Scottish Wildlife Trust

Position Statement

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Pine marten (*Martes martes*)

Pine marten – **position statement**

Scope
[1]

1. This position statement sets out the Scottish Wildlife Trust's views on the conservation of the pine marten. It outlines how the Scottish Wildlife Trust will contribute to the protection of the pine marten through advocacy work, practical conservation measures and delivery of overarching policies, such as the Scottish Wildlife Trust's *vision* and Living Landscapes policy.[i]

2. This position paper should be read in conjunction with the appendix, which contains a summary of pine marten ecology and recent research.

Context

3. The pine marten is listed on Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). It is illegal to intentionally or recklessly capture or kill a wild pine marten. It is also listed in Annex V of the EC Habitats Directive[ii]" and is classified as a Priority Species in the UK Biodiversity Action Plan.

4. The pine marten is a species of mustelid native to Scotland. It was widespread until the 18th century, but became extinct in most areas of Scotland during the 19th century, with only small populations remaining - mostly confined to the north-west of Scotland. The reasons for its decline were mainly due to persecution and loss of habitat. Evidence suggests the species range has been gradually expanding southwards[iii] [iv] and this has been attributed to better legal protection as well as increased afforestation (mainly commercial coniferous plantations).

5. The pine marten is a carnivore; its diet consists mainly of small mammals and carrion. Being opportunistic, it also takes birds: in spring, passerine birds and their eggs can make up 20% of its diet.[v]

Capercaillie and pine marten

6. Where pine marten and capercaillie co-exist pine marten will catch and kill capercaillie. However in northern Europe, a stable predator-prey relationship has evolved over time so that, across its range, capercaillie populations breed successfully in the presence of pine marten and indeed a range of other predators.[vi,vii]

7. In Scotland, predation by pine marten is not believed to be the main cause of capercaillie decline and any negative relationship between pine marten abundance and capercaillie breeding success appears to be dependent on weather conditions[viii] [ix] [x] (See also summary of evidence in Appendix 1). Research examining 14 forests in Scotland with capercaillie has also found that percentage ground cover of bilberry (up to 15-20%) was the most important factor determining capercaillie breeding success. The same study concluded that foxes and corvids had a negative impact on capercaillie, whilst pine marten abundance was unrelated to capercaillie breeding success [xi].

Position Statement

8. The Scottish Wildlife Trust believes that the pine marten's recovery is a reason to celebrate the return of a Scottish predator to its natural place in the ecosystem. The Scottish Wildlife Trust believes there is both a moral and ecological imperative for encouraging the recovery of the pine marten to restore populations across its natural range.

9. The Scottish Wildlife Trust appreciates that, due to the species' ecology, the return of the species to its original distribution may conflict with some forms of land use interests. However, the Trust believes that pine marten control by culling has no place currently in the management of the species; because of the species' low reproduction rate such activity would significantly impair its natural recovery.

10. The Scottish Wildlife Trust believes an ecosystem-based approach[xii] to pine marten conservation is needed. As the pine marten's range expands, there will be a period of adjustment for predator and prey at the ecosystem scale. The Trust believes that predation is a natural and necessary process in healthy ecosystems.

11. The Scottish Wildlife Trust's Coigach Assynt Living Landscape and Cumbernauld Living Landscape initiatives are a practical demonstration of our Living Landscapes policy.[xiii] By increasing, restoring and reconnecting suitable habitat these landscapes will become more attractive to the pine marten. Indeed pine marten is now seen in Cumbernauld (captured on camera).

The Scottish Wildlife Trust's Priorities for Action

12. The Scottish Wildlife Trust will take action to support this position statement by:

a) Advocating our 25-year vision for Scotland's ecosystems – this will create healthy ecosystems that are beneficial to the pine marten
b) Advocating an ecosystem-based approach to pine marten conservation in Scotland
c) Demonstrating how to enhance pine marten habitat through the Trust's Living Landscapes initiatives, including promoting pine marten boxes and forest management
d) Supporting the current research into pine marten distribution in Scotland
e) Objecting to control measures that will have a significant detrimental effect on the pine marten in Scotland

Links to other policies

This policy should be read in conjunction with the following Scottish Wildlife Trust policies:

a) Policy Futures 1: Living Landscapes - towards ecosystem-based conservation in Scotland
b) Killing of wild animals
c) Planning system

Appendix 1

Pine marten ecology in Scotland

Pine marten in Scotland

1. The pine marten is a native species to Scotland. The species used to be widespread until the 18th century and the species' dramatic decline during the 19th century is believed to have mainly been caused by anthropogenic factors, namely predator control and habitat alteration. Now the species is the first native mammalian predator on its way to natural recovery to its original distribution in Scotland.

2. Recent research[xiv] has shown that pine marten has spread from its stronghold populations in the north-west Highlands (estimated at *c.*. 1500 animals)[xv] northwards into Caithness and Sutherland, eastwards into Moray, Deeside and elsewhere in Aberdeenshire, through Perthshire, Tayside, the Trossachs, Stirlingshire, Skye, Argyll onto the Kintyre and the Cowal Peninsulas and to a lesser degree into parts of Western Angus and Fife and the Central Belt. Expansion of pine marten from the Galloway Forest, following a reintroduction of the species in the early 1980, has been limited. They are present on the Isle of Mull due to translocation.

3. The loss of pine marten populations in England and Wales has led to the loss of all distinct British pine marten races in that area. The Scottish pine marten population has therefore a unique place in the genetic diversity of pine martens in Europe.

Ecology

4. Pine marten requires woodland habitat with a complex 3-dimensional structure, abundance of prey species (the field vole (*Microtus agrestris*) is one of its key prey species in Scotland) [xvi] and suitable structures to be used as a (breeding) den. The pine marten is predominately nocturnal.

5. Little is known about dispersal of young pine martens. They reach close to adult size by six months, but due to tolerance of sub-adults in the adult's habitat, dispersal may be at any time before maturity. Within their home range, adult pine martens are known to travel average distances of around 7 km per night.[xvii]

Habitat requirements

6. The pine marten is adapted to woodland, but can also be found in more open habitats providing scrub is present. Both coniferous and deciduous woodlands are used by pine marten. In Scotland open areas without any tree or scrub cover, such as open moorland or pasture, are generally avoided. The main factor influencing territory size per breeding pair of pine marten in Scotland appears to be the availability of woodland cover and for this reason pine marten density can vary widely (e.g. 0.12 - 0.82 adults per km^2). [xviii] Old growth woodland with associated features of tree cavities which can be used as breeding dens is the preferred habitat of the pine marten and a lack of such structures may be a limiting factor for pine marten breeding success. Pine marten also use other structures, such as burrows under tree roots or rock piles, rabbit dens and, where present, bird and pine marten boxes.

7. The pine marten is a solitary forager and maintains a territory from which they exclude other individuals of the same sex. Interactions between adult males and females are often aggressive, but sub-adults may remain within the territory of a breeding male or female pine marten.[xix]

Breeding

8. The pine marten is polyoestrous with (probably) promiscuous mating occurring from June to August. Implantation is delayed and the young are born in April, after a post-implantation gestation of 30-35 days. The litter size is small, with an average litter of three. Young pine martens under two years old are unlikely to breed successfully.

9. Genetic analysis of pine marten throughout the UK has shown that the Scottish pine marten population is the only population with a distinct British haplotype[xx]. This makes the Scottish population unique in all of Europe.

Pine marten and capercaillie

Legal Protection of capercaillie

10. The capercaillie is a priority species under the EU Birds Directive. Scotland's Biodiversity Action Plan for this species aims to boost capercaillie numbers to 2,000 by 2020 and to 5,000 in the long term.

Recent research regarding pine marten / capercaillie interaction:

a) A study in 14 forests with breeding capercaillie found no correlation between capercaillie breeding success and an index of pine marten abundance/activity.[xxi]
b) A study at Abernethy Forest in Scotland, [xxii] where pine marten are abundant, revealed that 39% of capercaillie nests were predated (33% by pine martens); this figure is near the mid-range figure found in other studies for nest losses across Europe.
c) A recent study assessing the activity of predators in relation to capercaillie hen densities and breeding performance in forests in the north-east of Scotland confirmed that pine marten was more abundant than in 1995. This study found "no evidence to suggest that martens are impacting upon capercaillie breeding success". [xxiii]
d) A long-term multivariate analysis of capercaillie brood count data[xxiv] confirmed that breeding success is strongly influenced by weather. Analysis of the variables - weather and predators - considered together showed some measures of capercaillie breeding success to vary negatively with an index of marten (scat) abundance.

What impacts would the removal of pine marten have on capercaillie?

11. Outside Scotland, capercaillie populations thrive in presence of pine marten. The most important factor influencing capercaillie breeding success in Scotland appears to be weather;[xxv] with predators playing a secondary role. Focussing on the removal of one predator (such as the pine marten) would be an overly simplistic approach to what is a complex ecological issue regarding why capercaillie have declined in Scotland.

[i] See Policy Futures 1: Living Landscapes – towards and ecosystem -based conservation in Scotland. Available at: http://scottishwildlifetrust.org.uk/docs/002__050__publications__Policy_Futures_Series_1_Living_Landscapes__1292841506.pdf
[ii] Council Directive 92/43/EEC on the Conservation of natural habitats and of wild fauna and flora
[iii] Balharry, E. A., G. M. McGowan, H. Kruuk, and E. Halliwel 1996. Distribution of pine martens in Scotland as determined by field survey and questionnaire. Scottish Natural Heritage Research, survey and monitoring report. No.48. Edinburgh.
[iv] Croose, E., Birks, J.D.S. & Schofield, H.W. 2013: Expansion zone survey of pine marten (*Martes martes*) distribution in Scotland. Scottish Natural Heritage Commissioned Report No.520.
[v] E. Balharry 1998. How to exclude pine martens from game and poultry pens and introduction to the species in Scotland. The Vincent Wildlife Trust.
[vi] Matthews, F., 2012. Pine Marten-Capercaillie Conflict. Should pine martens in Scotland be culled? Mammal News Autumn 2012, 8-9.
[vii] Pine marten are a potentially important predator on red and grey squirrels and the interactions are not fully understood. Research is on-going
[viii] Baines, D., Aebischer, N., M., B., Macleod, A., 2011. Analysis of capercaillie brood count data: Long term analysis. Scottish Natural Heritage Commissioned Report No.435.
[ix] Baines, D., Aebischer, N., MacLeod, A., Woods, J., 2011. Assessing the activity of predators in relation to capercaillie hen densities and breeding performance. Scottish Natural Heritage Commissioned Report No.415.
[x] Jordan, N.R., Messenger, J., Turner, P., Croose, E., Birks, J.D.S. & O'Reilly, C. 2012 Molecular comparison of historical and contemporary pine marten (*Martes martes*) populations in the British Isles: evidence of differing origins and fates, and implications for conservation management. Conservation Genetics. 13, 1195-1212.
[xi] Baines, D., Moss, R. & Dugan, D. 2004. Capercaillie breeding success in relation to forest habitat and predator abundance. Journal of Applied Ecology, 41, 59-71.

[xiii] *Op. cit*. 1
[xiv] *Op. cit.* 4.
[xv] Langley P.J.W. and Yalden D. W. 1977.The decline of the rarer carnivores in Great Britain during the nineteenth century Mammal Review 7, 95-116
[xvi] Summers, R.W., Willi, J., Selvidge, J. 2009. Capercaillie *Tetrao urogallus* nest loss and attendance at Abernethy Forest, Scotland. Wildlife Biology 15, 319-327.
[xvii] *Op. cit.* 18
[xviii] *Op. cit.* 18
[xix] Harris, S.; Yalden, D.W. (Ed.) (2008). Mammals of the British Isles 4th. Mammal Society [s.l.]. ISBN 9780906282656. 800 pp.
[xx] Jordan, N.R., Messenger, J., Turner, P., Croose, E., Birks, J.D.S. & O'Reilly, C. 2012. Molecular comparison of historical and contemporary pine marten (*Martes martes*) populations in the British Isles: evidence of differing origins and fates, and implications for conservation management. Conservation Genetics. 13, 1195-1212.
[xxi] *Op. cit*. 7
[xxii] *Op. cit.* 18
[xxiii] *Op cit* 8.
[xxiv] *Op cit* 7
[xxv] Moss, R. 1986. Rain, breeding success and distribution of capercaillie Tetrao urogallus and black grouseTetrao tetrix in Scotland. Ibis, 128, 65-72.