

# Red Squirrel Conservation

## INTRODUCTION

The red squirrel *Sciurus vulgaris* is one of our most popular and well-loved mammals but they are in danger of becoming extinct in Scotland.

There are less than 120,000 red squirrels remaining in Scotland which is about 75% of all of the red squirrels in the UK. Compare this to 2.5 million grey squirrels in the UK!

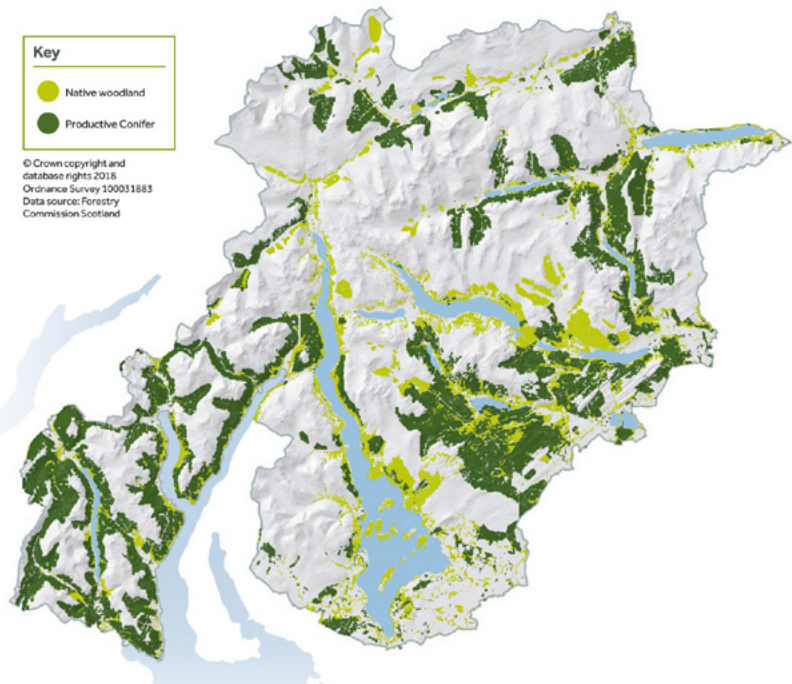
Historically large areas of native woodland across the country have been lost due to de-forestation and changes to land management practices, and red squirrels are also threatened by the introduced North American grey squirrel, *Sciurus carolinensis*.



### Loss of habitat

Tree cover in Scotland used to be so extensive that a red squirrel could have travelled from one side of the country to the other without touching the ground.

Following a long history of land use change, the small, isolated fragments left over from Scotland's once huge native woodland could not support our red squirrels. Modern-day woodland planting is helping to turn this around. With help from Scottish Forestry we're making sure large areas aren't felled all at once but in stages so red squirrels always have access to a suitable habitat.



### The spread of American grey squirrels and squirrelpox



The non-native grey squirrel was introduced in Britain by the Victorians. This American cousins of our native red squirrels have spread out in our woodlands and ended up as neighbours to our red squirrels.

Grey squirrels are twice as big as red squirrels and can digest food such as acorns easier and get more nutrients from them. This means that grey squirrels need more food than reds and can utilise acorns better. They have also been found to steal food that red squirrels have saved up for overwinter leaving the reds hungry. They also carry a virus called squirrelpox which can be fatal to our native reds. Grey squirrels are carriers of the disease but they are resistant to it themselves.

## Wild Park and key threats

### Wild Park

Wild Park is the Biodiversity Action Plan for Loch Lomond and The Trossachs National Park. It details what projects and actions we would like to deliver to benefit nature in the National Park and where we would like to deliver them.

As well as highlighting objectives between 2018-23 the programme also details threats to the environment of the National Park.



### Wild Park is concentrating on the following four environmental threats:



#### POOR CONDITION OF LOCHS & RIVERS

Negative impacts on freshwater and marine water bodies from problems such as pollution from surrounding land uses.



#### UNSUSTAINABLE LEVELS OF GRAZING

Unsustainable levels of wild and domesticated grazing and browsing animals in some upland and woodland areas, leading to reduced tree cover and the erosion of soils, which are important carbon stores.



#### INVASIVE, NON-NATIVE SPECIES

The spread of invasive non-native species, which displace our rich native wildlife.



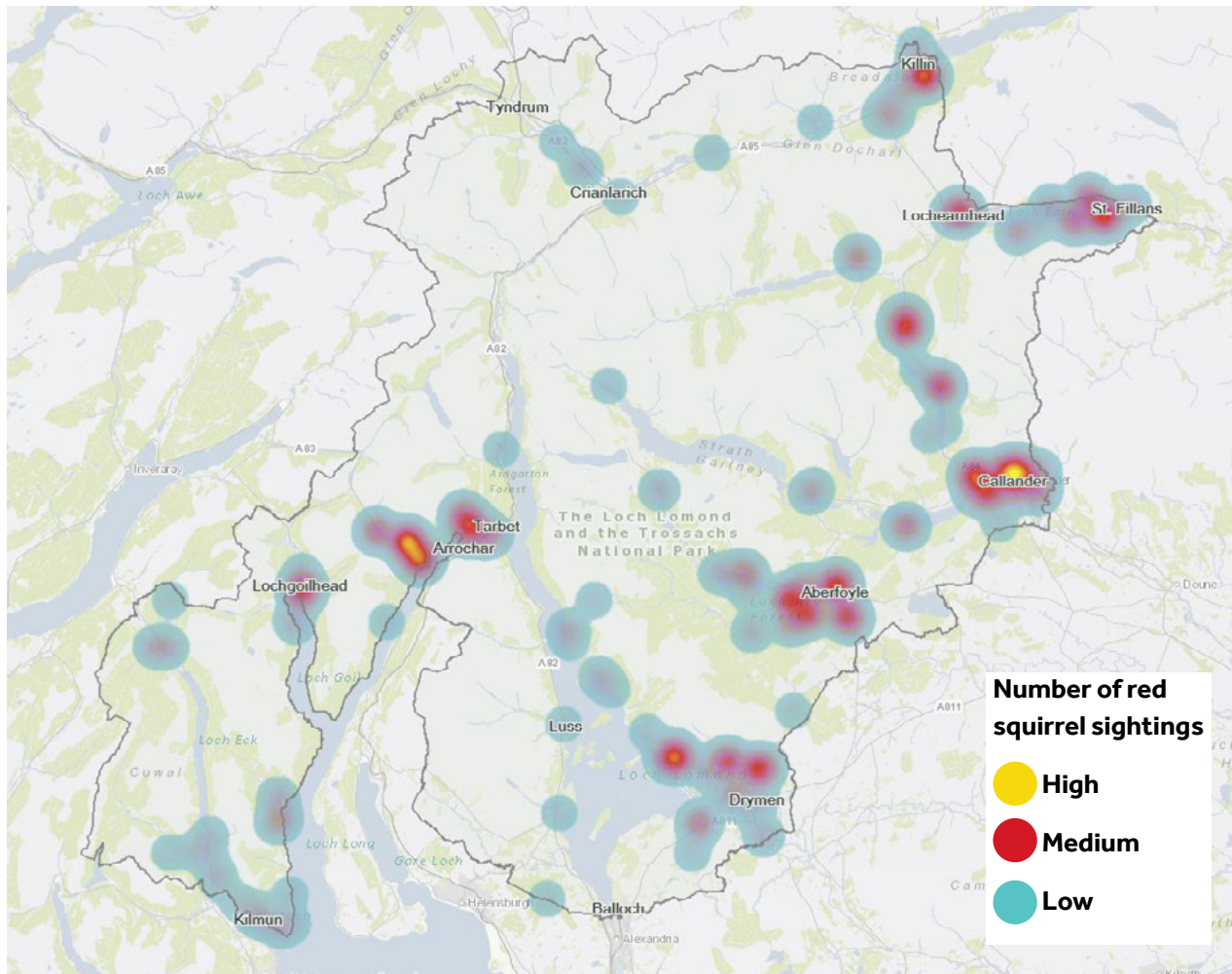
#### CLIMATE CHANGE PRESSURES

The impacts of climate change leading to warmer, wetter weather patterns and a subsequent increase in flood events, major landslides and rapid shifts in natural ecosystems.

### Objectives for mammalian INNS by 2023 are:

- Reduce the population and re-colonisation of grey squirrel in the National Park through a network of community-led groups and land managers continuing responsible trapping efforts in vulnerable areas.
- Retain effective grey squirrel control in areas where populations have declined to ensure densities do not regain.
- Involve land managers and local communities in the reporting of INNS species.
- Continue to promote recording of squirrel sightings through SWT
- Improve habitats from native species, such as better connected native woodlands and more naturalised water courses.
- Increase volunteer involvement in surveys.
- Provide information on responsible land management to encourage land managers to have good forest and riparian management that benefits native species, such as creating water bodies, reducing bank side poaching, planting the correct tree species etc.
- Collaborate with partners to deliver native mammal conservation education throughout the National Park through public events, interpretation, social media etc.
- Continue and increase collaboration with land managers to reduce the presence of mammalian INNS but also to improve habitats to favour native species.
- Increase numbers of active volunteers (monitoring and control).





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Work concentrating on one of the mammalian Invasive Non-native species threats in the National Park is being done by the Saving Scotland's Red Squirrels partnership project, led by the Scottish Wildlife Trust. It is a national initiative which aims to reverse the current decline in the distribution and numbers of red squirrels in Scotland. The long-term vision is to secure red squirrel populations in all the areas they currently occupy, together with expansion into some of their former range. The most serious threat to red squirrel populations is the ever expanding population of invasive non-native grey squirrels with the attendant risk of squirrel pox.

Within the Loch Lomond & The Trossachs National

Park the project seeks to protect identified red squirrel populations and other existing grey-free areas by undertaking grey squirrel control to reduce the risk posed to the major grey-free populations of red squirrels.

Since 2009 Saving Scotland's Red Squirrels have worked alongside, the National Park Authority, land managers, private estates, volunteers and Forestry and Land Scotland staff to establish long term surveying and monitoring of both red and grey squirrel populations and a strategy for targeted grey squirrel control. This had already seen large improvements and an increase in range of the red squirrel with the Loch Lomond and The Trossachs National Park now almost a grey-free area.

For more information about the project and its activities and to report squirrel sightings please see [scottishsquirrels.org.uk](http://scottishsquirrels.org.uk)



## Survey methodology

### FEEDER BOX SURVEYS

These surveys monitor the progression of populations over time and determine what is present in a specific area. The resulting data provides the most suitable locations to focus trapping or other conservation efforts.

In March and April hundreds of volunteers across Scotland visit sets of feeder boxes (usually 4 in a set area), filling them up with peanuts and placing a sticky tab on the lid. This is done every 2 weeks and the peanuts and sticky tab replaced each time the boxes are refilled. The sticky tab collects hairs from squirrels that visit the box allowing the presence or absence of reds and greys in that area to be determined.

Colour alone cannot be used to separate red and grey squirrel hairs. It is necessary to view the samples under a microscope to observe the cross-section of the hair which are different for red and grey squirrels.

### CITIZEN SCIENCE

Public squirrel sightings are essential to the success of the project. This wide scale data recording helps to focus the control of greys but also helps ensure woodland is managed for red squirrel populations. Public participation raises awareness of the project and the plight of the red squirrels in Scotland.



### TRAPPING

Trapping is a targeted approach to controlling grey squirrel populations in a specific area. It is illegal to release grey squirrels once they have been caught as they are a non-native species so they are humanely despatched. The captured grey squirrels are tested to investigate the presence of the Squirrelpox virus, allowing the project to gather important evidence of the health of populations and ensure that the disease is kept as far from red squirrels as possible.



### Mitigating against Climate Change

There are various implications of climate change for red squirrels in Scotland which include changes in rainfall patterns, increased risk of storm damage which may reduce the number of seed-bearing trees and the amount of red squirrel habitat, and possible greater prevalence of new tree diseases which could have an impact on food sources. To allow populations to respond to these potential impacts, it will be necessary to continue to plan woodland management on a landscape scale, ensuring a sustainable food supply and habitat connectivity for red squirrels to successfully adapt and thrive.

### The future for the project

Results from Saving Scotland's Red Squirrels spring survey in 2019 show that red squirrel populations have remained stable in the past few years, a sign that with continued effort from conservationists and volunteers, their decline can be halted. Our commitment is to work in partnership to continue with this flagship project so that the woodlands and forests can support healthy stable populations of our native red squirrels and further reduce the threat posed by the grey squirrel populations. Our ambition is to push back the grey squirrel population to the south and eastern boundaries of the National Park and to promote it as a place where visitors can experience and enjoy our much-loved red squirrels.

#### Questions and pupil enquiry

- What are the main causes of red squirrel population decline in Scotland?
- List the ways grey squirrels eventually replace red squirrels in locations they spread to.
- Explain the variety of ways conservation management can support the increase of red squirrel populations
- How will climate change impact red squirrel populations?

#### FURTHER READING



##### Online

- <https://scottishsquirrels.org.uk/publications/>
- <https://www.nature.scot/plants-animals-and-fungi/mammals/land-mammals/red-squirrel>
- <https://forestry.gov.scot/forests-environment/biodiversity/conserving-scotlands-red-squirrels>



##### Site visits

- Balmaha on east Loch Lomond is a great location to base a field visit, with the National Park Visitor Centre and Outdoor Classroom available for school groups. Follow the red squirrel trail through woodland walk behind the visitor centre to learn more about them and hopefully spot a squirrel too.
- Other suitable sites for field visits include at the The Lodge, Aberfoyle owned by Forestry and Land Scotland which has a viewing hide where they regularly feed the squirrels.