

Saving Scotland's Red Squirrels



Squirrelpox Action
in the Central Lowlands



March 2021

Squirrelpox in the Central Lowlands

This toolkit has been created to equip landowners and stakeholders in the Central Lowlands with the appropriate knowledge and contacts to monitor the spread of squirrelpox and prevent future outbreaks.

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Summary

Squirrelpox produces weeping scabs around the eyes, nose, mouth, ears, feet and genitalia of red squirrels. If you see a sick red squirrel that you believe may have squirrelpox, please contact Saving Scotland's Red Squirrels directly:

Saving Scotland's Red Squirrels
squirrels@scottishwildlifetrust.org.uk
0131 312 7765

If you suspect an animal is suffering, please report this to the SSPCA as soon as you are able to:

Scottish SPCA
03000 999 999

For more information on how you can be proactive in reducing the impact of squirrelpox, please visit [pages 6-7](#) of the toolkit.

A deadly disease

Squirrelpox disease is caused by a virus carried by a large proportion of grey squirrels in the UK. The virus does not harm its host but is deadly when transmitted to the UK's native red squirrels.

To ensure Scotland's red squirrels are fully protected it is important that landowners and other stakeholders in the Central Lowlands are aware of the imminent threat that squirrelpox poses and remain vigilant for it spreading into the region.

Saving Scotland's Red Squirrels (SSRS) is working to protect major red squirrel populations in southern Scotland, to monitor the northwards spread of squirrelpox and to prevent the disease from reaching Scotland's core red squirrel populations north of the Highland Line.

Whilst targeted grey squirrel control can slow the spread of the virus through neighbouring uninfected populations, it has unfortunately proven impossible to prevent its ongoing spread northwards in Scotland, and it has now reached as far north as Erskine and Bannockburn. If squirrelpox took hold in the Central Lowlands, Scotland's core red squirrel populations in Argyll, Grampian and the Highlands (where there are currently no grey squirrels) could be seriously under threat.



© Sarah Cooper

Symptoms of the disease in red squirrels include lesions around the eyes, mouth, nose, feet and genitalia and the squirrel becomes generally unwell. Infected red squirrels will be unable to feed, drink and move as normal and will typically die within two weeks.

Squirrelpox arrives in Scotland

The greatest threat to the red squirrel's future in Scotland is the North American grey squirrel, which was first brought to Britain in Victorian times. They are larger and more robust than our native reds and compete more successfully for food and living space, causing local reds to fail to thrive.

Squirrelpox has been detected in grey squirrels in parts of North America using antibody testing, but without any evident symptoms. The first incident in which the squirrelpox virus was detected and identified in the UK was in East Anglia in the 1980s, and widespread antibody testing has shown that cases have spread northwards throughout England and Wales since.

While grey squirrels have been present in Scotland for over a hundred years, squirrelpox was first detected in grey squirrels here in 2005, having spread from northern England through the region's grey squirrel populations. Research has shown that 60% of grey squirrels in England and Wales have been exposed to the virus and are therefore carrying antibodies. The first outbreak amongst a red squirrel population in Scotland was in 2007 near Lockerbie, and since then there have been further outbreaks in southern Scotland, in areas such as Denholm, Thornhill and Heathhall. In summer 2019, a particularly aggressive outbreak spread across a large part of Dumfries and Galloway's Solway Coast.

It has been observed throughout the UK that when grey squirrels spread into an area, the local red squirrel population is gradually replaced. Unfortunately, when squirrelpox virus is present, this process can take place up to 20 times faster.

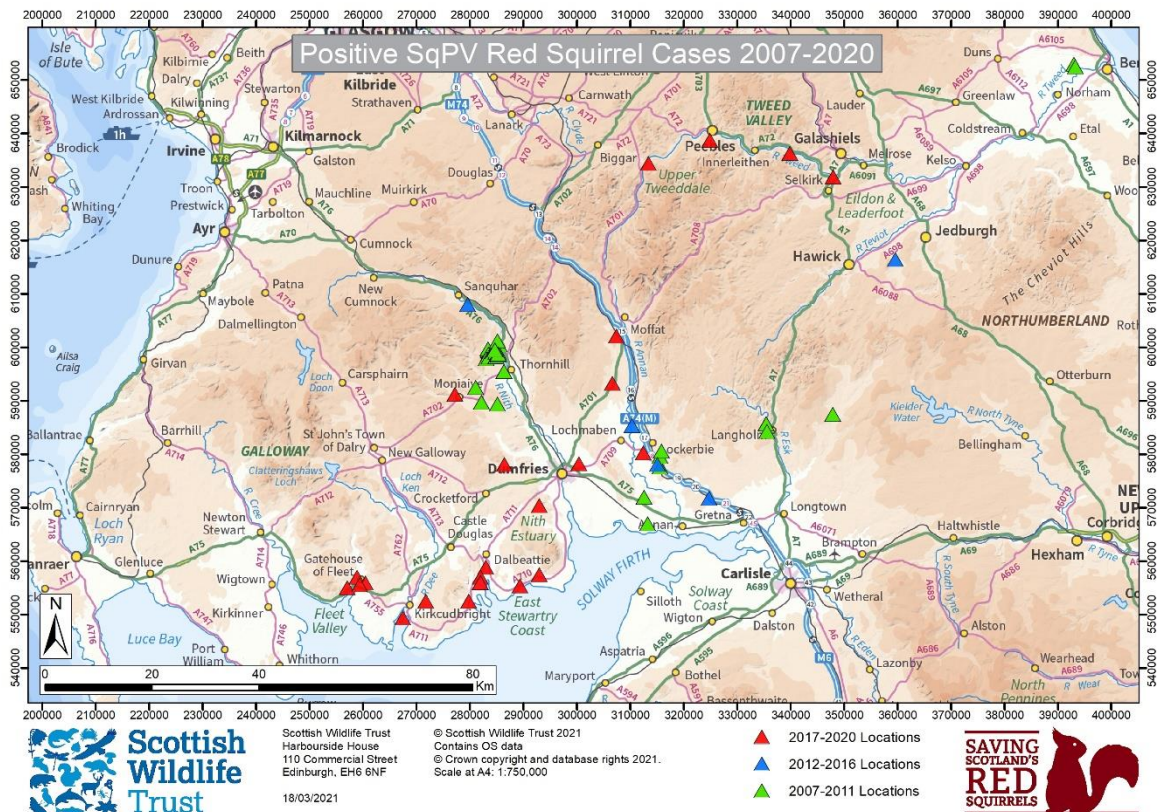


Heathhall Forest, Dumfries & Galloway 2018 ©Lisa Fuller

The precise means of spread of the disease is unknown, but facial scent gland-wiping behaviour may be one mechanism, and scientists at Liverpool University have detected shedding of virus particles from the scent glands on the wrists, thus it is likely that the virus is spread through contact with virus on surfaces in the environment.

Therefore, excessive supplementary feeding, which can artificially boost local squirrel numbers and bring squirrels into close contact with one another is likely to pose a risk of transmission of the virus where present and thus disease outbreaks among red squirrels using the feeders.

It is now considered that squirrelpox is prevalent in grey squirrel populations in southern Scotland. At one time this would have been viewed as the death-knell for Scotland's red squirrels, but we have seen that targeted, co-ordinated and sustained landscape-scale grey squirrel population control in both northern England and southern Scotland is effective at protecting local red squirrel populations from replacement, allowing them to thrive despite the presence of low densities of grey squirrels and squirrelpox virus.



Taking action

Mathematical modelling conducted by Edinburgh's Heriot-Watt University demonstrated that a red squirrel population could recover from a localised squirrelepox outbreak if grey squirrel numbers were kept sufficiently low, effectively preventing them from replacing local red squirrels. Reducing grey squirrel numbers through approved control methods allows red squirrels to repopulate an area where disease has caused a local population crash. Low squirrel densities also reduces the rate of transmission of the virus between grey squirrels and from greys to reds.

Grey squirrel control work to protect red squirrels has been carried out successfully in Cumbria, where squirrelepox virus has been present in invading grey squirrel populations for over 20 years. Through the efforts of the Red Squirrels Northern England project and sustained voluntary action, red squirrel populations have recovered in most areas of the county despite the presence of squirrelepox virus in the majority of grey squirrels.

The work by SSRS and its predecessor project, Red Squirrels in South Scotland, to control grey squirrel populations in south Scotland since early 2000s, has slowed the spread of the virus and helped to maintain widespread red squirrel populations that would otherwise have vanished. SSRS's population monitoring work shows that targeted grey squirrel control in priority areas across Dumfries and Galloway and parts of the Scottish Borders continues to help red squirrel distribution to remain stable in those areas, despite squirrelepox outbreaks.

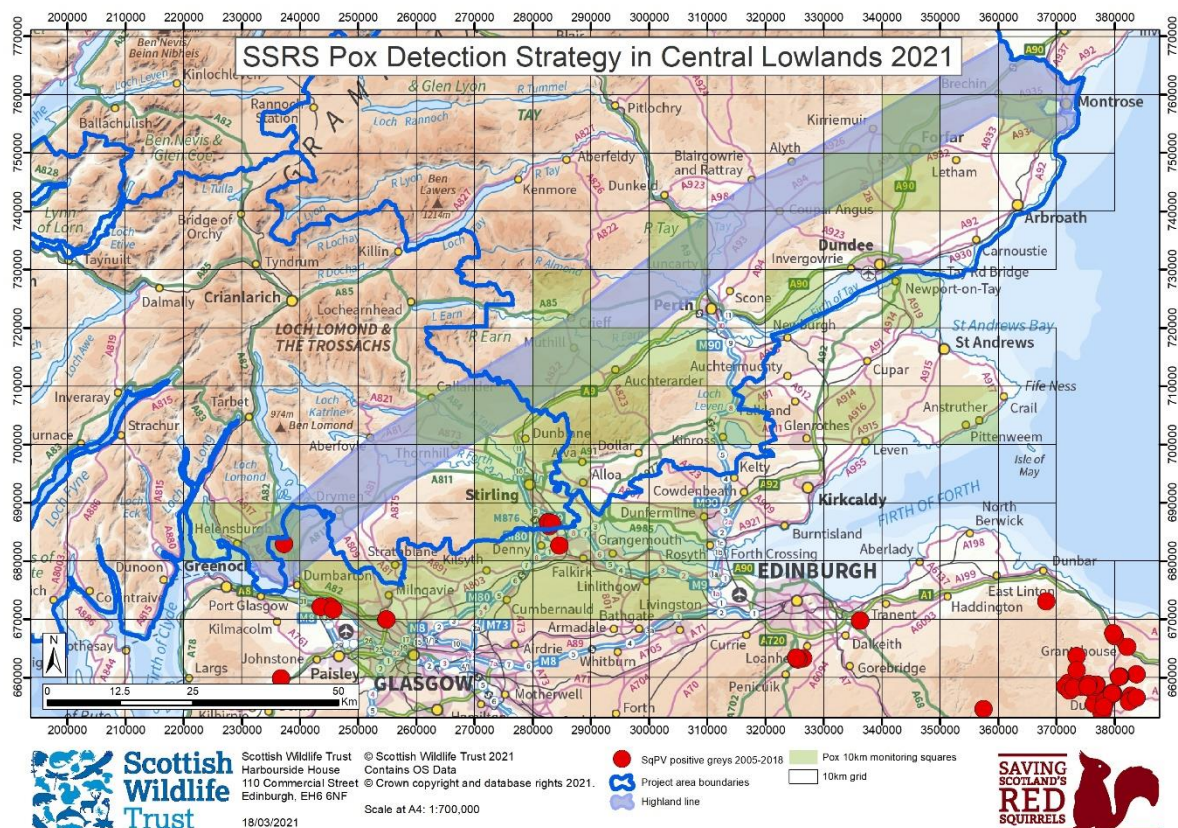
Squirrelpox in the Central Lowlands

Monitoring the situation

Fortunately, there have been no known squirrelpox outbreaks in red squirrels in the Central Lowlands to date. SSRS coordinates blood sampling of grey squirrels across the region, from the east coast to the west, testing for the presence of squirrelpox antibodies.

The main focus of project work in the Central Lowlands is targeted control along a 10-km-wide strip along the Highland Line, maintaining low densities of grey squirrels and preventing grey squirrels from establishing to the north of the Highland Line. By testing a sample of grey squirrels for squirrelpox across the Central Lowlands, we will be ready to alter our strategy and direct our resources to tackle any detected threats to the Highland Line zone as early as possible.

Testing in recent years detected cases of grey squirrels carrying squirrelpox antibodies from areas including: Roslin on Edinburgh's southern edge, Pleau near Bannockburn, Glasgow near Bearsden on the River Kelvin and at Erskine. These results suggest that squirrelpox may be poised to spread northward through Dunbartonshire to Argyll, and from Stirling, Clackmannanshire and Kinross towards Fife and Tayside. However, as yet the detected spread of the virus northwards from Glasgow and Edinburgh has been limited and slow.



How you can help

In 2017, Saving Scotland's Red Squirrels began a new phase called 'Developing Community Action'. Alongside vital conservation work, the five-year project running to March 2022, is focusing on engaging with local communities and individuals, inspiring them to take action to protect red squirrels where they live.

Below are some of the ways you can be proactive in reducing the impact of squirrelpox during this phase of the project, and best practices that can be carried forward.

Report sick red squirrels

Keep a lookout for red squirrels that are visibly unwell, and contact Saving Scotland's Red Squirrels directly with details of your sighting (ideally with a photograph). The most telling sign that a red squirrel is infected with squirrelpox is the presence of wet, ulcerated lesions of the eyes, nose and mouth. In more advanced cases the lesions can be found in the ears, feet and genitalia. The squirrel will appear to be noticeably unwell – it may be quite lethargic and remain stationary for long periods of time.

Note: if you suspect an animal is suffering, please report this to the SSPCA as soon as you are able to.

If you find a freshly dead red squirrel, you can send it to the Royal (Dick) Veterinary School in Edinburgh for post-mortem, where the lab will test for squirrelpox and other diseases. Read more about how to safely and securely send a red squirrel for post-mortem on [our website](#).

Prevent disease spread at feeding stations

Wildlife feeding stations may be one of the main ways squirrelpox is spread, because they bring red and grey squirrels into close contact with one another. It's important that all feeding equipment is cleaned regularly using an anti-viral solution such as Virkon S, which will also benefit birds and other wildlife.



Disinfecting Feeder Boxes © Cameron Singh-Johnstone

In areas where squirrelpox virus has been confirmed as present in grey squirrels, you should stop feeding immediately if both red and grey squirrels visit a feeding station. You should also stop feeding if there is evidence of disease in the red squirrels, or if SSRS has issued a warning of disease outbreaks among red squirrels locally. Contact SSRS for further advice on how to minimise the spread of disease.

We may recommend capture of affected red squirrels, so that the risk of further infection is removed. Sick red squirrels should be taken to the nearest cooperating vet. Any euthanised red squirrels should be submitted to the Royal (Dick) Veterinary School to confirm squirrelpox. Posting instructions are on the [Saving Scotland's red Squirrels website](#).

Report your squirrel sightings

Report any sightings of red or grey squirrels on the Project's [website](#), enabling us to monitor changes in squirrel distributions.

Landowner involvement

Saving Scotland's Red Squirrels is asking landowners and volunteers in the Highland Line zone to support the project's grey squirrel control work, by granting access permissions for grey squirrel control and blood sampling work to be carried out.

Highland Line Trap-loan Scheme

Join the trap loan scheme in our priority Highland Line zone whereby traps and training will be provided so that estates and householders can carry out their own grey squirrel control.

Assist with squirrelpox testing

With support and training from SSRS, those carrying out grey control can undertake blood sampling of the squirrels to help monitor the spread of disease. Please contact us for more information.

Set up a local squirrel group

Although SSRS needs to focus project resources on our priority Highland Line zone, local people wishing to protect local red squirrel enclaves outside of this zone are encouraged to set up independent, voluntary red squirrel protection networks to coordinate grey squirrel control in critical areas. By joining the SSRS Hub you will be able to access resources such as our grey squirrel control 'Standard Requirements' and 'Squirrelpox Protocol' documentation.

By working in partnership, we can ensure that Scotland's red squirrels will always have a home here.

Useful resources

Report your squirrel sightings: scottishsquirrels.org.uk/squirrel-sightings/

SSRS landowner support: scottishsquirrels.org.uk/publications/

Red squirrel post mortem advice: scottishsquirrels.org.uk/publications/

SSRS Community Hub, an online space for volunteers: scottishsquirrels.org.uk/community-hub/

Argyll, the Trossachs & Stirling project area overview and regional contacts:

<https://scottishsquirrels.org.uk/in-your-area/argyll-trossachs-stirling/>

Tayside project area overview and regional contacts: <https://scottishsquirrels.org.uk/in-your-area/tayside/>

Useful contacts

Saving Scotland's Red Squirrels

squirrels@scottishwildlifetrust.org.uk

0131 312 7765

Scottish SPCA

03000 999 999

Saving Scotland's Red Squirrels - Developing Community Action is a project to implement a sustainable programme of red squirrel protection capable of securing the long-term survival of core red squirrel populations across Scotland. It is a five-year project to recruit and equip communities to take on a vital role in the long-term protection of red squirrels in key areas across the country. It is a partnership project between Scottish Wildlife Trust, NatureScot, Scottish Forestry, RSPB Scotland, Scottish Land & Estates and Red Squirrel Survival Trust.

It is funded for the five years 2017-2022 by the National Lottery Heritage Fund.





scottishsquirrels.org.uk

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PROJECT PARTNERSHIP



FUNDERS



Saving Scotland's Red Squirrels is led by the Scottish Wildlife Trust, a Scottish registered charity (charity no. SC005792) and a company limited by guarantee and registered in Scotland (registered no. SC040247).