



Cone Survey Information Sheet



You will find all the information you need to complete the Cone Quadrat surveys and calculations on this sheet.

What are cone quadrat surveys?

Cone transect surveys are a systematic assessment of complete cones on the forest floor and remains of cones fed on by squirrels.

When carried out over a number of years these counts can monitor trends in the squirrel population and food availability. When carried out intensively throughout the year they can also be used to show squirrel habitat use and distribution of squirrels.

The best time of year to do these surveys is in the autumn. Ideally the same quadrats should be surveyed every year.

Energy for Living

- An adult red squirrel needs between 146,000 Kilo Joules (kJ) and 255,500 kJ per year to survive
- An adult grey squirrel needs between 182,500 kJ and 292000 kJ per year to survive.

Scientists have worked out how much energy is available in the seeds of different conifer species and therefore how much energy is in each cone – see Table 1.

Table 1. Average energy value for conifer cones (Lurz and Smith)

Species	Energy per cone (kJ)
Scots Pine	3.84
Lodgepole Pine	2.48
Norway Spruce	17.69
Sitka Spruce	5.25
Douglas Fir	6.216
European Larch	2.31
Japanese Larch	1.73

Red Squirrel Densities

Scientists have surveyed many different types of woodland and worked out average densities of red squirrels in the different conifer forests.

Table 2. Average density of red squirrels in different crop types (Lurz, 1995)

Tree species	Red squirrel density (per ha)
Sitka spruce	0.02 – 0.20
Norway spruce	0.12 – 0.41
Pine	0.16 – 0.43
Larch	0.21
Other conifers	0.03 – 0.80