European Community Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora (92/43/EEC)

Fourth Report by the United Kingdom under Article 17

on the implementation of the Directive
from January 2013 to December 2018

Supporting documentation for the
conservation status assessment for the species:

S1357 - Pine marten (*Martes martes*)

ENGLAND

IMPORTANT NOTE - PLEASE READ

- The information in this document is a country-level contribution to the UK Report on the conservation status of this species, submitted to the European Commission as part of the 2019 UK Reporting under Article 17 of the EU Habitats Directive.
- The 2019 Article 17 UK Approach document provides details on how this supporting information was used to produce the UK Report.
- The UK Report on the conservation status of this species is provided in a separate document.
- The reporting fields and options used are aligned to those set out in the European Commission guidance.
- Explanatory notes (where provided) by the country are included at the end. These provide an audit trail of relevant supporting information.
- Some of the reporting fields have been left blank because either: (i) there was insufficient information to complete the field; (ii) completion of the field was not obligatory; (iii) the field was not relevant to this species (section 12 Natura 2000 coverage for Annex II species) and/or (iv) the field was only relevant at UK-level (sections 9 Future prospects and 10 Conclusions).
- For technical reasons, the country-level future trends for Range, Population and Habitat for the species are only available in a separate spreadsheet that contains all the country-level supporting information.
- The country-level reporting information for all habitats and species is also available in spreadsheet format.

Visit the JNCC website, https://jncc.gov.uk/article17, for further information on UK Article 17 reporting.

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NATIONAL LEVEL

1. General information

1.1 Member State	**UK (England information only)**
1.2 Species code	**1357**
1.3 Species scientific name	**Martes martes**
1.4 Alternative species scientific name	
1.5 Common name (in national language)	Pine marten

2. Maps

2.1 Sensitive species	No
2.2 Year or period	1995-2016
2.3 Distribution map	Yes
2.4 Distribution map Method used	Based mainly on extrapolation from a limited amount of data
2.5 Additional maps	No

3. Information related to Annex V Species (Art. 14)

3.1 Is the species taken in the wild/exploited?	No	
3.2 Which of the measures in Art. 14 have been taken?	a) regulations regarding access to property	No
	b) temporary or local prohibition of the taking of specimens in the wild and exploitation	No
	c) regulation of the periods and/or methods of taking specimens	No
	d) application of hunting and fishing rules which take account of the conservation of such populations	No
	e) establishment of a system of licences for taking specimens or of quotas	No
	f) regulation of the purchase, sale, offering for sale, keeping for sale or transport for sale of specimens	No
	g) breeding in captivity of animal species as well as artificial propagation of plant species	No
	h) other measures	No

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3.3 Hunting bag or quantity taken in the wild for Mammals and Acipenseridae (Fish)

a) Unit

b) Statistics/ quantity taken	Provide statistics/quantity per hunting season or per year (where season is not used) over the reporting period					
	Season/ year 1	Season/ year 2	Season/ year 3	Season/ year 4	Season/ year 5	Season/ year 6
Min. (raw, ie. not rounded)						
Max. (raw, ie. not rounded)						
Unknown	No	No	No	No	No	No

3.4. Hunting bag or quantity taken in the wild Method used

3.5. Additional information

Illegal persecution, or accidental capture/killing may be a threat if rising pine marten populations bring it into conflict with hunting interests. Persecution is thought to be one of the factors which resulted in pine martens only persisting at very low numbers in England at present.

BIOGEOGRAPHICAL LEVEL

4. Biogeographical and marine regions

4.1 Biogeographical or marine region where the species occurs

Atlantic (ATL)

4.2 Sources of information

Balharry, D. (1993). Factors affecting the distribution and population density of pine martens (Martes martes l.) in Scotland. PhD, University of Aberdeen.
Balharry, D. , Jeffries, D.J. and Birks, J.D.S. (2008). Pine marten pp 447-455 in Harris, S and Yalden, D.W. Mammals of the British Isles: Handbook, 4th edition. The Mammal Society, Southampton. 799pp
Birks, J.D.S., Messenger, J.E. and Halliwell, E (2005). Diversity of densities used by pine martens Martes martes: a response to the scarcity of arboreal cavities? Mammal Review 35: 313-320
Caryl, F.M. (2008). Pine marten diet and habitat use within a managed coniferous forest, PhD, University of Stirling.
Caryl, F.M., Quine, C.P. and Park, K.J. (2012). Martens in the matrix: the improtance of nonforested habitats for forest carnivores in fragmented landscapes. Journal of Mammalogy, 93, 464 - 474
Croose, E., Birks, J.D.S., and Schofield, H.W. (2013). Expansion zone survey of pine marten (Martes martes) distribution in Scotland. Scottish Natural Heritage Commissioned Report, No.520
Croose, E., Birks, J.D.S., Schofield, H.W. and O'Reilly, C. (2014). Distribution of the pine marten (Martes martes) in southern Scotalnd in 2013. Scottish Natural Heritage Commissioned Report, No.740
Jordan, N (2011). A strategy for restoring the pine marten to England and Wales. The Vincent Wildlife Trust, Ledbury.
Kubasiewicz, L.M. (2014). Monitoring European pine martens (Martes martes) in

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Scottish forested landscapes, PhD, University of Stirling.
Langley, P.J.W. and Yalden, D.W. (1977). Decline of rarer carnivores in Great Britain during 19th century. Mammal Review,7, 95-116
Mathews, F., Kubasiewicz, L.M., Gurnell, J., Harrower, C., McDonald, R.A., Shore, R.F (2018). A review of the population and conservation status of British Mammals. A report by the Mammal Society under contract to Natural England, Natural Resources Wales and Scottish Natural Heritage.
Mergey, M., Helder, R, and Roeder, J.J. (2011). Effect of forest fragmentation on space use patterns in the European pine marten (Martes martes). Journal of mammalogy, 92, 328-335
Moll, R.J., Kilshaw, K, Montgomery, R.A. Abade, L, Campbell, R.D., Harrington, L.A., Millspaugh, J.J., Birks, J.D.S. and Macdonald, D.W. (2016). Clarifying habitat niche width using broad-scale, hierachial occupancy models a case study with a recovering mesocarnivore, Journal of Zoology, 300, 177-185
Pereboom, V, Mergey, M., Villerette, N., Helder,R., Gerard, J.F., Lode, T. (2008). Movement patterns, habitat selection and corridor use of a typical woodland-dweller species, the European pine marten Martes marte, in fragmented landscape. Can J Zool 86: 983-991
Ritchie, J. (1921). The Influence of Man on Animal Life in Scotland: a Study in Faunal Evolution. Geographic Journal, 57, 384-385
Vincent Wildlife Trust (2018). Bringing the Pine Marten back from the brink leaflet. Www.vwt.org.uk/wp-content/uploads/2018/01/BTFB-Leaflet-web.pdf

5. Range

5.1 Surface area (km²)		
5.2 Short-term trend Period		
5.3 Short-term trend Direction	Unknown (x)	
5.4 Short-term trend Magnitude	a) Minimum	b) Maximum
5.5 Short-term trend Method used		
5.6 Long-term trend Period		
5.7 Long-term trend Direction		
5.8 Long-term trend Magnitude	a) Minimum	b) Maximum
5.9 Long-term trend Method used		
5.10 Favourable reference range	a) Area (km²)	
	b) Operator	
	c) Unknown	x
	d) Method	Favourable reference range has not previously been set for pine marten at an England level as the species has persisted at such low levels that it has not been possible to set a FRR.
5.11 Change and reason for change in surface area of range	No change	
	The change is mainly due to:	
5.12 Additional information	As per the previous Article 17 report (2007-2012) range has not been calculated for England, as verified records of the species are sporadic and there would appear to be no established populations.	

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6. Population

6.1 Year or period	2016-2017	
6.2 Population size (in reporting unit)	a) Unit	number of individuals (i)
	b) Minimum	
	c) Maximum	
	d) Best single value	
6.3 Type of estimate		
6.4 Additional population size (using population unit other than reporting unit)	a) Unit	
	b) Minimum	
	c) Maximum	
	d) Best single value	
6.5 Type of estimate		
6.6 Population size Method used	Insufficient or no data available	
6.7 Short-term trend Period	2016-2017	
6.8 Short-term trend Direction	Unknown (x)	
6.9 Short-term trend Magnitude	a) Minimum	
	b) Maximum	
	c) Confidence interval	
6.10 Short-term trend Method used	Insufficient or no data available	
6.11 Long-term trend Period		
6.12 Long-term trend Direction		
6.13 Long-term trend Magnitude	a) Minimum	
	b) Maximum	
	c) Confidence interval	
6.14 Long-term trend Method used		
6.15 Favourable reference population (using the unit in 6.2 or 6.4)	a) Population size	
	b) Operator	
	c) Unknown	x
	d) Method	Population size estimates in England are unknown, though are likely to be very low and records from England appear to be occasional rather than representative of established populations, Mathews et al (2018). So, an FRP has not been set for England.
6.16 Change and reason for change in population size	No change	
	The change is mainly due to:	
6.17 Additional information	Population size estimates in England are unknown, though are likely to be very low and records from England appear to be occasional rather than representative of established populations, Mathews et al (2018).	

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7. Habitat for the species

7.1 Sufficiency of area and quality of occupied habitat	a) Are area and quality of occupied habitat sufficient (to maintain the species at FCS)?	Unknown
	b) Is there a sufficiently large area of occupied AND unoccupied habitat of suitable quality (to maintain the species at FCS)?	Unknown
7.2 Sufficiency of area and quality of occupied habitat Method used	Insufficient or no data available	
7.3 Short-term trend Period	1995-2016	
7.4 Short-term trend Direction	Unknown (x)	
7.5 Short-term trend Method used	Insufficient or no data available	
7.6 Long-term trend Period		
7.7 Long-term trend Direction		
7.8 Long-term trend Method used		
7.9 Additional information		

8. Main pressures and threats

8.1 Characterisation of pressures/threats

Pressure	Ranking
Conversion to other types of forests including monocultures (B02)	M
Logging without replanting or natural regrowth (B05)	H
Logging (excluding clear cutting) of individual trees (B06)	M
Removal of dead and dying trees, including debris (B07)	H
Clear-cutting, removal of all trees (B09)	H
Roads, paths, railroads and related infrastructure (e.g. bridges, viaducts, tunnels) (E01)	H
Reduced fecundity / genetic depression (e.g. inbreeding or endogamy) (L05)	H
Interspecific relations (competition, predation, parasitism, pathogens) (L06)	M
Hunting (G07)	M
Illegal shooting/killing (G10)	M

Threat	Ranking
Conversion to other types of forests including monocultures (B02)	M
Logging without replanting or natural regrowth (B05)	H
Logging (excluding clear cutting) of individual trees (B06)	M
Removal of dead and dying trees, including debris (B07)	H
Clear-cutting, removal of all trees (B09)	H

Roads, paths, railroads and related infrastructure (e.g. bridges, viaducts, tunnels) (E01)	H
Reduced fecundity / genetic depression (e.g. inbreeding or endogamy) (L05)	H
Interspecific relations (competition, predation, parasitism, pathogens) (L06)	M
Hunting (G07)	M
Illegal shooting/killing (G10)	M

8.2 Sources of information

8.3 Additional information

9. Conservation measures

9.1 Status of measures

a) Are measures needed? Yes

b) Indicate the status of measures Measures identified and taken

9.2 Main purpose of the measures taken

Increase the population size and/or improve population dynamics (improve reproduction success, reduce mortality, improve age/sex structure) (related to 'Population')

9.3 Location of the measures taken

Both inside and outside Natura 2000

9.4 Response to the measures

Long-term results (after 2030)

9.5 List of main conservation measures

Prevent conversion of (semi-) natural habitats into forests and of (semi-)natural forests into intensive forest plantation (CB01)
Adapt/manage reforestation and forest regeneration (CB04)
Adapt/change forest management and exploitation practices (CB05)
Stop forest management and exploitation practices (CB06)
Reduce impact of transport operation and infrastructure (CE01)
Other measures related to natural processes (CL04)
Management of hunting, recreational fishing and recreational or commercial harvesting or collection of plants (CG02)
Control/eradication of illegal killing, fishing and harvesting (CG04)
Reinforce populations of species from the directives (CS01)

9.6 Additional information

Natural England is working in partnership with the Vincent Wildlife Trust to undertake the pine marten element of the Heritage Lottery Funded 'Back from the Brink Project'. This project aims to facilitate and monitor the natural recovery of the pine marten in northern England with the help of the local community. Woodlands in Northumberland and Cumbria are being surveyed to collect information on the presence and distribution of pine martens. Woodland habitat will be enhanced for pine martens by installing artificial den boxes to provide resting and breeding sites. In the long-term, increased connectivity between woodlands will help pine martens re-colonise suitable areas.

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10. Future prospects

10.1 Future prospects of parameters	a) Range b) Population c) Habitat of the species
10.2 Additional information	Through the work of the Back from the Brink project, it's hoped that pine martens will be encouraged to move south into Northern England from Scotland, thus bolstering the population and range of the species.

11. Conclusions

11.1. Range	
11.2. Population	
11.3. Habitat for the species	
11.4. Future prospects	
11.5 Overall assessment of Conservation Status	
11.6 Overall trend in Conservation Status	
11.7 Change and reasons for change in conservation status and conservation status trend	a) Overall assessment of conservation status No change The change is mainly due to: b) Overall trend in conservation status No change The change is mainly due to:
11.8 Additional information	

12. Natura 2000 (pSCIs, SCIs and SACs) coverage for Annex II species

12.1 Population size inside the pSCIs, SCIs and SACs network (on the biogeographical/marine level including all sites where the species is present)	a) Unit b) Minimum c) Maximum d) Best single value
12.2 Type of estimate	
12.3 Population size inside the network Method used	
12.4 Short-term trend of population size within the network Direction	
12.5 Short-term trend of population size within the network Method used	
12.6 Additional information	

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13. Complementary information

13.1 Justification of % thresholds for trends

13.2 Trans-boundary assessment

13.3 Other relevant Information

Distribution Map

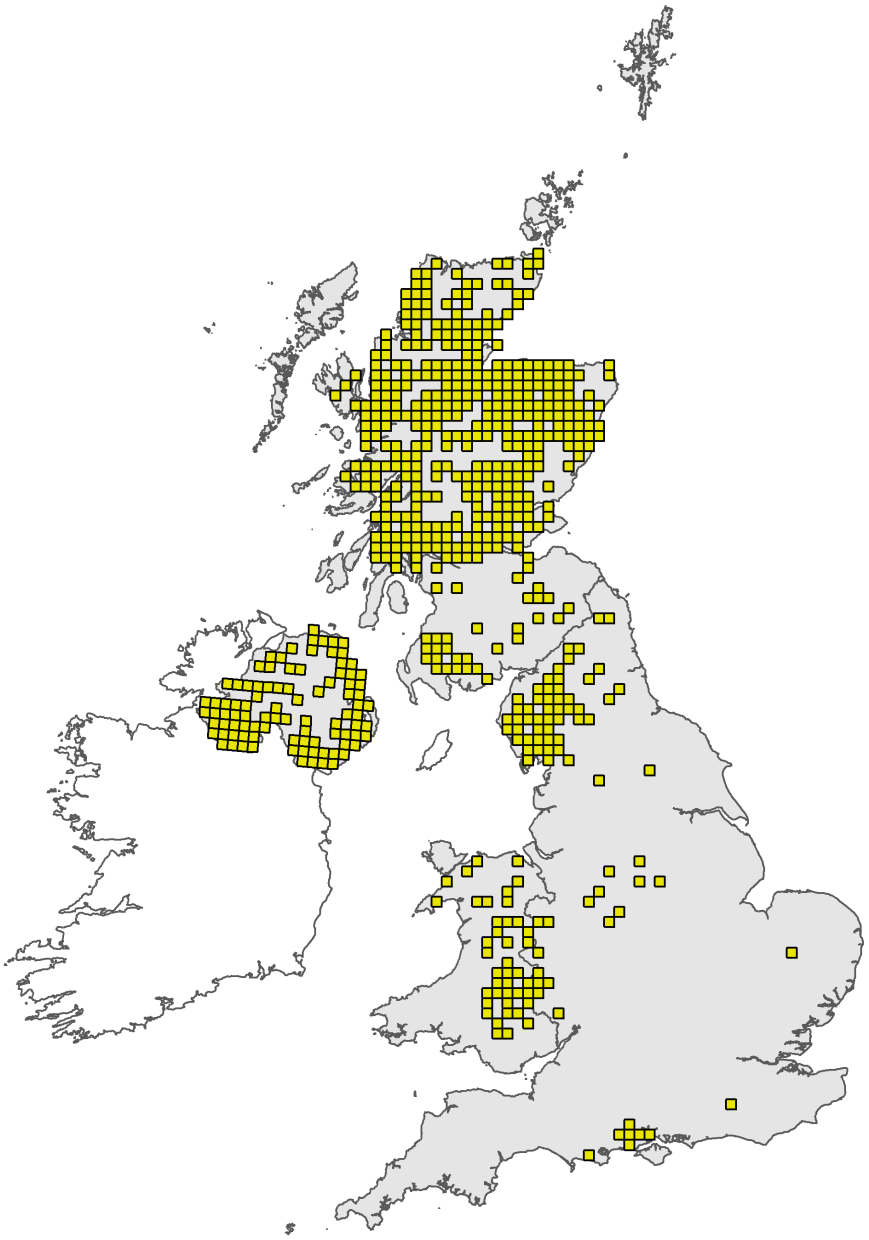

Figure 1: UK distribution map for S1357 - Pine marten (*Martes martes*). Coastline boundary derived from the Oil and Gas Authority's OGA and Lloyd's Register SNS Regional Geological Maps (Open Source). Open Government Licence v3 (OGL). Contains data © 2017 Oil and Gas Authority.

The 10km grid square distribution map is based on available species records within the current reporting period. For further details see the 2019 Article 17 UK Approach document.

Range Map

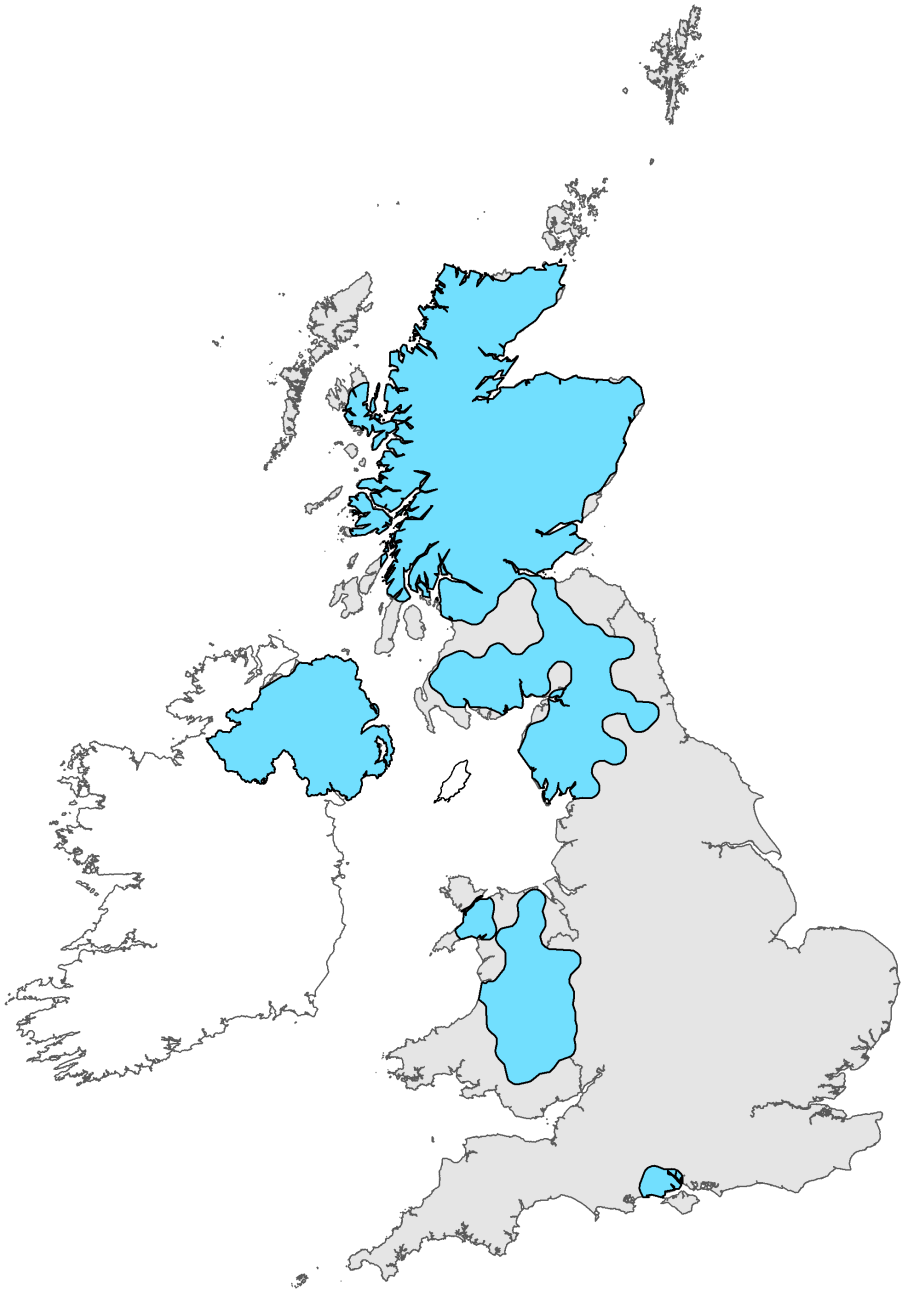

Figure 2: UK range map for S1357 - Pine marten (*Martes martes*).Coastline boundary derived from the Oil and Gas Authority's OGA and Lloyd's Register SNS Regional Geological Maps (Open Source). Open Government Licence v3 (OGL). Contains data © 2017 Oil and Gas Authority.

The range map has been produced by The Mammal Society applying a range mapping tool as outlined in Matthews et al. (2018), to the 10km grid square distribution map presented in Figure 1. The alpha value for this species was 20km. For further details see the 2019 Article 17 UK Approach document.

Explanatory Notes

Species name: Martes martes (1357)

Field label	Note
1.5 Common name	Pine martens were once prevalent throughout mainland Britain. By the late 19th century, a combination of habitat loss and persecution resulted in the survival of only a few populations in north west Scotland (Langley and Yalden, (1977), Ritchie (1921). Habitat improvement and legal protection initially through the Wildlife & Countryside Act (1981) as amended, has led to the partial recovery of the pine martens range in Scotland over the last few decades (Crosse et al., 2013, Crosse et al., 2014) combined with re-introductions in Dumfries & Galloway. The species has increased in number and range in Wales as a result of species reinforcement exercises through the Pine marten recovery project led by the Vincent Wildlife Trust (https://www.pine-marten-recovery-project.org.uk/.). Extensive research by the Vincent Wildlife Trust suggests that records in England do not represent established populations, Mathews et al (2018).

Species name: Martes martes (1357) Region code: ATL

Field label	Note
5.3 Short term trend; Direction	The Vincent Wildlife Trust have collated distribution data on pine martens for several years. High quality sightings reports are now usually followed up with a scat hunt in an attempt to provide DNA verified evidence of pine marten presence. Sightings and scat evidence remains sporadic in England and extensive research by the Vincent Wildlife Trust suggests that records in England do not represent an established population, Mathews et al, (2018). Any trends in range cannot be ascertained and this parameter is unknown.
6.6 Population size; Method used	As per the previous Article 17 reporting round (2007-2012), pine marten population sizes can be estimated using pine marten occurrence and density estimates in different habitat types. However, the likely very low pine marten density in England and small number of verified records means that these methods cannot be applied and a population estimate has not been derived for England.

7.1 Sufficiency of area and quality of occupied habitat	A habitat estimation for the species was provided in the previous Article 17 report for England (2007-2012) based on a very small number of verified scat records. Sufficiency of habitat and quality of habitat has not been determined for this report as there is insufficient information on both the extent of habitat and quality of that habitat available to the species to make that assessment combined with the apparent lack of an established population. In contrast to the specialism for closed canopy forests by eastern European populations, pine martens in western Europe are less dependent on woodland (Pereboom, 2008, Mergey et al., 2011) and occur in areas with as little as 4% forest cover (Balharry, 1993). In Scotland, pine martens have adapted to a landscape with low levels of forest cover, with the highest recorded population densities in areas with intermediate levels of forest fragmentation (Caryl et al., 2012, Kubasiewicz, 2014). Pine martens have also been recorded in non-wooded habitats such as the upland montane areas, heather grassland and semi-natural grassland in the Cairngorms (Croose et al., 2013, Moll et al.,2016). Pine martens in Scotland adapt their diet to the seasonal availability of different food sources, including small mammals, carrion, berries and insects (Caryl, 2008). As opposed to a dietary preference for the bank vole which is observed in eastern European populations, pine martens in Scotland show a strong preference for the field vole (Caryl, 2008). This preference is reflected by the incorporation of scrub and tussock grassland into the pine martens' home range (Pereboom, 2008, Caryl et al., 2012). Pine martens can live alongside human habitation, occupying wood stacks, farm buildings and the lofts of dwelling houses. Scarcity of arboreal cavities may result in a shortage of suitable den sites and could in turn limit populations (Balharry et al, 2008).
7.4 Short term trend; Direction	As the area and quality of known occupied and unknown habitat cannot be assessed the short term trend direction is unknown.
7.5 Short term trend; Method used	There is insufficient information to assess the trend.
8.1 Characterisation of pressures/ threats	The unclear status of pine marten means that pressures cannot easily be assessed. However, Jordan (2011) has considered the factors likely to be limiting pine marten recovery in England. Pine martens need habitat that provides sufficient foraging and breeding/resting sites. Pine martens have a relatively catholic diet and have adapted to a range of habitat types and associated prey availability. However, the availability of suitable arboreal den sites and hence removal of dead and dying trees, may be a limiting factor (Birks et al, 2005). Individuals may well be at risk of road traffic accidents where territories encompass busy highways. The historical decline in pine marten populations has been attributed to persecution by gamekeepers. It has been suggested that competition with the more generalist fox (Vulpes vulpes) may be a factor in the lack of recovery of pine marten populations and thus increased fox numbers resulting from habitat changes and insufficient fox control may also be a pressure on remnant pine marten populations. Fragmentation and clearance of woodland may have benefitted fox populations resulting in greater competition with pine martens (Jordan, 2011). The probable very low density of pine martens is likely to have resulted in reduced genetic diversity and may be limiting the ability of the population to recover.
9.5 List of main conservation measures	Illegal persecution or accidental capture/killing may be a threat if the population of pine martens does increase, possibly bringing it into conflict with hunting interests.