Baited visual transect survey recording form

Please fill in all sections. Thank you					
Tetrad ID (e.g. NZ06K):		**Surveyor's name:**			
Site name:				**6 fig grid ref (e.g. NZ 054 618)** *(10 fig if using GPS, e.g. NZ 05400 61800) for start of transect:*	
Date first baited:		**Date of 2nd bait:**			
Habitat type (G=Garden B=Broadleaved woodland C=Coniferous M=Mixed):					

FIRST WALK (in Week 2, 7 days or more after first bait)					
Date:		**Start time:**		**Weather** *(score wind 1 – 3 and rain 1 -3 (1 = low, 3 = high))*:	
Squirrels seen	**No. of squirrels seen**	**Comments**			
Red					
Grey					
Unsure					
SECOND WALK (in Week 2, 1 day or more after first walk)					
Date:		**Start time:**		**Weather** *(score wind 1 – 3 and rain 1 -3 (1 = low, 3 = high))*:	
Squirrels seen	**No. of squirrels seen**	**Comments**			
Red					
Grey					
Unsure					
THIRD WALK (in Week 2, 1 day or more after second walk)					
Date:		**Start time:**		**Weather** *(score wind 1 – 3 and rain 1 -3 (1 = low, 3 = high))*:	
Squirrels seen	**No. of squirrels seen**	**Comments**			
Red					
Grey					
Unsure					

HAIR TUBES				
Hair tube ID	**Date first erected & baited**	**6 fig grid ref**	**Hairs present (Y/N)**	**Hair result: Red, Grey, Both, Unsure or None** *(only if trained in hair analysis)*

Submit your results on this form by post (please keep a copy/scan) to the address below, including the hair samples by 30th June. Results may also be submitted online – email records@rsne.org.uk to request a user name.

RSNE, c/o Cumbria Wildlife Trust, Gosling Sike Farm, Houghton Road, Houghton, Carlisle, Cumbria, CA3 0LD

Guidance Notes and Information: Baited Visual Transects

1. Introduction

Red Squirrels Northern England have established a program of standardised red and grey squirrel monitoring at selected sites across Northern England, which started in 2012. Each monitoring point is located within a defined tetrad (a 2 x 2km square). The network of tetrads (approx. 300 sites) are surveyed each year using either baited visual transects, baited trail cameras or observed feeding stations. The collection of data using these methods contributes towards a detailed understanding of red and grey distribution over time across the project area, helping us to gauge the success of red squirrel conservation activity.

2. Survey Rationale

Each method involves repeated visits over a short period of time. Designing the monitoring programme in this way enables the calculation of detection probabilities associated with each method and habitat type. For example, if you saw a red squirrel on one out of three visits, you know that you missed red squirrels that *were actually there* on two out of three visits. This piece of information improves the robustness of our statistical analysis. The implicit assumption is that no squirrels have entered or left the tetrad (either by immigration/emigration or birth/death) during the two weeks of the survey period. For this reason, monitoring should only be undertaken at a site when no control activities are underway there, if at all possible.

3. Methodology for baited visual transects

Surveyors will need the following equipment:

- A detailed map of the woodland
- 3 x hair tubes (300m length, 65mm square ended or round diameter) per transect
- Sticky pads (at least 20mm x 20mm), e.g. “hook & loop” with sticky back
- Wire or straps to secure tube to branch
- Bait (squirrel mix containing approximately 45% sunflower, 45% maize and 10% peanuts)
- Self-seal bags for collecting sticky pads/hair samples & waxed paper to protect the hairs for storage
- Survey sheets
- Binoculars
- A method to measure out a 1km transect route and mark points along it, either:
    - a tape measure or measuring wheel and markers to tie to trees or wooden ground pegs (make sure they are visible! E.g. spray-paint the pegs) or
    - a GPS

Establishing the transect:

- **The two week survey is to be conducted at any time between March and May, so long as it begins on or after 1st March and is complete by 31st May.**
- Once a location has been identified, ensure access permission has been granted.
- Carry out “ground truthing” exercise to establish whether the woodland is suitable. For example ensure that the route is fairly easily accessible for surveyors.
- **Ensure that the potential transect route falls entirely within the tetrad allocated to you**. Establish a 1km route through suitable habitat for seeing squirrels, in particular open woodlands containing Scots pine, larch or broadleaved species.

- Mark out the transect using a measuring device, marking each 50m with a marker/ground peg or record waypoints with your GPS. A 50m tape can be used to establish the transect line, a job best done with two people.

- Transects can follow footpaths, and consequently there may be locations where markers will be removed by third parties. If such a well-defined route is used, the start and finish points should be clearly recorded (e.g. with reference to a distinctive feature). The ease with which a transect line can be completely or partially 'forgotten' should not be underestimated. Making notes is essential particularly with reference to start point, finish point and the location of hair tubes.

- Transects do not necessarily need to follow continuous lines within a woodland. If open ground is present, surveyors can disregard this area, and continue to establish the 1km route in an adjacent block (Fig. 1).

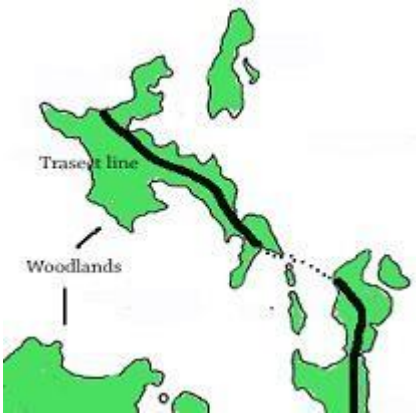

Fig. 1. The 1km transect can be broken into sections in areas of patchy woodland.

- It is not important that transect lines are straight, although you should try to avoid "doubling back" wherever possible, as this in effect reduces the area in which squirrels can be detected due to overlap.

- At three points spaced out along the transect set up a hair tube close to the transect line. Look for signs of squirrels such as dreys or active feeding areas (e.g. stripped cones on tree stumps) and attach a hair tube horizontally nearby on a large tree trunk or a horizontal branch (Fig. 2). A piece of tape tied to a prominent branch on the route, perpendicular to the hair tube, can help you find it later. Record the grid reference of each hair tube.

<u>Pre-bait of the transect (Week 1):</u>

- Once the transect route is marked out, pre-baiting can commence.
- On Day 1, bait the transect route every 50m with a mixture of maize, sunflower seed and peanuts. Scatter three or four handfuls of bait (around a coffee mug full) at each 50m point.

- Also on Day 1, bait the three hair tubes with the same mix. Attach the sticky pads, one at each end of the tube about 3cm in from the end, and attach the reverse sticky pads to these (i.e. hook pad to a loop pad or vice versa). Retain the sticky pad backing paper to re-cover them when collecting the tubes two weeks later. Also add a few hazelnuts to the tube to attract squirrels, and scatter bait around the base of the tree and on top of the tube as well as inside (the yellow maize attracts the attention of the squirrels; Fig. 2).

- Walk and bait the visual transect again on Day 4 or 5 as above. Re-bait the hair tubes if needed.

(a) 

(b) 

Fig. 2. Hair tubes attached to a horizontal branch (a) and the trunk of a large tree (b), baited inside with a mixture of maize, sunflower seeds and peanuts. Some bait is also scattered on the top to attract the attention of squirrels.

Surveys along the transect (Week 2):

- Following the period of pre-bait, the surveys can take place. **Three survey walks should be done on three separate mornings over a period of one week, starting one week after the first pre-bait**.

- Walks should take place in the morning (aim to start around 7 or 8am), when the weather is fine if possible. Avoid surveying on days with heavy rain or strong winds, as detection of squirrels is more difficult, and they may be less active.

- The transect line should be walked slowly, so that it takes around five minutes to walk 100m. It is best to stop frequently, taking time to scan the woodland above and around. Listen carefully for movement in the canopy or calls made by squirrels.

- Record each individual squirrel you see. Try to keep track of movement of squirrels so that you don't double-record. It is inevitable that some sightings will be no more than a fleeting glance of an animal when it may be impossible to say 100% certainty what species it was, in which case record as "unsure" (of the species). Use binoculars to help you identify any squirrels you see.

- Please complete all three survey walks, regardless of results of the first and second walks.

- After completing the final walk, collect the hair tubes, discarding any unused bait. Remove the sticky hair pads (keep the hair pads from each tube separate), cover with the original backing paper (**the waxy, shiny side!**) or loosely with baking parchment. Put the hair pads from each hair tube in a separate sample bag labelled with the grid reference, hair tube ID, date, site name and your name.

- Fill in all details on the RSNE Baited Visual Transect Survey Recording Form.

- **Please post form and all three hair sample bags to RSNE by 30th June.** The form can be submitted to us on our online system but the hair samples will still need to be sent to us. Arrange equipment return as appropriate.

Many thanks for taking part. If you have any questions, please get in touch with Simon O'Hare at records@rsne.org.uk.