shrubbery. Much of the bats' flight pattern was recorded as emerging from, and returning to this area, from The Avenue; there was also a fair amount of flight along The Avenue, including occasional forays to the rear garden of No. 3, where circuits were made of borders planted with strongly growing, mature shrubs. (See sketch map, no. 03a)

June 15th
(21.00
to
23.00)

A second static survey was set up in the Community Centre car park, immediately to the rear (north) of houses on The Avenue, to determine, whether or not bat flight patterns, as recorded on June 8th, continued across the car park.

Distant batcalls were picked up from the rear garden of No. 3, The Avenue, but no flights across the car park were detected from anywhere in that area. A lone pipistrelle was detected in the north-east corner of the car park, around the rear of Bay Terrace, without any apparent connection to the Governor's Garden / Avenue area. Later, in the evening, a brief survey was made on The Avenue, when bat activity was again recorded, similar in pattern, although of lesser frequency, to that determined on 8th June. (See sketch map, no. 03b)

July 13th
(20.45
to
23.00)

An area survey around the perimeter of the Governor's Garden, including The Avenue, Palace Street East, Palace Green and the Ramparts, was designed to further delineate the boundaries of bats' feeding areas detected in the earlier surveys at this site.

Bats were again recorded along The Avenue, although activity was less than previously noted – probably because of the quite cool conditions.

Elsewhere, apart from an isolated batcall at the north-east corner of the Palace Green scout hut site, no bats were recorded flying into the survey site, from outwith the area of The Avenue and Governor's Garden.

Information was received from a member of the Group who had been told that bats were to be seen flying in towards, or in close proximity to, the eaves of the dwellinghouse contiguous with the former Governor's Palace, and backing on to the Governor's Garden.

If confirmed as a bat roost site, this information would validate the conclusion, from the survey results, that a bat roost must exist in that area.

(See sketch map no. 03c)

July 20th
(21.30
to
23.00)

Casual observation having suggested the possibility of bats using a tree roost in a small area of parkland between Summerhill Terrace and Berwick Railway Station, a general survey was conducted around large trees on the parkland boundary with the Terrace gardens.

From about 22.15, increasing bat activity was noted around a large tree on the garden boundary of No. 3 Summerhill Terrace, and it was possible to follow the bats' flight lines to the frontage of the Terrace. A tree roost could not be detected but the bats' behaviour, swooping upwards to the house eaves, towards the northern end of the frontage, was suggestive of their returning to a building roost.

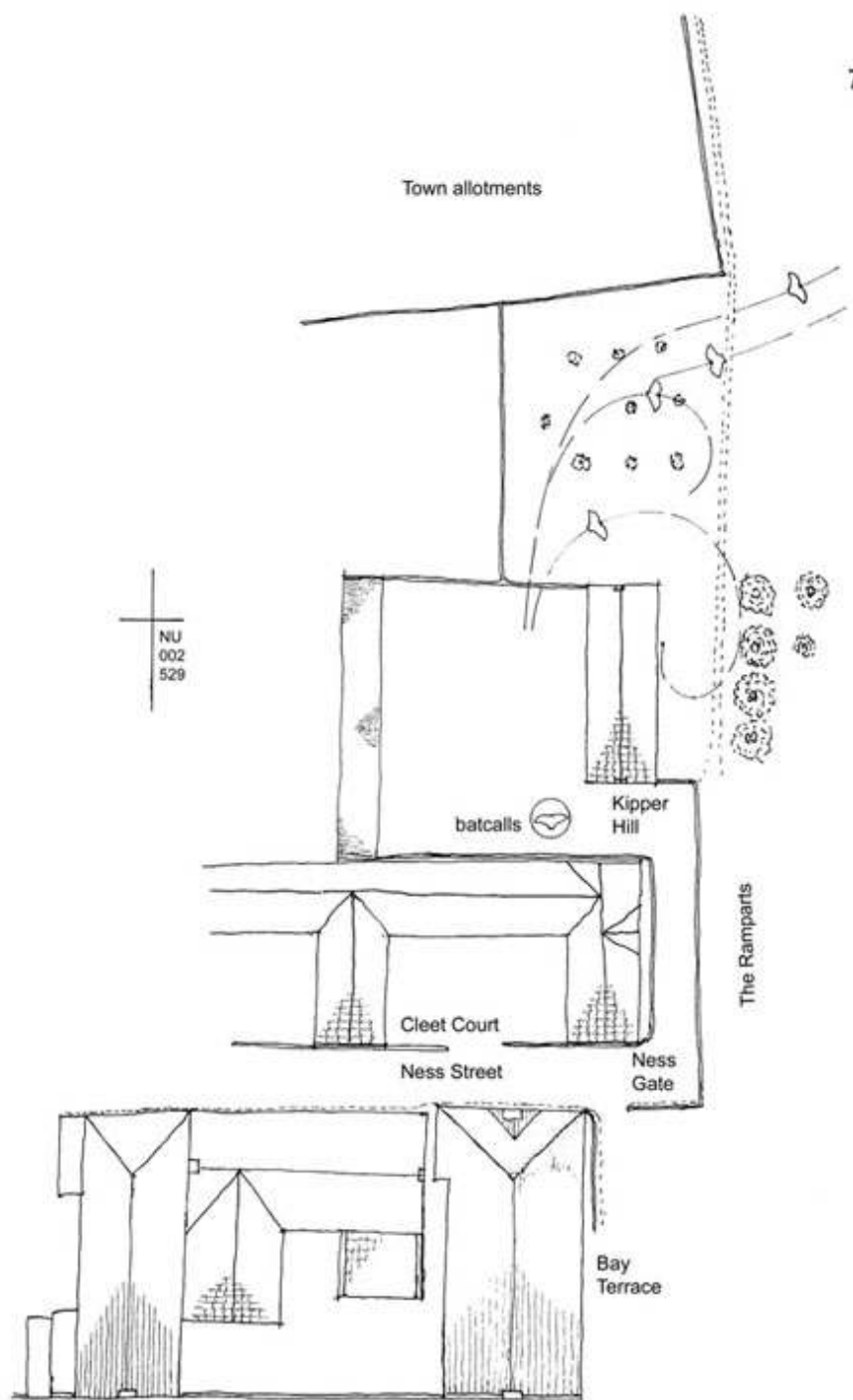
There was no evidence of a tree roost in any of the trees, although this would not preclude the use of such a location, earlier in the year. Conditions change at each site throughout the season so bats require a number of sites that they can visit and so select the best place to roost. (Richardson, 1985)

A very brief survey of the Tappee Fen, immediately to the north-west of Summerhill Terrace, did not reveal any bat activity.

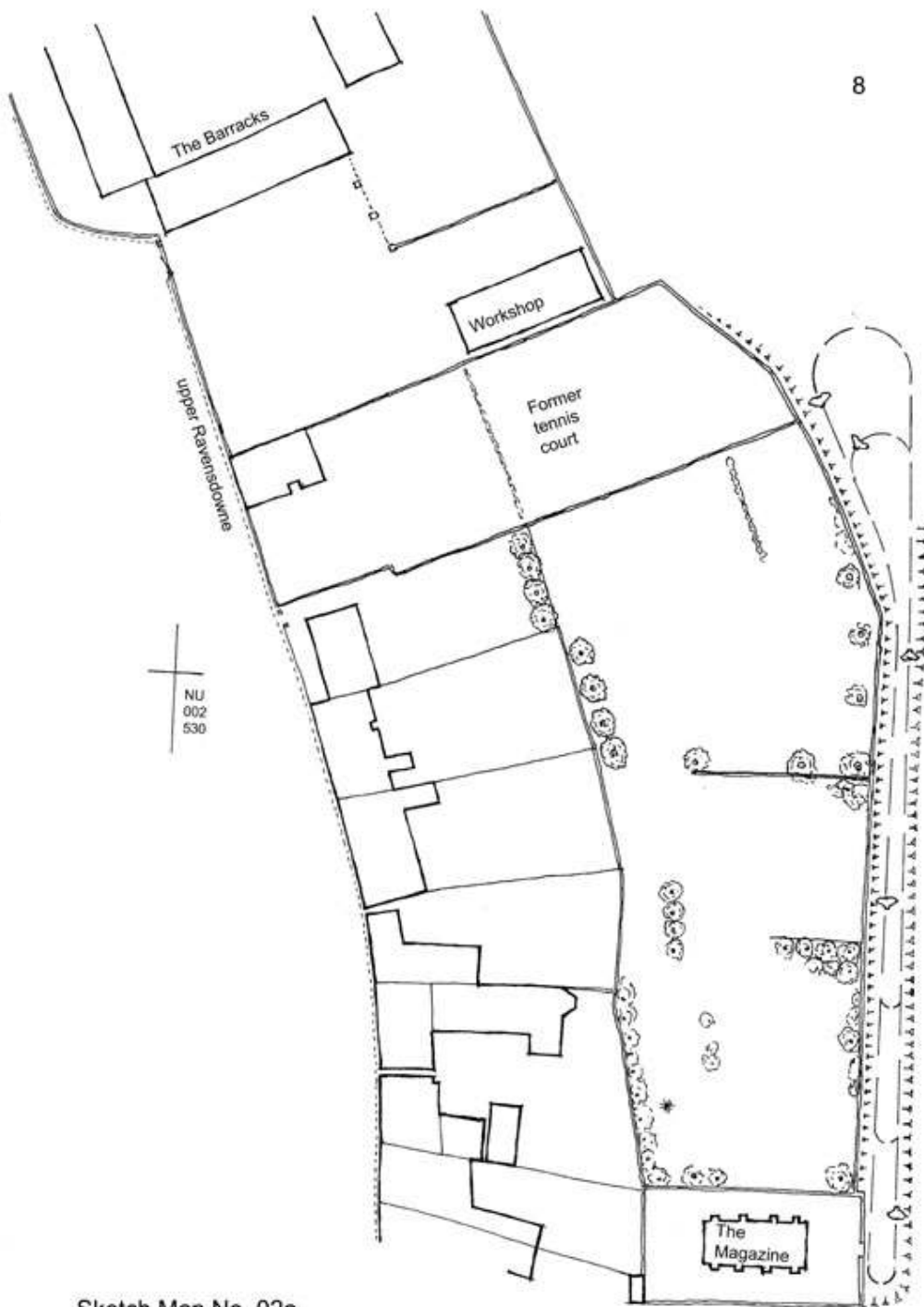
- Aug 3rd
(21.30
to
22.15)
- Following the establishment (1st June) of a bat presence along The Ramparts, from Cleet Court to the Barracks complex, seemingly separate from those detected at The Avenue/Governor's Garden, arrangements were made to survey disused garden ground between the houses on the eastern side of upper Ravensdowne, and the Ramparts. Small numbers of batcalls were noted, generally around mature deciduous trees on the boundary with the Ramparts, towards the north-western end of the section. More batcalls were detected towards the south-east end, but only imprecise flight lines were recorded, heading towards houses in upper Ravensdowne. However, two bats were observed flying to the north-west, towards the Barracks area.
(See sketch map, no. 02b)
- Aug 10th
(21.30
to
22.30)
- A survey, designed to extend the Ramparts / upper Ravensdowne location, was made from the Barracks complex along the east boundary of Holy Trinity cemetery to the corner opposite Brass Bastion on the Ramparts. Initially following the ramparts to the south-east, from the Parade, almost continuous batcalls were detected in the ditch adjacent to the garden boundaries, as in earlier surveys. Most were at low level, there again being a fairly brisk westerly breeze - although high level calls were noted in the proximity of mature trees. It was also noted that some bats were flying to trees at low level below the Ramparts at Windmill Bastion. After returning along the Ramparts in a north-westerly direction, considerable bat activity was detected on the east boundary of Holy Trinity cemetery, where there are several mature trees, both within the cemetery and on the Ramparts (mainly sycamore). Along the Parade, between the north-west frontage of the Barracks and Holy Trinity cemetery, much bat activity was again detected with flight patterns suggestive of routes to and from the northern exit from Ravensdowne.
(See sketch map, nos. 02a,04)

BAT SPECIES

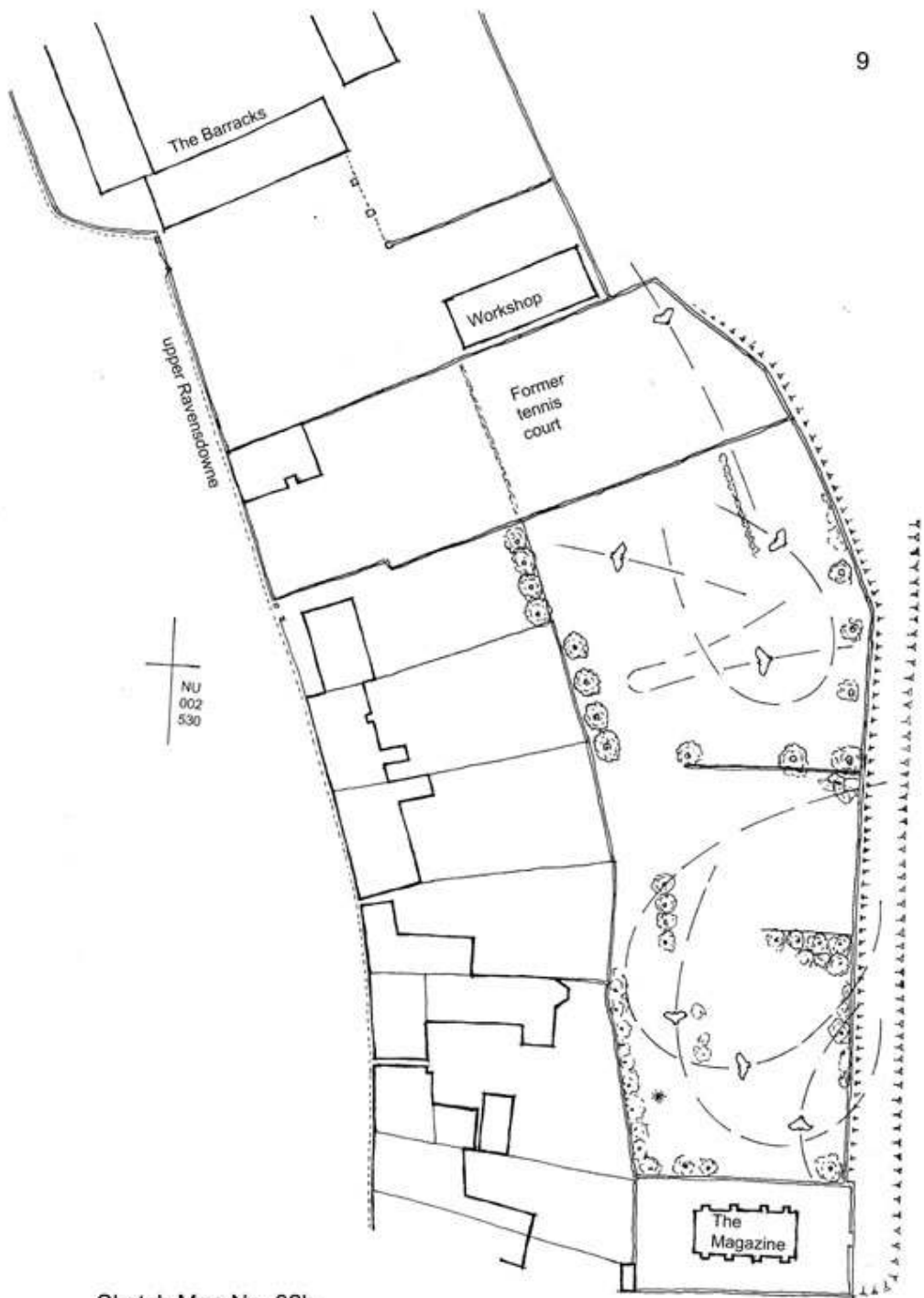
All identifiable calls, registered by the bat detectors at 45 kHz, indicated the presence of the common pipistrelle (*Pipistrellus pipistrellus*). (Briggs and King, 1998)



Sketch Map No. 01

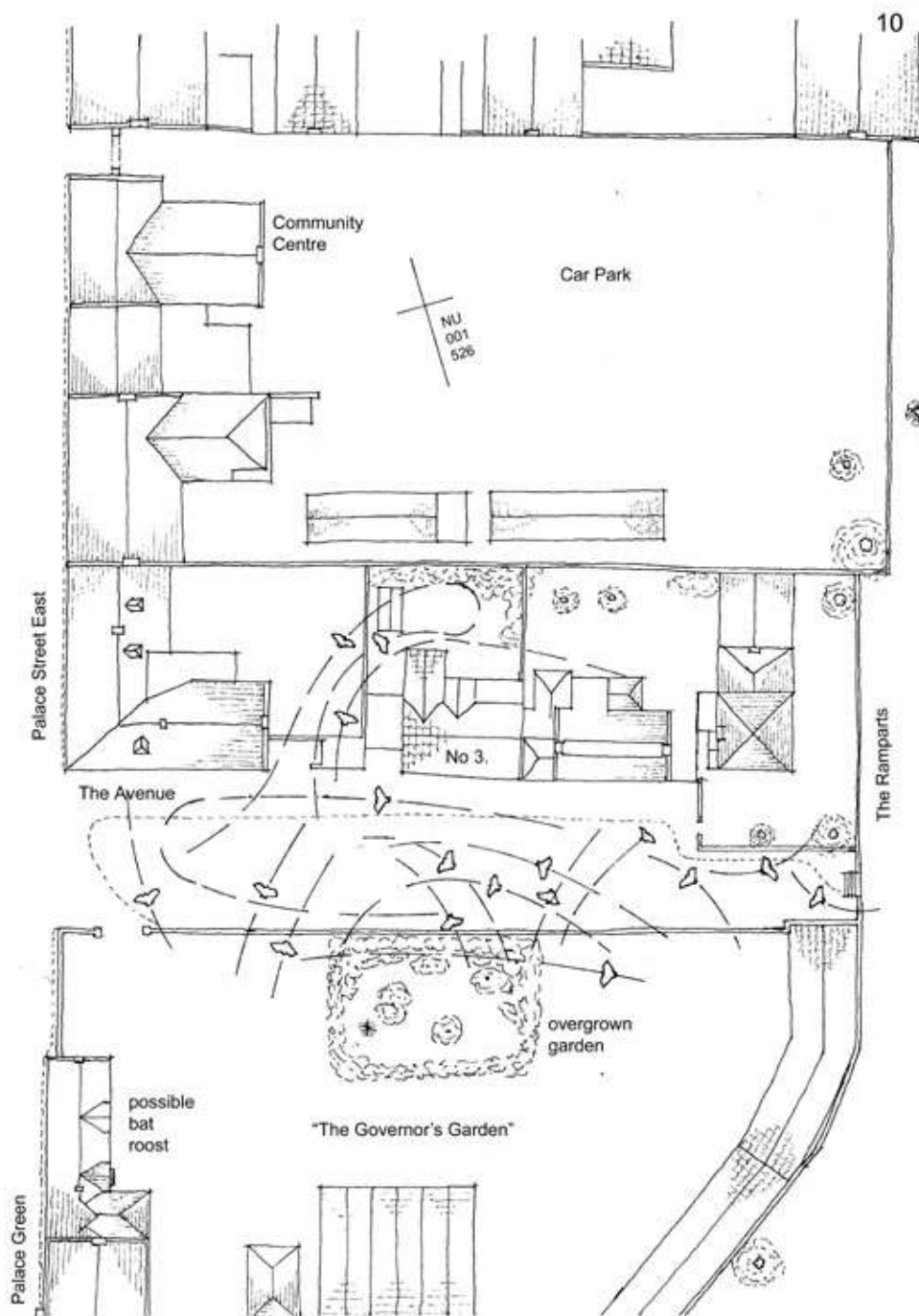


Sketch Map No. 02a

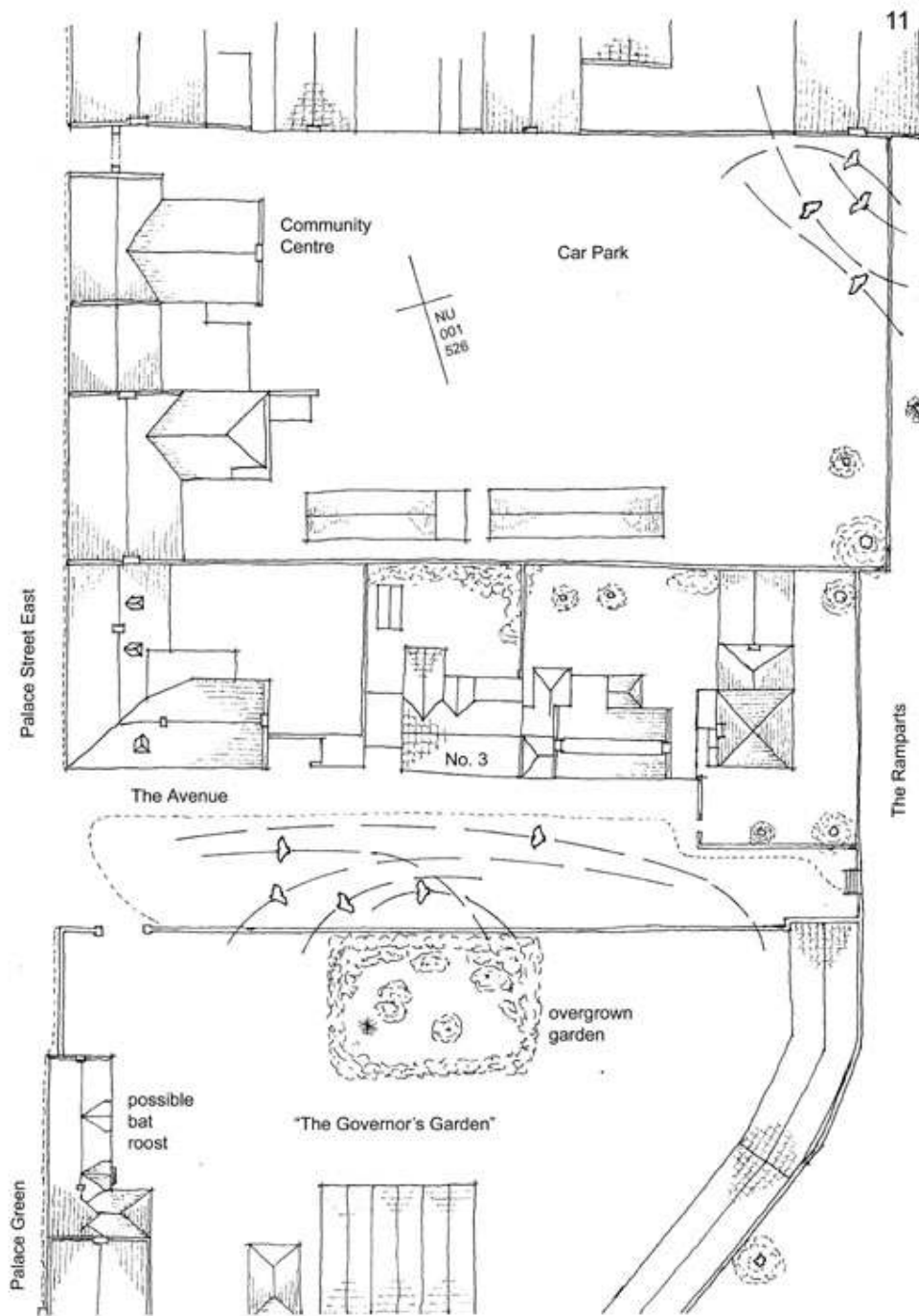


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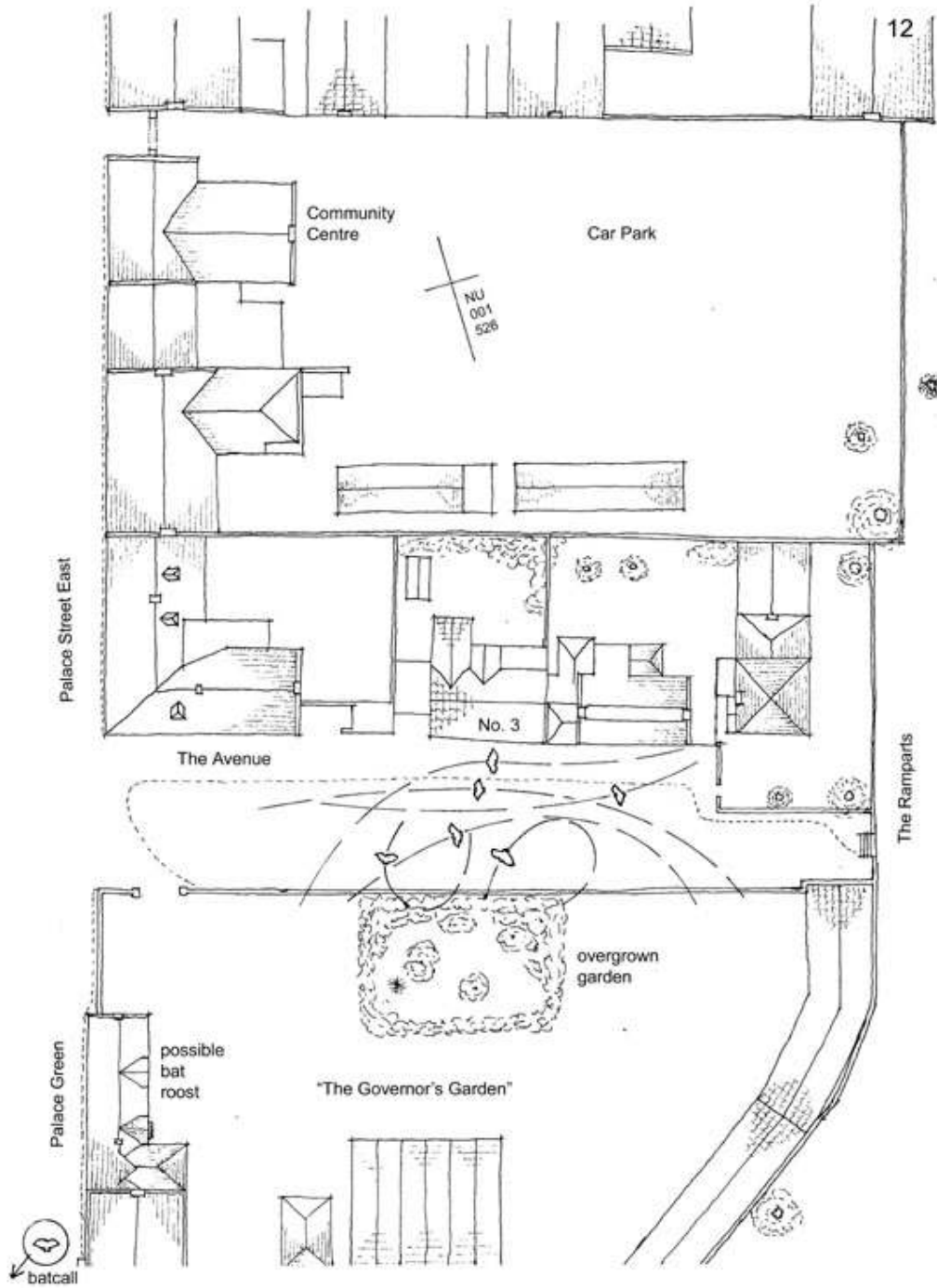
Sketch Map No. 02b



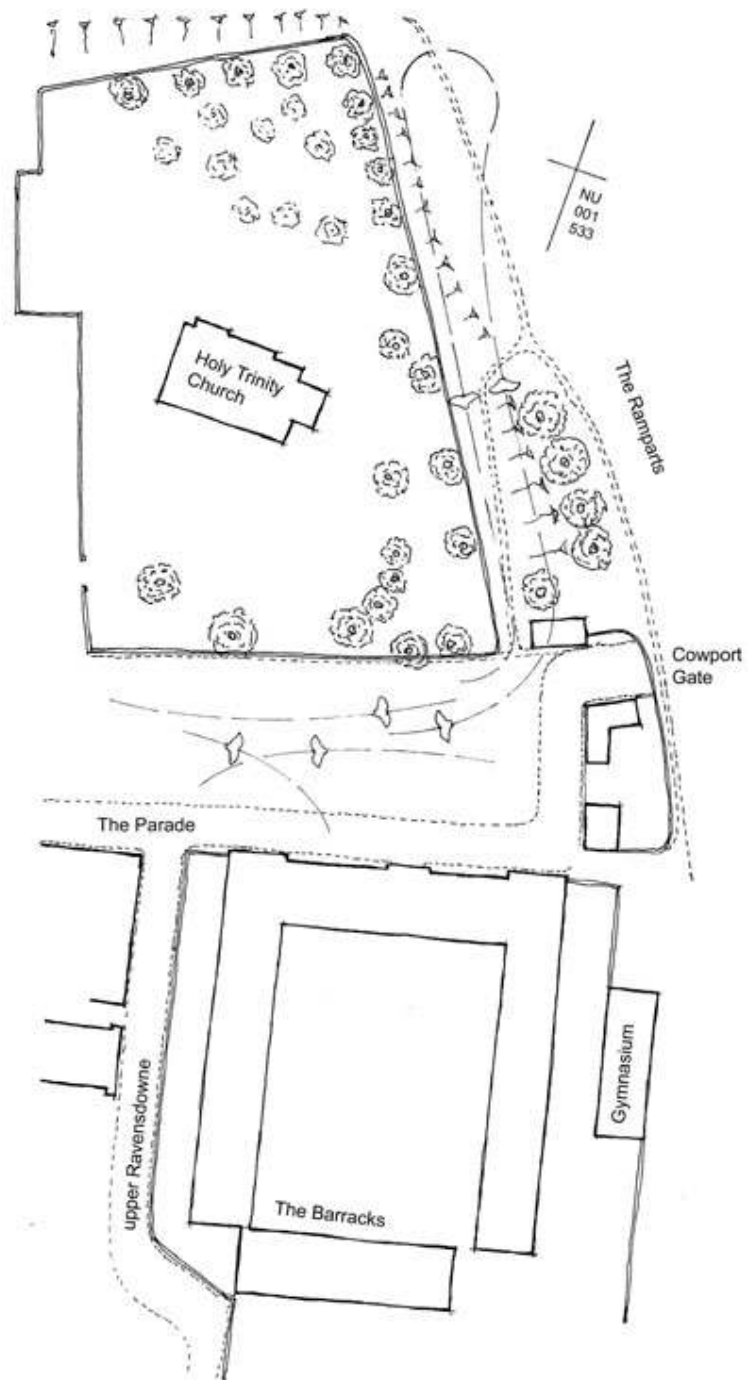
Sketch Map No. 03a



Sketch Map No. 03b



Sketch Map No.03c



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Sketch Map No. 04

ANALYSIS

The Avenue / Governor's Garden: The visual, and sound, recording of the bats afforded a clear link in the flight patterns between the two areas, particularly where a dense shrubby area in the Governor's Garden adjoined the boundary wall. The reasonable conclusion was drawn that the concentration of shrubs provided an important feeding area for the bats with, to a lesser extent, the line of medium and large deciduous trees on the Ramparts, where it bounds The Avenue, and the adjacent part of the Governor's Garden.

The concentration of bats within this area, and the lack of any records, apart from two isolated batcalls, of flight beyond its confines, strongly suggested the existence of a bat roost within the grounds of the Governor's Garden - none having been identified in The Avenue, despite careful scrutiny. This conclusion is reinforced by the anecdotal evidence received of bats seeming to enter and leave the roof of a dwellinghouse with entry from within the Governor's Garden.

The Ramparts from Bay Terrace to Brass Bastion: The sightings and sound recordings of bats around this section of the Ramparts showed no apparent connection with those recorded in The Avenue / Governor's Garden area. With the considerable bat activity encountered in the section adjacent to Holy Trinity cemetery grounds, and on the Parade opposite the Barracks main entrance, it would appear that a second bat colony exists, with a roost yet to be discovered.

The two large uncultivated gardens and a former tennis court, adjacent to the Ramparts, and extending in a south-easterly direction from the Barracks workshops, gave evidence of use as bat feeding areas, particularly in the vicinity of groups of mature deciduous trees. The ditch (or sunken way) forming part of the Ramparts appeared to be a favoured feeding area, when cool westerly breezes blow.

Summerhill Terrace / Parkland Site: The possibility that bats had used one or more trees as summer roosts could not be confirmed, and the evidence from the survey suggested that a roost in a building was then being used.

The principal feeding area was noted as being around mature trees on the boundary between the terrace gardens and the parkland, although other areas nearby, containing mature trees and shrubs, could be equally suitable feeding areas.

FUTURE ACTION

The Avenue / Governor's Garden: The attention of the local planning authority has been drawn to the survey results as it is understood that a planning application, to redevelop the Governor's Garden for private housing, has been submitted to the Berwick-upon-Tweed Borough Council.

Whatever decision is reached, the area should continue to be monitored for the presence of bats, to detect any change in their feeding patterns, to quantify their numbers if access can be obtained to the posited roost site and to continue to build a database of bat populations within the town of Berwick-upon-Tweed.

The Ramparts from Bay Terrace to Brass Bastion: Again, for the purpose of building up a database of bat populations, continued monitoring of this site is required to define more precisely the extent of the bats' feeding area, and to attempt to discover any bat roost.

Circulate a copy of this report to the local planning authority.

Summerhill Terrace / Parkland Site: continue to monitor the site to discover if tree roosts are being used, and attempt to identify the building roost.

APPENDIX

Common Pipistrelle (*Pipistrellus pipistrellus*)

The common pipistrelle, together with its coequal, the 'soprano pipistrelle' (*Pipistrellus pygmaeus*), are the two smallest bats to be found in Britain

The common pipistrelle has a combined head and body length of 35 - 45 mm; a forearm length of 28 - 35 mm; a wingspan of 190 - 250 mm and a weight of 3 - 8 grams. It is usually medium to dark brown in colour, slightly paler underneath, and a single bat can consume up to 3000 insects in a night.

In their life cycle, common pipistrelles mate in autumn and females establish maternity roosts in late spring; one young (occasionally twins) is born early June to mid-July, and is weaned at six weeks.

Colonies can range from 25 to the lower 100s, generally, although exceptionally roosts of 1000 plus are known. Maternity roosts are occupied between May and September, and most favoured sites are in buildings, frequently less than 30 years old. Hibernation sites are rarely found, most winter records being of isolated individuals, or small groups, in crevices in buildings and trees.

The common pipistrelles' food consists of midges, caddisflies, mosquitoes, mayflies, lacewings and small moths, and these are taken over water, marshes, in open woodland, woodland edge, farmland, along hedgerows, suburban gardens and urban spaces.

As with all British bat species, the common pipistrelle uses echolocation to detect its prey, emitting sounds that are normally inaudible to humans: the calls range from 40 - 60 kHz, and can be detected using bat detectors. (Roberts and Hutson, 2003).

REFERENCES

Briggs, B. and King, D., 1998. *The Bat Detective, a Field Guide for Bat Detection*. Batbox Ltd.

Richardson, P., 1985. *Bats*. Whittet Books.

Roberts, G. M. and Hutson, A. M., 2003. *Pipistrelle*. British Bats, 6. Bat Conservation Trust.

Walsh, A. and Catto, C., 2004. Survey and monitoring in Mitchell-Jones, A. J. and McLeish, A. P., 2004. *Bat Workers' Manual, 3rd edition*. Joint Nature Conservation Committee.