

Scottish Squirrel Group

Wednesday 19th September 2012

SNH Battleby

Final Minutes

Present:

Jenny Bryce, SNH - Wildlife Ecologist (chair)
Ian Collier, Forestry Commission Scotland and Highland Red Squirrel Group (secretariat)
Ken Neil, Saving Scotland's Red Squirrels. (SSRS) - Project Officer (East)
Robin Gill, Forest Research
Mel Tonkin, SSRS - Project Manager
Lindsay Mackinlay, NTS - Nature Conservation Advisor
Andy Wiseman, European Squirrel Initiative
Sophie Eastwood, Fife Red Squirrel Officer
Lewis Pate, SSRS, - Project Officer for Argyll & Trossachs
Simon Poots, Perth and Kinross Red Squirrel Group
Cath Seeds, Ayrshire Red Squirrel Group
Cecilia Rogers, Grampian Squirrel Group
Stephen Willis, SSRS – Project Officer for Northeast Scotland
Karen Ramoo, SSRS – Project officer South Scotland

Apologies:

Sian Williams, Ayrshire Red Squirrel Group
Juliet Robinson, Red Squirrels in the Highlands
Jamie Farquhar, ConFor
Keith Morton, RSPB
Mike Libera, Crown Estates – representing Red Alert South West Scotland
Janice Fenny, Scottish Land & Estates Limited
Heinz Traut, SSRS – Project officer Dumfries and Galloway
James Pringle, Scottish Land & Estates Limited

1. Welcome and introductions

JB welcomed the group and listed those unable to attend. Cath Seeds represented ARSG, standing in for Sian Williams.

2. Local group updates

Highland Red Squirrel Group

See attached report summarising the end of project report for the Red Squirrels of the Highlands Project.

The charity itself (Highland Red Squirrel Group) has now no support from the above project. However the charity has undertaken to maintain the high profile of red squirrels, submit records to the SSRS database and help answer general queries. The contingency plan for grey squirrel sightings is being developed in conjunction with all the main stakeholders.

Fife squirrel group see update attached

Perth and Kinross Red Squirrel Group - see attached update.

The group has been receiving many requests for signs to warn traffic about squirrels crossing the road. Any requests are being passed to the local council with backing from PKRSG. The council response has been generally negative. However some signs have been sited on private land..

The group then had some discussion of the evidence for signs being effective in reducing red squirrel mortalities/ influencing driver behaviour – but were not aware of any evidence specific to squirrels. It was suggested this could be a useful student project to try and quantify/ evaluate the evidence for signage.

Ayrshire Red Squirrel Group - see update attached.

Grampian Squirrel Group – this group has been running a low profile but CR is looking to revive the group to help the SSRS north east work.

Cowal red squirrel group - the group has recently gained a higher profile through LEADER support of SSRS with some staff time input in this area. The Group has approx. 100 members supporting a healthy red squirrel population on the Cowal peninsula.

3. Project update

Saving Scotland's red squirrels – see update attached

In addition to the written submissions the following points were raised and discussed:

The minutes from the SSG meeting of 14th March 2012 reported that 2 grey squirrels from Uplawmoor in east Renfrewshire had high pox titre levels. This has since been confirmed as an error in testing and were retested as not having a positive result.

Given recent false positive squirrel pox tests, it was asked what measures have been taken to avoid this in the future. MT indicated that all the samples had been re-tested using a new batch of reagent that has been re-calibrated using 'known' sero-negative

samples from Aberdeen. It was noted that the status of sero-positive samples had previously been confirmed by electron microscopy of tissue samples by the VLA.

It was suggested that we invite Colin McInnes to the next meeting and to discuss squirrelpox surveillance protocols.

The SSRS volunteer survey report is soon to be on the web site

AP 1: (from this meeting) for MT to circulate feeder box survey protocol including to FES regarding their sampling/ monitoring of Strongholds.

In South Scotland it was noted that grey control to the south of the border is now better staffed and appears to be making a difference to the influx of grey squirrels in south east Scotland.

In Argyll and Trossachs work has been going well. A squirrel viewing hide has been constructed in partnership with the Cowal red squirrel group. Fifteen camera traps are in use covering the tetrad squares during the spring/autumn surveys.

The National Park have been very supportive in all areas and FCS ranger time is being used to trap greys around Arrocher

In the North East, there are two grey control officers working with 120 trap loans on the go. Reds are being seen in the west suburbs of Aberdeen and mid Deeside is now free of breeding greys. However, new populations of greys have been detected around Ellon. It was discussed that the long-term (beyond the current project) is to eradicate greys from Aberdeen city and shire; which will be more cost effective in the long-term.

KN from Perth and Kinross stressed that the grey control effort has to be consistent and any break in the control programme can lead to recolonisation by greys. Also emphasised the importance of project staff in getting owners signed up to SRDP. And suggested that a hiatus in SRDP funding could compromise progress made so far in reducing grey populations. Greys have been seen again in Pitlochry and one in Strath Tay.

4. Minutes of previous meeting and matters arising.

AP 1: SSRS evaluation report to placed on SSRS web site if possible: *done and discharged*

AP 2: MT/KR to send revised squirrel pox monitoring proposals to the group for comment: *Carried forward.*

AP 3: LM to tie in squirrel surveys into volunteer surveys on NTS properties. This is ongoing with clarification of what monitoring is being done by other landowners/projects. (see action point 1 in SSRS update)

5. Strongholds Woodlands update

The FCS national management guidance is now printed. Paper copies will be with key stakeholders shortly (and also provided to landowners in stronghold sites) and will be launched on the FCS website in the next few weeks.

Gordon Gray Stephens has been contracted to collate and draft a framework management plan for each of the 19 sites (18 on the mainland and the Isle of Arran). The pilot study on the Kilmichael stronghold site is well under way and will give a useful steer for undertaking the first tranche of sites. Framework management plans for all sites over three stages should be produced within this financial year.

As the process moves on the FCS will work with partners to make sure the strongholds programme aligns with other red squirrel conservation actions so that there is a coherent set of measures throughout Scotland

6. Research session.

Amelia Brereton - University of Aberdeen gave a short presentation on the scope of her PhD research. This has two main aspects to; examine factors that influence the effectiveness of grey squirrel control and to examine the parasites found in grey squirrel populations and the implications for disease transmission.

(See attached for copy of presentation.)

Robin Gill gave an update on recent work at Forest Research. This included Brenda Mayle's publications that had been circulated on fertility control trials:

Mayle, B.A., Ferryman, M., Peace, A., Yoder, C., Miller, L. & Cowan, D. 2012 The use of DiazaCon™ to limit fertility by reducing serum cholesterol in female grey squirrel, Sciurus carolinensis. Pest management Science (2012) wilwyonlinelibrary.com DOI 10.1002/ps3347

Yoder, C.A., Mayle, B., Furcolow, C.A., Cowan, D. & Fagerstone, K. (2011) Feeding of grey squirrels (Sciurus carolinensis) with the contraceptive agent DiazaCon™: effect on cholesterol, haematology, and blood chemistry. Integrative Zoology, 6: 409-419.

FR are not planning to continue these trials until there is a better understanding of grey squirrel reproductive biology. A new PhD linked to Alice Holt is planned to start this year which may look at some aspect of reproductive biology and also at bark stripping behaviour in grey squirrels.

JB had been sent a number of papers and research summaries and mentioned these as follows:

Silvia Flaherty – University of Edinburgh – recently completed her PhD on 'red squirrel habitat mapping using remote sensing'. A paper from her thesis has been published on 'The impact of forest stand structure on red squirrel habitat use. See the abstract at:

<http://forestry.oxfordjournals.org/content/85/3/437.abstract>

Claire Stevenson – University of Cumbria – recently completed her PhD on Modelling ecological networks and dispersal in the grey squirrel *Sciurus carolinensis*.

PhD Abstract

*Understanding the role of the landscape matrix in species dispersal is important when targeting conservation and management strategies. Least cost modelling is frequently used to assess habitat connectivity and to identify land cover types which may facilitate or impede species movement in the landscape matrix. This study used least cost modelling to assess invasive grey squirrel *Sciurus carolinensis* dispersal movements within the UK. Expert derived land cover resistance sets were compared and a 'best resistance set' was selected. Two major habitat networks were identified within the county of Cumbria. The composition of land cover types covering the Cumbrian Mountain range were suggested to act as a barrier to dispersal. This indicated that there may be multiple colonisation routes into Cumbria. These findings were supported by evidence from mitochondrial DNA sequencing of seven grey squirrel populations. This study provided the first evidence of Dloop sequence variation within UK grey squirrel populations and the genetic differences between grey squirrels in north and south Cumbria. Least cost model predictions were further validated through data from five Global Positioning System (GPS) collared grey squirrels. Buffered least cost path analysis and the development of a least cost corridor model enabled the most probable route grey squirrels will disperse to be identified and validated using GPS data. To provide information on movements and land cover use, the individual movements of each squirrel were assessed. This data was then used to rank use of land cover and feature types. A case study was then used to highlight how the validated least cost model can be applied to areas where red squirrels *Sciurus vulgaris* are still threatened by the invasive grey squirrel to provide information to target management and conservation actions. This study potentially influences management strategies for grey squirrel control and conservation of the native red squirrels.*

Claire has also has a paper published:

Stevenson, C., Ramsey, A.D., Nevin, O.T. & Sinclair, W. (2012). Assessing grey squirrel dispersal patterns within the Landscape Using Sequence Variation. Landscape Research, 2012 1-7.

Lisa Signorlie - Imperial College London - provided a copy of a poster of her research on the genetics of grey squirrel populations which was circulated to the group.

Craig Shuttleworth had provided a couple of papers:

Everest, D.J., Shuttleworth, C.M., Grierson., S.S., Duff, J.P., Jackson, N., Litherland, P., Kenward, R.E., Stidworthy, M.F. (2012) Systematic assessment of the impact of adenovirus infection on a captive reintroduction project for red squirrels. Veterinary record. 100617

*Shuttleworth, C.M., Lurz, P.W.W., Geddes, N., Browne, J. (2012) Integrating red squirrel (*Sciurus vulgaris*) habitat requirements with the management of pathogenic tree disease in commercial forests in the UK. Forest ecology and Management 279: 167-175.*

Dr Andy White is leading on a NERC application to develop competition modelling approaches with squirrel pox as a case study of a disease mediated ecological invasion. The research also involves Dr Mike Boots at Exeter, Prof Colin McInnes from the Moredun and Dr Peter Lurz. They hope to examine factors that affect the rate of spread; both in terms of landscape character and in terms of population structure and to look at the effect of management strategies on the spread of the disease. They hope to work with data from SSRS and to help inform policy development.

Colin McInnes provided an e-mail update on other areas of research:

- Julian Chantrey – University of Liverpool – is looking at epidemiology of squirrelpox in the Sefton red squirrel population.
- Lisa Collins/ Neil Warnock – Queens University Belfast – are looking at the epidemiology of squirrelpox in Northern Ireland.
- Mike Scatlebury/ Nikki Marks – Queens University Belfast –are looking at pathogen burdens in red squirrels in Northern Ireland.
- Luc Wauters/ Italian LIFE+ project – Eradication and control of grey squirrel: actions for preserving biodiversity in forest ecosystems. This is looking at various aspects including pathogen burdens in grey squirrels in Italy and through links to other labs, genetic diversity in squirrel populations.
- Helen McRobie – Anglia Ruskin University – Quantifying virus in grey squirrels.

Peter Lurz provided contacts to many of the other researchers and included two recent publications:

Arran Red Squirrel Assessment – A report to FCS on recommendations for the management of the Arran red squirrel stronghold.

Bertolino, S. & Lurz, P.W.W. (2011) Callosciurus squirrels: worldwide introductions, ecological impacts and recommendations to prevent the establishment of new invasive populations. Mammal Review.

If anybody has and research ideas please pass them on to Robin.

NB Since this meeting Robin has agreed to revive the research summary report and will revise for the next SSG meeting

7. AOB

The UKRSG has not met since the last SSG meeting. There was some discussion of priorities in a Scottish and UK context and that the UK Group provides a useful forum for these discussions.

AP 2: JB to look into reviving the UKRSG.

The issue of plant health was raised in relation to planting and management of trees that are likely to be affected by Dothistroma needle blight , Ramorum disease of larch and ash dieback. IC directed people to the Forest Research web site where up to date information can be found.

The Cornwall red squirrel conference in Exeter next year (19th April) was highlighted.

It was confirmed that next year will be the Year of Natural Scotland. One of the themes will be Scotland's Big 5; which is to include red squirrels. SNH will be liaising with other organisations about events that can be promoted under this banner.

8. DONM

Wednesday 13th March 2013 at Forest Research, Roslin.

Ian Collier

19th November 2012