Forest operations and red squirrels in Scottish forests
- the law and good practice

SUMMARY

Recent changes to species protection were introduced by the Nature Conservation (Scotland) Act 2004. These are introduced in the FCS Guidance Note*: Forest operations and wildlife in Scottish forests.* This note sets out further advice on how to plan and carry out forest operations and recreational activities in woodlands to minimise the possible impacts on red squirrels.

The survey, forest design and operational planning practices set out in this note should minimise disturbance and damage to red squirrels and their dreys from forest operations. However this guidance cannot be taken as a definitive statement of the law and it will be revised if necessary in response to relevant case law.

1. INTRODUCTION

1.1 Background to conservation status

The red squirrel has been in serious decline in Britain over the last fifty years due to displacement by the introduced grey squirrel. Scotland now holds at least 75% of the UK red squirrel population, ie about 120,000 individuals. Red squirrel is a priority species under the UK Biodiversity Action Plan. A Scottish strategy for red squirrel conservation was published in 2004 (SNH 2004), aiming to conserve viable populations across the current range, whilst recognising that not all the current populations are likely to survive if grey squirrels continue to colonise suitable habitat across Scotland. Under the Strategy a number of local volunteer groups have been established and are active in work such as survey and monitoring and local conservation action. (see Section 6 for contact details).

1.2 Red squirrels and the law

Red squirrels have been protected against intentional acts of damage or disturbance since 1981 under the UK Wildlife and Countryside Act (WACA), Schedule 5. Protection for red squirrels and other species was amended by the Nature Conservation (Scotland) Act, 2004 to include both *intentional* and *reckless* acts (see FCS guidance note 'Forest operations and wildlife in Scottish forests').

Subject to certain exceptions, it is now an offence to 'intentionally or recklessly:

- kill, injure or take (capture) a red squirrel;
- damage, destroy or obstruct access to any structure or place which a red squirrel uses for shelter or protection; or to
- disturb a red squirrel while it is occupying a structure or place which it uses for that purpose.'

Anyone who carries out, or knowingly causes or permits these acts to occur could be committing an offence.

There is no current mechanism for licensing forestry operations where they may cause damage or disturbance to red squirrels, (except in very restricted circumstances such as felling trees for public safety reasons). To avoid an offence, foresters and woodland owners need to be able to show that they took reasonable precautions to avoid causing damage or disturbance, and that if it still occurred they took reasonably practical steps to minimise or prevent further damage/disturbance. See FCS Guidance Note: Forest operations and wildlife in Scottish forests (section 5) for details .

The intention behind the legislation is to strike a balance so that foresters and other land managers take reasonable precautions to try to avoid impacts on protected species without placing disproportionate restrictions on forestry and other legitimate forms of land management. Ultimately the conservation of red squirrel populations will not be possible without the willingness of woodland owners to carry out sympathetic woodland management to maintain their habitat.

This advice focuses on reasonable practical measures that can be taken to minimise damage and disturbance to red squirrels from lawful forest operations and activities. It will be for the courts to decide whether following these measures is a sufficient defence in law.

FCS will follow this guidance in our management of the national forest estate, and will expect this guidance to be followed as a condition for approval of felling licences and grant aid and forest plans for private forests. We will also promote its use in forestry-related Environmental Impact Assessments relevant to red squirrels.

1.3 What are the structures and places used by red squirrels for shelter or protection?

For red squirrels these are a series of nests called *dreys.* (see box 2). Red squirrels spend 70% of their time in the tree canopy, coming down to the ground only to find food or to cross open areas. Daily ranging activity can be between 0.2 and 1.8km depending on the food supply. When not feeding, red squirrels spend time in their dreys - resting, sleeping, sheltering, grooming and breeding. They do not hibernate in winter. Individuals may have several actively used dreys at any one time in its home range and can build a new drey in a few days. The most important dreys are those used for breeding, which can occur between February and September.

1.4 What is damage and disturbance?

- *damage or destruction of currently used dreys*, whether or not the squirrel is inside at the time when the damage occurs. For breeding dreys, there is a risk of young squirrels being *killed or injured* if the drey tree is felled.
- *obstruction of access* to used dreys is less likely but could occur, eg from a felled branch from a neighbouring tree accidentally becoming lodged against the drey;
- *disturbance offences relate to* animals occupying a drey: the squirrel is inside or at the drey when the operation occurs. It might occur without any damage to the drey, for example when adjacent trees are felled. The degree of disturbance is likely to be greatest for dreys with young squirrels present. If the area around the drey tree is clearfelled it is likely that the drey will no longer be suitable. Adults can move readily

but young squirrels may not be old enough to move and, even if the mother moves them herself (as has been known), this would be a stressful and risky process.

1.5 What operations and activities might kill, damage or disturb red squirrels?

- Felling trees containing active dreys, or immediately adjacent trees
- Other noisy operations or recreational activities carried out close to dreys may cause disturbance, at least during the breeding season.

2. HOW TO MINIMISE DAMAGE OR DISTURBANCE TO RED SQUIRRELS

The only way to guarantee a complete lack of damage and disturbance would be to locate all active red squirrels dreys and avoid all felling or noisy activities nearby at all times of year. But this is not practical or reasonable because:

- a high proportion of Scottish woodlands contain red squirrels; (Fig.1)
- dreys in tree crowns are often very hard to find in dense woodland, and it is often not possible to detect actively used red squirrel dreys from old birds nests, grey squirrel dreys or disused dreys;
- cutting trees and removing timber is an essential part of forest management, which provides income and incentive for many woodland owners to sustain and create woodland habitats for future generations of red squirrels to use.

Natural annual mortality of red squirrels in woodlands is typically very high because red squirrel numbers respond to large natural fluctuations in tree-cone crops. Whilst it is necessary to minimise damage and disturbance to individual squirrels and dreys, this high natural population flux should be borne in mind when assessing the significance of impacts of forest operations on red squirrel populations.

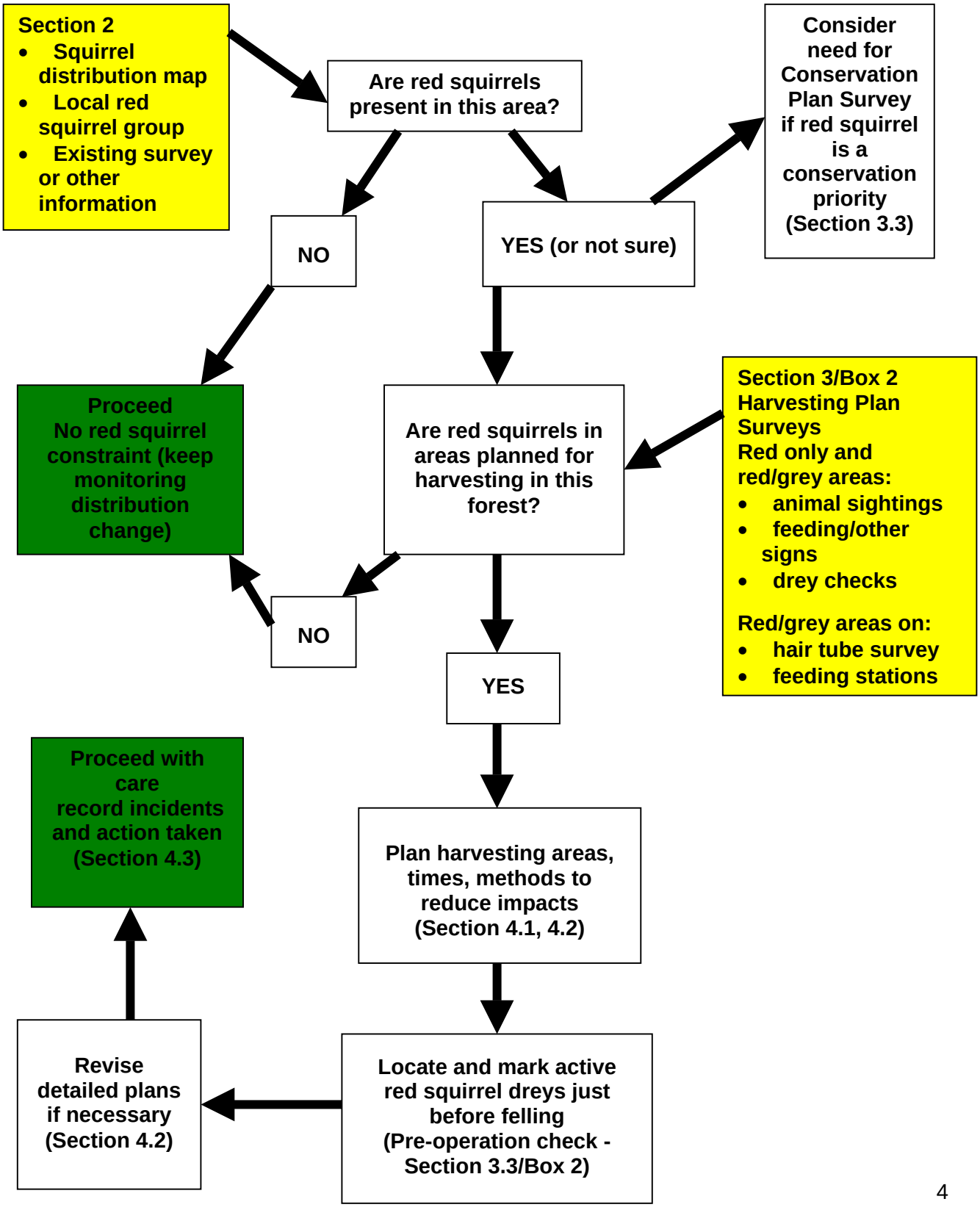
2.1 Key steps

Nevertheless forest managers need to minimise or mitigate impacts on dreys and individual animals by:

- ***trying to locate any red squirrel populations and active red squirrel dreys (Section 2)***
  - Identify squirrel presence in the locality.
  - Survey woodlands to locate populations of red squirrels.
  - Survey shortly before operations to locate active red squirrel dreys.
- ***planning and carrying out operations to minimise impacts (Section 3*)**
  - Zone or time operations to reduce risk of significant damage or disturbance.
  - Plan the way felling is carried out to avoid or minimise impacts on dreys.
  - Take any other reasonable measures to minimise or mitigate damage or disturbance as soon as it becomes apparent .
  - Keep a record of procedures followed where red squirrels are encountered.

Figure 1 summarises the decision process required.

Fig 1 - Decision key for planning harvesting to minimise impacts on red squirrels



2.2 Planning for long term habitats for red squirrels

As well as minimising short –term effects on individual red squirrels, managers should consider possible measures for long term conservation or improvement of habitat for red squirrels in line with the Scottish Red Squirrel Strategy, and include this in forest plans where suitable (Section 6). This may help offset any short-term effects on individual squirrels from felling trees and will be far more important for the conservation of the species in the long term. Evidence of planning in this way should help to demonstrate a reasonable and responsible approach to red squirrel protection.

3. LOCATING RED SQUIRRELS AND THEIR DREYS

3.1 Are there red squirrels in the locality?

Information on red squirrel distribution is continually being updated and readers are referred to the Scottish Squirrel Survey website www.scottishsquirrelsurvey.co.uk/. The Scottish Squirrel Survey is establishing a rolling programme of survey and data collection across Scotland on a three to five year cycle. More detailed information on red squirrel sightings may be available through Local Red Squirrel Groups, local knowledge and from local record centres. A map showing red and grey squirrel distribution in Scotland is at Appendix 1.

It is good practice to maintain your own records on squirrel presence (reds and greys) and drey locations in your own area. Any unexpected sightings should be reported to Scottish Natural Heritage (SNH) and to the Scottish Squirrel Survey.

3.2 Are red squirrels present in the woodland?

In a red squirrel-only area (see Appendix 1) squirrel sightings, feeding signs and drey locations can all indicate red squirrel presence. In red/grey areas more survey effort is required to distinguish species. In these areas, animal sightings, hair tube analyses and monitored feeding stations are suitable survey methods for identifying red squirrel presence, although the latter two methods should not be used where the squirrelpox virus is an imminent threat. Grey squirrels from the Newcastleton, Langholm and Lockerbie areas were confirmed seropositive for squirrelpox virus during spring and summer 2006. Up to date information on the distribution of the squirrelpox virus should be sought from Local Red Squirrel Groups.

Regular cleaning of equipment using an antiviral disinfectant is essential in any surveying method that may bring grey and red squirrels into contact. (See UKRSG Advice Note on Supplementary Feeding- references)

Surveying can be difficult and inaccurate in terms of detecting red squirrel presence and estimating numbers. It is not easy to distinguish the signs of red and grey squirrels, nor is it easy to see squirrel dreys. There can be a marked fluctuation in numbers of squirrels from year to year, and within a year, depending on food availability - the lower the density of squirrels the lower density of signs to be found.

Interim sightings of red and grey squirrels between surveys should always be recorded as a routine procedure. Box 1 gives information on when best to survey for red squirrels.

BOX 1. WHEN AND WHERE TO LOOK FOR RED SQUIRRELS

Red squirrels do not hibernate so can be seen all year round.

Summer – they are most active in early morning and evening, with brief periods of activity in between.

Autumn - in broadleaved woods they are more likely to spend time on the ground whereas in conifer forests in autumn and winter most activity is in the canopy where the cones persist on trees.

Winter - they are less active and activity will peak in the middle of the day when the sun is warmest.

Spring - squirrels spend more time on the forest floor searching for fallen cones. Mating chases are a common sight at this time of year.

3.3 Survey Opportunities

Where red squirrels are present, surveys should be carried out at one or more stages in planning forest operations.

Conservation planning survey - at the Forest Design Plan or Forest Plan stage (*desirable where red squirrel conservation is important as a management objective.* A population survey can be used to inform forest planning, eg to retain areas of old conifers in places with the highest potential value for red squirrels. Detailed descriptions of methodology for population surveys is outside the scope of this guidance (for more information see Section 6 in Gurnell et al ,2001).

Harvesting plan survey - prior to drawing up a felling schedule. (*recommended wherever red squirrels present)* This is carried out to determine the present and predicted areas of the woodland used by red squirrels for feeding and nesting, and plan to reduce likely impacts by timing or locating harvesting areas and choice of harvesting method.

Pre-operation Check - shortly before operations commence (*essential wherever red squirrels present*) This will be a quick check for animal sightings, signs and dreys. Areas in active use can be noted and drey trees marked, allowing for last minute changes in the felling schedule. New dreys can be built in 1-2 days so pre-operation checks, particularly in the breeding season, should be within a maximum of 3 weeks of the start of operations.

A more detailed description of survey methods is given in Box 2. Whatever method is used, there is no certain way of finding all squirrel dreys in a wood, nor of being sure whether they are breeding dreys, other active dreys (nor which species is using them in areas where both reds and greys are found).

BOX 2. Survey methods	
SURVEY METHOD	**SUITABILITY**
Animal Sightings - Remember not all red squirrels are red, nor are all greys grey – colour alone is not sufficient to distinguish them. If confirmation is not possible (e.g. you observe that cone scales are being shed but the animal is hidden in the canopy) then the record is uncertain.	For pre-op. check or harvesting plan survey. Note red/grey squirrel presence, location and date.
Feeding Signs - The feeding signs of reds and greys are very similar so cannot be used as a distinguishing factor. Feeding signs are easy to detect and a feeding 'table' such as a tree stump is often used. Look for scattered fragments of shells, husks of nuts and acorns, stripped centres of cones, remains of cone scales and seedwings without the seeds. Newly eaten cones have a freshly cut appearance but edges soon fade to a duller brown shade. Squirrels remove most of the scales on the cone but leave some strands behind giving it a messier appearance – mice leave a 'tidier' cone core and birds often leave ragged edges all over the cone and generally do not remove the scales. In the first half of the year terminal shoots, leaf buds and flower buds are cut through leaving sharp edges and, mainly in early summer, bark stripping is visible as long, sometimes spiralling, strips on the trunks. Fungi can show -incisor tooth marks – the size of the tooth marks will distinguish squirrels from mice and voles. Food is sometimes hoarded under the soil or leaf litter or in a hole in a tree.	For pre-op. check or harvesting plan survey. Note presence, type of sign, location and date.
Other Signs - The squirrel call is a variation on 'chuck' which can vary from soft to loud and **young squirrels emit a shrill piping call or whistle.** Droppings are small and widely scattered and vary with diet and so are not very useful. They can be confused with rat droppings. Tracks are about 3cm across each print, the fore-feet showing four toes with claws and hind feet five toes with claws. Prints are far apart due to a bounding gait and no tail scuff is present. Regular runs can sometimes be seen as chipped bark on tree trunks or worn ground between trees. Tracks are more likely to be seen in areas containing grey squirrels.	For pre-op. check or harvesting plan survey. Note presence, type of sign, location and date.
Drey Check - Individual squirrels usually use several dreys at a time and possibly move between them depending on the food supply. ***Squirrel dreys are very difficult to find, particularly in conifers (especially in dense spruce).*** In broadleaves the best time to search for dreys will be in the winter. Red squirrel dreys are usually built in the fork of the main trunk or main branches of conifers – Norway spruce in particular and Scots pine being favoured species. Sitka spruce and larch trees are less likely to have dreys in them. The majority of dreys are above 8m and they are always above 3m. Occasionally holes in trees will be used as dens. Grey squirrel dreys are more often in broadleaved trees, are messier (falling twigs, light shining through) and more likely to be further from the main branch. Drey appearance cannot reliably distinguish between red and grey squirrel presence. **Breeding dreys have fresh leaves and thicker linings but cannot be reliably identified.**	For pre-op. check or harvesting plan survey. Note presence, location and date plus any indication of active use by red or grey squirrels. If there has been no indication of the presence of red squirrels for a year or more prior to harvesting, then dreys can be assumed to belong to grey squirrels.
Hair Tube Surveys - This method is useful for distinguishing between species in red and grey squirrel areas, particularly where visibility is poor e.g. in Sitka spruce plantations. It cannot however be used in red/grey areas threatened by squirrelpox virus. It also requires specialised equipment, time and a degree of expertise in identifying hairs (see Section 6, Gurnell et al, 2001)	For harvesting plan survey. Note red/grey squirrel presence, location and date.
Feeding Stations - A whole maize bait feeding station is monitored in person or by CCTV or by a sticky block on the feeder box which can be used to collect hair from the visiting animal. The method is not suitable for red/grey areas threatened by squirrelpox virus due to the possible transmission of disease.	For harvesting plan survey. Note red/grey squirrel presence, location and date.

4. PLANNING HARVESTING TO MINIMISE DISTURBANCE

Management options for felling need to be flexible and adapted to local conditions. The advice here focuses on conifer plantations that have been surveyed and are known to contain red squirrels, although the concepts are transferable to other woodland types.

4.1 Where and when to fell

Red squirrels tend to follow the food supply and likely feeding and drey building areas can be predicted based on a knowledge of the tree species and coning sequences (see Box 3). Where possible plan to ***avoid clearfelling in the richest red squirrel habitat***, particularly Norway spruce during mast years (including the summer before the cones are ripe and extending until the following summer). Adjacent or mixed stands of Norway spruce and Scots pine generally provide the best red squirrel habitat and should be surveyed with extra caution.

Although harvesting operations may disturb red squirrels and damage dreys at any time, the potential impacts are higher during the breeding season. Squirrels will breed twice in years when food supplies are good, although in poor cone years there may be one brood and the young will be weaned by the end of June. ***Ideally, avoid clearfelling in the breeding season from February – September. Where this is not possible, try to zone felling away from the richest red squirrel areas*** **and the** ***period up to the end of June*** (see 4.2 for more about felling during the breeding season).

BOX 3. CONIFERS AND RED SQUIRRELS

Red squirrel habitat depends entirely on the presence of suitable food supplies and trees for drey building. Knowledge of coning is a useful way to predict good feeding areas in the forest.

Norway spruce (NS)	- preferred species for dreys - cone production fluctuates dramatically between years, - provides abundant food in high mast years - crucial component for red squirrels in forests dominated by SS - cones ripen later than SS and most seed is shed the following spring - caution - masting in NS and SS tend to be synchronous so include an alternative food supply such as larch - good crop interval every 3-11 years
Scots pine (SP)	- retains cones and seeds until the following summer, provides food supply in cone failure years for other species - crucial component in forests dominated by SS - good crop interval every 2-5 years
Douglas fir (DF)	- useful to provide a continuity of seed - good crop interval every 4-7 years - most seed shed in autumn
Sitka spruce (SS)	- less preferred food source - tends to shed most of seeds from cones in first 4 months after maturing in September, - only provides a source of food in autumn with a shortage from December onwards - cone production fluctuates dramatically between years - good crop interval every 3-5 years - in SS plantations alternative food supplies should be available (see NS and SP)

Corsican pine (CP)	- less favourable for red squirrels than SP as cones less heavily - good crop interval every 3-4 years - cone and seed retention as for Scots pine
Lodgepole pine (LP)	- holds cones for over 12 months and coning is less erratic than in SS and NS - provides a dependable food supply in cone failure years for SS and NS - good crop every 1-3 years.
Lodgepole pine (LP)	- holds cones for over 12 months and coning is less erratic than in SS and NS - provides a dependable food supply in cone failure years - good crop interval every 1-3 years

4.2 Detailed operational planning

When drawing up a harvesting schedule the accessibility of nearby feeding and shelter areas to which red squirrels can escape should always be taken into account.

If felling or thinning during the breeding season is unavoidable, trees containing red squirrel breeding dreys should be marked and where practical left unfelled, together with immediately adjacent trees. Ideally connection should be retained to breeding dreys by means of remaining tree crowns linking to adjacent woodland areas. However it will often not be possible to avoid loss or damage to dreys in clearfelling harvesting operations.

- ***Thinning*** operations disturb red squirrels. They will move to nearby feeding areas but remain within 200m and return after operations cease. To minimise disturbance, consider splitting larger (> 30ha) sites into smaller sections and thin them in different years.

- **Low impact silvicultural systems** in sheltered locations should cause less disturbance to squirrels and dreys than clear-felling because they maintain an almost continuous canopy layer. These systems will probably also result in improved habitat value in future by stimulating coning and provide a mix of age classes for continuity of food sources. It should be possible to plan small group fellings or thinning operations to avoid most dreys. Most areas are not currently suited to these systems but FCS is encouraging their development for the long term.

- **Clear felling and group felling** will create the highest disturbance/damage risk, but these systems are the only practical option at present in most conifer forests. Retaining small clumps of unfelled trees around dreys should be considered, but these are likely to blow over on exposed or wet sites and it may not be practical, nor effective for red squirrel conservation, to retain them. In unthinned sitka spruce plantations, dreys may be almost impossible to find before trees are felled.

4.3 During Felling

Harvesting operators should be instructed to look for dreys as they work. Forked trees in areas of Norway spruce should be treated with extra caution as these are favoured drey trees. If suspected active red squirrel dreys are encountered during operations:

- where practical, leave the tree standing (see 4.2);

- consider whether to delay or relocate operations;
- if a tree containing an active drey with young is felled and the drey is still intact, try to place the drey in another nearby retained tree where practical;
- record all such incidents and the action taken when red squirrels or their dreys are encountered during operations.

5. OTHER FOREST OPERATIONS AND RECREATIONAL EVENTS

Prolonged noisy operations or events sited close to dreys with young squirrels could cause disturbance. Plan these to avoid red squirrel-rich stands during the breeding season. See FCS Guidance Note: *Forest operations and wildlife in Scottish forests* for general guidance on planning events and managing visitors.

6. LONG TERM FOREST PLANNING FOR RED SQUIRRELS

Forest restructuring in second rotations can have a crucial role to play in improving red squirrel habitat and any short term damage caused to individual red squirrels by disturbance through forest operations can be off-set by long term planning for the squirrel population. However the degree of effort put into planning for red squirrels will depend on other conservation priorities and the status of the woodland for red squirrels. (see Section 7 for sources of advice)

6.1 Forest Design for Red Squirrels

The estimated numbers of red squirrels required for a viable long-term population is >200 individuals. To achieve this red squirrels require at least 200 hectare (ha.) in optimal habitat ranging to over to 5000 ha in Sitka spruce dominated upland forest.

- aim for a mix of species and age class for a continuity of food supply (ideally about 2/3rds of the forest should be of seed producing age).
- focus on enhancing the conifer element. Plant species to benefit red squirrels in groups within the plantation or along rides or edges (see Table 2).
- establish south facing plantations with irregular boundaries to increase periphery and long south-facing edges to east-west rides to improve seed production.

Table 1. Suggested age class mix for conifer forests for optimal red squirrels habitat

Spruce/larch dominated	***Pine dominated***
20-30% of 0-15 years	*20*-30% of 0-20 years
20-30% of 15-30 years	20-30% of 20-40 years
At least 40% or more of 30 plus years	At least 40% or more of 40 plus years

Table 2 Tree species choice to benefit red squirrels

Red Squirrel benefit		**Neutral - small seeded broadleaves**	**Grey squirrel benefit – large seeded broadleaves**
Norway spruce	hemlock	willows	oak
Scots pine	red cedar	aspen	beech
Corsican pine	cypress	alder	hazel
Lodgepole pine	hawthorn	birch	chestnut
Douglas fir	blackthorn	rowan	
larch	bird cherry	ash	
yew	wild cherry	sycamore	
dog rose	guelder rose	juniper	
holly	bramble		

Key points made in this guide

- Make sure the forest plan has taken into account the presence of red squirrels (sections 3.3 and 6)
- Make sure an effort has been made to locate red squirrels and their dreys when the harvesting schedule is drawn up
- Where practical, avoid felling in red squirrel areas during the breeding season (Feb – Sep) - more important where clear-felling is planned (section 4.1).
- Consider availability of surrounding suitable red squirrel habitat to which the squirrels can escape and attempt to leave links when planning harvesting.
- Always carry out a pre-operation check and mark red squirrel drey trees (section 4.2).
- Try to leave the drey tree unfelled *where practical*, and consider leaving a group of trees around the drey tree and some connectivity to alternative habitat.
- Instruct operators to take care to look out for red squirrels and dreys when working
- If active red squirrel dreys are encountered during felling operations, consider whether to delay or relocate operations (section 4.3).
- Make sure any incidents involving red squirrels are recorded.

7. REFERENCES AND SOURCES OF ADVICE

Bang, P. & Dahlstrom, P. (2005) Animal Tracks and Signs. Oxford University Press, Oxford.

Bryce, J., Cartmel, S. & Quine, C.P. (2005) Habitat Use by Red and Grey Squirrels: Results of Two Recent Studies and Implications for Management. Forestry Commission Information Note 076, HMSO, London.

Gurnell, J. & Pepper, H.W. (1991) Conserving the Red Squirrel. Forestry Commission Research Information Note 205, HMSO, London.

Gurnell, J. (1987) The Natural History of Squirrels. Christopher Helm, Bromley.

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Pepper, H. & Patterson, G. (2001) Red Squirrel Conservation. Forestry Commission Practice Note 5 (revised), HMSO, London.

Websites

Scottish Natural Heritage Commissioned Report No. 089 (ROAME No. F02AC334) (2005) Identification of priority woodlands for red squirrel conservation in North and Central Scotland: a preliminary analysis *www.snh.org.uk/pubs/cr.asp*

Scottish Squirrel Group (2004) Scottish Strategy for Red Squirrel Conservation *www.snh.org.uk/pdfs/scottish/Squirrel.pdf*

Scottish Squirrel Group *www.jncc.gov.uk/page-3219*

Scottish Squirrel Survey – with link to Local Red Squirrel Groups contacts *www.scottishsquirrelsurvey.co.uk/*

SNH Naturally Scottish: Red Squirrels *www.snh.org.uk/publications/on-line/NaturallyScottish/redsquirrels/Page1.htm*

SNH, Red Squirrels *www.snh.gov.uk/scottish/species/mammals/squirrels.asp*

UKRSG Advice Note. Red Squirrels and the Law *www.jncc.gov.uk/PDF/rs_law_ewn.pdf*

UKRSG C1. Advice Note. Supplementary feeding. August 2004
www.jncc.gov.uk/pdf/rs_supfeed_v5.pdf

UK Red Squirrel Species Action Plan *www.ukbap.org.uk/UKPlans.aspx?ID=565*

Web sites or contact details for Local Red Squirrel Groups (August 2006):

Ayrshire, *www.ayrshireredsquirrels.org.uk*
Angus, no web-site, e-mail *rec_glendoll@angus.sol.co.uk*
Argyll – no group, contact 01631-566155, *janie.steele@forestry.gsi.gov.uk*
Borders Red Squirrel Conservation Officer, *www.red-squirrels.org.uk*
Central Scotland Red Squirrel Group, no web site, contact 01786 442768, *waddellc@stirling.gov.uk*
Dumfries & Galloway Red Squirrel Conservation Officer, *www.red-squirrels.org.uk*
Dundee Red Squirrel Project, *www.dundeecity.gov.uk/csrangers/index.html*
Grampian Squirrel Group, *www.grampiansquirrelgroup.co.uk*
Highland Red Squirrel Group, *www.highlandredsquirrel.co.uk*
Loch Lomond & the Trossachs National Park Red Squirrel Working Group, *www.lochlomond-trossachs.org/html/whatwedo/squirrels_index.htm*
Perth & Kinross Red Squirrel Group, *www.redpages.org.uk*
South Lanarkshire – no group, contact 01355 806 858. *scott.riddell@southlanarkshire.gov.uk*
Tayside Squirrel Forum, contact 01738 442830, *james.mcdougall@forestry.gsi.gov.uk*

Appendix 1: Squirrel Distribution Map for Scotland, SNH (2006)