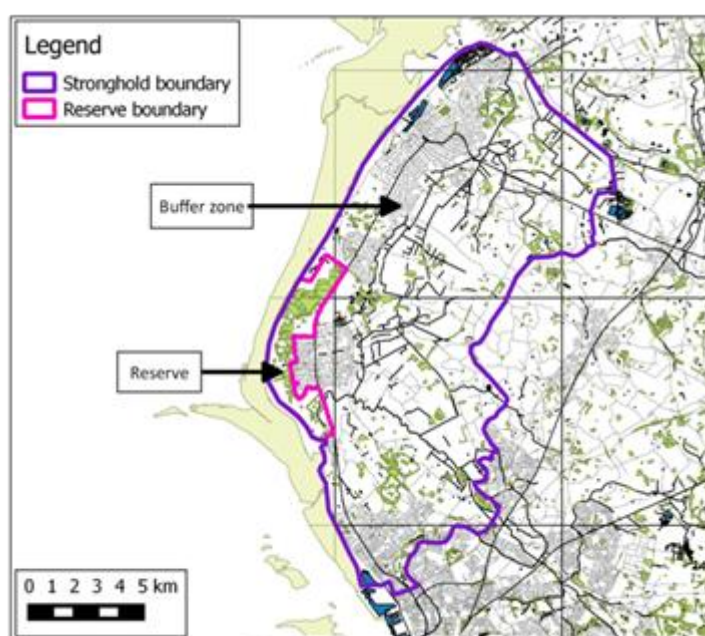


# Red Squirrel Monitoring Report Spring 2018

## Introduction

The spring monitoring of the North Merseyside and West Lancashire Red Squirrel Stronghold was conducted throughout March to May 2018 using three different surveying techniques; visual transects, hair tubes and trail cameras. All visual transects were completed within a 3 week period in March. 15 sites throughout the reserve woodlands of Formby, Ainsdale and Altcar were surveyed. A further 10 woodlands within the buffer zone were surveyed covering Little Crosby, Ince Blundell, Halsall, Southport and Scarisbrick.

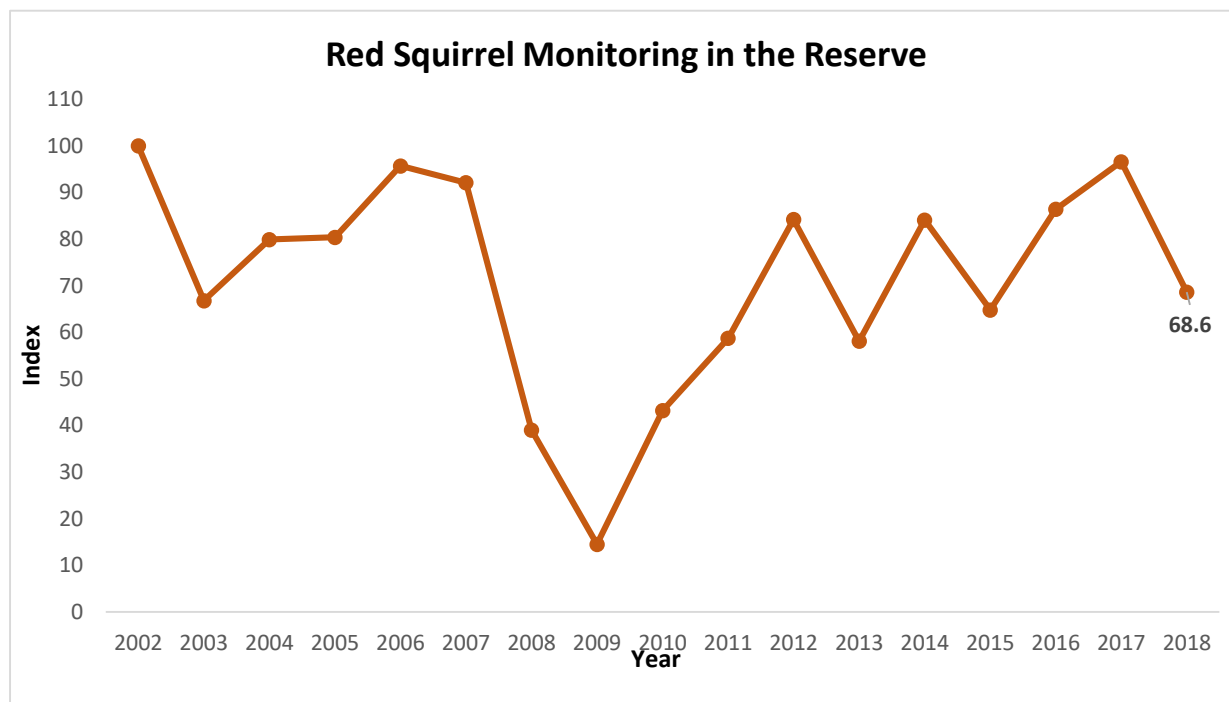


**Figure 1:** Map showing the boundary of the North Merseyside and West Lancashire Red Squirrel Stronghold, including reserve and buffer zone woodlands.

## Reserve Woodlands – Spring Surveys

15 visual transects were carried out throughout the reserve woodlands. No grey squirrels were seen within the reserve woodlands and red squirrels were seen at all sites except 1 within the Ainsdale area. Additionally, 2 of these transects were surveyed using hair tubes (3 hair tubes per transect). There was no squirrel hair found on either of these transects. During the last autumn monitoring (2017) red squirrel hair was found at each of these sites.

## Reserve Woodlands: Spring Population Analysis

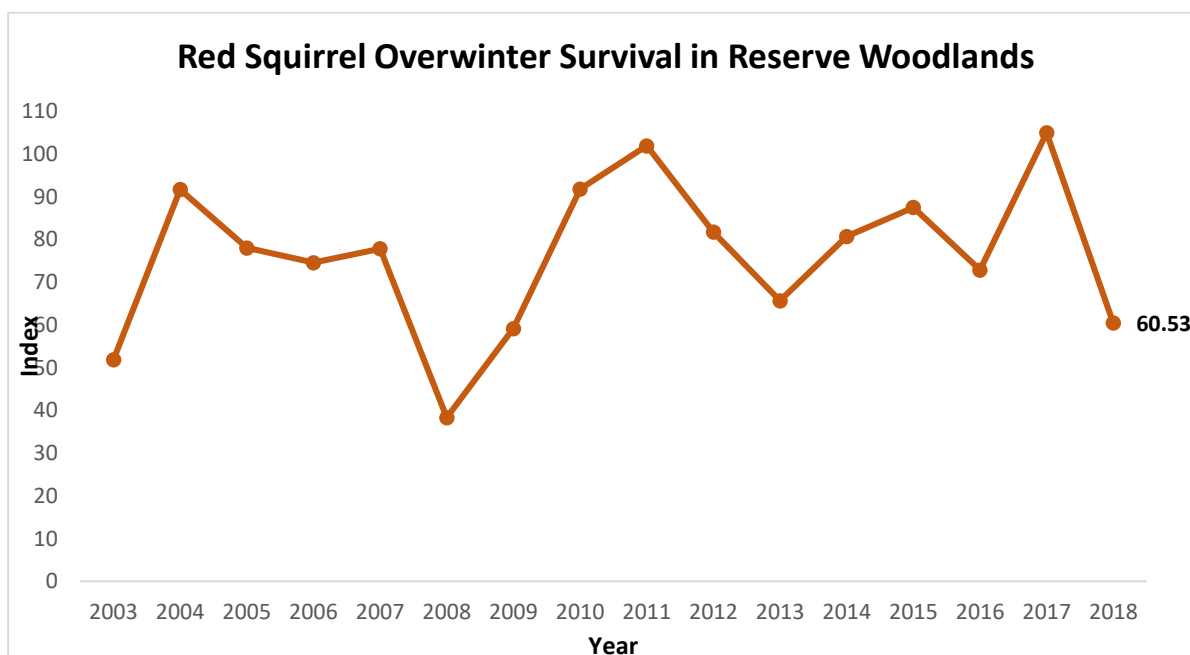


**Figure 2.** Line graph showing the changes in the spring red squirrel reserve population between 2002 and 2018.

Figure 2 shows the red squirrel monitoring results in the reserve woodlands from spring 2002 to spring 2018. The average number of red squirrels seen across reserve transects in 2002 are taken as 100%. The average number of red squirrels seen in subsequent years are compared to this value. You can see from the graph that there is a decrease in the average number of red squirrels seen on the visual transects this year (2018) compared to last year (2017), which experienced an increase from the previous year. This year, the red squirrel population was at under 70% of the baseline figure from 2002, compared to 96.6% in spring 2017 and 86.4% in spring 2016.

This spring saw a decrease in the number of red squirrels seen at 8 of the transects surveyed (located within Ainsdale NNR, Formby, Shorrocks Hill and Raven Meols) compared to spring 2017. Numbers stayed the same at a couple sites within Ainsdale NNR, Formby and Altcar Rifle Range and increased slightly at other sites within Ainsdale NNR and Formby since last year. Asparagus Fields at Formby NT still holds the highest density of red squirrels, with 23 seen on one transect walk, only a slight decrease from 25 seen last spring.

Red squirrel populations do fluctuate naturally over time (with food availability being the biggest driving force) and this should be taken into account when considering the variation in Figure 2. The decrease in red squirrel population density seen this spring is likely due to a cold winter (with the 'beast from the east' hitting the UK during monitoring season), creating unfavourable conditions for red squirrel activity, thus decreasing instances of visual events during transect walks. It is also worth noting a transect located within Formby NT caravan park was not surveyed this spring, which saw a high number (18) of red squirrels last spring. This may have contributed to the decrease in red squirrel numbers this spring.



**Figure 3.** Line graph showing the changes in overwinter survival in the spring red squirrel reserve population between 2003 and 2018.

Figure 3 shows overwinter survival of red squirrels in the reserve area each year between 2003 and 2018. Overwinter survival is calculated by taking the average numbers seen on spring transects as a proportion of those seen in the autumn of the previous year. This year is more on par with previous years, unlike last spring (2017) which was unusually high due to the early start to the breeding season.

### **Buffer Zone: Surveys and Analysis**

**Table 1.** The number of sites within the buffer zone with red squirrel, grey squirrel and both species present.

	<b><u>Red squirrel only</u></b>	<b><u>Grey squirrel only</u></b>	<b><u>Both species</u></b>	<b><u>None</u></b>
<b><u>Number of sites</u></b>	2	7	3	1

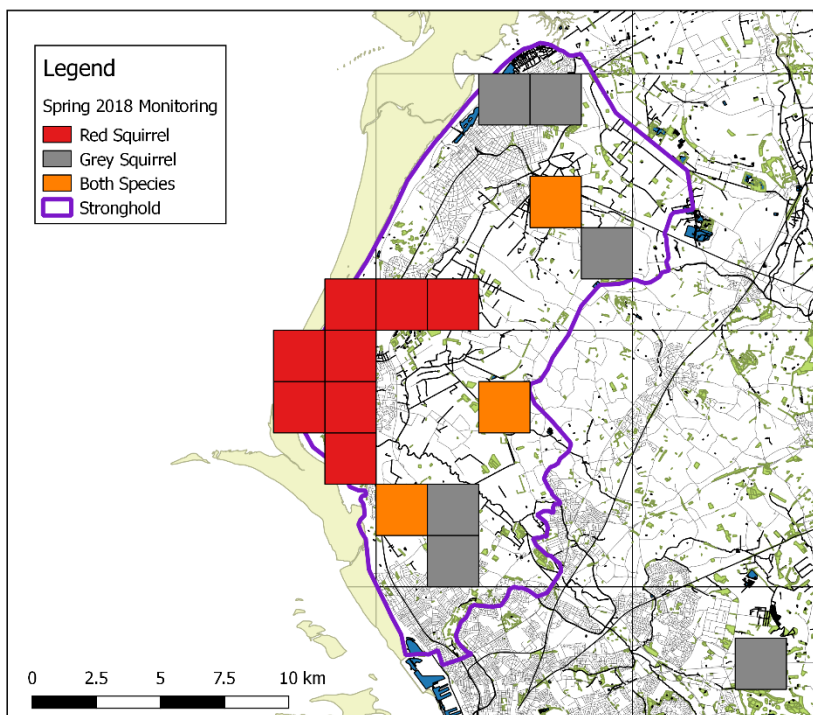
10 visual transects were conducted within the remaining woodlands inside the stronghold area and 1 outside of the stronghold. Table 1 shows a summary of the presence of red and grey squirrels throughout these 11 sites taking into account visual transects and hair tubes (placed along 5 of these transects). 2 trail cameras were used to monitor additional sites within the stronghold at Hill House Wood, Great Altcar and Front Covert, Formby Moss.

Within the stronghold, Orrell Hill Wood and Front Covert were the two sites with red squirrel only presence, detected through visual monitoring at Orrell Hill and a trail camera at Front Covert. The number of Red squirrel only sites has decreased since last spring (2017) when there were 4 sites in

total, which had increased from just 1 the previous year (2016). Both species were detected at 3 of the sites in Flea Moss Wood, Southport Crematorium and Hill House Wood (using trail camera), where grey squirrel management work continues.

The number of grey squirrel only sites has remained the same since last spring, including Hesketh Park, Botanic Gardens in Southport and Scarisbrick. Hesketh Park remains the site with the highest number of grey squirrels sighted. We are currently working towards implementing a more consistent grey squirrel management in this area. The red squirrel population would benefit massively from residents in the surrounding area taking part in the urban trap loan scheme, which is used in the majority of the stronghold and has proved extremely effective in reducing the number of grey squirrels.

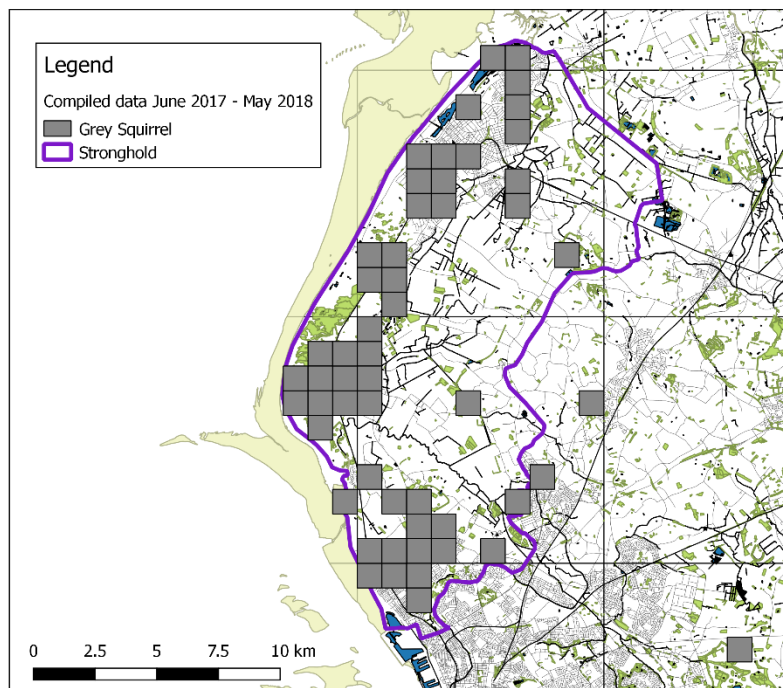
Only grey squirrels were detected within the Knowsley Estate, a site we continue to monitor outside of the stronghold. We are continuing to work with Knowsley to safeguard the remaining red squirrel population which we know is still present there, due to consistent grey control efforts. This highlights the importance of maintaining a continuous conservation effort, particularly at sites where both species are present.



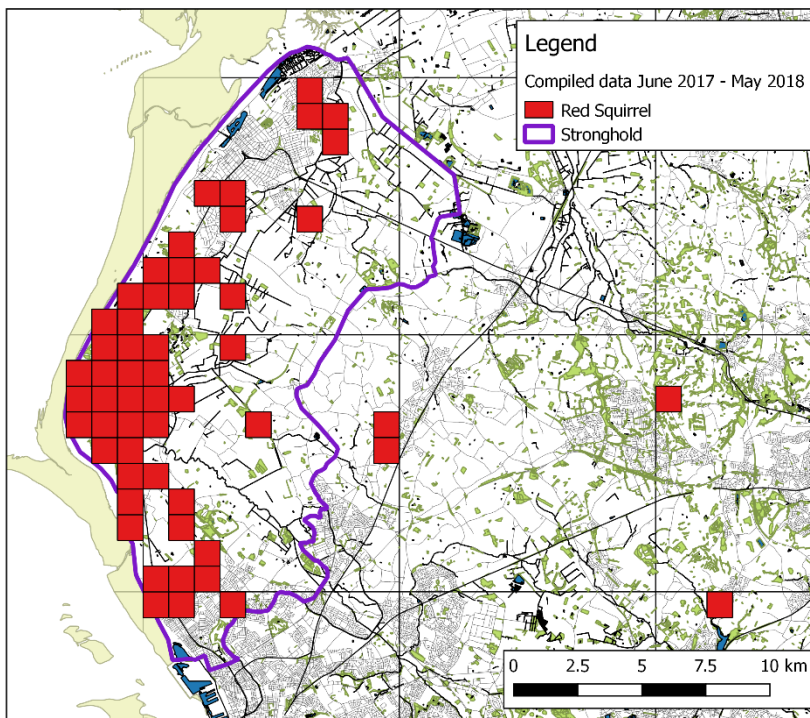
**Figure 4.** Spring 2018 standardised monitoring results in the North Merseyside and West Lancashire red squirrel stronghold. Map shows presence of red squirrels (red), grey squirrels (grey) and both (orange) species in 1km x 1km squares. The Knowsley Estate transect (outside the stronghold boundary) is also shown.

**Public Sightings and grey squirrel control data**

Grey squirrel control is undertaken in the woodlands throughout the stronghold all year round by the Red Squirrel Ranger and volunteers. There is also an urban trap loan scheme to tackle grey squirrels in urban areas. This is co-ordinated by the Red Squirrel Office but run by local volunteers. Records of grey squirrel captures and red and grey squirrel sightings are kept up to date to keep track of their distribution and population within the stronghold. Combining this data with the standardised monitoring results further informs our knowledge of red and grey squirrel distribution. Figures 5 and 6 (below) show the current distribution of red squirrels and grey squirrels respectively in North Merseyside and West Lancashire using the combined data.



**Figure 5.** Grey squirrel distribution in the North Merseyside and West Lancashire area. Map shows presence of grey squirrels in 1km x 1km squares. Results compiled from public sightings, control records and standardised monitoring from May 2017 to June 2018.



**Figure 6.** Red squirrel distribution in the North Merseyside and West Lancashire area. Map shows presence of red squirrels in 1km x 1km squares. Results compiled from public sightings, control records and standardised monitoring from May 2017 to June 2018.

### Acknowledgements

Thank you to all the staff and volunteers who undertook the surveys and those who have informed us of their squirrel sightings. We also thank the many landowners who continue to grant access to their woodlands.

By Anna Starkey, Red Squirrel Volunteer, Seaforth. July 2018