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*)

WALES

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.

Report on the main results of the surveillance under Article 11 for Annex II, IV and V species (Annex B)

NATIONAL LEVEL

1. General information

1.1 Member State	**UK (Wales 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	Complete survey or a statistically robust estimate
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

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) in Scotland. PhD, University of Aberdeen.
Balharry E, Jefferies DJ & Birks JDS. 2008. Pine marten pp 447-455 in Harris S & Yalden DW Mammals of the British Isles: Handbook, 4th edition. The Mammal Society, Southampton.799pp.
Battersby J (ed) & Tracking Mammals Partnership. 2005. UK Mammals: Species Status and Population Trends. Joint Nature Conservation Committee/Tracking Mammals Partnership.
Birks J & Messenger J. 2010. Evidence of pine martens in England and Wales 1996-2007. The Vincent Wildlife Trust, Ledbury
Birks JDS, Messenger JE & Halliwell E. 2005. Diversity of den sites used by pine martens Martes martes: a response to the scarcity of arboreal cavities? Mammal Review 35: 313-320.
Caryl FM. 2008. Pine marten diet and habitat use within a managed coniferous forest, PhD, University of Stirling.
Caryl FM, Quine CP & Park KJ. 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 JDS, Schofield HW & O'Reilly C. 2014. Distribution of the pine marten (Martes martes) in southern Scotland in 2013. Scottish Natural Heritage Commissioned Report, No.740
Davison A, Birks JDS, Brookes RC Messenger JE and Griffiths HI. 2001. Mitochondrial phylogeography and population history of pine martens Martes martes compared with polecats Mustela putorius. Molecular Ecology 10: 2479-2488.

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Jordan N. 2011. A strategy for restoring the pine marten to England and Wales. The Vincent Wildlife Trust, Ledbury
Kubasiewicz LM. 2014. Monitoring European pine martens (Martes martes) in Scottish forested landscapes. PhD, University of Stirling.
Langley PJW & Yalden DW. 1977. The decline of the rarer carnivores in Great Britain during the nineteenth century. Mammal Review 7: 95-116.
MacPherson J. 2014. Feasibility assessment for reinforcing pine marten numbers in England and Wales. Vincent Wildlife Trust.
Mathews F, et al. 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. Natural England, Peterborough. ISBN 978-1-78354-494-3.
Mergey, M., Helder, R, and Roeder, JJ. (2011). Effect of forest fragmentation on space use patterns in the European pine marten (Martes martes). Journal of Mammalogy, 92: 328-335
Messenger J, Croose E,Turner P & O'Reilly C. 2010. The Vincent Wildlife Trust and Waterford Institute of Technology Pine Marten Scat DNA Survey of England and Wales 2008-2009. Vincent Wildlife Trust, Ledbury.
Moll RJ, Kilshaw K, Montgomery RA, Abade L, Campbell RD, Harrington LA, Millspaugh JJ, Birks JDS & Macdonald DW. (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, HelderR, Gerard JF, Lode T. 2008. Movement patterns, habitat selection and corridor use of a typical woodland-dweller species, the European pine marten Martes martes, in fragmented landscape. Can J Zool 86: 983-991
Vincent Wildlife Trust (VWT) Pine Marten Recovery Project. Available from: https://www.pine-marten-recovery-project.org.uk/about-us/wales [Accessed 24/7/2018]

5. Range

5.1 Surface area (km²)		
5.2 Short-term trend Period		
5.3 Short-term trend Direction	Increasing (+)	
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 d) Method	
5.11 Change and reason for change in surface area of range	Genuine change Use of different method	
	The change is mainly due to:	Use of different method

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5.12 Additional information	

6. Population

6.1 Year or period	2015-2016	
6.2 Population size (in reporting unit)	a) Unit	number of individuals (i)
	b) Minimum	
	c) Maximum	
	d) Best single value	39
6.3 Type of estimate	Best 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	Based mainly on extrapolation from a limited amount of data	
6.7 Short-term trend Period	2015-2018	
6.8 Short-term trend Direction	Uncertain (u)	
6.9 Short-term trend Magnitude	a) Minimum	
	b) Maximum	
	c) Confidence interval	
6.10 Short-term trend Method used	Based mainly on expert opinion with very limited data	
6.11 Long-term trend Period	1994-2015	
6.12 Long-term trend Direction	Decreasing (-)	
6.13 Long-term trend Magnitude	a) Minimum	
	b) Maximum	
	c) Confidence interval	
6.14 Long-term trend Method used	Based mainly on expert opinion with very limited data	
6.15 Favourable reference population (using the unit in 6.2 or 6.4)	a) Population size	
	b) Operator	
	c) Unknown	
	d) Method	
6.16 Change and reason for change in population size	Genuine change	
	The change is mainly due to:	Genuine change
6.17 Additional information		

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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)?	
7.2 Sufficiency of area and quality of occupied habitat Method used	Insufficient or no data available	
7.3 Short-term trend Period		
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)	M
Removal of dead and dying trees, including debris (B07)	H
Removal of old trees (excluding dead or dying trees) (B08)	H
Roads, paths, railroads and related infrastructure (e.g. bridges, viaducts, tunnels) (E01)	M
Illegal shooting/killing (G10)	H
Bycatch and incidental killing (due to fishing and hunting activities) (G12)	M
Reduced fecundity / genetic depression (e.g. inbreeding or endogamy) (L05)	M
Interspecific relations (competition, predation, parasitism, pathogens) (L06)	H

Threat	Ranking
Conversion to other types of forests including monocultures (B02)	M
Logging without replanting or natural regrowth (B05)	M
Removal of dead and dying trees, including debris (B07)	H
Removal of old trees (excluding dead or dying trees) (B08)	H
Roads, paths, railroads and related infrastructure (e.g. bridges, viaducts, tunnels) (E01)	M
Illegal shooting/killing (G10)	H

Bycatch and incidental killing (due to fishing and hunting activities) (G12)	M
Reduced fecundity / genetic depression (e.g. inbreeding or endogamy) (L05)	M
Interspecific relations (competition, predation, parasitism, pathogens) (L06)	H

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		Medium-term results (within the next two reporting periods, 2019-2030)

9.5 List of main conservation measures

Adapt/change forest management and exploitation practices (CB05)
Control/eradication of illegal killing, fishing and harvesting (CG04)
Reduce bycatch and incidental killing of non-target species (CG05)

9.6 Additional information

10. Future prospects

10.1 Future prospects of parameters

a) Range
b) Population
c) Habitat of the species

10.2 Additional information

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

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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	

13. Complementary information

13.1 Justification of % thresholds for trends
13.2 Trans-boundary assessment
13.3 Other relevant Information

Distribution Map

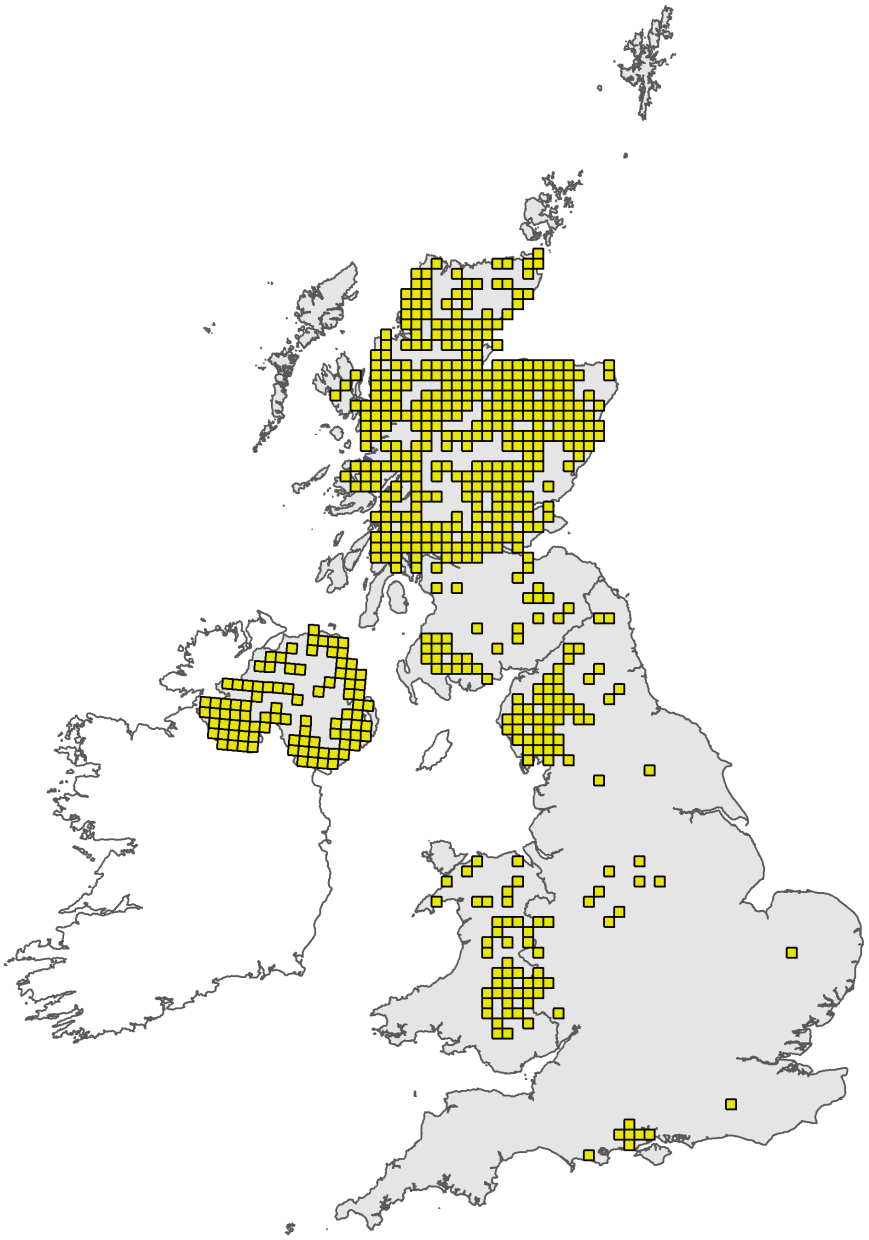

Figure 1: UK distribution map for S1357 - Pine marten (*Martes martes*). Coastline boundary derived from the Oil and Gas Authority's OGA and Lloyd's Register SNS Regional Geological Maps (Open Source). Open Government Licence v3 (OGL). Contains data © 2017 Oil and Gas Authority.

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

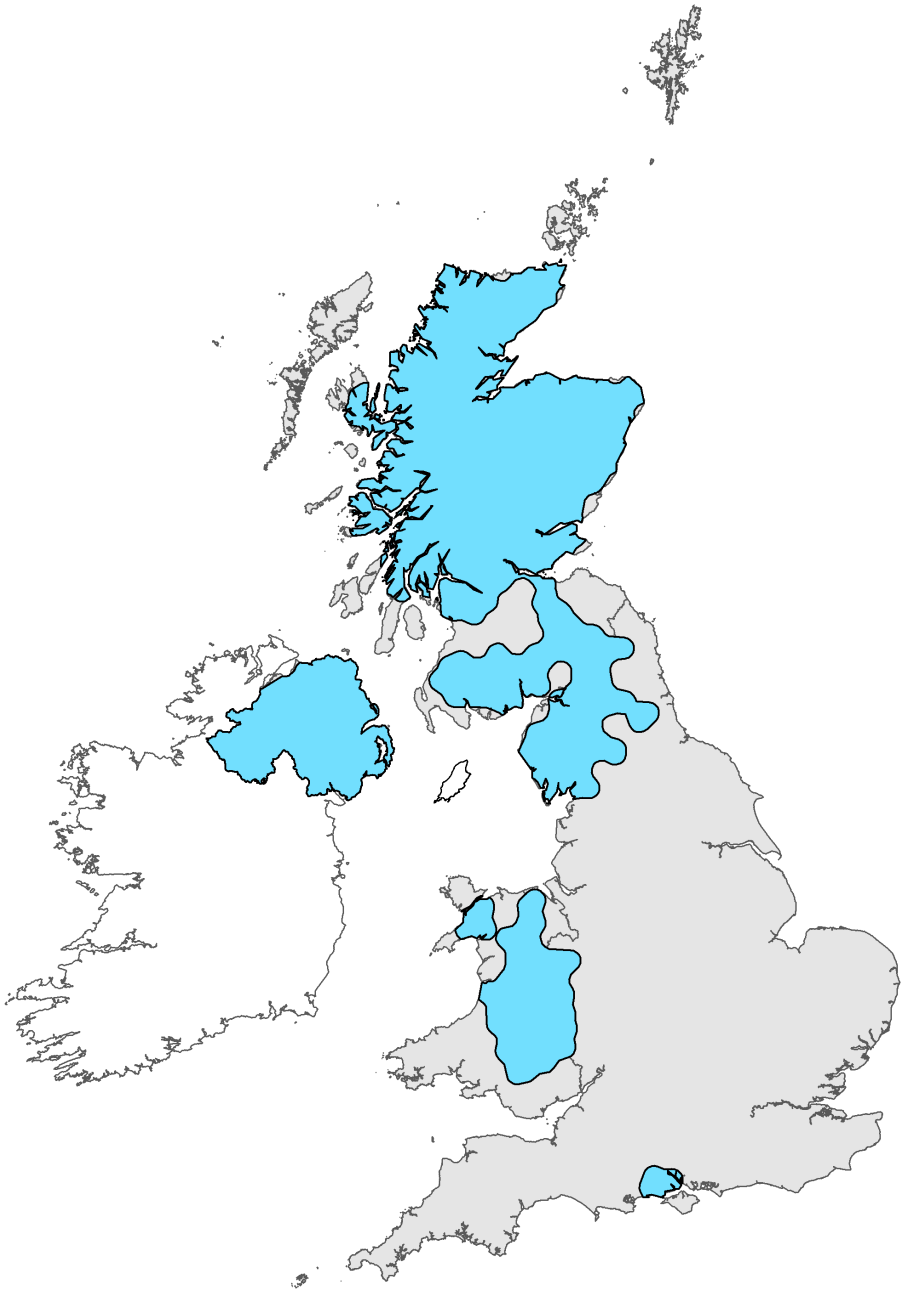

Figure 2: UK range map for S1357 - Pine marten (*Martes martes*).Coastline boundary derived from the Oil and Gas Authority's OGA and Lloyd's Register SNS Regional Geological Maps (Open Source). Open Government Licence v3 (OGL). Contains data © 2017 Oil and Gas Authority.

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
2.4 Distribution map; Method used	Shape files supplied by The Mammal Society: Mathews F, Kubasiewicz LM, Gurnell J, Harrower C, McDonald RA, Shore RF. 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. Natural England, Peterborough. ISBN 978-1-78354-494-3.

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

Field label	Note
5.10 Favourable reference range	A Favourable Reference Range has not previously been set for pine marten in Wales due to the very low population levels. The population in Wales has been subject to a recovery project and range is now increasing. However, it is still not yet possible to set a favourable reference range until the recovery is more established.
5.11 Change and reason for change in surface area of range	The change is both a product of different criteria for the data used to map range, and an increase in the range of pine marten in Wales. In the last reporting round only DNA verified records were used to map pine marten range. In contrast, Mathews et al 2018 used all verified records between 1996 and 2016 to map range which has resulted in a significant increase to the mapped range of the pine marten compared with the last reporting round. However, there has also been a genuine expansion of pine marten range in Wales compared to the previous reporting round due to the VWT pine marten reinforcement project. During 2015-2017 n51 pine martens were translocated from Scotland to mid-Wales. The martens have established territories across Wales with successful breeding recorded (Mathews et al 2018; VWT Pine Marten Recovery Project, https://www.pine-marten-recovery-project.org.uk/about-us/wales). The difference between the range mapped by Mathews et al. (2018) using records from 1996-2016 and the likely probable current range is shown in Figure 8.5a of their report using information supplied by the VWT.
6.2 Population size	Population estimate from Mathews et al. (2018). Pine martens have been the subject of a population reinforcement in Wales. The population size of 39 reported in Mathews et al 2018 is the number of individuals released and monitored during 2015 and 2016 by the Vincent Wildlife Trust. The most recent estimate (2018) from VWT is 60 which accounts for the number of animals released and confirmed births and deaths (J. McPherson, pers. comm.) Population size is likely to increase as released animals and their progeny continue to breed.
6.3 Type of estimate	Period in 6.1 reflects range of records used for 1km square count. But more than 87% of the records are from 2000 or later.
6.4 Additional population size	a) Unit = individuals b) Best single value = 39, Wales Population estimate from Mathews et al. (2018). Pine martens have been the subject of a population reinforcement in Wales. The population size of 39 reported in Mathews et al 2018 is the number of individuals released and monitored during 2015 and 2016 by the Vincent Wildlife Trust. The most recent estimate (2018) from VWT is 60 which accounts for the number of animals released and confirmed births and deaths (J. McPherson, pers. comm.) Population size is likely to increase as released animals and their progeny continue to breed.
6.9 Short term trend; Magnitude	Unknown - see 6.10

6.10 Short term trend; Method used	The VWT pine marten reinforement project in Wales released 51 pine martens during 2015-2017. Survey work has recorded evidence of breeding in all three years since. The pine marten population is therefore expanding, but there is insufficient evidence on the current rate of change.
6.14 Long term trend; Method used	A collation of sightings records from 1996-2007 (Birks & Messenger 2010) suggested that the distribution of pine martens in Wales could be quite wide. But scat surveys of areas with high quality sightings failed to provide DNA-verified evidence of the presence of pine martens. More general scat hunts were also been completed in areas with a high concentration of sightings between 2008 and 2009 (Messenger et al 2010), but none of these returned positive records. In Wales there were just two unequivocal records of pine martens dating from 2006 and 2007 (Birks and Messenger 2010). A further verified record dates from 1996 (Davison et al 2001). Late in 2012 the corpse of a male pine marten was found to the west of Newtown (VWT pers comm.), although the origin of this animal is unknown. This evidence indicates that prior to the start of the reinforcement project, pine marten populations in Wales were in long term decline.
6.16 Change and reason for change in population size	In the last reporting round it was not possible to calculate a population estimate due to the very low density of pine martens in Wales. Following the VWT reinforcement project population size has therefore increased. Whilst there has been some mortality, these martens have established territories across mid-Wales with some animals having dispersed to north Wales. There is good evidence of breeding. Longer term monitoring data will be needed to determine whether these populations will continue to increase in size and expand their range.
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)? YES/NO/Unknown - area = unknown -quality = unknown Overall = unknown 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 an assessment. In contrast to the specialism for closed canopy forests by eastern European populations, pine martens in western Europe are less dependent on woodland (Pereboom et al., 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., 2014, 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 marten's home range (Pereboom et al., 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).

8.1 Characterisation of pressures/ threats	Pressures: Jordan (2011) has considered the factors likely to be limiting pine marten recovery in England and Wales. Forest and plantation management (B02, B05) - 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 in, for example, Ireland and NW Scotland. However, appropriate forest management is necessary to ensure suitable conditions for foraging and breeding, and to ensure breeding martens are not disturbed from harvesting operations. The availability of suitable arboreal den sites, and hence the removal of dead and dying trees, may be limiting factor (B07, B08; Birks et al. 2005). Predation risk of young can increase if breeding dens are at ground level. The provision of den boxes in woodlands can ameliorate this problem, but requires intervention over a wide area. Pine martens are at risk of road traffic accidents (E01), and whilst the VWT project selected the sites for releases with lower traffic flow (MacPherson 2014) as the pine marten's range in Wales expands into more populated areas the risk of road traffic accidents will increase. The historical decline in pine marten populations has been attributed to persecution by gamekeepers and as numbers recover the species is likely to increasingly come into conflict with game ventures/establishments (G10, G12). Education on techniques to protect game, such as preventing access to pheasant pens, will be key to reducing threat. It has been suggested that competition with the more generalist fox (Vulpes vulpes) may be a factor in the previous lack of recovery of pine marten populations in Wales (Jordan 2011) and thus increased fox numbers resulting from habitat changes and insufficient fox control may also be a pressure on remnant pine marten populations in Wales (L06). The low population of pine martens in Wales will have resulted in a loss of genetic diversity and may have contributed to the lack of population recovery (L05; Jordan 2011). However, the translocation of 51 pine martens from Scotland by the VWT will have significantly increased the genetic diversity of the pine marten population in Wales. Individuals were taken from a number of different sites to avoid using related animals. Threats: As the pine marten population recovers in Wales it will continue to be subject to the same set of threats that are currently considered to be pressures. The incidence of some threats, such as illegal persecution (G10) and road traffic accidents (E01) may increase as the pine marten becomes more widespread and have the potential to limit population growth and recovery to FCS.
9.5 List of main conservation measures	Sympathetic woodland management is required (CB05) to provide suitable habitat for foraging, a supply of suitable den locations and to ensure pine martens are not adversely affected by harvesting operations. Education is needed to prevent illegal persecution (CG04) and avoid incidental killing during pest management operations (CG05).
10.1 Future prospects of parameters	10.1a Future prospects of -range. Future trend in range is likely to be positive given the re-establishment of a breeding pine marten population in Wales which is expected to consolidate and expand in future years. However, the project is still at an early stage and so this trend cannot be assumed. 10.1b Future prospects of -Population The VWT pine marten reinforcement project has led to a significant improvement in the species' status in Wales. There is good evidence that the translocated martens have bred successfully and pine martens are now established over a wide area from Coed y Brenin to the Tywi forest. However, the project is still at an early stage and the next key milestone will be evidence of breeding by young born in Wales and the continued establishment and expansion of the population.