Scottish Wildlife Trust
Policy

Reintroducing Eurasian Beavers to Scotland

Scope of Policy

1. This policy (2012) covers the Scottish Wildlife Trust's (SWT) views on the reintroduction of the Eurasian beaver (*Castor fiber*) to Scotland. It supports the existing policy 'Reintroductions, Translocations and Introductions of Species' (2007) and SWT's broader vision for a network of healthy and resilient ecosystems supporting Scotland's wildlife.

Definition of Main Terms[1]

2. "Reintroduction": an attempt to establish a species in an area which was once part of its historical range, but from which it has been extirpated or become extinct ("Re-establishment" is a synonym, but implies that the re-introduction has been successful).

3. "Translocation": deliberate and mediated movement of wild individuals or populations from one part of their range to another.

4. "Reinforcement or Supplementation": addition of individuals to an existing population of conspecifics.

[1] From IUCN Guidelines for Re-Introductions (May 1995. Review pending 2012)
www.iucnsscrsg.org/images/Englishglines.pdf

Policy Statement

Overview

1. SWT has a vision for the widespread return of the once native Eurasian beaver to Scotland. Beavers are a missing element in our native biodiversity, lost from Scotland due to human persecution and anthropogenic habitat loss and we believe that there is a moral imperative to restore this species.

2. SWT also believes that there is an ecological imperative to reintroduce the Eurasian beaver to Scotland as it is a 'keystone species' which produces positive environmental and biodiversity effects (Rosell et al 2005, Meslinger, 2012) which would have significant benefits for our depleted wetland wildlife.

3. SWT believe that the reintroduction of the Eurasian beaver would (in the long term) be a valuable tool for restoring wetland habitats, reducing management intervention requirements and increasing the robustness of ecosystems in the face of threats such as climate change.

4. SWT believe that the Scottish Government should draw up a Eurasian Beaver Management Strategy prior to making a decision on the wider reintroduction of beavers to Scotland. This document should outline the approach to how and where beavers may be reintroduced across Scotland and how the species would be managed post reintroduction.

5. Should the Scottish Government decide to allow a wider reintroduction of Eurasian beavers to Scotland, following the conclusion of the Scottish Beaver Trial in Knapdale, Mid Argyll and the simultaneous monitoring of the unlicensed Tayside beaver population, then SWT wishes to see a coordinated programme of beaver reintroductions to suitable catchment areas in Scotland. This reintroduction programme should be carried out in accordance with the best scientific information available, the majority will of the Scottish public, Scottish Government licence conditions and International Union for the Conservation of Nature (IUCN) guidelines.

Why reintroduce the beaver?

5. The beaver has significant and positive influences on ecosystem health and function [2] and is widely considered to be a 'keystone species' in forest and riverbank environments[3]. By modifying their habitats through the coppicing of tree and shrub species, the digging of canal systems and in some cases the damming of watercourses, beavers are known to provide a net positive effect on biodiversity (Rosell et al, 2005, Messlinger, 2012[4]). Beavers are in effect, a natural way of creating, maintaining and diversifying habitats and have been referred to as 'ecosystem engineers'.

[2]Rosell, F., Bozser, O., Collen, P. and Parker, H. *Ecological impact of beavers Castor fiber and Castor canadensis and their ability to modify ecosystems* Mammal Rev 2005, Volume 35,
[3] Davic, R.D. (2003) *Linking keystone species and functional groups: a new operational definition of the keystone species concept.* Conservation Ecology, **7**, r11.
[4] Meslinger, U. *Beavers boosting biodiversity - Monitoring some animal world in North-Bavarian beaver sites*.6th International Beaver Symposium, *Buro fur Naturschutzplanung und okologische Studien*

6. Public consultations[5] [6] carried out on the desirability of beaver reintroduction into Scotland have shown that many people believe that there is a moral imperative to reintroduce the beaver in Scotland, as it became extinct due to human persecution and anthropogenic habitat loss and that reintroduction is a positive method in which to address this historic extinction. It is worth considering that had a small population of native Eurasian beavers managed to survive in Scotland to date, then these animals would currently be protected under European and domestic legislation[7] with resources made available to carry out proactive management in an effort to protect and enhance their status as a viable population.

7. Beaver reintroduction into water catchment areas and the construction of beaver dams on some water courses will help to restore dynamic, natural processes at these sites and result in positive effects that will benefit the sustainable management of water courses and water quality through an increase in standing open water and sediment trapping and in increase in habitat heterogeneity[8]. At other sites in arable landscapes, beaver dams in certain circumstances would result in a reduction in the downstream migration of diffuse pollution sources from surrounding land uses[9].

8. SWT believe that beaver activity will have a net positive environmental and socio-economic effect for Scotland's human population and prosperity by the provision of ecosystem services such as improving water quality and controlling flooding[10], and recreation and tourism services.[11] Currently there is a paucity of information on the net impact of beavers on ecosystem services and we believe therefore that further research is required to highlight the overall benefits that beavers bring in these areas.

9. SWT believes that beavers are a 'flagship' species, as they are popular, charismatic and serve as symbols and rallying points to stimulate conservation awareness and action.

Strategic framework for beaver reintroduction

10. Under the EU's Directive 92/43/EEC Conservation of Natural Habitats and Wild Flora and Fauna (the Habitats and Species Directive) Article 22, there is responsibility for member states to consider reintroductions of extinct native species in Annex IV. Eurasian beaver is currently listed as an Annex IV species and additionally an Annex III species of the Bern Convention. The Directive aspires to achieve a favourable condition status of the priority habitats and species listed in its annexes. SWT believes that Scotland is meeting this responsibility by actively considering the wider reintroduction of the Eurasian beaver through the Scottish Beaver Trial (SBT) taking place in Knapdale, Mid Argyll.

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[5] Scott Porter Research and Marketing (1998). *Re-introduction of European Beaver to Scotland: results of a public consultation*. SNH Research, Survey & Monitoring 121, Battleby.

[6] Trial reintroduction of the European beaver to Knapdale, Mid-Argyll Local consultation report: 1 October - 30 November 2007 Scottish Beaver Trial http://www.scottishbeavers.org.uk/docs/files/general/SBT2007_ConsultationReport_Dec07.pdf

[7] Annex IV of *EC Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Flora and Fauna* ('Habitats Directive'). Domestic legislation - *The Conservation (Natural Habitats, &c.) Regulations 1994 (as amended in 2004, 2007 and 2008)*

[8] Gurnell, A (1997). Analysis of the effects of beaver dam-building activities on local hydrology. SNH Review 85, Battleby.

[9] Lamsodis, R & Ulvicius, A. *Impact of beavers on migration of nitrogen and phosphorus via drainage ditches in agro-landscapes,* Lithuania. 6th International Beaver Symposium

[10] Parker, M. (1986) Beaver, water quality and riparian systems. *Proceedings of the Wyoming Water and Streamside* Zone Conference. Wyoming Water Research Centre, University of Wyoming, Laramie, 1, 88–94.

[11] Campbell RD, Dutton A& Hughes J. 2007. *Economic impacts of the beaver*. Report for the Wild Britain Initiative. 28 pages.

11. SWT believes that there is clear evidence and useful experiences of successful Eurasian beaver populations having taken place in over 25 other European countries to date[12].

Reintroducing Eurasian beavers

12. SWT believes that prior to any wider reintroduction of beavers to Scotland it is essential to identify which other wild and captive Eurasian beaver populations are suitable donor populations and that donor populations should be sourced from appropriate, genetically healthy populations.

13. SWT believes that sufficient, suitable habitat (freshwater loch and river systems with adjoining riparian woodland) currently exists in Scotland to support a thriving and self-sustaining beaver population. Existing modelling work[13] and experiences from other similar European countries show that beaver populations can be supported in a wide range of wetland habitats from remote freshwater lochs found in afforested upland terrain, to lowland river systems and water courses in arable landscapes. We believe that habitats suitable for beavers can be found on the vast majority of major river systems of Scotland. To ensure that all of the ecological and environmental benefits of beaver activities are realised, we believe that a widespread and healthy population of beavers is required to be present.

14. SWT believes that is important to carry out species reintroductions and translocations in accordance with current International Union for the Conservation of Nature (IUCN) guidelines.

Managing beavers

15. As a responsible organisation involved in the ownership and management of land in Scotland, SWT believes that prior to a decision being made by the Scottish Government on a potential wider reintroduction of the beaver to Scotland, a 'Eurasian Beaver Management Strategy' should be drawn up for Scotland to aid the decision making process. Experiences from other European countries where the beaver has been reintroduced show that there is a clear need for a proactive management strategy in the early years following reintroduction in order to reduce reactive conflict management situations. This strategy should include the approach to how and where beavers may be potentially reintroduced across Scotland, drawing on existing research, constraint mapping and in close discussion with key stakeholders. The strategy would also outline how the species would be managed post reintroduction in the context of legal frameworks and would draw upon management experiences from other countries.

16. SWT recognises that there are concerns regarding the potential damaging effects that reintroducing beavers will have on some land and fisheries management practices and environments in Scotland, which in turn could result in additional costs for landowners or other agencies. SWT accepts that beavers can, on occasion cause conflicts with human land uses because of their felling, burrowing and damming behaviour but we believe that the benefits they bring significantly outweigh their costs. Experience from Europe and North America shows that it is possible to successfully manage beaver impacts and populations providing that resources are made available to assist with mitigating beaver-human conflicts. We believe that a Eurasian Beaver Management Strategy must utilise proven good practice from other countries and combine an appropriate mix of robust non-lethal and lethal control methods, such as live trapping and

[12] Halley, D.J. and Rosell, F. 2002. *The beaver's reconquest of Eurasia: Status, population development, and management of a conservation success*. Mammal Review 32: 153-178.

[13] Webb, A, French, D D, and Flitsch, A C C (1997). *Identification and assessment of possible beaver sites in Scotland*. SNH Research, Survey & Monitoring 94, Battleby.

translocation, and the provision of protective fencing, barrier systems and water level control devices associated with beaver dams.

17. SWT recognises that there are specific concerns held by some regarding the potential negative impact of beavers upon salmonid fish species in Scotland. We believe that despite the presence of large and growing populations of beavers in existing salmon catchments across Europe and North America, there is little scientific evidence to suggest that beaver dams significantly affect Atlantic salmon populations. The most comprehensive research to date[14] shows that that beaver activity has the potential to offer both positive and negative impacts for fish species, including salmon and trout, but the net effect for fish populations is a positive one. A detailed position statement on our view of beaver impacts on fish can be found at http://www.scottishbeavers.org.uk/docs/003__170__general__Beaver_impacts_upon_fish___SBT_position_Aug_12__1344439198.pdf

18. SWT believes that the study of the unlicensed beaver population in the Tay River catchment will provide additional useful information on the impacts of beavers on land uses such as arable agriculture and salmonid fishing and give opportunity to practice and study methods used to mitigate detrimental impacts.

19. SWT believes that before any longer term reintroduction of Eurasian beavers to Scotland is considered it is important that the Scottish Government (a) clarify the legal status of a resident beaver population, (b) identify how the wider reintroduction and establishment phases will be funded and (c) clarify what resources would be available to pay for costs associated with any future beaver-human conflicts.

20. SWT believe that any wider Eurasian beaver reintroduction should firstly be geographically targeted at river catchments which allow population establishment in areas of largely semi-natural habitats so as to reduce the potential for beavers to settle in sub-optimal habitats where beaver-human conflicts are more likely to occur.

SWT Wildlife Reserves

21. The Scottish Beaver Trial is currently taking place in Knapdale, on an SWT Wildlife Reserve. A beaver of unknown origin has also recently (3/8/12) been recorded at the Loch of the Lowes Wildlife Reserve. Should the SBT and studies on the Tay river catchment population lead to the Scottish Government licensing further reintroductions of the Eurasian beaver to Scotland, SWT will presume in favour of reintroducing beavers to its wildlife reserves where:

    a) The receiving habitat is suitable, both in quality and extent;
    b) The resources and expertise are available for the release, establishment and post establishment monitoring and management phases;
    c) A suitable donor population of Eurasian beavers is identified;
    d) Consultation with neighbouring landowners and local stakeholders indicates that the majority of those consulted do not oppose reintroduction at the site(s).

[14] Kemp, P S, Worthington, T A and Langford T E L (2010). A critical review of the effects of beavers upon fish and fish stocks. SNH Commissioned Report 349, Battleby.

Wider Countryside

22. SWT believes that in order for the full extent of the environmental and biodiversity benefits associated with beavers to be realized then any further reintroductions of the Eurasian beaver to Scotland must be targeted across a range of locations. SWT will use its expertise in beaver reintroduction and management to advise suitable partners and organizations wishing to undertake further licensed reintroductions.

Links to other policies

23. This policy should be read in conjunction with the following SWT policies:

    a) Reintroductions, Translocations and Introductions of Species (2007)
    b) Policy Futures 1: Living Landscapes - Working towards ecosystem-based conservation in Scotland
    c) Policy Futures 3: Climate Connections - Towards low carbon, high biodiversity economies in Scotland

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November 2012

Appendix 1

Definition of Terms

1. “Native species”: A species which is a part of the original fauna or flora of an area (which in Britain refers to species which became established after the last Ice Age), and is found within the range it occupies naturally or could occupy without direct or indirect introduction or care by humans. Jeffrey Conner, Daniel Hartl. *A Primer of Ecological Genetics*, 2004.

2. “Provenance”: a specific geographical location within the natural range of a species. Natural selection during the course of evolution has adapted species to their particular local environment. Jeffrey & Hartl. 2004.

3. “Evolutionary Significant Unit (ESU)”: A population of organisms that is considered distinct for purposes of conservation. The term can apply to any species, sub-species, geographic race or population and include at least one of the following criteria: (i) current geographic separation, (ii) genetic differentiation caused by past restriction of gene flow and (iii) locally adapted phenotypic traits caused by differences in selection. Jeffrey & Hartl, 2004.

4. “Keystone Species”: are species where (i) their presence is crucial in maintaining the organization and diversity of their ecological communities and (ii) they are exceptional, relative to the rest of the community, in their importance.

5. The keystone-species concept in ecology and conservation by L. Scott Mills, Michael E. Soule and Daniel F. Doak, BioScience, April 1993

6. “Ecosystem Engineer”: a type of keystone species which is categorised by modifying habitats to an extent that it affects the survival of many other species. Mills, Soule & Doak, 1993

7. “Flagship Species”: popular, charismatic species that serve as symbols and rallying points to stimulate conservation awareness and action. Heywood, V.H. (1995) Global biodiversity assessment. Cambridge University Press, Cambridge.