

NATIONAL SMALL MAMMAL MONITORING SCHEME

AUTUMN 2009 SURVEYS



Wood Mouse by John Rae

by
Berwick Wildlife Group

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Tetrad NU04J

Field Vole transect 1 – 14th November 2009

Bait-tube transect 1 – 9th – 14th November 2009

Low Density Live Trapping transect – 9th – 11th November 2009

Tetrad NT95W

Field Vole transect 1 – 12th November 2009

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Acknowledgements

This work grew out of a conversation between John Rae of Berwick Wildlife Group and Veronica Carnell of the Northumbria Mammal Group, during which it transpired that the Mammal Society were undertaking a national small mammal monitoring scheme.

John contacted Simon Poulton of the Mammal Society and obtained details of the scheme. Berwick Wildlife Group decided it wanted to take part in the survey and an intensive programme of surveys was undertaken in two tetrads between the 9th and 18th November.

The following members of the Group took part in the fieldwork:
Fiona Aungier, Stephen Block, Molly Hardie, John Inglis, Jenny Prince, Sally & John Rae and Enid Turnbull.

Credit should go to all who took part in this intensive period of surveying with at least one activity being undertaken almost every day.

Finally we would like to thank the following people for readily giving permission for the surveys to go ahead –

- Mr and Mrs MacPherson of Castle Hills Farm, for the survey in Tommy the Millers Field.
- Mr Andrew Ayre, for the survey on Mill Farm.
- Northumberland County Council for the survey in the Plantation.
- Mr John Whiteford, Borewell Farm, the manager of the land for Greenwich Hospitals, for the surveys on Cocklawburn Dunes.

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Aims of the Surveys

“Within the UK there has been an urgent need to establish a multi-species monitoring programme that can provide long-term data on small mammal population trends to inform sustainable land management and conservation decisions” *National Small Mammal Monitoring Scheme Volunteer Handbook - Mammal Society*. The Mammal Society’s National Small Mammal Monitoring Scheme has been developed to collect this data.

Due to the very limited information known about small mammals in north Northumberland, the Mammal Society were very keen for the Berwick Wildlife Group to take part in their scheme.

15 tetrads (2km x 2km) were randomly generated by the Mammal society. Two tetrads were chosen by BWG to survey. Both tetrads are well known to us as BWG have undertaken both small mammal and butterfly transect surveys on them. Also the tetrads have very different habitats, with NU04J, Cocklawburn Dunes being mainly dune grassland with some marshy areas, spoil material and scrubby wild rose, whilst NT95W includes TtMF, a varied habitat of dry, semi-improved grass and scrub land with wet flushes on a steep south-facing slope, as well as deciduous woodland at the Plantation and “wildlife friendly” farmland at Mill Farm.

The aim of the surveys is to build up a picture of changes over time, without introducing variations due to different sites and to pass this information on to the Mammal Society

The same tetrads/sites/transects are to be monitored for years to come.



An embarrassed bank vole.

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Summary of surveys

NU04J		
Bait-tube transect 1	Field Vole Sign transect 1	Low Density Live trapping 1
Faeces recovered from all tubes.	Evidence of field voles all along transect	Bank Vole Wood Mouse

NT95W		
Field Vole Sign transect 1	Low Density Live trapping 1	Low Density Live trapping 2
Evidence of field voles all along transect	Bank Vole Wood Mouse	Bank Vole Wood Mouse



Jenny battling a bait-tube at Cocklawburn



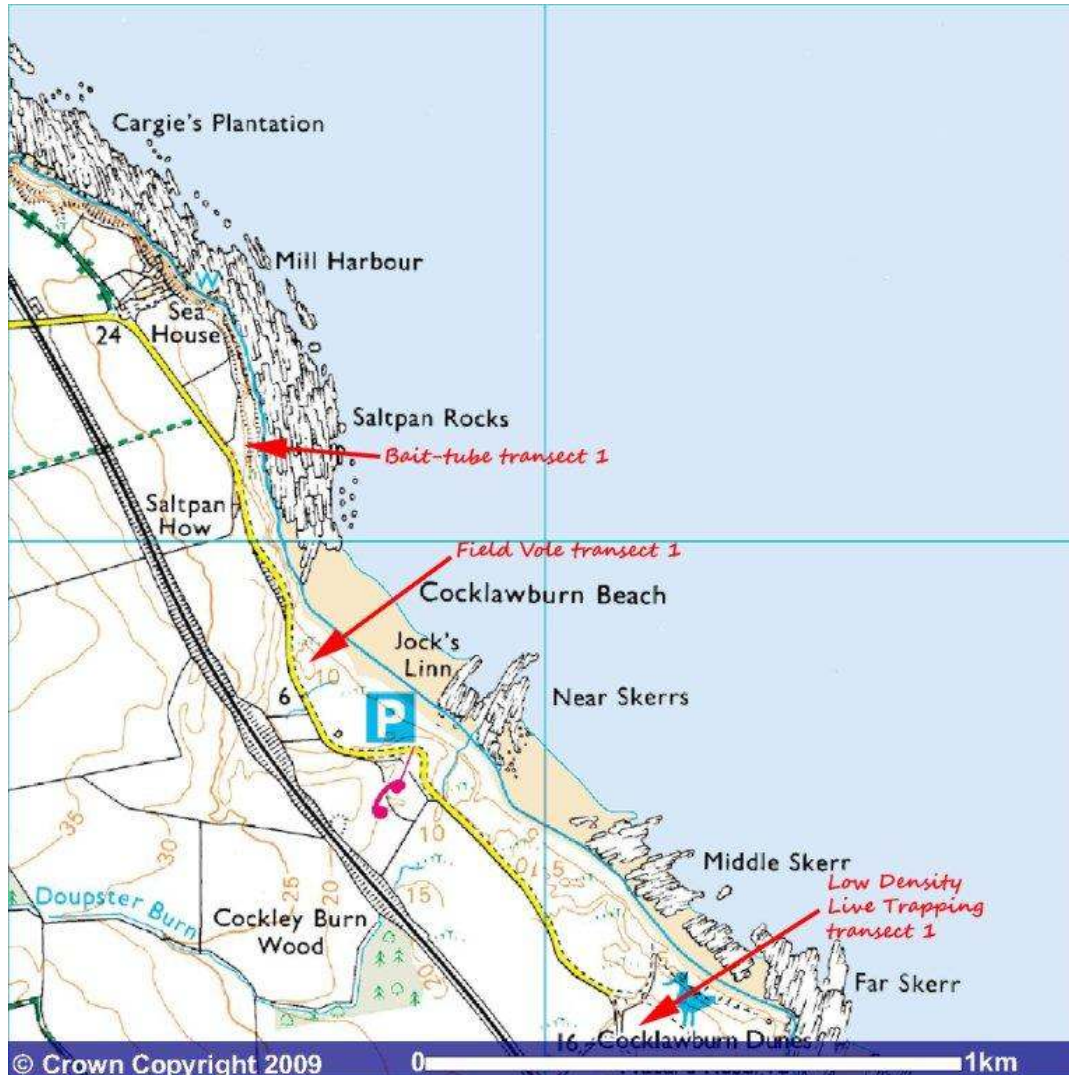
Fiona checking a trap in the Plantation

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Description of Surveyed Sites

Tetrad NU04J - Cocklawburn Dunes

This tetrad covering Cocklawburn Dunes is situated on the coast 5km south of the river Tweed at approx. NU 040 490.



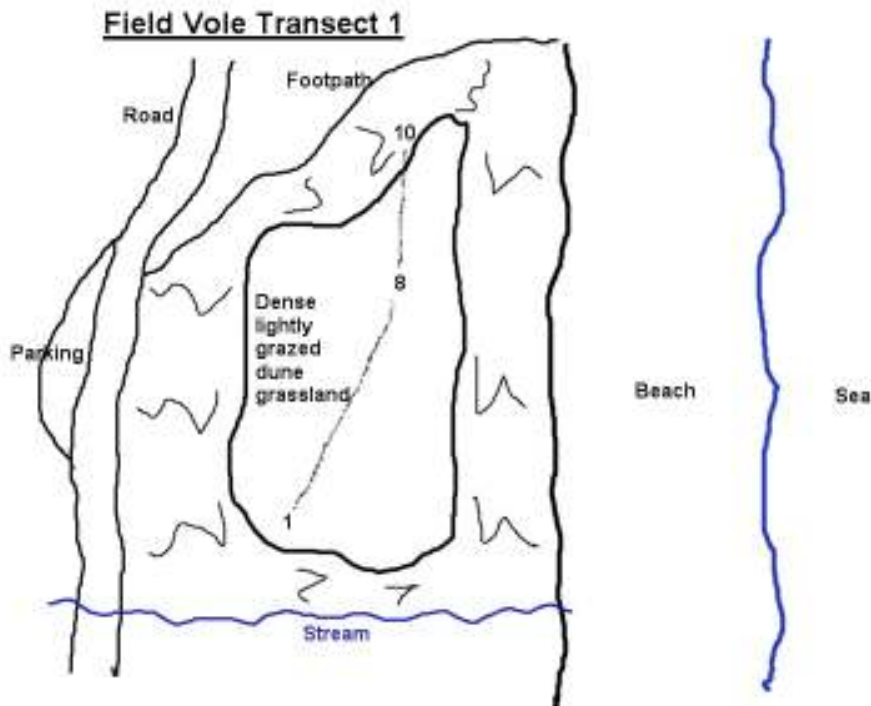
Location map of the survey area.

Although at first glance the area is normal dune grassland (newest grassland near the sea) and rough pasture, the site includes lime kiln spoil heaps, an old brick pit, clay areas, tracks, etc. as well as a natural dune. It is part of the Lindisfarne Site of Special Scientific Interest which covers the dune and intertidal areas north to Cheswick Black Rocks and is contiguous with the Lindisfarne National Nature Reserve.

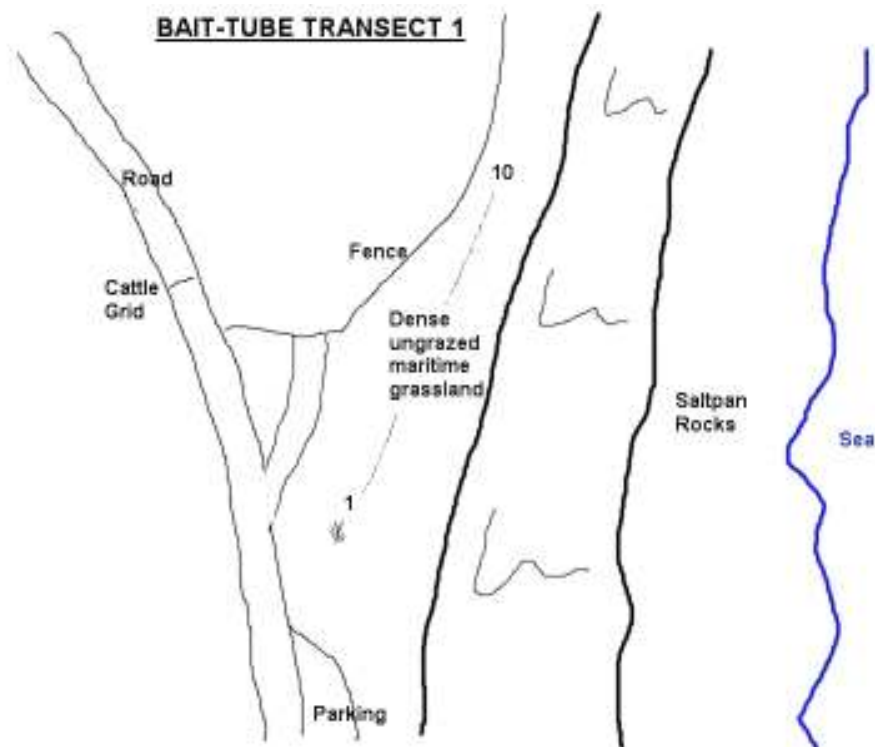
The area is the subject of an Environmental Stewardship Agreement, including light grazing by Aberdeen Angus cattle, the effects of which are being monitored by Natural England and Berwick Wildlife Group.

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The **Field Vole transect 1** survey was undertaken in an area of slack dune grassland lying between the road, a small stream and Cocklawburn Beach.

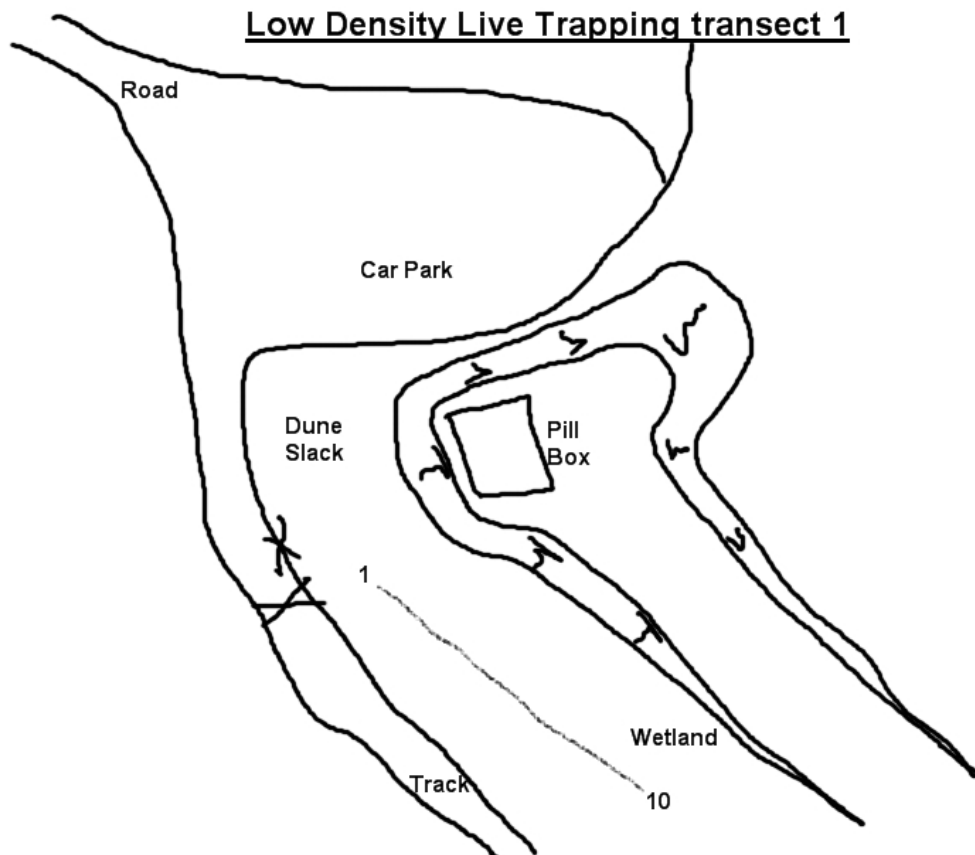


The **Bait-tube transect 1** survey was in an area of dense ungrazed maritime grassland lying between the road and stock field, and the top of the cliff dropping down to Saltpan rocks and the sea.



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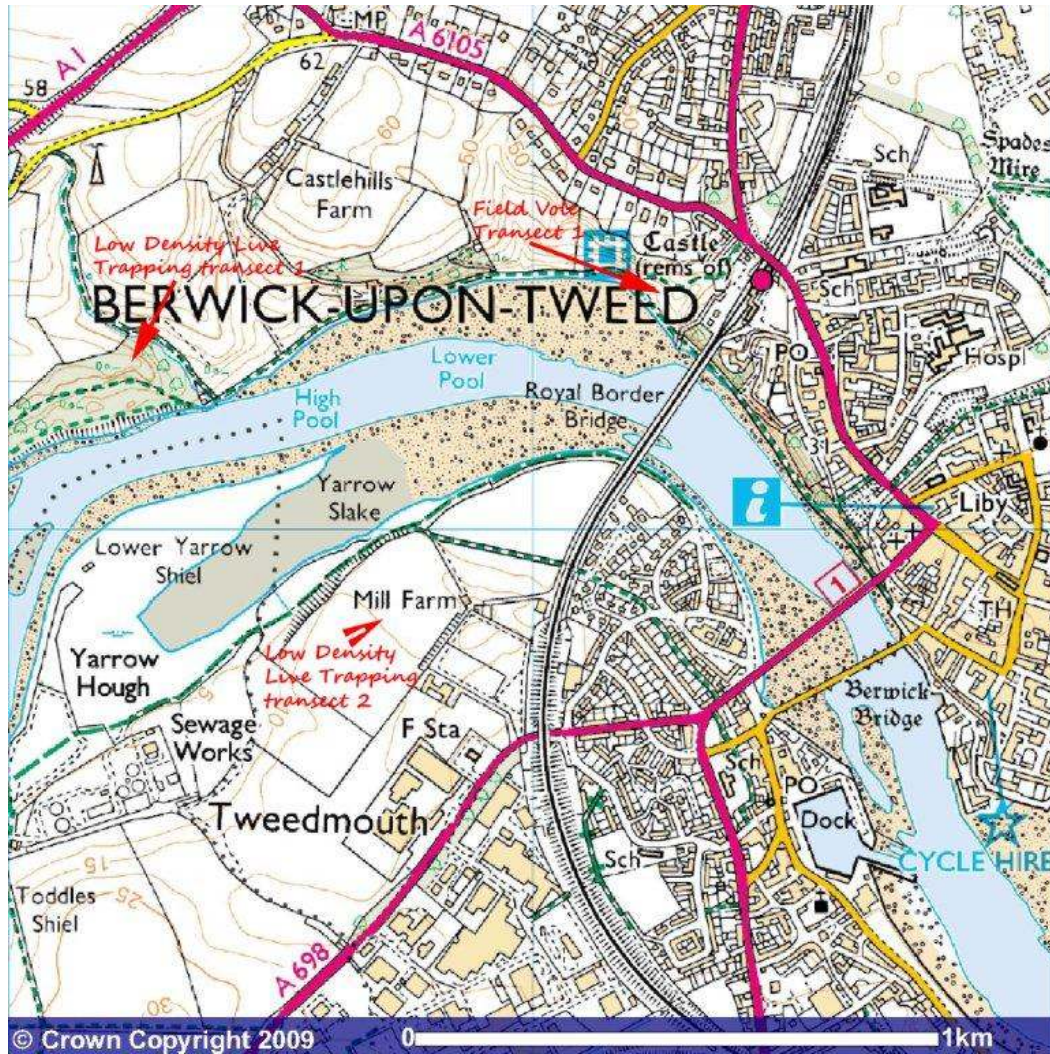
The **Low Density Live Trapping transect 1** survey followed parallel to the base of the slope on the southwest side of an artificial incline built in the early part of the 19th C to enable tipping of lime into railway wagons, and in World War II was used for a raised bunker and gun emplacement.



The habitat of Low Density Live Trapping transect 1 is mature dune grassland and rough pasture, marsh and limestone spoil with some shrubby wild rose. Very variable substrate and hence varied flora.

Tetrad NT95W – Outskirts of Berwick-upon-Tweed

This tetrad lies just south of Berwick-upon-Tweed and covers either side of the River Tweed. Outside of the urban area the habitat is varied with the river environment, grazed and ungrazed grassland, two areas of mixed woodland, and large areas planted with a conservation mix.



Location map of the survey area.

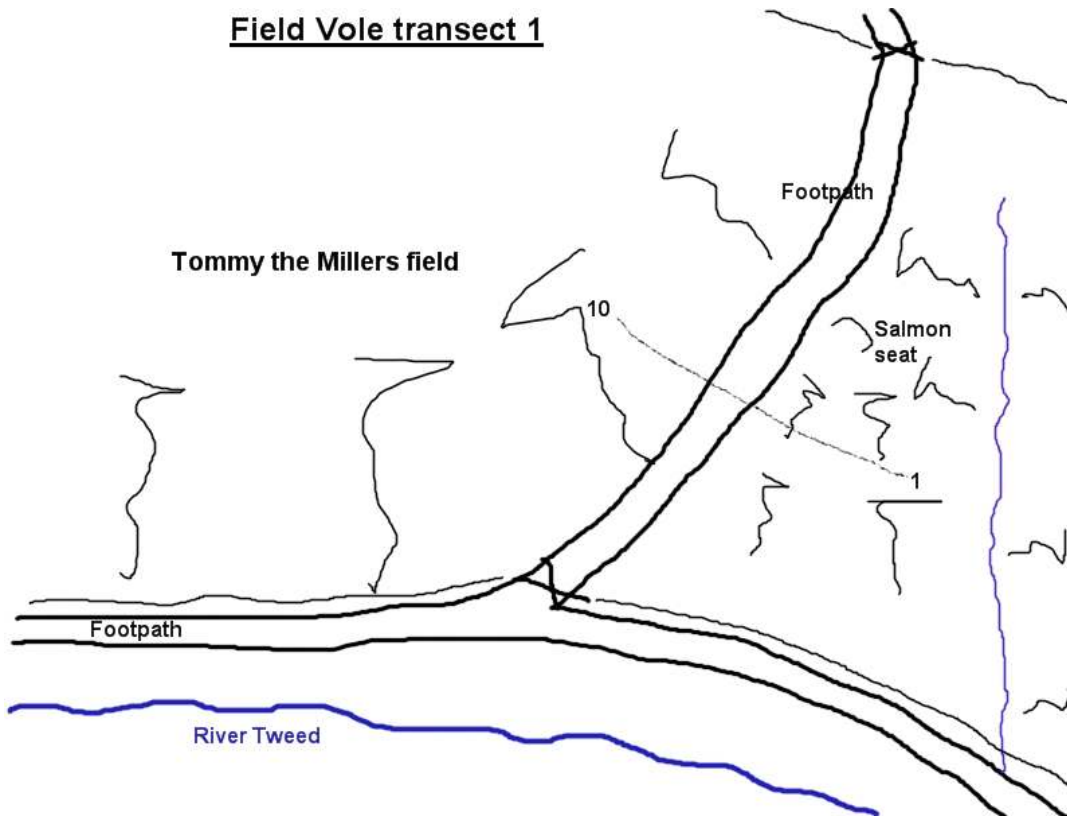
Details of the three transects surveyed:

The Field Vole transect 1 survey was undertaken in Tommy the Millers field, an area that Berwick Wildlife Group have surveyed for small mammals previously.

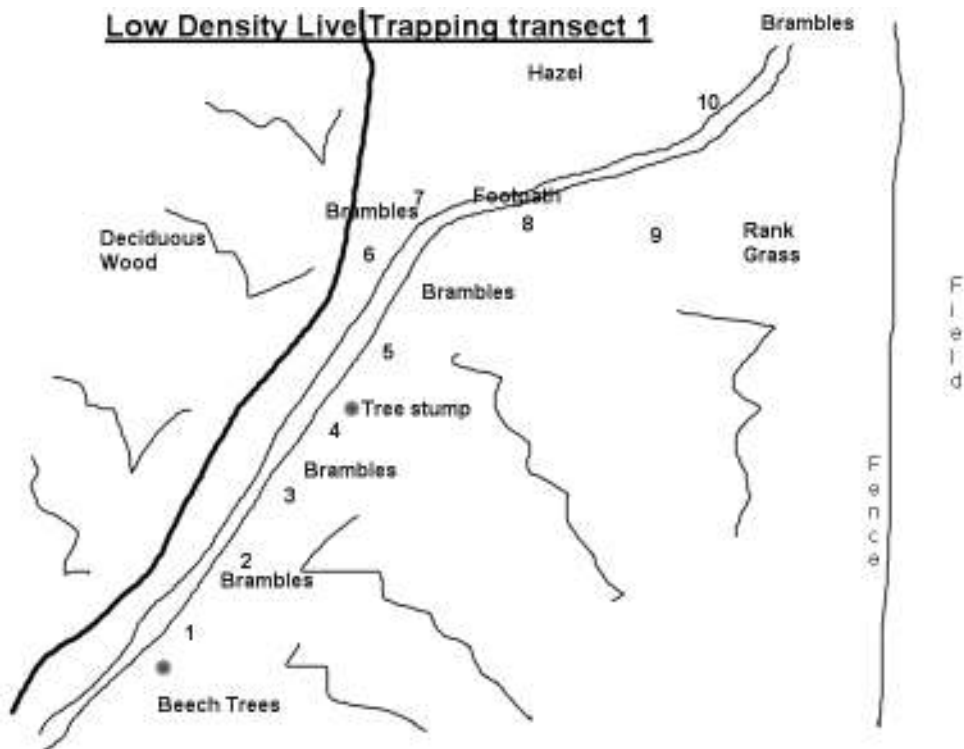
The field is situated on the north shore of the River Tweed, just upstream of the Royal Border Railway Bridge, and below Castle Terrace. It is south facing and is sheltered from north winds and is exposed to the sun throughout the day. Much of the ground underfoot has been pitted by the hooves of grazing cattle, although the grazing is light and the grassland is still tussocky. The habitat consists of dry, semi-improved grass and scrubland with wet flushes on a steep south-facing slope.

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Field Vole transect 1

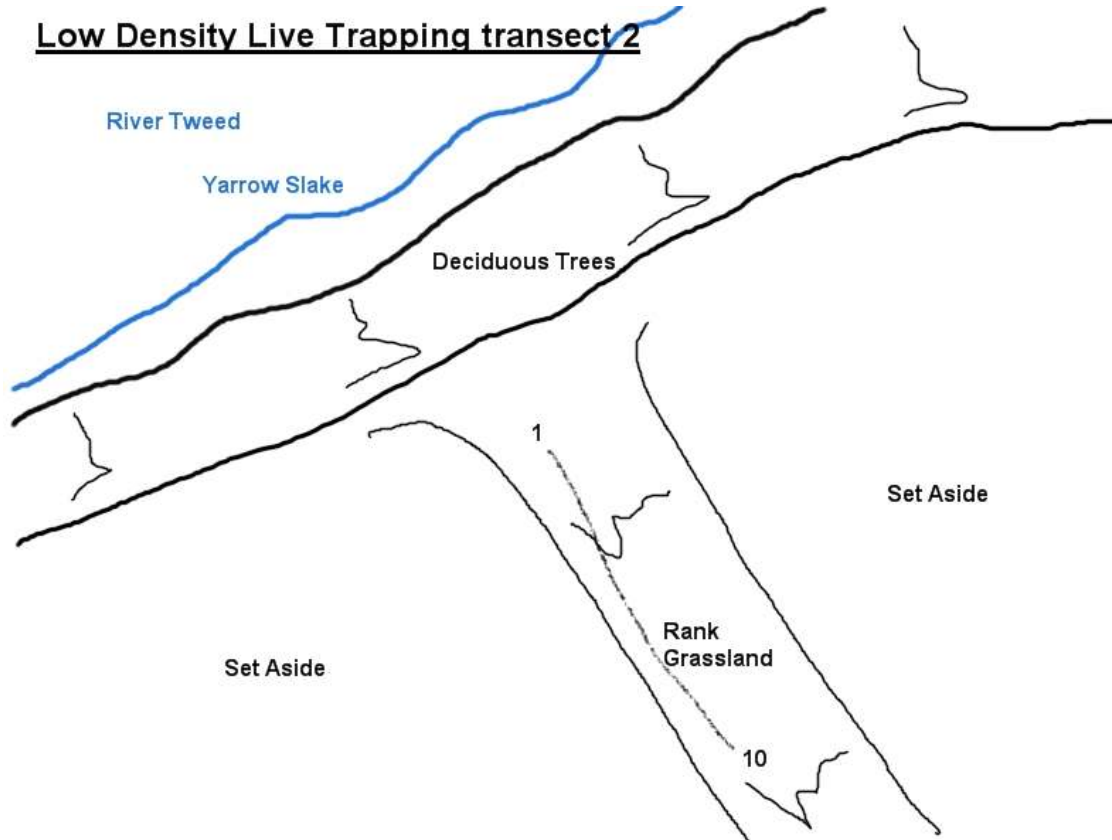


The Low Density Live Trapping transect 1 was undertaken in the Plantation, an un-managed deciduous wood situated to the west and 2.5 km upstream of the Royal Border Bridge. Steep banks covered in brambles and deciduous trees bound the survey area. At the north end of the transect was an area of hazel.



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The **Low Density Live Trapping transect 2** was situated south of the River Tweed on farmland located on a bench raised above the river and just to the west of the Royal border Bridge. The transect was undertaken on an east facing bank covered in rank grassland and surrounded by fields planted with conservation mix.



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Methods

Preparation for Fieldwork

Sites

- The sites are permanent, to be monitored for years to come.
- Volunteers should monitor the same sites in each season.
- The aim is to build up a picture of changes over time, without introducing variations due to different sites.

Site Selection

- 15 Tetrads have been generated randomly by the Mammal society in our area.
- Cocklawburn Dunes and Tommy the Millers Field are within two of these random tetrads.

Transects

- Transects are 100 m long and employ a single field survey method such as bait-tubes or Longworth trapping. (See below)
- Each transect is a permanent unit revisited each subsequent season using the same survey method.

Numbers of Transects per Site

- A maximum of two transects of each field survey method per site is permitted. i.e. up to ten transects for each site.

Location and Placement of Transects

- Each transect is set up in a single habitat type.
- Transects must be kept at least 250 m apart.
- Transects must be numbered sequentially, 1,2,3 etc, within each site. The transect number remains the same from season to season.
- Record an accurate grid reference for the start and finish of each transect.

Habitats

- Each transect must be set up entirely within a single specific habitat.
- The Mammal society is interested in all types of habitat.
- Classify each transect into one of the 23 specific habitats defined in table 2, page 5 of the Volunteer Handbook.

Timeframe

- Two survey periods per year.
- Spring – 1st April to 31st May
- Autumn – 1st October to 31st November
- Visit each transect as near as possible to the date of the visit in the previous year.

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Field Survey Methods

- 1. Harvest Mouse Nest Transects (HM)**
- 2. Field Vole Sign Transects (FV)**
- 3. Bait-tube Transects (BT)**
- 4. Low Density Live Trapping (LDT)**
- 5. Intensive Live Trapping (IT)**
- 6. Barn Owl Pellet Searches (BO)**

1. Harvest Mouse Nest Transects (HM)

- This consists of a single survey visit.
- It consists of a transect 100 m long by 2 m wide, subdivided into 10 sections.
- Each section is searched for 5 to 10 minutes or until 1 nest is found.
- The transects are only placed in suitable habitat.
- These are -
 - Field margins with rank grasses, docks and other semi-woody vegetation.
 - Set aside or fallow fields with rank vegetation.
 - Hedgerows with tall, rank grass and bramble/bracken giving it structure in the base.
 - Dry ditches with tall grass and bramble.
 - Wet ditches or streambanks with common reed, reed canary grass or bull-rush.

Nests tend to be located 300 mm or more above ground and are tennis ball sized, made from the leaves of coarse grasses such as cock's-foot.

2. Field Vole Sign Transects (FV)

- This consists of a single survey visit.
- It consists of a transect 100 m long, subdivided into 10 sections, numbered 1 to 10.
- A 1 m by 1 m quadrat is placed in the middle of each section.
- Each quadrat is searched for field vole runs, latrines and feeding signs.
- Each quadrat is searched for 10 minutes or until all 3 signs are recorded.
- Transects are only placed in suitable habitat such as most rough, rank, uncut grassland or dwarf scrub. See page 10 in Volunteer Handbook.

3. Bait-tube Transects (BT)

- This consists of two survey visits, placement followed by revisit after 5 to 7 days to collect tubes and faeces.
- The aim is to collect samples of faeces deposited by the animals in the tubes.
- The survey consists of a transect 100 m long, subdivided into 10 sections.
- A single bait-tube is placed in the middle of each section. Bait-tubes are numbered sequentially 1 to 10.
- The bait-tubes are placed on the ground, tightly wedged under covering vegetation.
- Bait the tubes with mealworms plus 10 mm cubed piece of vegetable or fruit.
- Revisit the transect after 5 to 7 days to collect the tubes and to check for faeces.

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- Place the faeces into a plastic bag together with details of the transect and tube number and send to the Mammal Society for identification.
- Transects should be placed in any habitat suitable for small mammals. See table 2 page 5

4. Low Density Live Trapping (LDT)

- This consists of three survey visits.
- The survey consists of a transect 100 m long, subdivided into 10 sections.
- A single Longworth trap is placed in the middle of each section, with the traps numbered sequentially 1 to 10.
- Use hay for bedding and bait with 2 tablespoons of mealworms, 1 tablespoon of rolled oats or wheat and 3-4 pieces of fruit or vegetable.
- If it is cold wrap the traps in bubble wrap or re-schedule trapping.
- Place and pre-bait the traps on the evening of day 1.
- Visit to set and re-bait the traps on the evening of day 2.
- Soon after dawn on day 3 visit to check the traps, identify any catches and lift the traps.
- Release all catches at the point of capture.
- Low density live trapping can be carried out in any habitat. See table 2 page 5

5. Intensive Live Trapping (IT)

- This method provides the greatest amount of information, but requires 40 Longworth traps per transect so at this time is not practical for the Berwick Wildlife Group. If we can obtain enough traps for the next survey period we would like to use this method.

6. Barn Owl Pellet Searches (BO)

- A search is carried out through the whole site in order to locate barn owl roosts within the site.
- Visit these roosts in the first month and collect all pellets and fragment of pellets.
- One month later re-visit the roosts and collect all pellets and fragment of pellets.
- Place all the pellets from a single roost into a plastic bag together with the roost details and send to Mammal Society for identification.
- Tawny owl pellets can also be collected and sent to the Mammal Society for identification of small mammal remains.

Health and Safety

- Basic hygiene is essential as small mammals can transmit leptospirosis
- Always wear surgical gloves.
- Wash you hands after fieldwork.
- Ensure that your tetanus inoculation is up to date.

The Mammal Society has public liability insurance for all volunteers taking part in one of their surveys or monitoring schemes.

After each survey the observations were given to John, who entered them into a standard Mammal Society form for evaluation.

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Summary of Observations

NU04J - Cocklawburn Dunes

Field Vole transect 1

Site Code – NU04J	14 th November 2009	Search time - 70 mins
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Field Survey Units (1m x 1m Quadrats)

Quadrat	Used	Runs	Latrines	Feeding Signs
1	Yes	1	0	1
2	Yes	1	1	1
3	Yes	1	0	1
4	Yes	1	0	1
5	Yes	1	1	1
6	Yes	1	1	1
7	Yes	1	1	1
8	Yes	1	0	1
9	Yes	1	1	1
10	Yes	1	0	1

Bait-tube transect 1

Site Code – NU04J	9 th - 14 th November 2009	Search time – 5 days
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Field Survey Units (200mm x 40mm tubes)

Bait-tube	Used	Faeces Collected
1	Yes	Yes
2	Yes	Yes
3	Yes	Yes
4	Yes	Yes
5	Yes	Yes
6	Yes	Yes
7	Yes	Yes
8	Yes	Yes
9	Yes	Yes
10	Yes	Yes

Low Density Live Trapping transect 1

Site Code – NU04J	9 th - 11 th November 2009	
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Field Survey Units (Longworth traps)

Trap	Used	Species	Dead
1	Yes	2No Wood Mice	No
2	Yes	None	No
3	Yes	Bank Vole	No
4	Yes	Bank Vole	No
5	Yes	Bank Vole	No
6	Yes	None	No
7	Yes	Bank Vole	No
8	Yes	Bank Vole	No
9	Yes	Bank Vole	No
10	Yes	Bank Vole	No

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NT95W

Field Vole transect 1 – Tommy the Millers field

Site Code – NT95W	12 th November 2009	Search time - 55 mins
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Field Survey Units (1m x 1m Quadrats)

Quadrat	Used	Runs	Latrines	Feeding Signs
1	Yes	1	0	1
2	Yes	1	0	1
3	Yes	1	0	1
4	Yes	1	1	1
5	Yes	1	0	1
6	Yes	1	1	1
7	Yes	1	1	1
8	Yes	1	1	1
9	Yes	1	1	1
10	Yes	1	1	1

Low Density Live Trapping transect 1 – The Plantation

Site Code – NT95W	11 th - 13 th November 2009	
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Field Survey Units (Longworth traps)

Trap	Used	Species	Dead
1	Yes	Bank Vole	No
2	Yes	Wood Mouse	No
3	Yes	Bank Vole	No
4	Yes	Wood Mouse	No
5	Yes	Bank Vole	No
6	Yes	Bank Vole	No
7	Yes	Bank Vole	No
8	Yes	Bank Vole	No
9	Yes	Wood Mouse	No
10	Yes	Wood Mouse	No

Low Density Live Trapping transect 2 – Mill Farm

Site Code – NT95W	16 th - 18 th November 2009	
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Field Survey Units (Longworth traps)

Trap	Used	Species	Dead
1	Yes	Bank Vole	No
2	Yes	Bank Vole	No
3	Yes	Bank Vole	No
4	Yes	None	No
5	Yes	Bank Vole	No
6	Yes	Bank Vole	No
7	Yes	Bank Vole	No
8	Yes	Bank Vole	No
9	Yes	Wood Mouse	No
10	Yes	Bank Vole	No

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Evaluation

The data from these surveys have been sent to Mammal Society. Very few surveys on small mammals have been undertaken in north Northumberland so there is a shortage of records. Berwick Wildlife Group hope to help remedy this lack of knowledge by undertaking surveys as part of the Mammal Society scheme throughout the area around Berwick-upon-Tweed.

This is our first year so we concentrated on two tetrads that we know well from the Group's previous small mammal surveys and butterfly surveys.

A summary of the species found is below.

Summary of surveys

Summary of surveys		
NU04J		
Bait-tube transect 1	Field Vole Sign transect 1	Low Density Live trapping 1
Faeces recovered from all tubes. (Awaiting the results of DNA testing)	Evidence of field voles all along transect	Bank Vole Wood Mouse
NT95W		
Field Vole Sign transect 1	Low Density Live trapping 1	Low Density Live trapping 2
Evidence of field voles all along transect	Bank Vole Wood Mouse	Bank Vole Wood Mouse

Some initial thoughts;

The number of mammals trapped surprised the survey group, as did the signs found in the field vole and the bait-tube transects.

This could be in part that the surveys have been undertaken in the autumn at the end of the breeding season of all these mammals and when greatest numbers are to be expected. Also all these small mammals have cycles when the populations grow to large numbers before crashing in subsequent years. As this is the first year this survey has been undertaken, only surveys in subsequent years will show the detail of this cycle.

In the Low Density Live Trapping the group had between 80% and 100% success in animals caught in the trap transect but these consisted of only two species, Bank Vole and Wood Mouse. In previous trapping surveys in these areas, especially in Tommy the Millers field, 6 species have been recorded. These are Wood Mouse, Bank Vole, Field Vole, Common Shrew, Pygmy Shrew and Water Shrew. See *Small Mammal Surveys of Cocklawburn Dunes and Tommy the Millers field, Berwick-upon-Tweed - July to September 2009* by Berwick Wildlife Group.

It is possible that the time of day the traps were set has affected the results.

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References

Gurnell & Flowerdew. *Live Trapping Small Mammals – A Practical Guide* by (Mammal Society)

Corbet & Harris. *Handbook of British Mammals*.

Kevin O'Hara for the Northumbria Mammal Group. *Water shrew survey booklet*

Northumbria Mammal Group
Website – <http://www.nwt.org.uk>

The Mammal Society
website - <http://www.mammal.org.uk>

Mammals Trust UK
website - http://www.mtuk.org/index.php?page=mammal_facts

Wikipedia – mammals
website - http://en.wikipedia.org/wiki/List_of_British_mammals

Identify British Rodent Skulls
website - <http://www.skullsite.co.uk/Skullkeys/Rodentkey.htm>

Further information may be obtained from the Mammal Society.

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Appendix 1

Species details and status in the Mammal Society database.

Mammal Society – <http://www.mammal.org.uk>

Common Shrew -

http://88.208.205.92/index.php?option=com_content&view=article&id=214&Itemid=247

Pygmy Shrew -

http://88.208.205.92/index.php?option=com_content&view=article&id=215&Itemid=248

Water Shrew -

http://88.208.205.92/index.php?option=com_content&view=article&id=216&Itemid=249

Wood Mouse –

http://88.208.205.92/index.php?option=com_content&view=article&id=219&Itemid=252

Harvest Mouse –

http://88.208.205.92/index.php?option=com_content&view=article&id=221&Itemid=254

Yellow-necked Mouse -

http://88.208.205.92/index.php?option=com_content&view=article&id=220&Itemid=253

Field Vole –

http://88.208.205.92/index.php?option=com_content&view=article&id=222&Itemid=255

Bank Vole -

http://88.208.205.92/index.php?option=com_content&view=article&id=318&Itemid=353