

Red Squirrel Information Sheet

Why does the virus not kill grey squirrels?

We don't know, but it is probably because the virus has evolved with the grey squirrel over thousands of years. It is very common to find that the "reservoir" of a virus does not suffer from the severe disease that other animals (in this case red squirrels) suffer.

Do we have squirrelpox disease in Scotland?

Yes, but it is very recent. Until 2005 no infected grey squirrels had been found in Scotland. In May that year we detected the first few infected grey squirrels in the Scottish Borders. It is thought that grey squirrels travelling north from Cumbria were bringing the virus with them. In May 2007 we detected the first cases of disease in red squirrels near Lockerbie. In 2008 and 2009 there were further outbreaks of disease near Annan, Langholm and Thornhill.

Is there anything we can do about squirrelpox?

Scientists at the Moredun Research Institute and London Zoo have been studying SQPV for a number of years. They have been studying the disease to try and get a better understanding of how the virus kills red squirrels and recently discovered that some red squirrels are capable of surviving the SQPV infection in the wild. They have also revealed the genetic make up of the virus and how it is related to other poxviruses. All this information will be used over the next few years by scientists at the Moredun in their attempts to produce a vaccine that could be used to help protect more red squirrels from the virus.

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Background

150 years ago red squirrels were found throughout Britain. Today they are only found in Scotland, the northern counties of England and in small isolated colonies such as in mid-Wales and on the Isles of Wight, Brownsea and Anglesey.

Why have they declined?

Persecution: In the late part of the 19th century and the early part of the 20th century red squirrels were considered a pest, causing severe damage to trees. The Highland Squirrel Club was established in 1903 to try and prevent this damage and as a result more than 82,000 red squirrels were shot in highland estates over the next 30 years.

Habitat: The red squirrel is known as an arboreal squirrel because it spends most of its life in trees. They are very seldom found on the ground except to bury nuts as a winter supply of food. The numbers of red squirrels decreased as woods and forests were chopped down across Britain, but increased again with the increased planting of conifers.

Competition: The red squirrel is the only squirrel native to Britain. Therefore it faced little or no competition for food and habitat. However between 1876 and 1929 grey squirrels were brought over from America and released in approximately 30 different sites across the UK. Unfortunately it turned out that grey squirrels were able to make better use of some woodland habitats as well as being able to digest unripe nuts and seeds. This had a severe affect on red squirrels sharing the same woodland and as the red squirrel numbers fell the grey squirrels rapidly increased in number.

Today it is estimated that there are over 2 million grey squirrels in the UK, but only about 140,000 red squirrels. People have become worried that it will not be long before the red squirrel disappears completely from Britain.

Are there any other reasons for the decline in red squirrel numbers?

Squirrelepox: Throughout the 20th century vets had reported seeing red squirrels dying from an unknown disease. The squirrels appeared to have scabs on their faces, and their eyelids were often swollen and shut. Scabs were also found on their hands and feet, particularly between their fingers and toes. It was not until 1981 that it was suggested that this particular disease was caused by a poxvirus and not until 2002 that it was proven to be caused by the virus we now know as Squirrelepox virus (SQPV).

Where does Squirrelepox virus come from and what does it do to red squirrels?

All the evidence we have to date suggests that the virus was brought over from America with the grey squirrels. As far as we know when red squirrels become infected with the virus the vast majority of them will die.

Why do we think this?

Scientists at the Moredun Research Institute, here in Edinburgh, developed a blood test that could be used to tell whether or not red or grey squirrels had been infected with SQPV. What they have discovered is that infected grey squirrels are found in areas of the UK where red squirrels are no longer found. In contrast, infected red squirrels are only found in parts of the country where there are infected grey squirrels. The grey squirrels that are infected with SQPV do not have any symptoms of disease whereas the infected red squirrels rapidly become ill and more often than not die from squirrelepox disease. This type of scenario is quite common and is why scientists regard the grey squirrels as the “reservoir” of the virus.



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