

Squirrel and Pine Marten Survey Report 2022



Department of
**Agriculture, Environment
and Rural Affairs**

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Acknowledgements

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Red Squirrel Groups in Northern Ireland –

- Ards Red Squirrel Group
- Ballygally Biodiversity Group
- Binevenagh Red Squirrel Group
- Fermanagh Red Squirrel Group
- Glens Red Squirrel Group
- Heart of Down Red Squirrel Group
- Mid-Ulster Red Squirrel Group
- North Down Red Squirrel and Pine Marten Group
- North West Red Squirrel Group
- Rostrevor Red Squirrel Group
- Slieve Beagh & Clogher Valley Group
- Slieve Gullion and Cooley Red Squirrel Group
- Tollymore Red Squirrel Group
- West Tyrone Red Squirrel Group



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1. Introduction

The Eurasian red squirrel (*Sciurus vulgaris*) is a Northern Ireland Priority Species (www.habitas.org.uk/priority/species.asp?item=5108) and is the only native species of squirrel found on the island of Ireland. It is a well-loved and familiar species which is encountered in many woodlands across all six local counties. However, the species has been displaced from considerable areas of suitable habitat across Northern Ireland by the invasive non-native Eastern grey squirrel (*Sciurus carolinensis*). Introduced to County Longford in 1911, the presence of this North American species potentially threatens the long-term viability of Irish red squirrel populations through disease and competition. Grey squirrels can outcompete red squirrels for food and they can adapt to a variety of habitats; they can also carry the Squirrelpox virus which can be fatal when passed to reds, but causes grey squirrels no harm. Small fragmented populations of red squirrels can be completely wiped out by Squirrelpox. In Figure 1 you can see that this pattern was repeated throughout Great Britain and the island of Ireland.

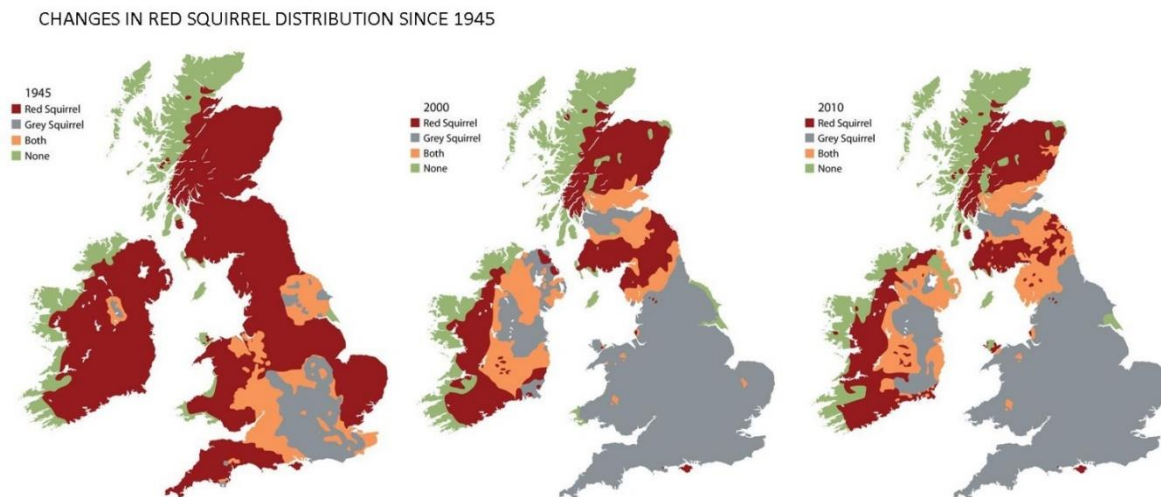


Figure 1. The distribution of grey and red squirrels from 1945 through to 2010 (C. Shuttleworth and RSST 2019).

The red squirrel has been the focus of considerable conservation efforts in recent years with several local red squirrel volunteer groups, the Northern Ireland Environment Agency (NIEA), Ulster Wildlife, Belfast Zoo, and others, seeking to halt

the further range contraction of the species and encourage recolonisation of formerly occupied areas of suitable habitat. A Red Squirrel Conservation Strategy for Northern Ireland was published in 2022 to achieve collaborative action and ensure red squirrel conservation is a priority in the long term -

https://www.ulsterwildlife.org/sites/default/files/2022-04/Ulster%20Wildlife%20-%20Squirrel%20Strategy%20FINAL%208.4.22_0.pdf

Regular monitoring of the distribution of both squirrel species and pine marten is critical to the effective implementation of red squirrel conservation measures and the evaluation of their success. Monitoring can be directed towards localised goals such as identification of the incursion of individual grey squirrels into a key red squirrel site, through to regional or island-wide aims such as identification of changes in distribution over a longer timeframe. Volunteer red squirrel groups play a critical part in monitoring. Ulster Wildlife is committed to supporting the long-term monitoring of these three species in Northern Ireland. This data will support the Red Squirrel Conservation Strategy for Northern Ireland and to help inform and focus conservation efforts.

This survey records the presence of pine marten as well as red and grey squirrel. In recent studies, it has been suggested that the pine marten may influence the abundance and density of grey squirrels. Sheehy and Lawton (2014) suggested that the recovery and subsequent population increase of pine marten (*Martes martes*) has depressed or removed grey squirrels in certain parts of Ireland. Sheehy *et al.* (2018) demonstrated a similar process in parts of Scotland. A more recent paper by Twinning *et al.* (2020) highlighted the role of pine marten recovery in grey squirrel decline and the positive impact on red squirrels in Northern Ireland. Due to the growing body of evidence, that indicates a relationship between pine martens, grey squirrels and red squirrels, the presence and absence of pine marten was deemed to be important and was monitored in addition to the two squirrel species in recent surveys. Raising awareness of pine marten and encouraging their recovery is also a key element to red squirrel conservation.

2. Methodology

This survey directly follows on from the survey conducted by Dr Dave Tosh in 2014/2015. The sites chosen were based on repeating core sites and sites previously surveyed, as well as filling in gaps in areas previously not surveyed. In 2022, the aim of this survey was to cover a minimum of 150 woodlands over the six counties of Northern Ireland, with an initial focus on repeating core sites which have been surveyed previously. Ulster Wildlife, along with volunteer red squirrel groups, the National Trust, Mourne Heritage Trust, Colin Glen Trust, Belfast Hills partnership, Black Mountain Rewilding project, Armagh, Banbridge and Craigavon Council and the Wildfowl and Wetlands Trust completed a total of 218 survey sites in 2022 (Figure 2). See APPENDIX 1 for full list of participating partners.

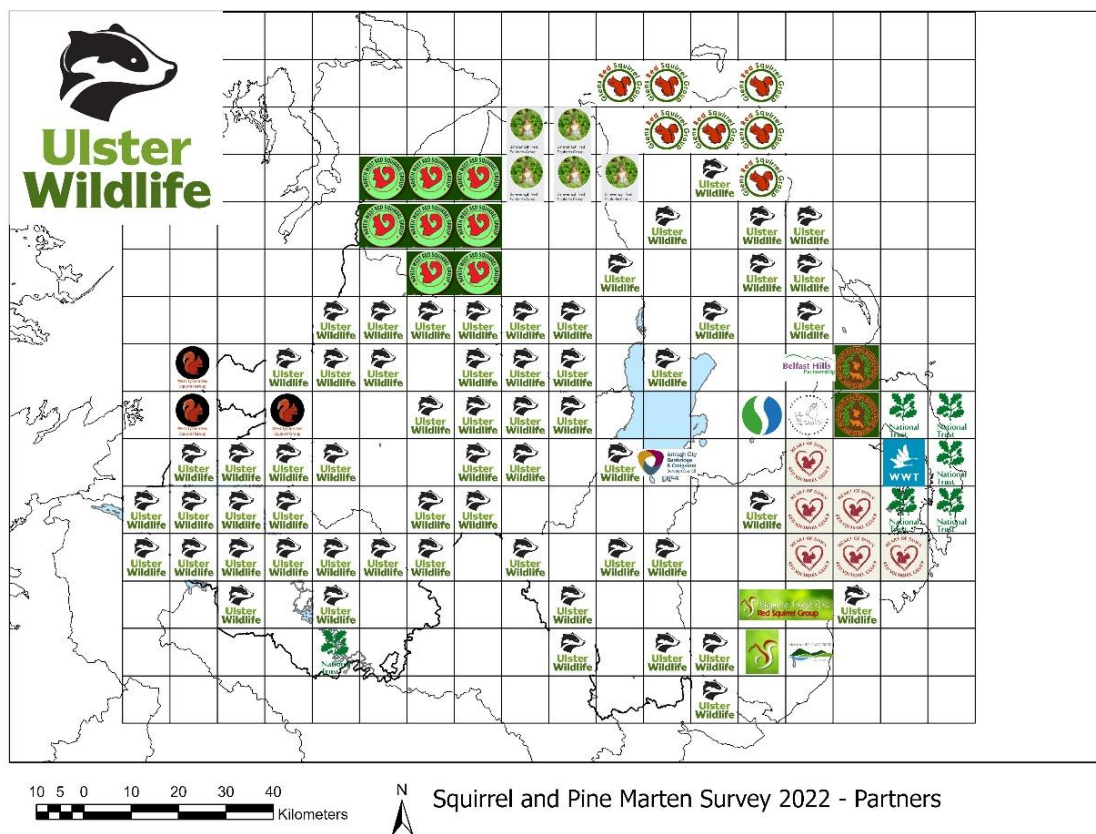


Figure 2. 2022 survey coverage and the partners involved.

Throughout the year, a number of training events were carried out for volunteers. Each volunteer received a copy of the Survey Methodology, Recording Form and Risk Assessment (available on request). Sightings that were gathered by camera

trapping in 2022 followed the protocol used during the previous survey. Surveyors were asked to place camera traps and squirrel feeders in forests for at least 14 days using the following protocol:

1. Find two trees that are no more than 3m apart (3 to 4 paces).
2. Attach **feeder** to **SOUTH** facing side of tree approximately 2m to 4m from the ground.
3. Fill the feeder (not all the way to the top) once it is attached. Ensure there are peanuts / sunflower mix on the ledge of squirrel feeder, on the roof and on the ground around the feeder. This should help attract animals to the feeder.
4. Attach camera to tree opposite of feeder between **2m - 3m** from the ground. Ensure that **camera** is **NORTH** facing to stop sunlight from obscuring any images.
5. Attach camera to tree using webbing first. Ensure this is tight before attaching any locks.
6. Ensure feeder can be seen by camera, that there are no obstructions to the view, and no objects (i.e. leaves in between camera and feeder) likely to trigger the camera.
7. Once the camera is attached to a tree securely, switch the camera on.
8. Record the time, date and location on the recording sheet.
9. After 2 weeks (14 days) minimum, retrieve camera and feeder. Keep SD card safe, return all photos to Ulster Wildlife. Fill in recording sheet with findings and submit results.

The bait used was peanuts or a mix of sunflower seeds and peanuts. The surveyors were asked to not use any additional bait and to note the bait being used. Browning camera traps were used and the camera settings are as follows:

1. Set the **correct date and time**.
2. Ensure the camera is set to **photo mode**, (sometimes known as **TRAIL** mode).
3. Set **1 second delay** between photos, (sometimes known as interval).
4. Picture size set to **Medium 4MP**. A medium photo quality allows lots of photos to be taken without the risk of running out of memory.
5. **Multi-shot 3**. Camera will **take 3 photos** as standard per trigger.
6. Time stamp or Information strip should be set to **ON**.
7. If the camera has **Night mode** turn **ON** and ensure shutter speed is high, increasing chance of detecting species and getting un-blurred images.
8. If there is a field scan mode it should be turned off (Fieldscan -> Off) as this wastes battery.

3. Results

3.1 Survey sites

The 2022 survey was a collaborative effort between Ulster Wildlife Staff, red squirrel volunteer groups and partner organisations. In total **218** sites were surveyed. These were a mix of woodlands owned by Forest Service, private landowners and Ulster Wildlife nature reserves.

A total of **103** x 10km squares were covered in Northern Ireland; 62% of all 10km squares covering Northern Ireland. This an increase on survey coverage from the previous survey in 2020 (55%) and similar to the survey in 2018 (64%). **Figure 3** shows the 10km squares covered during the survey.

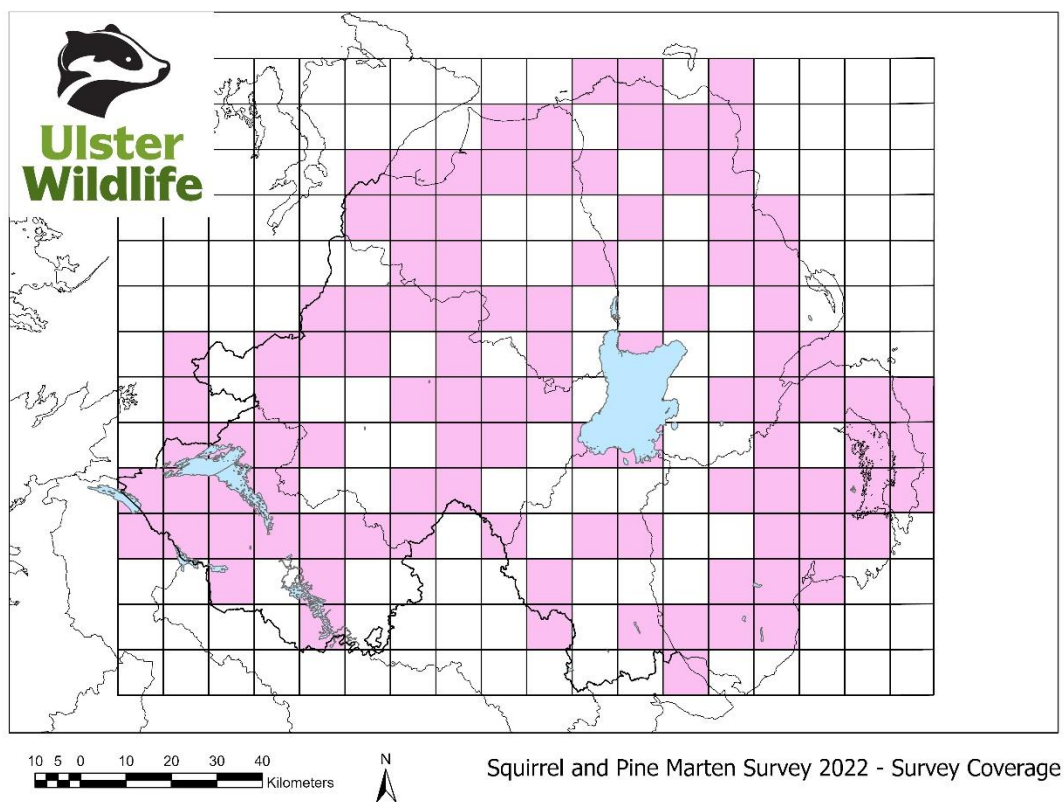


Figure 3. 2022 survey coverage (10km squares).

The survey was conducted in all six counties in Northern Ireland. **Table 1** highlights the sites surveyed and the survey effort per county, with Armagh and Tyrone not being as well represented as the other counties. These areas have fewer active

volunteers than the rest of the counties, although the newly formed Mid-Ulster Red Squirrel group will hopefully address this imbalance in future surveys. County Down has above average coverage in comparison with the other counties as there are four different squirrel groups across County Down contributing significantly to the survey. **Table 1** also highlights the number of sites in each county that each of the three species occurred, as well as that figure as a percentage of the total number of sites.

County	Area (Km ²)	Sites Surveyed	Sites surveyed per 10km ² (Effort)	No. of sites with Red squirrel (%)	No. of sites with Grey squirrel (%)	No. of sites with Pine Marten (%)
Antrim	3095.63	41	0.13	18 (44%)	6 (15%)	25 (61%)
Armagh	1325.86	9	0.07	3 (33%)	3 (33%)	4 (44%)
Down	2498.76	80	0.32	28 (34%)	17 (21%)	23 (28%)
Fermanagh	1850.59	29	0.16	13 (45%)	0 (0%)	14 (48%)
L/Derry	2121.13	32	0.15	6 (17%)	21 (60%)	7 (20%)
Tyrone	3264.88	27	0.08	5(21)	1 (4%)	18 (75%)

Table 1. The number of survey sites per 10km² for each county of Northern Ireland and the number of these sites that had recorded target species as present (Area figures and sites surveyed per 10km² used from Ulster Wildlife Red Squirrel report 2017 for consistency).

3.2 2022 survey results

Red Squirrel

During the 2022 survey, red squirrels were recorded in every local county, in a total of 72 woodlands and 39 x 10km squares (**Figure 4**). Red squirrels were recorded present for the most part, in similar key areas to previous surveys; Fermanagh spilling over the Tyrone border, North West L/Derry, North/Mid- Antrim, South Down, Ards Peninsula and South Armagh.

In 2021, a population of red squirrels was found on Binevenagh Mountain and soon after the Binevenagh Red Squirrel group was founded to support this population; removing greys from key locations around the red squirrel forests. The Binevenagh

Red Squirrel Group participated in the presence/absence survey in 2022 and so this population appears on this survey for the first time.

The border between County Armagh and County Monaghan was surveyed for the first time since Dr Dave Tosh's original survey in 2014/2015. Red squirrels were found to be present at two different forest sites near the Armagh border. In 2022, the survey coverage on the Ards Peninsula was more comprehensive than in previous surveys. This year shows that reds were present in most 10km squares with viable woodland there. Notably central Tyrone did not have red squirrels on cameras for the first time since 2017 (Figure 5), although survey coverage in central Tyrone was not as comprehensive as other years (Figure 3).

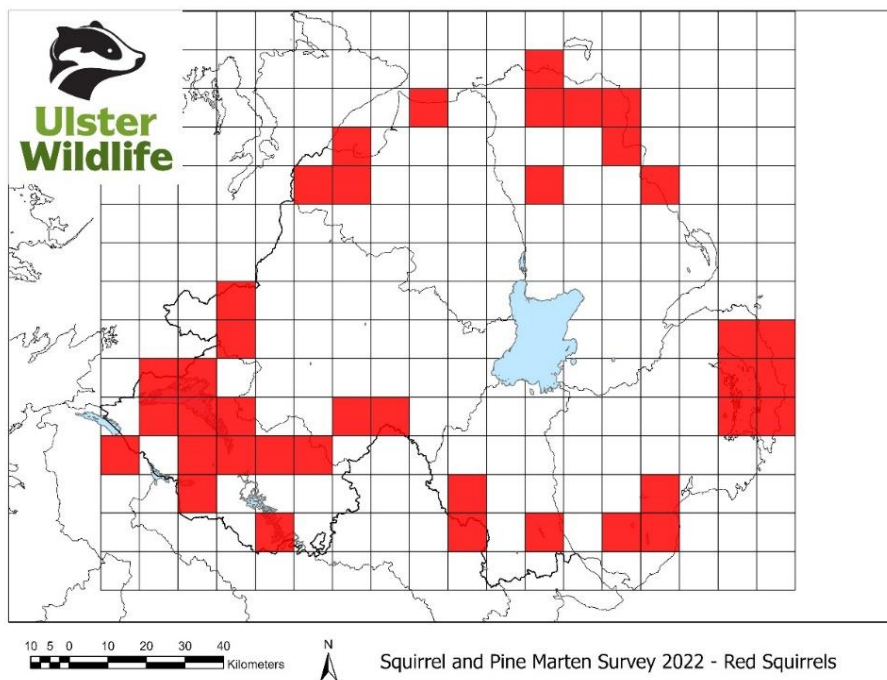


Figure 4. The 10km squares which contain at least one record of a red squirrel during the 2022 survey.

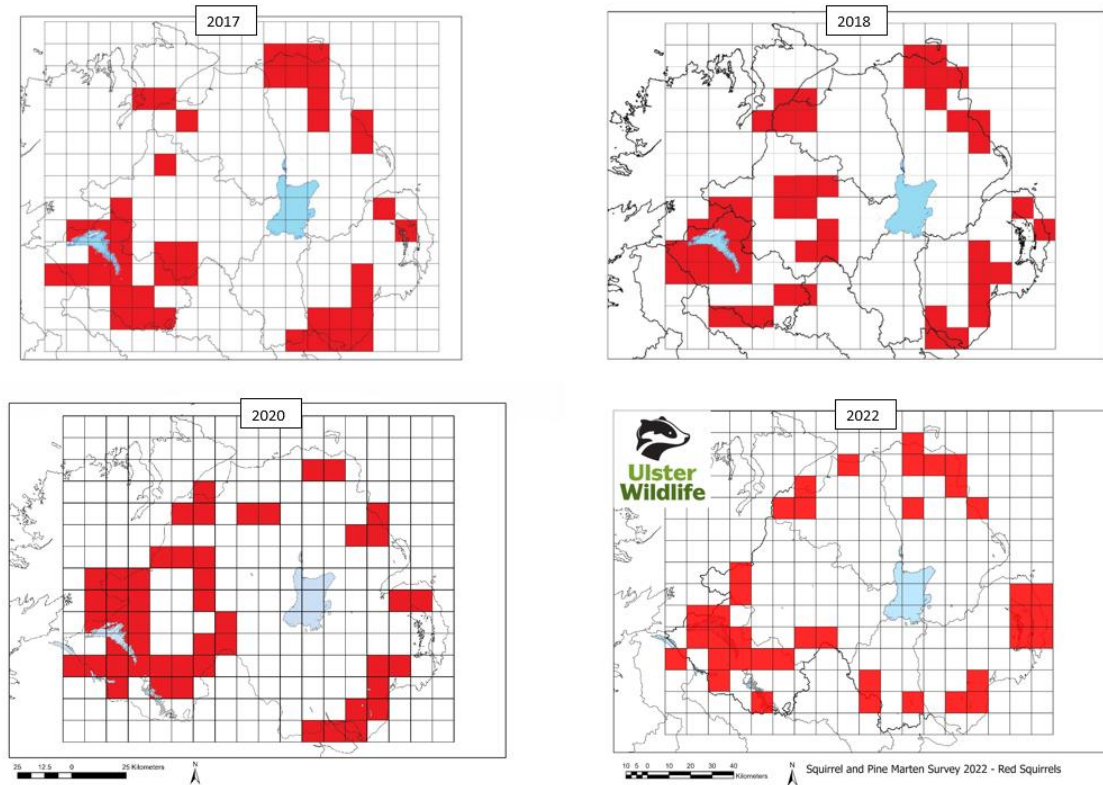


Figure 5. Red Squirrels present in 10km squares in the 2017, 2018, 2020 and 2022 presence/absence surveys.

Grey Squirrel

Grey squirrels were recorded in a total of **48** of the woodlands surveyed and 29 x 10km squares (**Figure 6**). It is promising to see grey squirrels being the species recorded the least during the survey, but it also has to be noted that there were fewer urban areas surveyed, which is where the higher densities of grey squirrels are present. For another year, County Fermanagh recorded no grey squirrels and County Tyrone only had one recorded woodland with a grey squirrel present. However, urban areas of Cookstown, Dungannon, Omagh and Strabane were not surveyed.

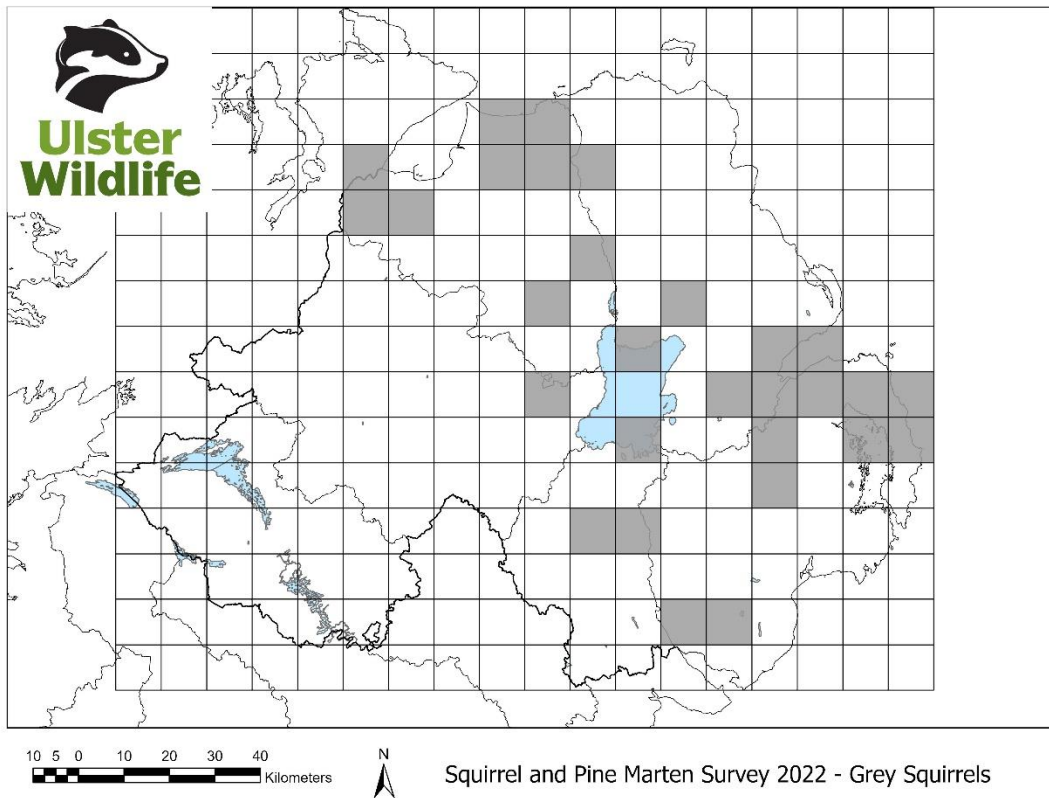


Figure 6. The 10km² squares which contain at least one record of a grey squirrel during the 2022 survey period.

Most grey squirrels recorded where in the Greater Belfast and L/Derry city areas. Greater Belfast into North Down and the northern end of the Ards Peninsula had the largest contiguous group of grey squirrel present squares.

Just like in 2020, the 2022 survey found grey squirrels present in areas surrounding Lough Neagh (Figure 7). In addition, grey squirrels were commonly reported as present in the Lagan valley and along the River Bann, potentially indicating the importance of riparian corridors as a vector of spreading grey squirrels from urban centres across the landscape.

Although the sample size is small, County Armagh had an equal number of squares of red and grey squirrels with reds restricted to the south and west. With grey squirrels recorded on the south shore of Lough Neagh, mid Armagh and around Newry into County Down. Two woodlands between Newry and the Mourne Mountains recorded grey squirrels during the survey.

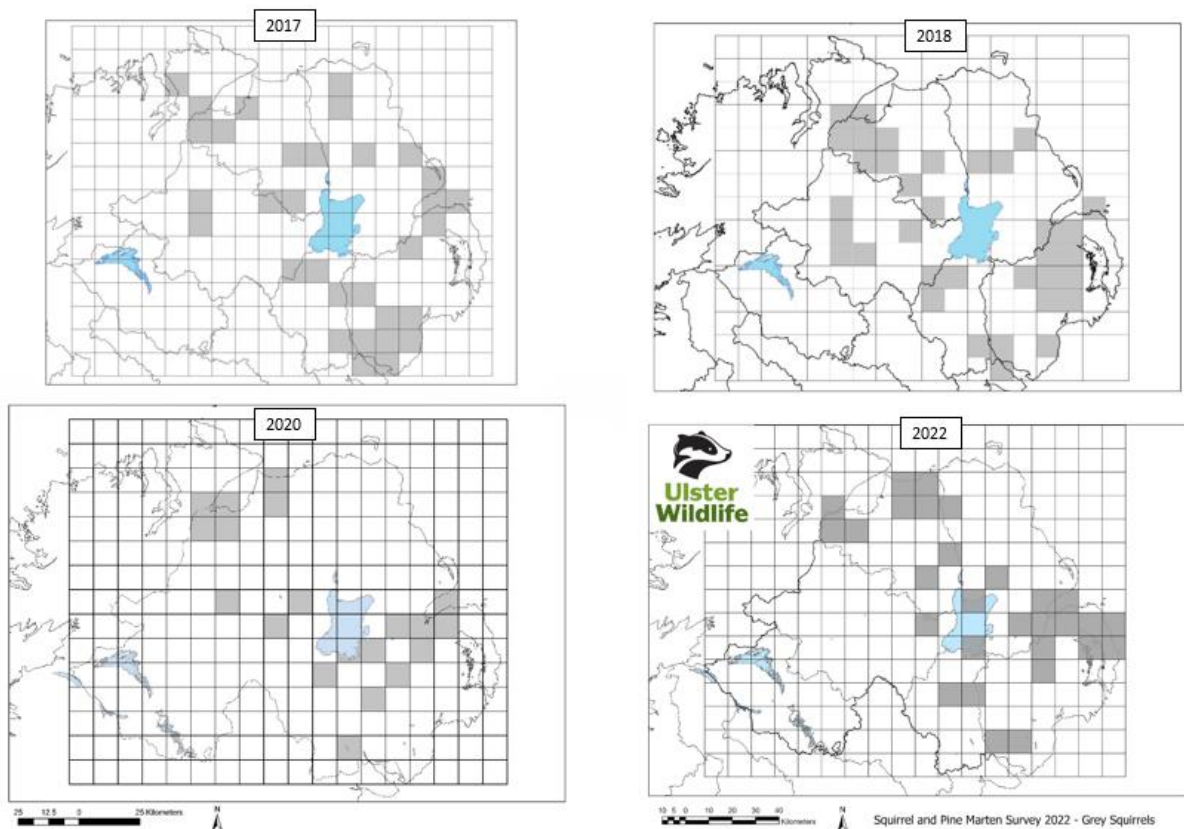


Figure 7. Grey Squirrels present in 10km squares in the 2017, 2018, 2020 and 2022 presence/absence surveys.

Pine Marten

Pine marten were again recorded in every county in Northern Ireland. They are now clearly a very widespread species across the country. They were recorded in a total of **89** woodlands across 63 x 10km squares (**Figure 8**), the most abundant species picked up during the survey.

Pine marten are widespread across counties Fermanagh, Tyrone and Antrim. They were recorded in nearly half of all woodlands surveyed in these counties; 48%, 75% and 61% respectively (Table 1). In County Armagh, pine martens were recorded in areas away from urban centres; Slieve Gullion in the south, in the west, and on the shore of Lough Neagh.

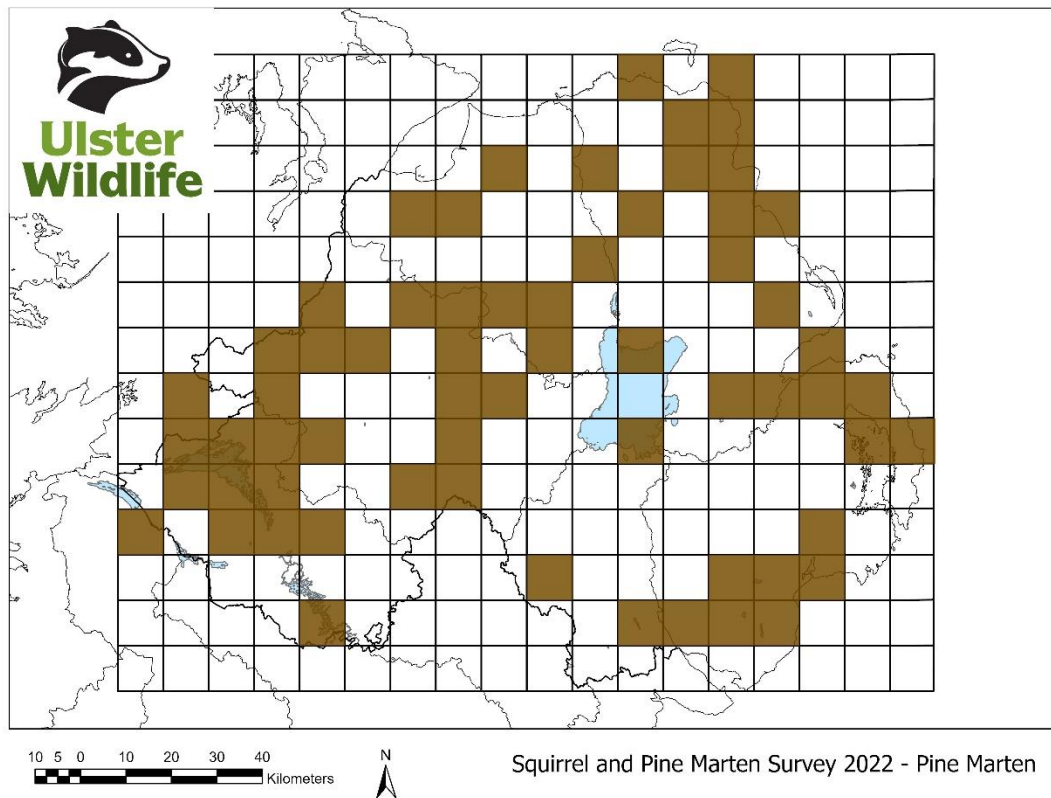


Figure 8. The 10km² squares which contain at least one record of pine marten during the 2022 survey period

In County L/Derry pine martens were only recorded at 20% of sites. They were recorded east of the Sperrins, between L/Derry city and Limavady, and on Binevenagh. The majority of sites surveyed in County L/Derry were mostly in the urban areas to the north west, skewing the percentage of sites with pine marten present, in comparison with other counties. However, the trend for pine marten recovery in County L/Derry is similar to across the whole county as it has gone from no recorded sites in 2017, to 5km squares in 2020, to 7km squares in 2022 (Figure 9).

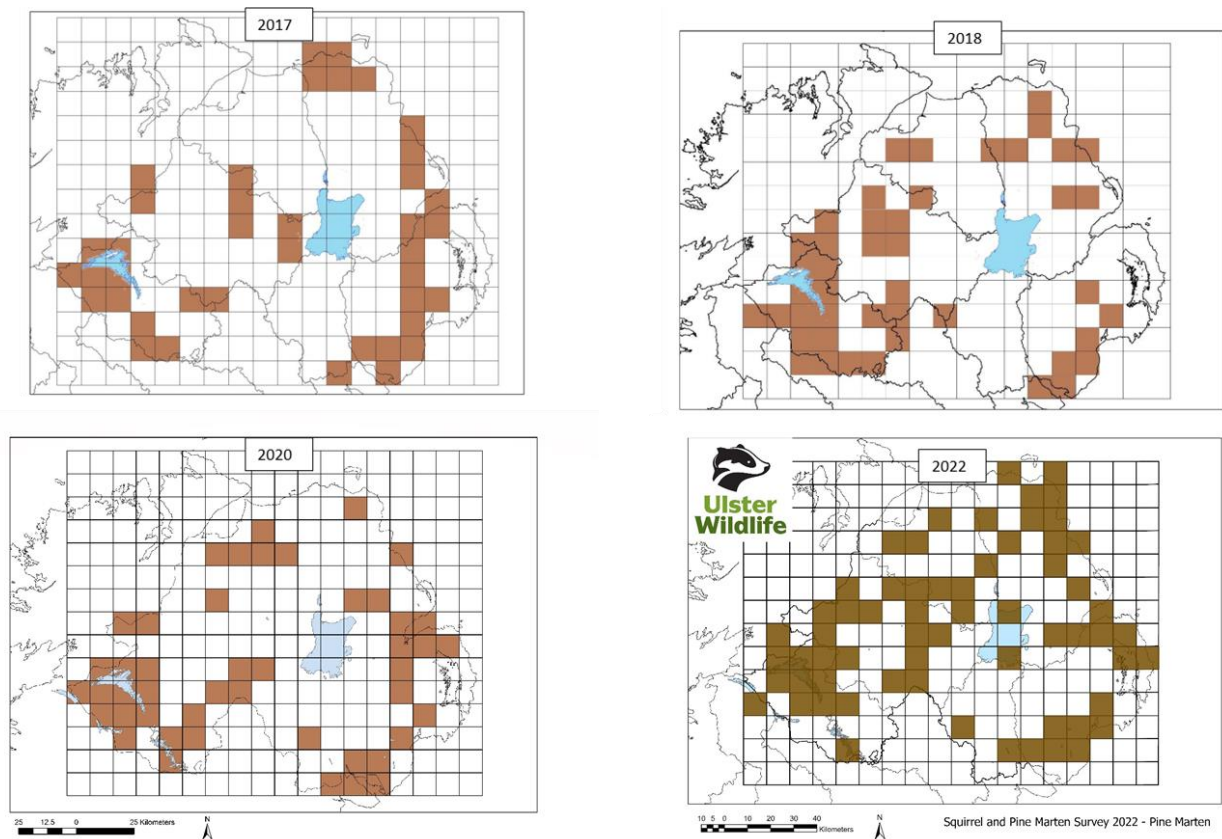


Figure 9. Pine Martens present in 10km squares in the 2017, 2018, 2020 and 2022 presence/absence surveys.

Species comparisons

The relationship between the three species, red squirrel, grey squirrel and pine marten, is extremely interesting and we cannot carry out red squirrel conservation without considering the other two species. The recent recovery of pine marten is its own conservation success story and in turn, this has had positive impacts for our red squirrel population. Due to this important and complex relationship we are using this dataset to keep a close eye on where these species exist together.

This year there were 16 x 10km squares that had both grey squirrels and pine marten present (Figure 10). This is significantly up from 2020, which only had 6 x 10km squares (UW Squirrel and Pine marten report 2020). Generally, when both grey squirrels and pine martens are present together, they are recorded on the fringes of urban areas; 7 x 10km squares around greater Belfast and North Down. However the drastic increase is down to pine marten spreading, not grey squirrel

spread (Figures 7 & 9) as pine marten having only recently re-colonised County L/Derry and are now starting to appear in areas where grey squirrels have been recorded historically. Pine martens were also recorded around Lough Neagh for the first time at two separate sites. Also of note, Counties Fermanagh, Tyrone and North-Mid Antrim did not have a 10km square where both grey squirrel and pine marten were present together.

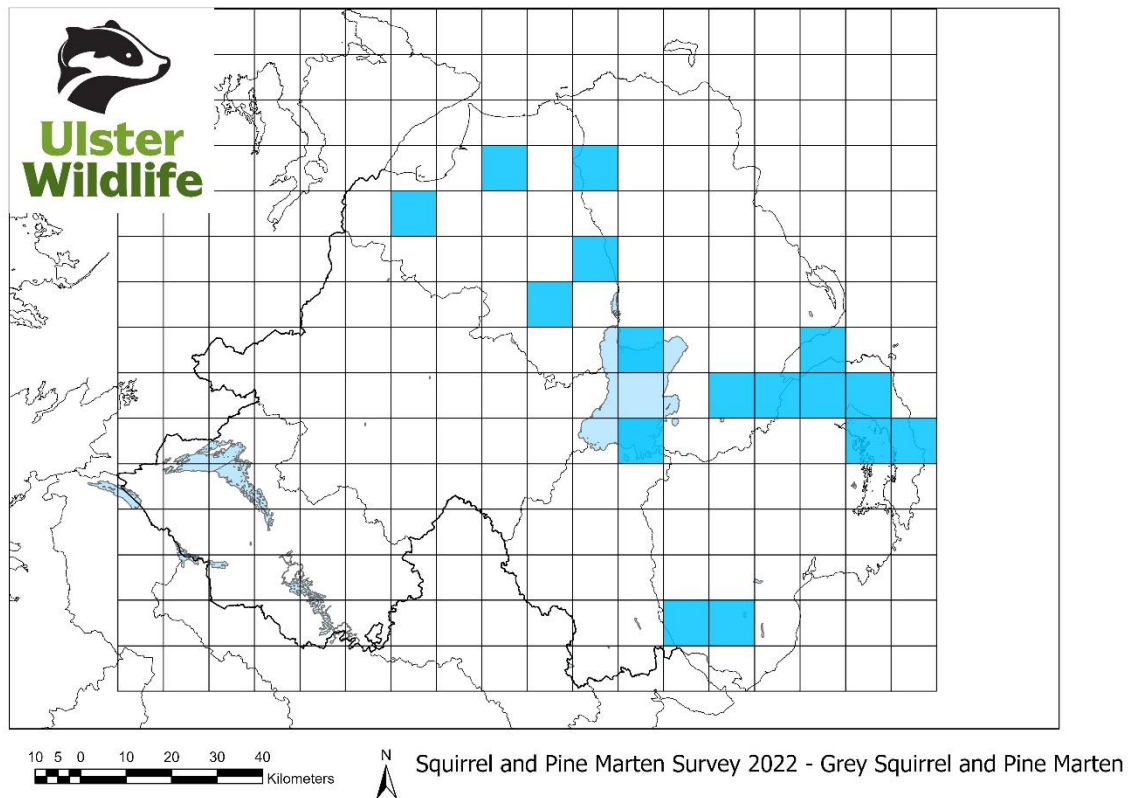


Figure 10: The 10km² squares which contain at least one record of pine marten and grey squirrel during the 2022 survey period.

In contrast there were 27 squares where both red squirrel and pine marten were present (Figure 11). This is positive that there are more areas with red squirrel and pine marten than grey squirrel and pine marten. County Fermanagh is the area where there is the highest occupancy of both reds and pine martens. Red squirrels and pine marten are both native species that co-exist alongside each other and we hope that these two species will continue to recover.

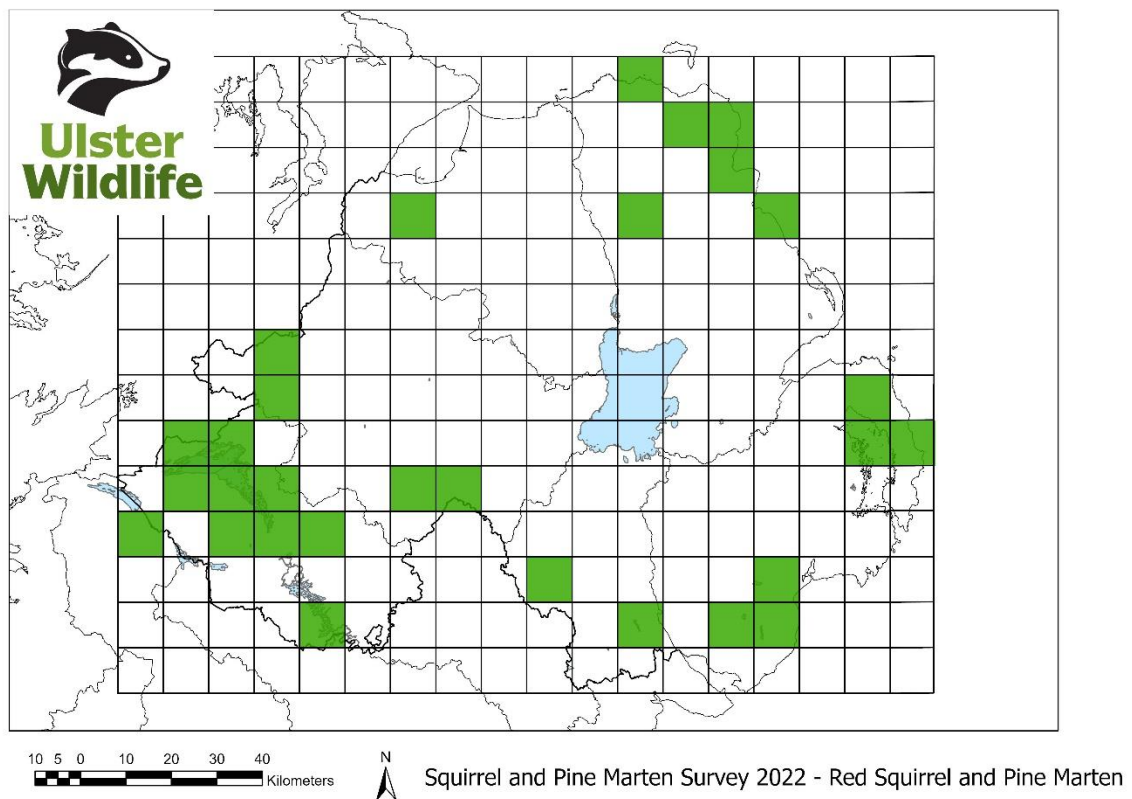


Figure 11: The 10km² squares which contain at least one record of red squirrels and pine marten during the 2022 survey period.

The final comparison we looked at were areas which contain both red squirrel and grey squirrel. There were 8 x 10km squares in total across Northern Ireland (Figure 12). These areas are vitally important for us to monitor and highlight the areas which need immediate conservation action. These red squirrels populations, being on the fringe of areas with grey squirrels, need continual monitoring in case of any significant changes to local populations. Grey squirrels and red squirrels cannot co-exist and given enough time, and a lack of human intervention, the grey squirrel populations will extirpate red squirrel populations.

The four areas in Figure 12 highlight the need for this immediate action to protect existing red squirrel ranges: L/Derry city, Binevenagh, Newry/West Mourne and the Ards Peninsula. This includes collaborative action between landowners and local authorities. No overlapping populations were found in County Tyrone for the first time. There was a suspected outbreak of Squirrelpox in Clondeboye Estate outside

Bangor in North Down in 2022. This was an area where both reds and greys were present, and unfortunately the red squirrels were lost from this area. This highlights the importance of prioritising these areas for immediate conservation action.

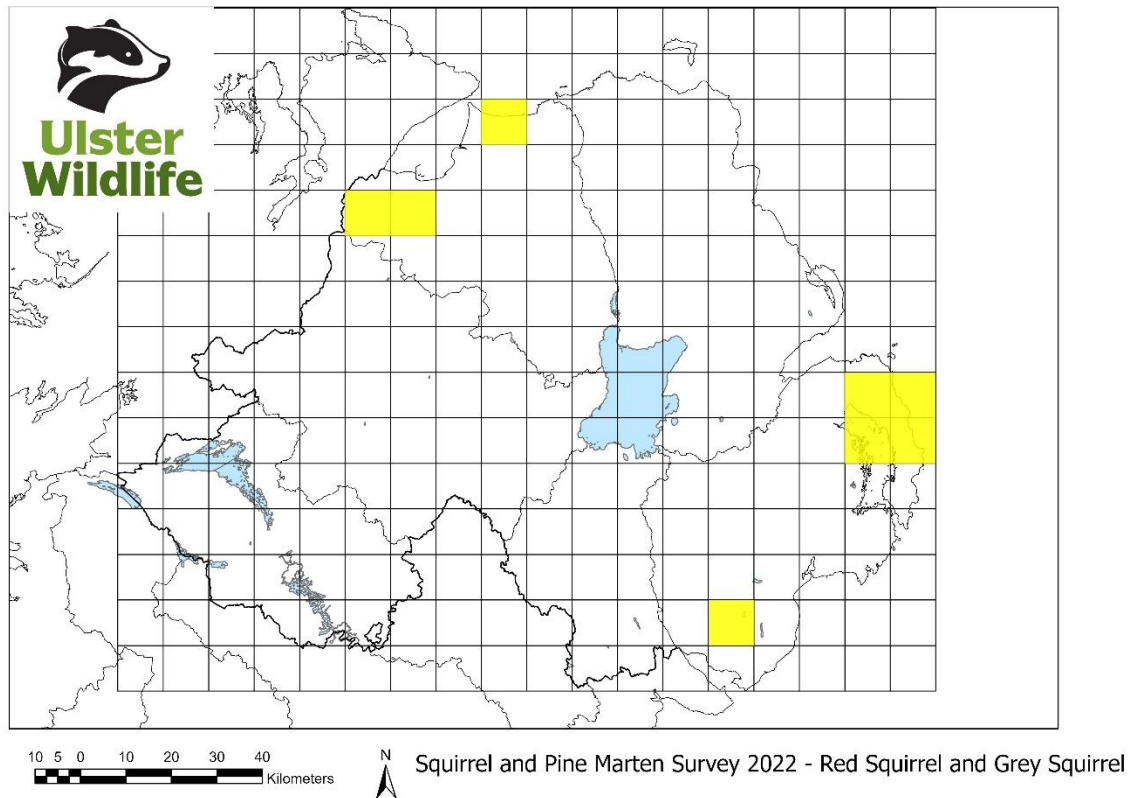


Figure 12: The 10km² squares which contain at least one record of red squirrels and grey squirrel during the 2020 survey period.

4. Discussion

Five years on from Ulster Wildlife's first Squirrel and Pine Marten survey (2017) is a good point to take stock of any significant changes in the distributions of the three target species. The survey is very intensive and it is extremely hard to replicate total consistency year on year. 2017 and 2022 are good years to compare as the number of woodlands surveyed were similar, 224 in 2017 and 218 in 2022, and the survey effort by county is also similar (Table 2). The only exceptions are counties Fermanagh and Down, as Fermanagh was heavily surveyed in previous years and the survey effort in Down has increased.

County	2017	2022
Antrim	0.14	0.13
Armagh	0.08	0.07
Down	0.22	0.32
Fermanagh	0.25	0.16
L/Derry	0.2	0.15
Tyrone	0.1	0.08

Table 2. Survey effort per 10km² in 2017 & 2022 surveys.

Red Squirrel

When comparing the distribution maps from 2017 and 2022, **Figure 4** and **Figure 5**, there has not been any dramatic changes in red squirrel spread. Populations are still found in the key areas and there has been few colonisations of new areas. The proportion of woodlands surveyed with red squirrels recorded has not decreased, and in most cases has increased slightly (**Tables 3 & 4**), indicating that the red squirrel populations across Northern Ireland are holding steady. The numbers of woodlands with red squirrels has increased between the two surveys, 53 woodlands in 2017 and 72 woodlands in 2022, however with a small reduction in 10km squares presence; 44 x 10km to 39 x 10km. The increase is likely due to a high density of surveying in areas with red squirrel volunteer groups on the ground. Geographically, populations remain in similar areas in 2022 as they were recorded in 2017. Of course, local populations may fare differently, disappearing from some areas and colonising new areas, for example Clandeboye and Binevenagh. Overall, red squirrels appear to be holding steady on a landscape scale and are showing signs of recovery; although their long-term future is still dependant on having robust native woodland ecosystems that are free of grey squirrels.

County	% of sites with Red squirrel in 2017	% of sites with Grey squirrel in 2017	% of sites with Pine Marten in 2017	% of sites with Red squirrel in 2022	% of sites with Grey squirrel in 2022	% of sites with Pine Marten in 2022
Antrim	39%	12%	17%	44%	15%	61%
Armagh	18%	36%	18%	33%	33%	44%

Down	17%	43%	20%	34%	21%	26%
Fermanagh	44%	0%	41%	45%	0%	48%
L/Derry	10%	36%	0%	19%	66%	19%
Tyrone	19%	9%	13%	19%	4%	70%

Table 3: Percentage of sites surveyed with species present in 2017 & 2022 surveys.

County	% Change in number of sites with Red Squirrels present	% Change in number of sites with Grey Squirrels present	% Change in number of sites with Pine Martens present
Antrim	+ 5%	+ 2%	+ 44%
Armagh	+ 15%	- 3%	+ 26%
Down	+ 17%	- 21%	+ 6%
Fermanagh	+ 1%	0%	+ 7%
L/Derry	+ 9%	+ 30%	+19%
Tyrone	0%	- 6%	+ 58%

Table 4: Percentage change in the number of sites with survey species present.

Grey squirrel

Comparing the 2017 grey squirrel distribution with the 2022 results, the picture is less clear. At first glance the grey squirrel distribution across Northern Ireland is very similar (**Figure 7**). The urban areas of L/Derry, Greater Belfast, North Down and central Armagh remain strong. Grey eradication is difficult in urban areas and with pine marten unlikely to colonise these areas, urban centres are likely to hold reservoir populations for the foreseeable future. Ulster Wildlife are working with UK Squirrel Accord, volunteer red squirrel groups, stakeholders, landowners, and councils, to address this as one of aims of the Red Squirrel Conservation Strategy for Northern Ireland.

The data indicates that there has been an increase of grey squirrels in L/Derry with an increase of 30% in the number of sites with grey squirrels (**Table 4**). The caveat to this is that the survey coverage was slightly down from 2017, with the majority of sites surveyed in the “conflict areas” for greys and reds. In addition to this, the area

between Binevenagh and Coleraine was surveyed at a higher density than in previous years. This “increase” therefore is likely inflated, as it includes a population of greys that were not surveyed as comprehensively in the past. However, the number of sites with grey squirrel present within the urban areas of L/Derry city has dramatically increased since 2017; 2 sites in 2017, to 6 in 2022. This highlights the risk that urban grey squirrels still pose to red squirrel populations. Without the great work of volunteer groups and stakeholders on the ground, the red squirrels in these areas could be lost.

Fermanagh again was the only county without grey squirrels recorded as present on the survey. As discussed in previous Ulster Wildlife reports, the likely cause for this is the density of pine martens having a significant impact on grey squirrels here. The lack of grey squirrels found in County Tyrone could be a positive indicator of the “pine marten effect” there, however only one year of survey data is not enough to form this conclusion. Future surveys should focus on getting good coverage across south and central Tyrone, to increase our data in this area.

Positive anecdotal reports of a “grey squirrel population collapse in central County Down” (via the Heart of Down squirrel group) appear to be supported by survey results in 2022. **Table 4** demonstrated a 21% decrease in grey squirrels in County Down. This is even more promising as the survey coverage across County Down was higher in 2022 than in 2017 (**Table 1**). Grey squirrels were recorded as present in North Down and Greater Belfast consistently across the survey years (**Figure 7**). Heading south the only other significant urban population appears to come from Newry city. There are reports of greys in small towns across County Down, but these populations have not appeared on the surveys carried out in 2022.

Pine marten

Figure 9 demonstrates visually a dramatic increase in pine marten distribution across the whole of Northern Ireland. They were found to be present in 63 x 10km squares in 2022, an increase from 40 x 10km squares in 2017. There was also a dramatic increase in individual woodlands surveyed. 40% of woodlands surveyed, in four of the six counties, had pine martens present (**Table 3**). Every county saw an

increase in pine marten presence in woodlands surveyed between 2017 and 2022 (Table 4). Table 4 also demonstrates significant increases in sites with pine marten presence in counties Antrim and Tyrone, 48% and 58% respectively.

In County Antrim, pine martens were recorded in every corner of the county: across the Belfast Hills in the south, on the northern side of Lough Neagh in the south west, along the Bann and scattered in central Antrim, and present in more sites in the Glens of Antrim in the north east.

In Tyrone, there was an increase from 8 to 15 x 10km squares with pine marten present (Figure 9). Table 2 shows there has even been a slight decrease in survey effort and yet there is a 58% increase in pine marten presence at woodlands surveyed.

Pine martens naturally have much larger home ranges than squirrels, with some males recorded as having a home range of up to 30km² (Zalewski *et al.*, 1995). Pine martens are known to not exclusively occupy woodland habitats, utilising heath and open grasslands (Twining *et al.*, 2019), with a member of Ulster Wildlife staff witnessing a pine marten during daylight hunting rodents from a recently harvested field. Pine marten dispersal and foraging is not reliant on woodland corridors alone (McNicol *et al.*, 2020) and potentially enables pine martens to expand across the landscape at a much faster rate than squirrels. Squirrel dispersal and colonisation of new areas appears to be from the use of pockets of adjacent woodland, like the Binevenagh red squirrels, or along riparian corridors like grey squirrels; pine marten colonisation appears more random. In this 2022 survey, pine martens were recorded as present in isolated pockets of woodland, isolated bogs, and in uplands with little woodland connectivity, as well as established deciduous and coniferous woodland.

The number of woodlands with pine martens present has almost doubled between the 2017 and 2022 surveys, and for two consecutive surveys it is the most recorded species on the survey (Figure 13). Given that the two datasets are comparable, with similar number of woodlands surveyed and survey coverage similar in most counties, this indicates that the remarkable recovery of pine marten is continuing across Northern Ireland.

Figure 13 does show a slight decline in red squirrel presence in woodlands surveyed from 2020. All animal populations fluctuate naturally from year to year and are impacted by a large number of environment factors such as weather, food availability, predation etc. This decrease is with the margin of error and grey squirrels are also shown to have decreased slightly too. It is too early to determine if this is a trend or natural fluctuations. This will be closely monitored in future surveys.

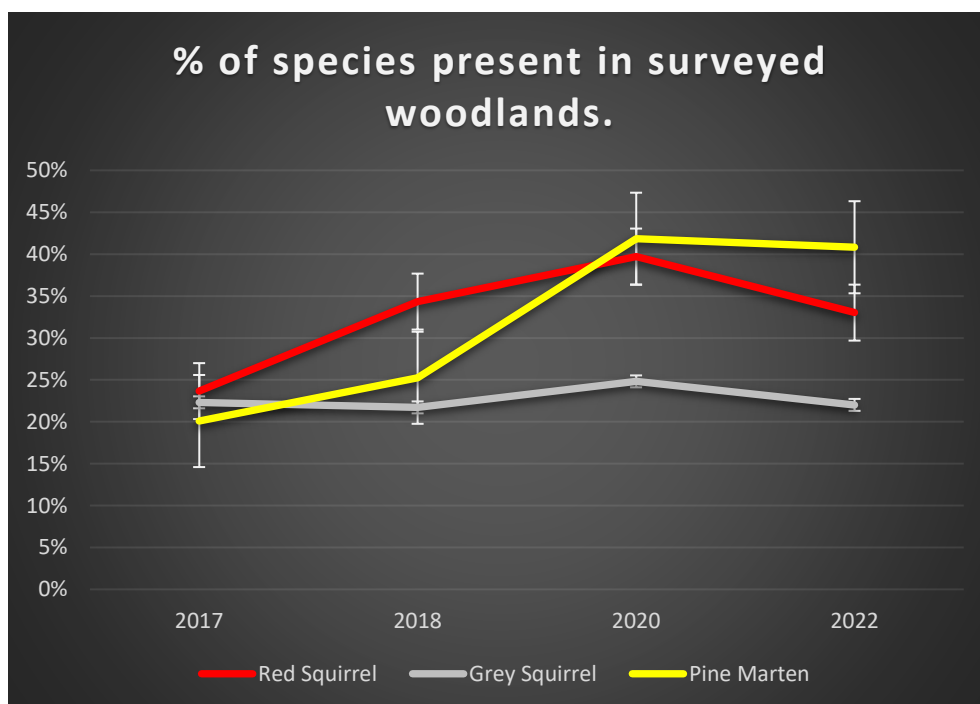


Figure 13. Proportion of species present in surveyed woodlands from 2017 to 2022.

5. Conservation Work

5.1 Red Squirrel Groups and Awareness Raising

Red Squirrel Groups have been instrumental over the years, not just with their efforts in carrying out the survey, but monitoring and protecting their local populations of red squirrels. Ulster Wildlife continues to support the Red Squirrel Groups across Northern Ireland; supplying materials and equipment to support their conservation work, connecting squirrel groups with other organisations to ensure

partnership working to achieve the aims of the Northern Ireland Squirrel Strategy, and developing a digital resource for recording grey squirrel management efforts.

Throughout 2022, Ulster Wildlife aimed to raise awareness of red squirrel and pine marten, and grey squirrel as an invasive species, through a number of talks, events and through its social media channels. Talks were delivered to around 175 people, around 50 people attended events, and we took part in Red Squirrel Awareness Week and Red Squirrel Appreciation Day reaching over 8,000 people on social media. There was also wide press coverage of the red squirrel release at Castle Ward - <https://www.ulsterwildlife.org/news/red-squirrel-release-castle-ward-sparks-fresh-hope-iconic-mammal>

5.2 Grey Squirrel Management

Supporting grey squirrel management, by both human methods and through the recovery of pine marten, is one of our key conservation actions for red squirrels. Ulster Wildlife provides LANTRA training in grey squirrel control to ensure everyone carrying out control is trained to an agreed quality standard. This is vitally important to ensure the highest levels of safety and welfare are maintained. We will continue to support volunteer groups and stakeholders in their control efforts in key areas to ensure our isolated populations of red squirrels can recover. A number of local councils have engaged with us on this issue and we aim to encourage all local councils to support this conservation effort.

5.3 Pine Marten

Pine marten awareness and conflict resolution is another one of our key conservation aims. We cannot tell the red squirrel story without pine martens. The increase of a predator can also bring about conflict with people for reasons such as pine martens preying on chickens and nesting in houses. We want to work further with landowners and the general public to deal with these issues. There is excellent guidance from both DAERA - <https://www.daera-ni.gov.uk/articles/pine-marten-martes-martes> and the Vincent Wildlife Trust - <https://pinemarten.ie/>. The pine marten is a priority species in Northern Ireland and we welcome its recovery.

5.4 Red Squirrel Reintroductions

There have been multiple red squirrel releases in Northern Ireland in recent years in Co. Antrim and Co. Down, and methods to enable the success of the releases should be considered e.g. microchipping, DNA sampling.

Reintroductions (captive bred or translocations) must take into account the IUCN guidelines (<https://www.iucn.org/content/guidelines-reintroductions-and-other-conservation-translocations>), with rigorous disease and genetic monitoring adopted, target release areas and inclusion of screening for levels of Squirrelpox and Adenovirus within the translocation areas. Natural expansion is preferable to release as the natural red squirrel range continues to expand; however, releases can be appropriate in some areas.

A successful release was carried out in 2022 in collaboration with Belfast Zoo, NIEA, the National Trust and the Heart of Down Red Squirrel Group. A number of squirrels were released into Castle Ward and have successfully settled at the site at the time of writing this report - <https://www.ulsterwildlife.org/news/red-squirrel-release-castle-ward-sparks-fresh-hope-iconic-mammal>

6. Future Work and Conclusions

This report highlights how important data collection is to enable local targeted conservation action. Ulster Wildlife is dedicated to collecting this data in the long-term to ensure we can track major trends in the local red squirrel, grey squirrel and pine marten populations. The survey will be carried out every two years, so again in 2024, but we will continue to encourage monitoring of local populations, as well as promoting the collection of sightings all year round through our online database - <https://www.ulsterwildlife.org/report-sightings>

The long-term data collected indicates that red squirrels are not in decline on a landscape scale and there is some evidence of them spreading to new areas. The current fragmented populations of red squirrels remain at risk from greys and habitat destruction, and we need to ensure a habitat connectivity approach to our work

through 'Nature Recovery Networks' to ensure red squirrels can spread naturally, not just remaining steady but recovering.

There is more positive news that grey squirrels are showing a slight detracting in the west, but more long-term data is needed to assess this properly. County Fermanagh remains grey squirrel free, with some evidence of a decline in County Tyrone. Grey squirrels are still present in high densities in urban areas and continue to spread much more easily than red squirrels. The continued threat of Squirrelpox remains. However, with the continued expansion of pine marten, and with their occupancy nearly doubling since 2017, we hope that this will add another factor to support the decline of grey squirrels. The recovery of pine marten is a success story in its own right and one that should be celebrated.

In future surveys we will aim to repeat core sites, as well as improving our survey effort in areas such as County Armagh and Tyrone. All of this data combined will allow strategic analysis of potential areas for grey squirrel spread and dispersal. Ulster Wildlife will continue to liaise with the Northern Ireland Squirrel Forum and the UK Squirrel Accord to ensure knowledge sharing. One part of our work this year is to produce local guidance on tree planting and felling. Red squirrel dispersal needs to be taken into account in all new planting schemes, as well as the potential for encouraging grey squirrel spread. Ulster Wildlife will continue to support red squirrel conservation locally, alongside a number of organisations and voluntary groups, with the aim of seeing the local population thrive.

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APPENDIX 1: Survey Partners



Colin Glen Trust





MOURNE HERITAGE TRUST



National
Trust



(Also represents Ards Red Squirrel Group)



