



Pine Marten Symposium

1st May, 2014

Ardilaun Hotel, Taylor's Hill, Galway, Ireland

The
Vincent Wildlife
Trust



NUI Galway
OÉ Gaillimh

Pine Marten Symposium

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This symposium is jointly organised by The Vincent Wildlife Trust - Ireland and the Mammal Ecology Group in NUI Galway. Funding was provided by The Vincent Wildlife Trust, with additional support from NUI Galway.

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We are currently carrying out a public and stakeholder survey on the Irish stoat. This is a Mammal Ecology Group project in NUI Galway with support from the Vincent Wildlife Trust. For further information please email irishstoatsurvey@gmail.com or find us on Facebook (*Irish Stoat Project*)

*Cover photo by Edward Delaney

8.30 *Registration*

Session 1

Chair Kate McAney

9.15 Opening Remarks

9.20 Declan O'Mahony

9.40 Dave Tosh

Pine marten in Ireland – a 21st century resurgence?

Using volunteers to survey squirrels reveals a novel method to survey pine marten.

10.00 Emma Sheehy

The role of the pine marten in Irish squirrel population dynamics.

10.20 Lizzie Croose

Pine marten recovery in Scotland: Results of a scat-based expansion zone survey.

10.40 *Coffee*

Session 2

Chair Colin Lawton

11.10 David Bavin

The Vincent Wildlife Trust: Preparing the ground for pine marten re-establishment in Wales.

11.30 Ewan McHenry

Pine martens on paths: factors influencing the detectability of pine martens during scat surveys.

11.50 Derek McLoughlin

Observations of two released rehabilitated pine martens from Letterkeen Wood, Co. Mayo with reference to habitat use.

12.10 Peter Turner

The marten of Portlaw Woods, population patterns in a small pine marten population during an eight year genetic census.

12.30 *Lunch*

Session 3

Chair Catherine O'Reilly

2.00 Huw Denman

Managing forests to benefit pine martens.

2.20 David Lyons

Pine martens and humans: experiences of National Parks and Wildlife Service staff in County Clare.

2.40 David Scallan

Gun clubs and pine martens: Perceptions, conflicts and solutions.

3.00 Ferdia Marnell

The conservation status of the pine marten in Ireland: a species of least concern?

3.20 *Coffee*

3.50 *Discussion session*

Chair Ferdia Marnell

4.50 *Close*

Pine marten in Ireland – a 21st century resurgence?

Declan O'Mahony

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Pine marten are one of Ireland's rarest mammal species and least understood. The population has suffered historical population crashes due to changes in land-use and exploitation by humans. During the latter part of the 20th century pine marten populations in Ireland had reoccupied much of their former range due to a variety of factors, such that by the early 21st century pine marten could be considered common in approximately 50% of land area of Ireland. In this presentation I will overview some of the research I have conducted on pine marten, the current state of knowledge on the species and issues that are likely to be important in terms of the future management of pine marten in Ireland.

Dr Declan O'Mahony works at the Agri-Food and Biosciences Institute and has been working on pine marten in Ireland for nearly 10 years. Initially he conducted national distribution surveys for pine marten, confirming the species recent range expansion and undertook conservation status assessments to comply with EU Directives. He has also conducted live-trapping and radio-tracking studies of pine marten in conifer forests to examine the spatial ecology and movement patterns of the species in this habitat. Currently he is undertaking regional and localised studies of pine marten population abundance using non-invasive methods. His main interests are in understanding pine marten ecology, conservation management, impacts of forest management on the species and addressing issues of conflict with people.

Using volunteers to survey squirrels reveals a novel method to survey pine marten

David Tosh

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A project was undertaken in County Fermanagh to test a new method to survey red and grey squirrels. Traditional survey techniques often require training, are expensive and time consuming and can require protected species licenses. This often limits their use. Therefore, we wanted to trial a method that increased the simplicity of a survey and could be used by anyone without the need of specialist training. Citizen scientists were engaged over a 5 week period to survey woodland in every 5km² in Fermanagh. Red and grey squirrels were detected using the method but unexpectedly it proved to be an excellent means of detecting pine martens. We report the findings to date and discuss the use of the method to monitor the populations of Ireland's arboreal mammals. In addition a short update of other work being undertaken by Quercus and Queen's University Belfast, including the forthcoming pine marten survey of Northern Ireland, will also be discussed.

Dr David Tosh obtained his PhD in Biological Sciences in 2012 from Queen's University, Belfast. He recently took up the post of Centre Ecologist with Quercus, following a period of working in environmental consultancy. He is an applied ecologist whose main interests involve the conservation of mammals in Ireland and Indonesia.

The role of the pine marten in Irish squirrel population dynamics

Emma Sheehy

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Following anecdotal reports over the last decade that grey squirrels were disappearing in the wake of the recovery of the pine marten, a recent study has confirmed the invasive grey squirrel is now rare or absent from c. 9,000km² of its former range in the midlands of Ireland. The native red squirrel has naturally recolonised much of this area and is now confirmed as being in “competitive release” in areas of high pine marten abundance. Sightings and field survey results confirm a strong positive relationship between the distribution of the two native species, whereas a strong negative association between the pine marten and non-native grey squirrel was found to exist. The role of the pine marten in shaping current squirrel distribution patterns will be discussed, alongside results from a pine marten dietary and abundance study in the midlands and east of Ireland.

Dr Emma Sheehy obtained a PhD from NUI Galway in 2013 for her study investigating the role of the pine marten in Irish squirrel population dynamics, and is the author of several publications on pine martens and squirrels. Pine marten population genetics and the relationship between the pine marten and the grey squirrel continue to be the focus of her research.

Pine marten recovery in Scotland: Results of a scat-based Expansion Zone Survey

Elizabeth S. Croose^{1*}, Johnny D.S. Birks², Henry W. Schofield ¹, Catherine O'Reilly³ and Peter D. Turner³

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The pine marten population in Britain underwent a severe widespread decline during the 18th and 19th centuries and became restricted to north-west Scotland and small areas of northern England and Wales by the early 20th century. The population in Scotland has been recovering since the mid-20th century, documented by systematic distribution surveys in the early 1980s and mid-1990s. There was a lack of information on current patterns of pine marten distribution, so a new survey was designed to provide reliable data on pine marten distribution, and identify the current limits to the species' range in Scotland. In 2012-2013 we undertook an Expansion Zone Survey in the area beyond the pine marten's known range in the 1990s. The main methodology consisted of a scat survey approach, using DNA-typing to confirm the species of scats collected. A 1km transect in woodland habitat was surveyed in every hectad (10km x 10km grid square) in the Expansion Zone. Reliable records were also collected from naturalists and researchers. The results demonstrate that pine marten range expansion has continued into the 21st century and the species is now re-established in many areas of its former range from which it was extirpated over 100 years ago and occurs close to some of Scotland's major urban areas. The pine marten is the first of Britain's native carnivores that suffered complete or near-complete anthropogenic extinctions to make a substantial recovery in Scotland.

Lizzie Croose is The Vincent Wildlife Trust's Projects Support Officer and is based in the Trust's head office in Herefordshire. Since joining the Trust in 2008, Lizzie has been involved in several pine marten projects in the UK. She recently coordinated two wide-scale surveys to provide up-to-date information on pine marten distribution and range expansion in Scotland. Lizzie has also been involved in surveys to investigate the distribution and status of pine martens in England and Wales and a genetic study of historical and contemporary pine marten populations in Britain.

The Vincent Wildlife Trust: Preparing the ground for pine marten re-establishment in Wales.

David Bavin¹, Lizzie Croose¹, Natalie Buttriss¹, Jonathan Somper²

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This paper presents aspects of The Vincent Wildlife Trusts preparatory work to re-establishing the endangered Pine marten population in Wales, focussing on the results of a public opinion survey conducted in 2013 and our experience in building, erecting and monitoring artificial den boxes in Wales and Scotland.

David Bavin joined The Vincent Wildlife Trust in 2012 as the People and Pine Martens in Wales Project Officer. His role involves extensive survey work, searching for this elusive species, advocating habitat assessment and improvement and promoting pine marten conservation in Wales. He holds a BSc in Zoology and an Masters in Wildlife Biology.

Pine martens on paths: factors influencing the detectability of pine martens (*Martes martes*) during scat surveys

Ewan McHenry

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Current monitoring of pine marten distribution is largely based on the use of presence/absence surveys. These surveys underestimate pine marten distribution as they do not account for the possibility of false negatives: occasions where pine martens are present but undetected during surveys. This study utilised occupancy models which use replicated surveys to estimate and account for detection probability and the factors that influence it to provide unbiased estimates of pine marten occupancy. Recently developed spatial autocorrelation occupancy models were used to account for potential non-independence between replicated surveys which took the form of adjacent segments of scat-survey transects. False positive models were used to account for the possibility of misclassification of pine marten scats unconfirmed by genetic techniques, allowing the inclusion of these scats in analysis. Detection probability for transects of 1km and 1.5km, comparable to previous studies, were estimated to be 0.33 (± 0.05 SE) and 0.51 (± 0.07 SE) respectively. Detection probabilities were negatively influenced by vegetation cover and positively influenced by path width. These low and variable detection probabilities highlight the importance of accounting for imperfect detection in monitoring programs of pine martens and other mammalian carnivores.

Ewan McHenry is a population ecologist interested in using quantitative methods and fieldwork to investigate species interactions, particularly between predators. Ewan recently finished his MRes at Aberdeen University.

Observations of two released rehabilitated pine martens *Martes martes* from Letterkeen Wood, Co. Mayo with reference to habitat use.

Derek McLoughlin, Emma Higgs, T. Sam Birch, Aleksandra Borawska, Carmel O'Dwyer

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Three orphaned pine martens were taken into care whilst found suckling their dead mother along the roadside near Castlebar, Co. Mayo. As little is known about the survival of captive-reared animals, following a 'soft-release' at Letterkeen Wood, Co. Mayo, two of these pine martens were fitted with VHF Radio collars. These two males were tracked intermittently between mid-September and early December, 2012 giving a total of 415 diurnal location observations. Both animals were living independently and were in good condition at the end of the tracking period, when they were retrapped and collars removed, indicating rehabilitation success.

Both martens dispersed with relatively small range overlap and had a 100% Minimum Convex Polygon (MCP) range size of 525 and 750ha. Incremental area analysis of the animals' range suggests that one individual appeared to have established a home range. The second animal had not and was dispersing south from the Letterkeen Wood area when the radio collar was retrieved.

The study area at Letterkeen Wood primarily comprises commercial coniferous habitat including new and second rotation plantation, mature and clearfelled forestry. Peatlands, semi-natural grassland, *Rhododendron* and willow scrub, and freshwater streams and lakes also occur throughout the study area. Both had a strong preference for mature thicket (tree height >10m) parts of the forestry with 60% - 75% of observations coming from this habitat. Almost 20% of their time was recorded in second rotation pre-thicket forestry.

The results of this study provide a useful pilot study into the dispersal patterns of pine martens following captive rearing and release into the wild.

Dr. Derek McLoughlin is an consultant ecologist based in Co. Mayo. Although a general ecologist for over 10 years, his principle area of expertise is in ornithology, where he developed his skills in radio tracking project design and the subsequent data handling and analysis. He provided training in the use of radio tracking equipment to a 2012 captive-reared release project of two orphaned pine martens to a team of volunteer trackers.

The marten of Portlaw Woods, population patterns in a small pine marten population during an eight year genetic census.

Peter Turner and Catherine O'Reilly.

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Portlaw woods is a 320ha forest, it is mainly commercial conifer plantation forest and is part of a larger strip of forest of around 200ha along the Suir valley. The site is part of the Curraghmore estate which has supported a pine marten (*Martes martes*) population since at least the early 20th century. Scats and hair samples have been collected from Portlaw woods since 2006. Individual pine marten have been identified using microsatellite DNA analysis supported by real time PCR analysis to screen samples for species, sex and DNA quality. Data will be presented that suggest a stable core population with an occupancy span of 3-7 years comprising an average of 7 animals. The data show substantial fluctuations in breeding, a high turnover of individual animals and offer some insight into patterns of change over time and space within a stable pine marten population.

Pete Turner's background is in biochemistry but he has spent the past 15 years developin non-invasive field methods to provide samples for DNA analysis aimed at understanding the pine marten populations in County Waterford. He currently lectures at Waterford Institute of Technology.

Managing forests to benefit pine martens

Huw Denman

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Forest management involves balancing economic, social and environmental aims while pursuing the policy of growing trees and a variety of other specific objectives. Forest management planning requires consideration of long term silvicultural options for forests and mitigation measures to ensure minimum or no impact on environmental features, including pine martens (*Martes martes*) where they are present. Furthermore, forest operational planning & implementation also requires consideration of pine marten habitat, behaviour and survival, as well as other measures to maintain and enhance pine marten populations within managed forests. A range of options and measures are discussed including surveying for pine martens, forest design, maintaining arboreal connectivity, continuous cover forest management, retention and recruitment of deadwood habitat & cavities, use of den boxes, and planting of pine marten friendly tree and shrub species.

Huw Denman is based in west Wales and specialises in providing advice and consultancy on continuous cover forestry, forest policy, Forest Stewardship Council forest management certification auditing, and red squirrel management and research, in addition to providing forest management and timber harvesting services to private clients. He has assisted VWT and others in the search for pine martens in Wales since 1997 and is a member of the Pine Marten Working Group, and is committed to pine marten recovery as a part of the woodland ecosystem.

Pine martens and humans: experiences of National Parks and Wildlife Service staff in County Clare.

David Lyons

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This paper will describe the nature of the queries that NPWS staff receive concerning pine martens and will cover the number, type and geographical spread of such calls within County Clare, as well as how solutions to pine martens within dwellings can be reached under current wildlife legislation.

Dave Lyons has been working as a conservation ranger with the NPWS for nine years. Prior to this he was a guide at the Wicklow Mountains National Park. He holds a BSc Degree from NUIG in Environmental Science.

Gun Clubs and pine martens: Perceptions, conflicts and solutions

David Scallan

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Human-animal conflicts can arise for a variety of reasons, but those involving predators tend to create the most controversy. Successful conflict resolution requires an understanding of stakeholder perceptions and values, together with dialogue between the main actors. In recent years, there has been an emerging conflict between Gun Clubs and pine martens as game species, which are considered to be preyed upon by pine martens, are of economic and cultural value to hunters. This paper attempts to unpack the Gun Club-pine marten conflict in the Republic of Ireland. In doing so, it draws on the findings of a survey of NARGC Gun Clubs and a specific case study undertaken on Gun Clubs in County Roscommon to discuss the various perceptions, effects and management solutions. The mitigation of human-animal conflicts can be expensive, involving ecological and social research, and dialogue between scientists, stakeholders and policy-makers. This paper suggests that research should be conducted into the impacts of pine martens on released game species in Ireland. In conjunction with this research, the mitigation techniques, which have been recently produced by the NPWS and the Vincent Wildlife Trust, entitled "How to exclude pine martens from game and poultry pens", should be tested for their effectiveness.

Dr. David Scallan is a geographer with an interest in conservation policy, ecology and recreational hunting. He received his PhD from NUI Galway in 2012, which examined the place of hunting activities in contemporary rural Ireland. In a voluntary capacity, David is the Public Relations Officer for the National Association of Regional Game Councils (NARGC), which is the largest game shooting and conservation non-governmental organisation in Ireland. David has worked with a range of community groups, in particular, local Gun Clubs as well as state agencies and NGOs interested in wildlife management. David has been involved in advising Gun Clubs on mitigation measures to reduce game-pine marten conflicts in Ireland.

The conservation status of the pine marten in Ireland: a species of least concern?

Ferdia Marnell

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The IUCN has developed standard guidelines to allow the risk of species going extinct globally or regionally to be assessed. The global assessment for *Martes martes* is “Least Concern in view of its wide distribution, large population, occurrence in a number of protected areas, tolerance to some degree of habitat modification, and because it is unlikely to be declining at nearly the rate required to qualify for listing in a threatened category. The population is stable to increasing.” The regional assessment for Ireland is also Least Concern, with the species considered to be increasing in numbers and becoming widespread.

The pine marten is listed on Annex V of the EU Habitats Directive. As such Member States are obliged to report on its conservation status every 6 years. In 2013 a full assessment of the marten's status was undertaken. The species' range was found to have expanded significantly since the previous assessment in 2007 (from 215 10km cells to 319 10km cells). The resurgence of the pine marten must in part be due to the availability of suitable habitat. Even with lower population densities in newly colonised areas, it is clear that the population has increased too. With range, population and habitat considered to be in good status, the species received an overall Favourable (Green) assessment.

Conservation plans and management actions need to be considered in the light of these assessments.

Dr Ferdia Marnell is Head of Animal Ecology in the Scientific Unit of the National Parks & Wildlife Service, Department of Arts, Heritage & the Gaeltacht. He manages the national survey and monitoring programmes of protected vertebrate species in Ireland.

Discussion Session

Chaired by Dr Ferdia Marnell

The symposium closed with a discussion on the pine marten in Ireland, with contributions from the symposium speakers and from the general audience as well.

A new Vincent Wildlife Trust/National Parks and Wildlife Service leaflet was launched '*The Pine Marten in Ireland: A Guide for Householders*', offering advice to householders who find pine martens on their property, often in roof spaces or attics. This follows an earlier leaflet '*How to Exclude Pine Martens from Game and Poultry Pens*'.

The advice given in the earlier leaflet was discussed with NARGC representatives explaining that poultts housed in a rearing pen can be protected using the advice given, however in the release pens, which are not fully covered, protection was not feasible. Further research is required on the problem, including information on the animals that cause the problems: do all pine martens target game pens? It could be the case that certain cohorts of pine marten are responsible for the damage, such as young males, or older animals with damaged teeth. If this is the case control measures could be focused without harming pine marten populations.

Other areas were highlighted where further research is required. Demographic information on the elusive species is quite sparse and we need more data on population densities, movement and territorial behaviour, breeding and habitat use. Methods available for studying pine martens were discussed. There is a need to conduct Random Encounter Models to determine population density from non-invasive monitoring systems, which currently only provide presence/absence data. The limitations of genetic studies at identifying relatedness between individuals was considered. The success of trained tracker dogs at identifying pine marten scats in the field was confirmed, however the costs and difficulty in training the animals is a consideration alongside the increased accuracy of the study.

Finally there was some discussion on the actions available to Wildlife Rangers when dealing with problematic individuals, particularly those who have entered a household. If other methods of exclusion fail the Wildlife Ranger will trap and translocate the animal to another area. However, there is a need for investigation into the efficacy of this, and the fate of the translocated animals moved into a new area.