

Distribution and status of the Red Squirrel and Grey Squirrel in Ireland

Distribution and status of the Red Squirrel and Grey Squirrel in Ireland: D. Ó. Teangana, S. Reilly, W. I. Montgomery, J. Rochford (2000)

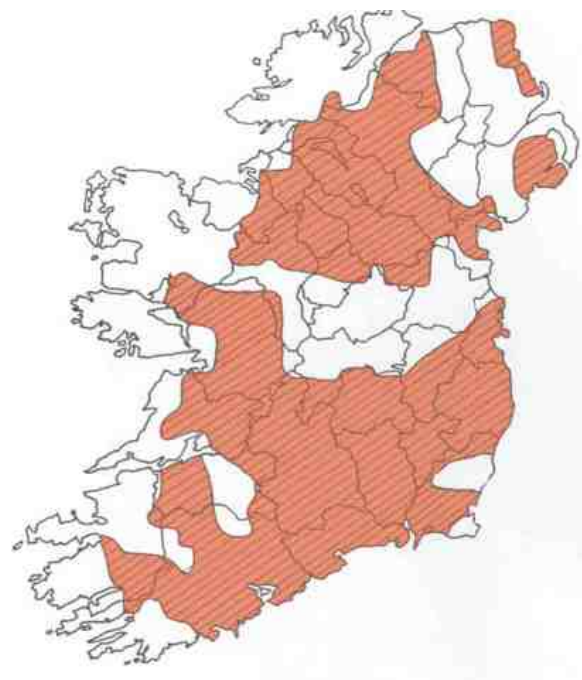
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This study was carried out to survey the distribution of the Red (*Sciurus vulgaris*) and Grey Squirrel (*Sciurus carolinensis*) in Ireland. The data was gathered through questionnaires to governmental and independent wildlife bodies. The results indicate that although the Red Squirrel remains widespread, the Grey Squirrel is now more prevalent than ever before, and can be found in 22 of the 32 counties. Its range expansion has varied from 0 km/yr to an estimated 13.4 km/yr. The current decline in Red squirrel numbers is attributed to factors such as pressure on its habitat from grey squirrels and large scale forest clearance. The greys may also act as a vector of the parapox virus, which affects the red squirrels but not the greys.

Red squirrels are out-competed by the grey squirrels in many types of woodland. Red Squirrels prefer large coniferous woodlands while Grey Squirrels prefer mixed and broad-leaved woods. As large tracts of coniferous woodlands disappear, this breaks up the habitat of Red Squirrels making it more difficult for them to hold territories. The two squirrel types have similar appetites. Grey Squirrels are more omnivorous and in areas where both co-exist, appear to be more successful. The red squirrels wait for the nuts and seeds to mature. The more robust greys have a more varied diet as they can eat nuts and seeds before they are ripe enough for the reds. Grey squirrels also put on a lot more body fat than red squirrels which gives them a better chance of surviving. The spread of the grey squirrel has been mirrored by a decline in red squirrel numbers.



Distribution of the Grey squirrel in Ireland



Distribution of the Red squirrel in Ireland

(from O'Teangana *et al.* 2000).

Squirrels belong to the most successful and widespread Order of animals in the whole World: Rodentia, characterised by their efficient gnawing front teeth. Within this Order, the Family Sciuridae covers the three groups of squirrels – flying squirrels, ground dwelling squirrels and tree squirrels. Both the Red and Grey squirrels are tree squirrels.

The Red Squirrel is Ireland's native squirrel. It has been found in Ireland since before the last ice age, but became extinct a number of times. The removal of native woodlands helped to cause its decline. It was reintroduced from Britain in the 19th century but this study has confirmed that it is again becoming rare and is currently absent from areas along the west and north coasts. This current decline has coincided with the spread of the Grey squirrel. The Grey is spreading across the country and in the long term is threatening the Red with extinction in Ireland.

The Grey Squirrel is originally from North America. Six pairs were brought as a wedding present to one of the daughters of Castle Forbes House in Longford in 1911 and were deliberately released. Since then the grey squirrel has increased its distribution in all directions, though its expansion west of the River Shannon has been hindered.

The Red Squirrel:



- Coat: above – russet red to grey brown, below – white/off white
- Tail: red, red with black tinges (occasionally white)
- Ear tufts: prominent/large in winter; red-brown to white
- Length: 180 – 240mm
- Weight: 220 – 430g

Red squirrels have fur which ranges from blonde or pale orange, through deep reddish-brown to almost black ear tuft and bushy tails, which may bleach lighter in spring and summer. Some red squirrels can have greyish flanks in summer, but their ear tufts and tail mean that they can be distinguished from grey squirrels, which are stockier and heavier, with mouse-like ears and a halo of white around their tail.

Red squirrels are well adapted to the woodland habitat in which they live. Their light weight and their agility enable them to reach the thinnest branches at the tops of trees. They use their tails for balance. Their double-jointed ankles and long claws help them to hold on when running up and down tree trunks. If they are disturbed, they will often ‘freeze’ for 5 to 10 minutes and press themselves against the trunk of the tree until they think it is safe to move again. Although it is believed that the squirrel can use its fore-limbs for a variety of activities, recent research shows that the squirrel must first pick up a food item (e.g. a nut) with its teeth and then transfer it to its paws while in a hunched position. Red Squirrels are known to hoard food items from times of plenty to be used at a later date. Red squirrels are more difficult to observe than Grey Squirrels.



One reason for this is their tendency to spend a greater amount of time high up in coniferous trees. They spend at least 3/4 of the time in the trees and 1/4 or less on the ground. The Red Squirrel is a protected species under the Wildlife Act, 1976.

Red squirrels eat a variety of different foods throughout the year. They are adapted to living and foraging in woodlands, where their diet is made up of tree seeds, nuts, berries, fungi, buds, shoots, flowers, bark, lichen, and even insects in summer. The autumn and winter seed harvest is extremely important, both for survival through the winter months, and to ensure breeding success the following spring.

Chewed and stripped pine cones and broken nut shells which can be found scattered below a favourite feeding branch or on tree stumps are clues to show where a squirrel has been feeding.

It has a special technique for quickly opening nuts and it uses its incisors to strip the woody scales from pine cones to get the seeds that they protect. Because of its light weight, it can reach cones growing at the tips of branches. A squirrel can eat the seeds from 20,000 cones in a year.

The Grey Squirrel:



- Coat: above – grey in winter, grey with chestnut in summer, below – white
- Tail: brown and black with white fringe
- The ears of grey squirrels look like mouse ears as they have no tufts
- Length: 240 – 285mm
- Weight: 400 – 720g

Its coat is a steel grey colour in winter but there may be reddish along its legs in the Summer. The grey squirrel is larger than the red. It is diurnal and most active at dawn and dusk, searching for available food. Compared with the red squirrel, it spends more time foraging and feeding on the ground than in the trees. It is, however, very agile in the trees and can run along slender twigs, leaping from tree to tree. The long, muscular hind legs and short front legs help it to leap. The hind feet, longer than the front, are double-jointed to help the squirrel scramble head first up and down the tree trunk. Sharp claws are useful for gripping the bark and the tail helps it to balance. If a squirrel should fall, it can land safely even from heights of about 9m. The grey squirrel can leap more than 6 metres.

The presence of grey squirrels within the vicinity of the woodland is quite easy to determine as they are fairly conspicuous animals. They can be seen both on the ground and up in the trees, and they often leave characteristic feeding signs on the woodland floor. Hazelnuts are characteristically split lengthwise. It makes a small incision at the top of the shell and levers it open using its teeth. Damage can be easily attributable to grey squirrels by its position on the tree. This is usually on the main stem or major branches, at all heights on the tree. Discarded pieces of bark often litter the ground under damaged trees. Parallel grooves 1 to 2 mm width running along the wound also implicate the grey squirrel. They do considerable damage to trees when present in large numbers.



In early summer they do most damage by gnawing at the main stem, seeking the sweet, sappy layers immediately beneath the bark. Sometimes the tree is completely ringed and as a consequence will die.

The grey squirrel's diet includes buds, shoots, lichens, fungi, insects, berries and the eggs of birds such as the song thrush (*Turdus philomelos*). Acorns, hazelnuts and pine cones are hidden under the soil surface to be retrieved later, particularly during the winter. While these nuts or seeds are being carried in the squirrel's mouth, chemicals from scent glands in its cheeks are transferred to the food, and these act as markers which help the squirrel relocate its hoards. They are found by smell, rather than memory.

The grey squirrel builds itself a nest, or drey, about the size of a football, made of twigs, often with the leaves still attached. It is built fairly high in a tree and lined with dry grass, shredded bark, moss and feathers. A summer drey is usually quite flimsy and rests on small branches. Sometimes the squirrel may make its nest in a hollow trunk or take over a rook's nest, constructing a roof for it. A squirrel may build several dreys.

Although grey squirrels have a wide range of calls, they communicate mainly through their tails, using them as a signalling device. They twitch their tails if they are uneasy or suspicious. Regular routes are scent-marked with urine and glandular secretions. Squirrels identify each other, and food, by smell.

In the autumn, squirrels can be seen gathering and storing caches of nuts and cones ready for the winter. Squirrels do not hibernate, but continue to forage for food throughout the winter, although they may not emerge from the shelter of their drey in very cold or wet weather.

The breeding season for both types of squirrel usually starts in January. They may be seen leaping from tree to tree or running around tree trunks in mating chases. Female squirrels can have spring and summer litters, producing on average three young. However, the previous autumn's seed crop and how severe the winter is directly influence breeding success. Red and Grey squirrels do not interbreed. Young squirrels, known as kittens, open their eyes at around 30 days old, and begin to venture from the drey at around 45 days. At 10 to 12 weeks they become independent from their mother and start to disperse. The young squirrels' survival is determined largely by their first winter, with up to 85% of young perishing in harsh conditions. The life span of the female is between 4-6 years. The life span of the male is between 2-3 years.

This study provides important information to conversationalists, those involved in silviculture and to Irish authorities who should consider the introduction of a national grey squirrel control policy. Unfortunately the grey squirrel is here to stay in Ireland as eradication would be impossible, but careful planning would reduce the damage caused by the species and ensure that the native Irish Red squirrel will not face extinction .

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