

National Parks & Wildlife Service / Environment & Heritage Service

All-Ireland Species Action Plan Red Squirrel

May 2008



Comhshaol, Oidhreacht agus Rialtas Áitiúil
Environment, Heritage and Local Government



All-Ireland Species Action Plan
Red Squirrel *Sciurus vulgaris*
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1 Current Status

- 1.1** The red squirrel is exclusively a woodland species that occupies a wide range of woodland types across much of Ireland. However, its range has contracted markedly since the middle of the twentieth century, and its distribution has become fragmented over much of that range. The most recent survey (Carey *et al.*, 2007) produced no records for the species from Meath or Westmeath and only a handful of records from Louth, Carlow and Kilkenny combined. There are an estimated 40,000 red squirrels in the whole of Ireland (C. Lawton and G. Hamilton pers comm). A decline in numbers and range has coincided with an increase in the numbers and range of the introduced North American grey squirrel *Sciurus carolinensis*.
- 1.2** The present population of reds in Ireland is largely derived from re-establishments to about 10 sites, following possible extermination in the eighteenth century, between 1815 and 1856 (O'Teangana *et al.*, 2000; Finnegan *et al.*, 2007). The rarity or scarceness of reds in the west of Ireland may at least partly be explained by the scarcity of organised releases there in the nineteenth century (O'Teangana *et al.*, 2000).
- 1.3** Arrival of grey squirrels in an area previously occupied only by red squirrels generally results in the replacement of the red squirrels within a few decades, and typically within 15 years (Pepper & Patterson, 1998). Surveys carried out between 1994-96 (O'Teangana *et al.*, 2000) found the grey squirrel to be present in 22 counties and estimated an average rate of spread of the grey squirrel of 1.94km/yr. The 2007 all-Ireland squirrel survey (Carey *et al.*, 2007) showed grey squirrels to be present now in 26 counties, (the exceptions being Sligo, Mayo, Galway, Clare, Kerry and Cork) with notable expansions over the last decade in eastern counties from Antrim to Wexford. Lawton and Hamilton (pers comm.) have estimated their numbers at 250,000 animals.
- 1.4** Five Red Squirrel Preferred Areas (RSPAs) were identified in an earlier Red Squirrel Action Plan for Northern Ireland (McGhie and Milburne, 2000). Each preferred area comprises a core conifer-dominated woodland with a mixture of age classes and species together with some berry-bearing shrubs to ensure a continuous food supply. The surrounding buffer zone is either coniferous woodland or non-squirrel habitat such as agricultural land or open moor, with limited opportunities for grey squirrel incursions. These RSPAs were intended to provide a focus for conservation measures and included targeted control of grey squirrels to prevent their colonisation.
- 1.5** In Northern Ireland (NI) the grey squirrel is now more widespread than the red (Huxley, 2003). Grey squirrels have replaced reds in woods in all six counties. Woods containing only red squirrels are mainly concentrated in northeast Co. Antrim and western Fermanagh. Since 1995-6, grey squirrels appear to have overcome the natural barriers of Lough Erne, Lough Neagh and the River Bann, and have penetrated the whole of west Co. Antrim and north through Co. Londonderry (O'Neill & Montgomery, 2003).

In the Republic of Ireland (RoI) greys are now present in 20 of the 26 counties, all of which are to the east of the Shannon. Woods supporting reds only are concentrated in the west and south of the country. Red squirrels are absent from a wide area surrounding the original grey squirrel introduction site in Co. Longford.

- 1.6 Red squirrels persist longest in extensive coniferous forests once greys have arrived in an area. However, red squirrel density and breeding success are reduced in wholly coniferous woodland compared with woods in which hazelnuts are available as a food source (Kenward & Holm, 1993).
- 1.7 Since the publication in 2000 of the red squirrel Species Action Plan for Northern Ireland, red squirrels have continued to decline (O'Neill & Montgomery, 2003). A partial survey in 2002 showed that greys had replaced red squirrels in four woodlands in Londonderry and Fermanagh between 1995-6 and 2002 and that there had been a net gain of grey squirrels in 14 of the surveyed woodlands.
- 1.8 The red squirrel is protected under Schedule 5 of the Wildlife (Northern Ireland) Order 1985 and is protected under the Fifth Schedule of the Wildlife Act 1976 and the Wildlife (Amendment) Act 2000 in the Republic of Ireland. The species is also on Schedule III of the Berne Convention. In Northern Ireland, occupied red squirrel dreys are also protected under the Wildlife Order. In the Republic of Ireland it is not an offence to interfere with a breeding place while engaged in forestry.

2 Current Factors Affecting the Population

- 2.1 Spread of grey squirrel - red squirrel abundance declines with the arrival of greys and reds generally disappear from woods that have been invaded by greys. Factors favouring greys include their larger size, which allows them to outcompete reds for food resources; their wider dietary range, which allows them to utilise foods such as unripe acorns which are toxic to reds (Kenward & Holm, 1989, 1993); their relatively unspecialised habitat requirements, which enables them to displace reds from marginal habitats (Skelcher, 1997); and their carrying of the squirrel pox (SQPV), which greys appear to tolerate but which is normally fatal to reds. However, although poxvirus antibodies are endemic in the Northern Ireland grey population (McKay, 2004), there have been no recorded deaths of reds from this cause in Ireland.
- 2.2 Woodland availability - a fundamental determinant of red squirrel range is the presence of woodland. In Northern Ireland, woodland covers around 7.1% of the land surface (Cooper *et al.*, 2002). Of this, 4.6% comprises coniferous plantation, with an estimated increase of 7305ha between 1992 and 1998 (Cooper *et al.*, 2002). Broadleaved woodland has a land cover of 2.1%, with an increase of an estimated 2642ha. The forest area of the Republic of Ireland has increased by 77% since 1981 and now stands at over 700,000ha representing 10.3% of the overall land area (Forest Service data, 2006). Over 85% of this is coniferous, but the proportion of broadleaf planting is growing.

- 2.3** Woodland species composition - red squirrel survival depends on the availability of a year-round food supply, which is dominantly of tree seeds. In deciduous and mixed woodland, the species can utilise larger seeds such as those of hazel *Corylus avellana*, but are also able to exploit small-seeded trees such as Sitka spruce *Picea sitchensis*. The number of young weaned per breeding female is positively correlated with food abundance (Wauters & Dhondt, 1990). There is lowered annual survival of greys in some conifer forests compared with reds, and greys may only be able to persist in this habitat through regular immigration from broadleaved woodland (Kenward *et al.*, 1998). Conifer plantations with oaks *Quercus* spp. nearby may be particularly vulnerable to grey squirrel invasion because they enable greys to live at higher densities than would otherwise be possible (Lurz *et al.*, 1995). The presence of large-seeded tree species such as oak gives a competitive advantage to greys, and may allow greys to replace reds in broadleaved or mixed woodland (Kenward & Holm, 1989).
- 2.4** Forestry practice - the most secure red squirrel populations are in extensive conifer plantations and these require sensitive management to maintain their status. Red squirrels show a preference for forest over 35 years of age, falling to over 25 years of age in Norway spruce (Andrén & Delin, 1994). As a contribution to red squirrel conservation, the Forest Service in Northern Ireland has formulated plans for selected forests that include planned felling to retain a range of age classes, designation of areas for long term retention, avoidance of felling certain stands during breeding periods and selective removal of large-seeded broadleaves (Anon, 2003).
- 2.5** Grey squirrel control - prevention of grey squirrel incursions into woods occupied by red squirrels and removal of greys from woods occupied by reds increases the probability of red survival in those woods. Warfarin cannot be used for squirrel control in Northern Ireland, but may be used in the Republic of Ireland. Trapping and shooting have both been used to good effect, North and South. In all cases control needs to be targeted, intensive, timely and long-term (Forestry Commission, 2006) to ensure red survival. Removal of grey squirrels from a woodland requires continued awareness and action following initial clearance of the species, but has been reported as accomplished at the National Trust (NT) Crom property in County Fermanagh.
- 2.6** Translocation - introduction of red squirrels to suitable woods previously unused by the species, and remote from grey squirrel populations, will increase red squirrel range and population security. Translocation requires adherence to defined procedures to ensure success, and should conform to IUCN guidelines for re-introduction (Anon, 1995; McLean, 2003). Preliminary translocation studies are at present under way in Connemara and Mayo, and results are yet to be published.
- 2.7** Supplementary feeding - food availability affects breeding success and survival of red squirrels, and feeding is used in some woods to supplement naturally occurring resources. Feeders are used in selected Forest Service (Northern Ireland) woods and occasionally by other organisations and individuals. However, feeding stations may also attract greys, and may be a means of spreading disease among reds.
- 2.8** Presence of physical barriers to the spread of greys - rivers and extensive tracts of unsuitable habitat slow the spread of greys into areas populated by reds. In particular, greys have yet to be found west of the Shannon. The presence of this barrier provides an opportunity to concentrate resources to protect and augment the largest area of red-

only occupation in Ireland. Habitats that are devoid of trees may deter grey squirrel dispersion. Buffer zones of at least 3km should generally be maintained around core red squirrel sites (Reynolds & Bentley, 2001), although this may be reduced to 1km in safer areas such as blanket bog.

- 2.9** Proximity to foci of introduction - the most extensive area of former red squirrel occupied land that now supports greys only is centred on Castle Forbes, Co Longford, the site of grey squirrel introductions in 1911.
- 2.10** Predation - potential predators of red squirrels include pine marten and buzzard, however predation by these species is unlikely to be significant. Predation by domestic cats may be locally important, and has been implicated in the decline in red squirrel numbers around Newcastle, Co Down.
- 2.11** Other causes of mortality - road kills and disease (coccidiosis) are known to be causes of red squirrel deaths, with greatest mortality in the first year of life. Also, red squirrel populations have been shown to demonstrate natural fluctuations. The proximal cause of declines of reds is probably reduced litter sizes, resulting from a reduction in red squirrel fitness in competitive habitats, leading to below-replacement recruitment (Gurnell *et al.*, 2004).
- 2.12** Disturbance - the use of parts of the forest resource for high-impact recreational activities such as off-road cycling, vehicular trespass, rallying and holiday pastimes may inhibit red squirrels from exploiting some areas of woodland.
- 2.13** The restoration of native woodland on sites currently carrying conifer plantations has the potential to conflict with red squirrel conservation. Similarly, the expansion of native woodland to meet targets within the Northern Ireland biodiversity strategy also has the potential to impact negatively on the reds.

3 Current Action

- 3.1** The Northern Ireland Forest Service has identified the need to take account of red squirrels in its activities, and conservation measures have been specified in 50% of the forests in the five Red Squirrel Preferred Areas. These actions have also been applied in 25% of the other forests in which reds are present. Measures include grey control, forest redesign, monitoring and feeding.
- 3.2** In Northern Ireland, outline management plans for red squirrels in forests in Red Squirrel Preferred Areas have been produced by the Forest Service for two districts. The emphasis is on targeted culling of greys and tree species selection following harvesting. The benefits of thinning to promote seed production and the identification of areas for long term retentions are noted.

- 3.3** Detailed prescriptions have been made for Tollymore Forest (Co. Down), including maintenance of a range of tree age classes, long term retention of selected areas, avoidance of harvesting during breeding periods and selective removal of broad leaved species.
- 3.4** Targeted control of greys in Red Squirrel Preferred Areas for conservation purposes has been at an average of 69 squirrels/yr, with an additional cull of an average of 52 squirrels/yr in other forests with red squirrels.
- 3.5** Guidance on the use of supplementary feeding was published in an Environmental Newsletter (1999). Designed feeders have been placed in Tollymore and Donard (Co. Down) forests, and *ad hoc* feeding takes place elsewhere.
- 3.6** An all-Ireland squirrel survey has been conducted recently with funding by COFORD (Carey *et al.*, 2007). The survey was based on a questionnaire circulated widely during 2007 amongst the forest sector, with an on-line form made available to the general public (www.irishsquirrelsurvey.com). The final report can be downloaded from the COFORD website (<http://www.coford.ie>).
- 3.7** An assessment of the extent of SQPV was carried out in 1999 and a further study was carried out in 2004 (McKay *et al.*, 2004). It was concluded that SQPV infection was likely to be less significant than other pressures on red squirrels as a causal factor in red squirrel decline. In specific locations, SQPV infection may have contributed to the replacement of red squirrels by greys.
- 3.8** In Northern Ireland, advice and information are available on the Forest Service website. Red Squirrel Week has been publicised and events organised in Forest Service properties.
- 3.9** Regional Planning and Transportation Division within the Department of Regional Development (DRD, Northern Ireland) is responsible for the implementation of the *Regional Development Strategy* (RDS) for Northern Ireland 2025, which provides an overarching framework for competitive and sustainable development in Northern Ireland (DRD, 2001). The Strategic Planning Guidelines of the RDS are translated into policies through Planning Policy Statements (PPSs).
- 3.10** DOE Planning Service assesses the impact of development proposals on wildlife using policies in *Planning and Policy Statement 2 – Planning and Nature Conservation* (currently under review). Environment and Heritage Service (EHS) of the Department of the Environment (Northern Ireland) is a statutory consultee to Planning Service and provides advice on site specific impacts both within designated sites and in the wider countryside, when requested to do so. Impacts of development proposals on red squirrels are assessed in known areas and the proposals amended or mitigated to ensure their continued use of suitable habitat in favoured areas. EHS, Natural Heritage also provides advice on planting schemes in these areas to favour red squirrels.

- 3.11** Site protection policies are included in Development Plans. These include the identification of Sites of Local Nature Conservation Importance (SLNCIs). Planning Service is currently considering which SLNCIs will be formally identified in Development Plans. Where such sites are confirmed in adopted plans, specific planning policies will be applied to development proposals on those sites.
- 3.12** The development of Local Biodiversity Action Plans (LBAPs) based on District Council areas and/or discrete landscape areas, and the appointment of Local Biodiversity Officers will help to build on the SLNCI network and encourage, coordinate and inform local biodiversity action. The LBAP includes Species Action Plans (SAPs) and Habitat Action Plans (HAPs). The LBAP framework provides a system by which can assess the important habitats and species in a particular area.
- 3.13** Coillte Teoranta does not have a policy-level approach to red squirrel conservation. Most of its actions that have an immediate effect on red squirrels are *ad hoc* and site-based, and are guided by the desire to reduce bark-stripping and hence grey squirrel population levels. Coillte argues that 'key issues need to be identified and a systematic effective strategy devised at national level, based on sound scientific principles, which identifies a role for Coillte as a major forest-owner/manager' (O'Sullivan, 2005).
- 3.14** Warfarin is used by some woodland owners in the Republic of Ireland as a means of grey squirrel control, an option not used in Northern Ireland. Further EU controls on the use of warfarin are expected.
- 3.15** Republic of Ireland Forest Service policy is that annual afforestation shall include at least 30% broadleaved trees. It is also current policy that all individual afforestation projects shall include 10% broadleaves, site permitting. Coillte is restructuring its forests, with a policy to increase the percentage cover of broadleaved species. There has also been a move to diversify tree species and stand age.
- 3.16** Coillte are developing guidelines to provide their foresters with procedures for dealing with species listed as rare or threatened in Ireland. Because red squirrel is listed in neither the Irish Red Data Book nor in the Habitats Directive, the potential for Coillte to give it special consideration is limited.
- 3.17** A project to examine the effectiveness of grey squirrel control methods in broadleaved woodlands is underway, with funding from COFORD. Eleven study sites in Leinster are being subjected to different control approaches and the impact on grey squirrel damage monitored. The project, which is called CRISIS (Combined Research and Inventory of Squirrels in Irish Silviculture), which will make recommendations in relation to best practice for grey squirrel control, is due to report in 2008.
- 3.18** A red squirrel translocation exercise, managed by the National University of Ireland (NUI) Galway, has taken place in Connemara (Poole & Lawton, 2005). A second translocation is now underway by NPWS to a Coillte woodland in Mayo. It is hoped that these exercises, which have followed IUCN guidelines, will help inform a translocation policy and procedure for red squirrels.

- 3.19 A red squirrel conservation group has recently been formed, centred on Forest Parks in County Down. The group undertakes feeding of red squirrels, records populations in different areas and is looking at squirrel utilisation in outlying woodlands.
- 3.20 An Irish branch of the European Squirrel Initiative (ESI) has recently been launched in Dublin. This is a lobbying organisation with a remit to encourage grey squirrel control and to favour reds and to investigate further the feasibility of immuno-contraception within greys.

4 Action Plan Targets

- 4.1 Restrict the contraction in range of the red squirrel to a minimum.
- 4.2 Extend the range of red squirrel to areas of favourable habitat not currently populated by either squirrel species.
- 4.3 Increase the density of red squirrel populations in Red Squirrel Preferred Areas (RSPAs.).

5 Proposed Actions with Lead Agencies

5.1 Policy and legislation

- 5.1.1 Ensure that the needs of red squirrels are taken into account in planning applications and procedures, nature conservation strategies and forestry strategies, and that red squirrel conservation management requirements are included in statutory and non-statutory plans (Area Plans, Development Plans, Local Biodiversity Action Plans) (ACTION: Local Planning Authorities (RoI), Bord Pleanála, Planning Service (NI), EHS, NPWS, DARD, DAF, Forest Service (RoI), Forest Service (NI))
- 5.1.2 By 2008, review the Irish Vertebrate Red Data Book and ensure that the continuing decline of the red squirrel is taken into account. (ACTION: EHS, NPWS)
- 5.1.3 By 2009, reach agreement on cross-border strategies and targets with regard to red squirrel conservation, identifying the roles and responsibilities of local forest managers, planning authorities and other governmental and non-governmental bodies. (ACTION: EHS, NPWS, Forest Service (NI), Forest Service (RoI), Coillte, DARD, DAF)
- 5.1.4 By 2009 assess the potential for the use of chemical control of grey squirrels, and, if desirable, legislate to make warfarin or warfarin substitutes available for use in defined situations and circumstances. (ACTION: EHS, DARD, Forest Service (RoI))
- 5.1.5 By 2009 consider the designation of reserves as foci of red squirrel conservation, with management tailored to red squirrel requirements. (ACTION: EHS, Forest Service (NI), NPWS, Forest Service (RoI), Coillte)

- 5.1.6 By 2010 review, develop and update codes of best forestry practice and relevant environmental guidelines to ensure that forestry bodies are aware of the law relating to red and grey squirrels and that the requirements of red squirrels are considered during forestry operations.
(ACTION: Forest Service (RoI), Coillte, Forest Service (NI), EHS, NPWS, ITGA)
- 5.1.7 Review Planning Policy Statement (PPS2) on Planning and Nature Conservation, to include policies relating to priority habitats and species.
(ACTION: Planning Service (NI), EHS)
- 5.1.8 Produce a Planning Policy Statement (PPS14) on Sustainable Development in the Countryside which incorporates objectives to minimise the impact of housing development on the environmental resources of habitat, water quality and biodiversity of the rural area, thereby contributing to the conservation of biodiversity in Northern Ireland.
(ACTION: DOE, Planning Service, EHS).
- 5.1.9 Ensure that future policy or strategy for the location of renewable technologies in the uplands take into account the conservation requirements of red squirrel.
(ACTION: DETI, Planning Service (NI), EHS, DCMNR, Bord Pleanála).
- 5.1.10 Ensure regional representation at UK Red Squirrel Group meetings, with input from the Republic of Ireland as integral part of Northern Ireland presence.
(ACTION: EHS, NPWS.)
- 5.1.11 By 2010, evaluate red squirrel translocation research in Ireland and formulate policy with regard to future translocations.
(ACTION: NPWS, EHS, Forest Service (RoI), Coillte, Forest Service (NI))

5.2 Site Safeguard and Management

- 5.2.1 Increase the area of woodland in the Republic of Ireland suitable for red squirrels and marginal for grey squirrels by 20% by 2020, following best available advice on forest design for red squirrels (see Lurz *et al.*, 1995; 2003).
(ACTION: Forest Service (RoI), Coillte)
- 5.2.2 Promote the establishment of local squirrel groups by 2010 to survey and monitor red squirrels, to promote red squirrel friendly management of woodlands, promote education and awareness of red squirrels, contribute to LBAP targets and to instigate grey squirrel control programmes if required.
(ACTION: Forest Service (NI) Forest Service (RoI), EHS, NPWS)
- 5.2.3 By 2010 identify woodlands that currently support a red squirrel population and meet criteria along the lines of Reynolds and Bentley (2001) for distinction as Red Squirrel Preferred Areas (RSPAs) in terms of extent, structure and potential for grey squirrel control.
(ACTION: EHS, Forest Service (NI), Forest Service (RoI), Coillte, NPWS)
- 5.2.4 By 2011 identify sites that do not meet criteria for defensibility, but may maintain viable red squirrel populations because of the presence of active and committed local conservation groups.
(ACTION: EHS, NPWS)

- 5.2.5 By 2011 identify at least 2 sites in Northern Ireland and 5 sites in the Republic of Ireland that do not have any squirrel populations but have the potential through translocation to maintain a viable red squirrel population in terms of extent and structure, and are apparently defensible against grey squirrel incursions.
(ACTION: NPWS, Coillte, EHS, Forest Service (NI), Forest Service (RoI))
- 5.2.6 By 2010 review the contribution of forestry/woodland grant schemes for red squirrel conservation.
(ACTION: Forest Service (NI), Forest Service (RoI), Coillte)
- 5.2.7 By 2010 provide grant aid to local red squirrel groups and private landowners in buffer areas for grey squirrel control (adhering to best practice), with a requirement for co-operation between neighbours, where appropriate, to prevent gaps in control coverage that would result in local survival of grey squirrels, along the lines of provisions within the England Woodland Grant Scheme for Red Squirrel Reserves and adjacent buffer areas.
(ACTION: EHS, DARD, DAF, Forest Service (RoI), Forest Service (NI), Coillte)
- 5.2.8 By 2010 consider the extension beyond the economic growing period of premium and maintenance grants (Northern Ireland) and of planting related grants under the National Development Programme (Republic of Ireland) for private woodlands that hold viable red squirrel populations to ensure continued appropriate management to safeguard red squirrels along the lines of provisions within the England Woodland Grant Scheme for Red Squirrel Reserves and adjacent buffer areas.
(ACTION: EHS, DARD, DAF, Forest Service (RoI), Forest service (NI), Coillte)
- 5.2.9 By 2009 agree land use strategy with other authorities within RSPA buffer zones, and provide funding, advisory and support services to prevent grey squirrels from colonising priority sites, and including management planning and contributions to costs of monitoring and grey control.
(ACTION: Forest Service (NI), Coillte, Forest Service (RoI), DARD, DAF, EHS, NPWS, Heritage Council)
- 5.2.10 By 2009, promote co-operation between multiple owners of contiguous woodlands in order to ensure that the aims of this action plan are furthered as effectively as possible.
(ACTION: Forest Service (NI), Forest Service (RoI). Coillte, NT, ITGA, ESI, WT)
- 5.2.11 By 2008 identify sources of cross-border funding to facilitate the implementation of this action plan.
(ACTION: EHS, NPWS)

5.3 Species management and protection

- 5.3.1 By 2009, fund two posts of Squirrel Conservation Officer to carry out grey squirrel control in targeted areas, liaise with landowners and disseminate information and advice on red squirrel conservation and grey squirrel control, and as a source for advice for the general public.
(ACTION: EHS, Forest Service (NI) Forest Service (RoI), NPWS)

- 5.3.2 Promote targeted grey squirrel control in buffer zones, and in RSPAs, if necessary.
(ACTION: DARD, DAF, Teagasc)
- 5.3.3 Collect annual data on grey squirrel control in order to monitor the control effort and target future control.
(ACTION: DAF, Teagasc, DARD, Forest Service (NI))
- 5.3.4 By 2010, identify source sites for translocation programmes, and in the light of an assessment of translocation methodology and success, commence translocation of red squirrels to suitable woodlands to the west of the Shannon, and elsewhere as appropriate, and conforming to IUCN guidelines.
(ACTION: NPWS, Forest Service (RoI), Coillte, Teagasc)
- 5.3.5 By 2009, ensure that major disturbance from recreational activities is minimised during the breeding season in important red squirrel coniferous forests.
(ACTION: Forest Service (RoI), Coillte, DARD, Forest Service (NI))
- 5.3.6 By 2009 develop a code of practice to promote red squirrel conservation which is suitable for adoption by private owners of woodlands supporting red squirrels and of buffer zones around RSPAs
(ACTION: Forest Service (RoI), Coillte, DAF, Teagasc, DARD, Forest Service (NI))
- 5.3.7 Promote supplementary feeding according to best practice guidance in RSPAs during periods of poor food availability, in order to increase fitness to breed and thus increase population densities.
(ACTION: Forest Service (RoI), Coillte, DAF, Teagasc, DARD, Forest Service (NI))
- 5.3.8 Provide rope bridges and squirrel road signs as appropriate on roads within woodlands supporting red squirrels by 2010.
(ACTION: Coillte, Forest Service (NI), Teagasc, Roads Service, Local Councils (RoI))

5.4 Advisory

- 5.4.1 By 2009 ensure that forest managers, private woodland owners, landowners in buffer zones, local councils and conservation bodies have received training and advice on best woodland management, red squirrel feeding and grey squirrel control practices.
(ACTION: EHS, DARD, NPWS, Forest Service (RoI), Coillte, Teagasc, COFORD)
- 5.4.2 By 2009 ensure that information on red squirrels is readily available for anyone who may be able to play a role in red squirrel conservation.
(ACTION: EHS, DARD, NPWS, Forest Service (RoI), Coillte, Teagasc)
- 5.4.3 Develop links with ESI, BASC (British Association for Shooting and Conservation), Countryside Alliance Ireland and NARGC (National Association of Regional Game Councils) in relation to the control of grey squirrels.
(ACTION: EHS, NPWS, Forest Service (NI), Forest Service (RoI), Coillte)

5.5 International

- 5.5.1 Develop and maintain links between Northern Ireland and the Republic of Ireland individuals and organisations to promote the exchange of information and experience in research, management techniques, education and conservation strategies.
(ACTION: EHS, NPWS)
- 5.5.2 Develop contacts with conservation and research bodies in Europe where similar problems of grey squirrel population and range expansion have arisen.
(ACTION: EHS, NPWS)
- 5.5.3 Keep abreast of research into development of immuno-contraception as a means of grey squirrel control.
(ACTION: EHS, NPWS)

5.6 Future research and monitoring

- 5.6.1 By 2008 form a Red Squirrel Action Plan Steering Implementation Group with responsibility for directing research, funding and co-ordinating action between bodies throughout Ireland, with input into the formulation of red squirrel conservation strategies and policies and with remit to review progress annually.
(ACTION: EHS, Forest Service (NI), DARD, NPWS, Forest Service (RoI), DAF, Coillte, COFORD)
- 5.6.2 By 2011 review progress against actions listed in the Action Plan
(ACTION: EHS, Forest Service (NI), DARD, NPWS, Forest Service (RoI), DAF, Coillte, COFORD)
- 5.6.3 Carry out a survey using agreed best available methodology of red squirrel distribution every four years to establish the rate and extent of change of both grey and red squirrel populations.
(ACTION: EHS, Forest Service (NI), NPWS, Coillte)
- 5.6.4 By 2010, ensure all designated reserves are monitored annually using standardised methods.
(ACTION: EHS, Forest Service (NI), NPWS, Coillte)
- 5.6.5 By 2010, consider the need for a captive breeding programme as a source of red squirrels for repopulation or translocation.
(ACTION: EHS, NPWS)
- 5.6.6 By 2009, produce a model taking into account the rate of grey squirrel spread, SQPV occurrence and control strategies, to illustrate the likely position both with and without intervention, to provide an objective basis for RSPA site selection.
(ACTION: EHS, NPWS)
- 5.6.7 By 2008, research cost-effectiveness of strategies for grey squirrel control and requirements of red squirrel populations in potential reserves.
(ACTION: EHS, NPWS, COFORD)

- 5.6.8 Support, where appropriate, research into novel methods of grey squirrel control such as immuno-contraception.
(ACTION: EHS, NPWS, Forest Service (NI), Forest Service (RoI)), ESI Ireland)
- 5.6.9 By 2009 evaluate the contribution that supplementary feeding makes to red squirrel population viability and parameters for supplementary feeding usage, and produce guidelines on appropriate timing and placing of feeders.
(ACTION: EHS, NPWS, Forest Service (NI), Coillte)
- 5.6.10 Ensure that information gathered during surveys is passed to national biological recording centres, CEDaR in Northern Ireland, and to the National Biodiversity Data Centre in the Republic of Ireland.
(ACTION: EHS, NPWS)

5.7 Communications and publicity

- 5.7.1 Raise awareness of red squirrel conservation through ongoing public relations campaign, using press releases and news letters, utilising the Red Alert brand name and logo as appropriate.
(ACTION: EHS, NPWS)
- 5.7.2 Continue to raise public awareness through Annual Red Squirrel Week in Northern Ireland, and implement this event in the Republic of Ireland.
(ACTION: EHS, Forest Service (NI), Forest Service (RoI), NPWS, Coillte)
- 5.7.3 Publicise the Red Squirrel Action Plan and ensure that it is accepted and implemented by all relevant organisations.
(ACTION: EHS, Forest Service (NI), DARD, NPWS, Forest Service (RoI), Coillte, DAF)
- 5.7.4 By 2009 produce an all-Ireland leaflet promoting the Red Squirrel Action Plan.
(ACTION: EHS, NPWS)
- 5.7.5 By 2008 promote awareness to schools through a revised education action pack.
(ACTION: EHS, NPWS)
- 5.7.6 Encourage monitored public access to key priority sites through guided walks and Red Squirrel Conservation Officers.
(ACTION: EHS, Forest Service (NI), NPWS, Forest Service (RoI), Coillte)
- 5.7.7 Encourage the involvement of the public through the collection of red and grey squirrel records subject to training, with a publicity campaign to collect carcasses from road kill etc. for post mortem.
(ACTION: EHS, NPWS)

6 Links with other action plans

- 6.1 There are potential conflicts between the Red Squirrel Action Plan and plans designed to extend and enhance upland habitats such as blanket bog and upland heath. Removal of broadleaved species may also conflict with mixed ashwood and oakwood action plans. In some locations, species-rich hedgerows and purple moor-grass and rush pastures may occur within buffer zones. Upland conifer forests may be within territories of hen harrier and adjacent to curlew territories.

7 References

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List of useful acronyms

BASC	British Association of Shooting and Conservation
COFORD	Council for Forest Research and Development
DAF	Department of Agriculture and Food
DARD	Department of Agriculture and Rural Development
DCMNR	Department of Communications, Marine and Natural Resources
DETI	Department of Enterprise, Trade and Industry
DRD	Department for Regional Development
EHS	Environment and Heritage Service
ESI	European Squirrel Initiative
ITGA	Irish Timber Growers' Association
IUCN	International Union for Nature Conservation
LBAP	Local Biodiversity Action Plan
NI	Northern Ireland
NIBG	Northern Ireland Biodiversity Group
NNR	National Nature Reserve
NPWS	National Parks and Wildlife Service
RoI	Republic of Ireland
RSPA	Red Squirrel Preferred Area
SQPV	Squirrel Pox Virus
UWT	Ulster Wildlife Trust
WT	Woodland Trust



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