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

Supporting documentation for the Third Report by the United Kingdom under Article 17

on the implementation of the Directive from January 2007 to December 2012
Conservation status assessment for

Species:

S1357 - Pine marten (*Martes martes*)

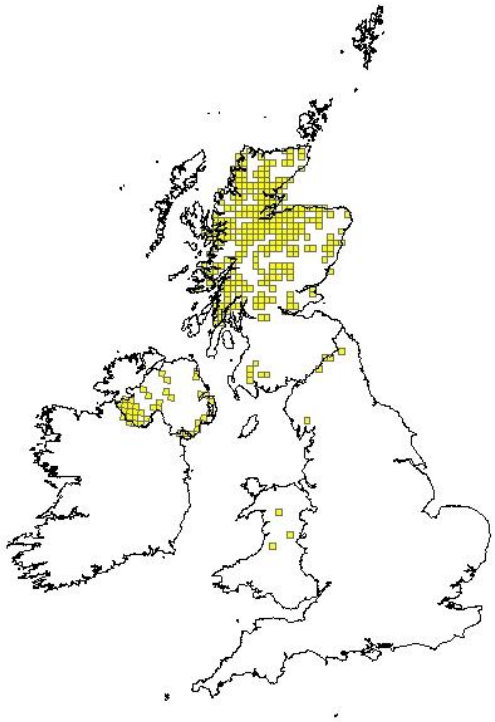
IMPORTANT NOTE – PLEASE READ

- The country-level reporting information contained in this document is a contribution to the Article 17 UK report for the habitat/species concerned.
- It has been provided by **Scottish Natural Heritage** and refers only to the state of the habitat/species in **Scotland** - it does not constitute an assessment for the whole of the UK.
- The Article 17 UK Approach document provides details on how this information has been used and, combined with information supplied by other Statutory Nature Conservation Bodies
- The format of the document is closely aligned to that set out by the European Commission for Member State reporting – as a result, some of the fields are not applicable at a country-level and have deliberately been left blank – in addition, the content of most fields is constrained by the EC reporting categories.

Reporting format on the 'main results of the surveillance under Article 11' for Annex II, IV & V species

Field name	*Brief explanations*	
0.2 Species	**0.2.1 Species code**	**S1357**
	0.2.2 Species scientific name	***Martes martes***
	0.2.3 Alternative species scientific name Optional	
	0.2.4 Common name Optional	**Pine marten**

1.1 Maps			
1.1.1 Distribution map		**Sensitive**	**False**
	BALHARRY, E.A., MCGOWAN, G.M., KRUUK, H. AND HALLIWELL, E. 1996 Distribution of pine martens in Scotland as determined by field survey and questionnaire. Scottish Natural Heritage Research, Survey and Monitoring Report. No. 48 www.snh.gov.uk/publications-data-and-research/publications/search-the-catalogue/publication-detail/?id=1196. Data from the NBN 1990-2012 were selected. Wales – VWT pine marten data. Scotland Records from previously unreported localities indicate that this species continues to extend its range, so the distribution shown is probably conservative. M. martes now occurs throughout the Highlands and north-east Scotland, with many records as far south as Kintyre and the Central Lowlands. The species is also now present on Mull. The reintroduced population in Dumfries & Galloway is still present, but has not spread significantly. England and Wales		



1.1.2 Method used - map	**Complete survey/Complete survey or a statistically robust estimate**
	1.1.2 Distribution Method Only distribution points from corpses or DNA-verified scats are reported. This differs from the previous reporting round, when sightings were also included. DNA-verification of scats is now accepted as the most reliable survey method for very low density populations (Messenger et al 2010). Collation of sightings records from 1996-2007 (Birks & Messenger 2010) suggests that the distribution of pine martens in England and Wales could be much wider. But high quality sightings reports are now usually followed up with a scat hunt in an attempt to provide DNA-verified evidence of the presence of pine martens. More general scat hunts have also been completed in areas with a high concentration of sightings between 2008 and 2009 (Messenger et al 2010), but to date, none of these have returned positive records. However, it remains that the likely very low density of pine martens in Wales means that there could be some under-recording. Method used for distribution is recorded as '3', as only verified records are used, with no extrapolation or modelling. Data quality considered to be 'moderate', but further survey work is needed to clarify the distribution of the species. Wales: In Wales there are just two unequivocal records of pine martens from 2006 and 2007 (Birks and Messenger 2010). A further verified record dates from 1996 (Davison et al 2001).
1.1.3 Year or period	**1990-2012**
	The previous report used a date range of 1990-2006. The date range used in this report, 2006-2012, has been selected to reflect the period when DNA-verification of scats became established as a survey technique (see 1.1.2 Distribution method). Wales: 2006-2012

1.1.4 Additional distribution map	**False**
1.1.5 Range map	

2.1 Biogeographical region & marine regions	**ATL**
2.2 Published sources	**"GB/Scotland** **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 www.snh.gov.uk/publications-data-and-research/publications/search-the-catalogue/publication-detail/?id=1746.** **BALHARRY, D. 1993. Factors affecting the distribution and population density of pine martens (Martes martes) in Scotland. PhD Thesis, University of Aberdeen.** **BALHARRY, E., JEFFERIES, D.J. & BIRKS, J.D.S. 2008. Pine marten pp 447-455 in HARRIS, S & YALDEN, D.W. Mammals of the British Isles: Handbook, 4th edition. The Mammal Society, Southampton.799pp.** **BALHARRY, E.A., MCGOWAN, G.M., KRUUK, H. AND HALLIWELL, E. 1996 Distribution of pine martens in Scotland as determined by field survey and questionnaire. Scottish Natural Heritage Research, Survey and Monitoring Report. No. 48 www.snh.gov.uk/publications-data-and-research/publications/search-the-catalogue/publication-detail/?id=1196.** **BATTERSBY, J (ed.) & TRACKING MAMMALS PARTNERSHIP. 2005. UK Mammals: Species Status and Population Trends. Joint Nature Conservation Committee/Tracking Mammals Partnership http://jncc.defra.gov.uk/page-3311.** **BIRKS, J.D.S., MESSENGER, J.E., BRAITHWAITE, A.C., DAVISON, A., BROOKES, R.C. & STRACHAN, C. 2004. Are scat surveys a reliable method for assessing distribution and population status of pine martens? In HARRISON, D.J., FULLER, A.K. & PROULX, G. (eds.). Martens and fishers (Martes) in human-altered environments: an international perspective. Pages 235-252. Springer Science, New York, USA.** **BIRKS. J.D.S., MESSENGER, J.E. & 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 http://onlinelibrary.wiley.com/doi/10.1111/j.1365-2907.2005.00068.x/abstract.** **Forestry Commission (2012). The Scottish Forestry Strategy: 2012-2015 Implementation Plan & 2011-2012 Progress Report. Downloaded from www.forestry.gov.uk/forestry/infd-6aggzw on 8/8/2012.** **HALLIWELL, E. 1997. The ecology of red squirrels in Scotland in relation to pine marten predation. Unpublished PhD thesis, University of Aberdeen, Scotland.**

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2.3 Range	
2.3.1 Surface area Range	
2.3.2 Method used Surface area of Range	**Complete survey/Complete survey or a statistically robust estimate**
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Scotland
Records from previously unreported localities indicate that this species continues to extend its range, so the distribution shown is probably

	conservative. M. martes now occurs throughout the Highlands and north-east Scotland, with many records as far south as Kintyre and the Central Lowlands. The species is also now present on Mull. The reintroduced population in Dumfries & Galloway is still present, but has not spread significantly. England and Wales Only distribution points from corpses or DNA-verified scats are reported. This differs from the previous reporting round, when sightings were also included. DNA-verification of scats is now accepted as the most reliable survey method for very low density populations (Messenger et al 2010). Further survey work is needed to clarify the distribution of the species Collation of sightings records from 1996-2007 (Birks & Messenger 2010) suggests that the distribution of pine martens in England and Wales could be much wider. But high quality sightings reports are now usually followed up with a scat hunt in an attempt to provide DNA-verified evidence of the presence of pine martens. More general scat hunts have also been completed in areas with a high concentration of sightings between 2008 and 2009 (Messenger et al 2010), but to date, none of these have returned positive records. However, it remains that the likely very low density of pine martens in Wales means that there could be some under-recording. Method used for distribution is recorded as '3', as only verified records are used, with no extrapolation or modelling. Data quality considered to be 'moderate'.
2.3.3 Short-term trend Period	
2.3.4 Short term trend Trend direction	**increase**
	England and Wales The decision to use only records from corpses or DNA-verified scats means that it is not possible to report a trend (see 2.3.2 and 2.3.4). England and Wales. The decision to include only records with physical validation (corpses, DNA) has resulted in an apparent loss of range. This is clearly due to the change in the method used. The conservation status of the species in both countries remains very poor and the true extent of pine martens in England and Wales is unknown due to their likely very low density making detection very difficult.
2.3.5 Short-term trend Magnitude	**a) Minimum**
	Scotland. M. martes continues to extend its range following a relaxation of persecution in the 2nd half of the 20th century. The introduced population in Dumfries and Galloway is clearly still isolated, but may link with the main population in time.
	b) Maximum
2.3.6 Long-term trend Period	**1983-2012**
2.3.7 Long-term trend	**increase**

Trend direction		
2.3.8 Long-term trend Magnitude Optional	**a) Minimum**	
	BALHARRY, E.A., MCGOWAN, G.M., KRUUK, H. AND HALLIWELL, E. 1996 Distribution of pine martens in Scotland as determined by field survey and questionnaire. Scottish Natural Heritage Research, Survey and Monitoring Report. No. 48 www.snh.gov.uk/publications-data-and-research/publications/search-the-catalogue/publication-detail/?id=1196. VELANDER, K.A. 1983. Pine marten survey of Scotland, England and Wales 1980-1982. Vincent Wildlife Trust, London. 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. STRACHAN, C., JEFFERIES, D.J. & CHANIN, P.R.F. 1996. Pine marten survey of England and Wales 1987–1988. Joint Nature Conservation Committee http://jncc.defra.gov.uk/page-2817. Scotland. A survey in 1980–82 showed that the Scottish population had increased its range from a historic low (Velander 1983). A further survey carried out in 1994 (Balharry et al. 1996) compared results with the 1980-82 survey and suggested that the Scottish population had approximately doubled in 12 years. It also showed that the distribution of the species seemed to have consolidated and expanded during that time. Records submitted to biological recording schemes since 1996 indicate that range expansion has continued. A further selective survey is in progress (2012) England: Velander's (1983) survey revealed no evidence of populations in England and Wales. However, a field sign survey (without DNA-validation of scats) in 1987-88 found evidence of M. martes at several locations in northern England (Strachan et al. 1996). Despite persistent sightings of pine martens in these areas since 1995 (Birks and Messenger 2010), a DNA-validated scat-based survey of 10 areas in 2008-9 failed to find any unambiguous evidence of pine marten presence (Messenger et al., 2010). However, further survey work located two DNA-positive scats in the north of England (VWT, unpublished data). Wales: Velander's (1983) survey revealed no evidence of populations in England and Wales. However, a field sign survey (without DNA-validation of scats) in 1987-88 found evidence of M. martes at several locations in north Wales (Strachan et al. 1996). Despite persistent sightings of pine martens in these areas since 1995 (Birks and Messenger 2010), a DNA-validated scat-based survey of 8 areas in 2008-9 failed to add to the previous validated records from 1996, 2006 and 2007 (Messenger et al., 2010).	
	b) Maximum	
2.3.9 Favourable reference	**a) Value in km²**	

range		
	b) Operator for FRR	
	c) FRR is unknown (indicated by "true")	**False**
	d) Method used to set FRR	
2.3.10 Reason for change Is the difference between the reported value in 2.3.1 and the previous reporting round mainly due to…	**a) Genuine change?**	**True**
	Scotland: The species is spreading naturally to reclaim its former range. Structured surveys and ad hoc recording document this reasonably well. England and Wales: Only distribution points from corpses or DNA-verified scats have been reported. This differs from the previous reporting round, when sightings were also included. DNA-verification of scats is now accepted as the most reliable survey method for very low density populations. The status of M. martes in these countries has been the subject of continuing debate, with a lack of clarity about the validity of records. The introduction of DNA-testing should help to resolve this issue.	
	b) Improved knowledge/more accurate data?	**False**
	c) Use of different method (e.g. "Range tool")?	**False**

2.4 Population		
2.4.1 Population size estimation (using individuals or agreed exceptions where possible)	**a) Unit**	**number of individuals**
	b) Minimum	**2237**
	c) Maximum	**4461**
2.4.2 Population size estimation (using population unit other than individuals)	**a) Unit**	

Optional *(if 2.4.1 filled in)*	**b) Minimum**	
	c) Maximum	
2.4.3 Additional information on population estimates / conversion Optional	**a) Definition of "locality"**	
	b) Method to convert data	
	c) Problems encountered to provide population size estimation	**As full survey or capture/recapture not practicable, population estimates must rely on measures of occurrence and habitat together with estimates of density in different habitats/regions. These can be improved by accumulating studies on Martes density in different habitats and improving accuracy and sophistication of habitat area measurement.** **England Wales:** **Pine marten population sizes can be estimated using pine marten occurrence and density estimates in different habitat types. However, the likely very low M. martes density in Wales and the small number of verified records, means that these methods cannot be applied.**
	As full survey or capture/recapture not practicable, population estimates must rely on measures of occurrence and habitat together with estimates of density in different habitats/regions. These can be improved by accumulating studies on Martes density in different habitats and improving accuracy and sophistication of habitat area measurement. England Wales: Pine marten population sizes can be estimated using pine marten occurrence and density estimates in different habitat types. However, the likely very low M. martes density in Wales and the small number of verified records, means that these methods cannot be applied.	
2.4.4 Year or period	**2004-2004**	
2.4.5 Method used Population size	**Estimate based on partial data with some extrapolation and/or modelling**	
	BALHARRY, E.A., MCGOWAN, G.M., KRUUK, H. AND HALLIWELL, E. 1996 Distribution of pine martens in Scotland as determined by field survey and questionnaire. Scottish Natural Heritage Research, Survey and Monitoring Report. No. 48 www.snh.gov.uk/publications-data-and-research/publications/search-the-catalogue/publication-detail/?id=1196. HARRIS, S., MORRIS, P., WRAY, S. AND YALDEN, D. 1995. A Review of British Mammals: population estimates and conservation status of	

	British mammals other than cetaceans. Joint Nature Conservation Committee, Peterborough http://jncc.defra.gov.uk/page-2759 Scotland Balharry et al. (1996) estimated population size to be 2,600, based on average M. martes territory size and area of woodland the territory contained. Birks (unpublished data, 2004) revised this estimate using additional radio-tracking data. M. martes density in lowland woodland was assumed to be between 122 and 294 ha per M. martes (Halliwell 1997; Bright and Smithson 1997) and in upland woodland between 403 and 806 ha per M. martes (Bright and Smithson 1997). Data from the Forestry Commission National Woodland Inventory (Forestry Commission 2002) were used to estimate the area of woodland in each region within Scotland where M. martes is found. Forestry Commission data (Forestry Commission 2000) suggested that there is a 50:50 split between upland and lowland woodland as defined by Birks, and woodland areas for each region were calculated on this basis. The range of the species within Scotland has increased since the 1994 survey of Balharry et al. (1996) and on the basis of discussions with naturalists and foresters in Scotland it was assumed that 100% of Highland Region (government region, since altered) woodland was occupied, 60% of woodland in Grampian and Tayside, 70% of Central, 50% of Strathclyde, and 25% of woodland in Dumfries and Galloway. The figure for Highland Region was revised upwards to account for the fact that in this area in particular M. martes also occupies non-wooded habitats. The total population was thus estimated to be between 2,237 and 4,461 M. martes, with a mean of 3,350. England and Wales: No or insufficient reliable information available
2.4.6 Short-term trend Period	**2000-2012**
2.4.7 Short-term trend Trend direction	**increase**
	Scotland: A survey carried out in 1994 (Balharry et al. 1996) compared results with the 1980-82 survey (Velander 1983) and suggested that the Scottish population had approximately doubled in 12 years (1,200 adult M. martes in 1982 to 2,600 adult M. martes in 1994). The most recent population estimate of >3,500 individuals suggests the populations are continuing to increase, with an increase of 35% since 1994 and an overall increase of 190% since 1982. England and Wales: the likely very low density of pine martens in England and Wales makes it very difficult to estimate population sizes.
2.4.8 Short-term trend Magnitude	**a) Minimum**
	b) Maximum
	c) Confidence interval

2.4.9 Short-term trend Method used	**Estimate based on partial data with some extrapolation and/or modelling**	
	BALHARRY, E.A., MCGOWAN, G.M., KRUUK, H. AND HALLIWELL, E. 1996 Distribution of pine martens in Scotland as determined by field survey and questionnaire. Scottish Natural Heritage Research, Survey and Monitoring Report. No. 48 www.snh.gov.uk/publications-data-and-research/publications/search-the-catalogue/publication-detail/?id=1196. HARRIS, S., MORRIS, P., WRAY, S. AND YALDEN, D. 1995. A Review of British Mammals: population estimates and conservation status of British mammals other than cetaceans. Joint Nature Conservation Committee, Peterborough http://jncc.defra.gov.uk/page-2759	
2.4.10 Long-term trend – Period		
2.4.11 Long-term trend Trend direction	**increase**	
2.4.12 Long-term trend Magnitude Optional	**a) Minimum**	
	b) Maximum	
	c) Confidence interval	
2.4.13 Long term trend Method used	**2**	
	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 www.snh.gov.uk/publications-data-and-research/publications/search-the-catalogue/publication-detail/?id=1746. BALHARRY, E.A., MCGOWAN, G.M., KRUUK, H. AND HALLIWELL, E. 1996 Distribution of pine martens in Scotland as determined by field survey and questionnaire. Scottish Natural Heritage Research, Survey and Monitoring Report. No. 48 www.snh.gov.uk/publications-data-and-research/publications/search-the-catalogue/publication-detail/?id=1196. HARRIS, S., MORRIS, P., WRAY, S. AND YALDEN, D. 1995. A Review of British Mammals: population estimates and conservation status of British mammals other than cetaceans. Joint Nature Conservation Committee, Peterborough http://jncc.defra.gov.uk/page-2759 VELANDER, K.A. 1983. Pine marten survey of Scotland, England and Wales 1980-1982. Vincent Wildlife Trust, London. A survey carried out in 1994 (Balharry et al. 1996) compared results with the 1980-82 survey (Velander 1983) and suggested that the Scottish population had approximately doubled in 12 years (1,200 adult	

	M. martes in 1982 to 2,600 adult M. martes in 1994). The most recent population estimate of >3,500 individuals suggests the populations are continuing to increase, with an increase of 35% since 1994 and an overall increase of 190% since 1982. Further support for a long-term population increase comes from Baines et al (2011), who reported a 3.7-fold increase in the abundance of scats between 1995 and 2009 in a sample of 14 forests. Although scat abundance may not be linearly related to marten abundance, it seems reasonable to assume there is a positive relationship and that marten abundance has increased.	
2.4.14 Favourable reference population	**a) Number of individuals/agreed exceptions/other units**	**2600**
	equal to 1994 estimate	
	b) Operator	
	c) FRP is unknown indicated by "true"	**False**
	d) Method used to set FRP	
	BALHARRY, E.A., MCGOWAN, G.M., KRUUK, H. AND HALLIWELL, E. 1996 Distribution of pine martens in Scotland as determined by field survey and questionnaire. Scottish Natural Heritage Research, Survey and Monitoring Report. No. 48 www.snh.gov.uk/publications-data-and-research/publications/search-the-catalogue/publication-detail/?id=1196. HARRIS, S., MORRIS, P., WRAY, S. AND YALDEN, D. 1995. A Review of British Mammals: population estimates and conservation status of British mammals other than cetaceans. Joint Nature Conservation Committee, Peterborough http://jncc.defra.gov.uk/page-2759 VELANDER, K.A. 1983. Pine marten survey of Scotland, England and Wales 1980-1982. Vincent Wildlife Trust, London. The favourable reference population value has been derived using 1994 as the baseline and making a judgement on whether the population in 1994 was viable in the long-term, using the decision tree in Note 1 (of 'Assessing Conservation Status: UK Approach') as a guide. Historic and current information on population size, distribution and trends have been used in order to assess viability and, if the 1994 level was not viable, then consideration has been given to what would constitute a viable population. Surveys of range and population size have indicated that M. martes populations in Scotland have been increasing since the early 1980s and have continued to increase since 1994. It is clear, given the subsequent expansion, that the population in 1994, although at a fairly low abundance, was viable. The abundance of a carnivore with a relatively large individual range is likely to be lower than for other species and yet still be viable. The 1994 estimate has, therefore, been set as the favourable reference value for this species.	
2.4.15 Reason for change Is the difference between the value reported at 2.4.1 or 2.4.2 and the previous reporting round mainly due to:	**a) Genuine change?**	**True**
	Scotland: Population is increasing as the species is naturally expanding its range into areas from which it was extirpated.	

	England & Wales. The status of M. martes is unclear	
	b) Improved knowledge/more accurate data?	**False**
	c) Use of different method (e.g. "Range tool")?	**False**

2.5 Habitat for the species		
2.5.1 Area estimation	**24447**	
	M. martes is found primarily in deciduous and coniferous forest and occasionally rocky areas (where woodland is scarce or fragmented); it strongly avoids open areas. It can also lives alongside human habitation, occupying wood stacks, farm buildings and the roof voids of houses. Scarcity of arboreal cavities may result in a shortage of suitable den sites and could in turn limit populations (Balharry et al. 2008). There is thought to be a sufficient amount of habitat in the UK to support a viable population of the species. England: 200 Scotland: 24,447 Wales: 42.35 There is thought to be a sufficient amount of habitat in the UK to support a viable population of the species.	
2.5.2 Year or period		
2.5.3 Method used Habitat for the species	**Estimate based on partial data with some extrapolation and/or modelling**	
	England & Wales: Area of habitat currently used by the species has been estimated by calculating the area of wooded habitat in the squares with pine marten records (see 1.1.2). The National Forest Inventory was used to determine the area of wooded habitat (all types).	
2.5.4 Quality of the habitat	**a) Habitat quality**	**Good**
	Although predominantly occupying woodland habitats, pine martens are also found in more open areas in the north. Calculating the area of woodland habitat within their range would thus underestimate the area of habitat they use. The figure given is therefore the total range.	
	b) Assessment method	**M. martes shows no clear preference for coniferous over deciduous woodland or mature native forest over commercial plantations; diversity of structure and availability of prey appear to be more important (Balharry et al, 2008)**

		Forestry Commission biodiversity indicators show progress is being made in delivering improvements to the biodiversity of Scottish forests (Forestry Commission, 2012). Similarly, FC data show a long-term increase in woodland cover in Scotland.
	M. martes shows no clear preference for coniferous over deciduous woodland or mature native forest over commercial plantations; diversity of structure and availability of prey appear to be more important (Balharry et al, 2008) Forestry Commission biodiversity indicators show progress is being made in delivering improvements to the biodiversity of Scottish forests (Forestry Commission, 2012). Similarly, FC data show a long-term increase in woodland cover in Scotland.	
2.5.5 Short-term trend Period		
2.5.6 Short-term trend Trend direction		
	England & Wales: The 2007 report stated that area of habitat for the species was unknown and therefore it is not possible to report short or long term trends in the habitat for the species.	
2.5.7 Long-term trend Period		
2.5.8 Long-term trend Trend direction		
	England & Wales: The 2007 report stated that area of habitat for the species was unknown and therefore it is not possible to report short or long term trends in the habitat for the species.	
2.5.9 Area of suitable habitat for the species	**a) Value in km²**	**24447**
	England: 200 Scotland: 24,447 Wales: 42.35 Wales: The area of suitable habitat for the species has been calculated as the total area of woodland in Wales, based on the National Forest Inventory. This will be an overestimate as some woodland blocks will be too small and/or too isolated to support a pine marten population.	
	b) Absence of data indicated as '0'	
2.5.10 Reason for change Is the difference between the value reported at 2.5.1 and the previous reporting round mainly due to	**a) Genuine change?**	**True**
	Wales: The 2007 report stated that area of habitat for the species was unknown and therefore it is not possible to report changes in the area of suitable habitat for the species. However, the area of woodland in Wales has been increasing over recent years, and will continue to increase with the Welsh Government's Glastir Woodland Creation Grant scheme.	
	b) Improved	**False**

	knowledge/more accurate data?	
	c) Use of different method (e.g. "Range tool")?	**False**

2.6 Main pressures		
a) Pressure	**b) Ranking**	**c) Pollution qualifier**
	H = high importance M = medium importance L = low importance	
D01: Roads, paths and railroads	M	
F03: Hunting and collection of wild animals (terrestrial)	M	

Illegal persecution and traffic are likely to be the greatest pressures at the moment, though neither seem to be preventing the spread of the species in Scotland.

Wales (and England): the unclear status of M. martes in Wales means that pressures cannot easily be assessed. However, Jordan (2011) has considered the factors likely to be limiting pine marten recovery in England and Wales.
B02 Forest and plantation management – 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, the availability of suitable arboreal den sites, and hence the removal of dead and dying trees, may be limiting factor (Birks et al 2005).
D01 Roads – there are unsubstantiated reports of pine marten road casualties in Wales, and any remaining individuals will be at risk of road traffic accidents.
F03 Hunting – 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 in Wales (Jordan 2011) and thus increased fox numbers resulting from habitat changes (see K03) and insufficient fox control may also be a pressure on remnant pine marten populations in Wales.
K03 Inter-specific animal relations – fragmentation and clearance of woodland may have benefited fox populations resulting in greater competition with pine martens (Jordan 2011).
K05 Reduced fecundity/genetic depression – the probable very low density of pine martens in Wales is likely to have resulted in reduced genetic diversity and may be limiting the ability of the population to recover.

In the absence of more reliable information on the factors limiting pine marten populations in Wales, all pressures have been ranked as 'medium importance'.

2.6.1 Method used – Pressures	**based only on expert judgements**

2.7 Threats		
a) Threat	**b) Ranking**	**c) Pollution qualifier**
	H = high importance M = medium importance L = low importance	
D01: Roads, paths and railroads	M	
F03: Hunting and collection of wild animals (terrestrial)	M	

Illegal persecution, or accidental capture/killing may be a threat if rising M. martes populations bring it into conflict with hunting interests.

Wales: If pine marten populations were to recover in Wales then they will be subject to the same set of threats that are currently considered to be pressures. Some threats, such as illegal persecution (F03) and road traffic accidents (D01) are likely to increase in significance as populations increase.

2.7.1 Method used – Threats	**expert opinion**

2.8 Complementary information	
2.8.1 Justification of % thresholds for trends	
2.8.2 Other relevant information	
2.8.3 Trans-boundary assessment	

2.9 Conclusions ***(assessment of conservation status at end of reporting period)***
Please refer to the United Kingdom assessment for this species.

3 Natura 2000 coverage & conservation measures - Annex II species
(only applies to species listed under Annex II of the Directive)

3.1 Population		
3.1.1 Population size	**a) Unit**	
Estimation of population size included in the SAC network		

	b) Minimum	
	c) Maximum	
3.1.2 Method used		
3.1.3 Trend of population size within the network (short-term trend)		

3.2 Conservation measures															
Conservation measures taken (i.e. already being implemented) within the reporting period and provided information about their importance, location and evaluation.															
3.2.1 Measure	**3.2.2 Type**					**3.2.3 Ranking** H = high importance M = medium importance L = low importance	**3.2.4 Location** where the measure is PRIMARILY applied			**3.2.5 Broad evaluation of the measure**					
	a) Legal/statutory	**b) Administrative**	**c) Contractual**	**d) Recurrent**	**e) One-off**		**a) Inside**	**b) Outside**	**c) Both inside & outside**	**a) Maintain**	**b) Enhance**	**c) Long term**	**d) No effect**	**e) Unknown**	**f) Not evaluated**