

Paving the way for pine martens

Ensuring the long-term survival of the pine marten in Wales **p.1**

Relocation and recovery p.5

We have successfully translocated another 19 pine martens to Wales

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Our team have been hot on the trail of this year's translocated martens

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Investigating the impacts of pine marten reintroduction on grey squirrels

Caught on camera p.10

Our camera traps have been remotely filming the pine martens in Wales



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Welcome

from The Vincent Wildlife Trust CEO, Natalie Buttriss



We are now three and a half years into our planned six-year Pine Marten Recovery project 2015-2020 - more than half way. The careful planning and meticulous attention to detail, alongside adaptive management by the team, is paying off. Good signs of the martens surviving, breeding and spreading (as well as some hints that the grey squirrel population dynamics might be changing),

give us confidence that our huge investment of time and resources is reaping rewards for the sustainable recovery of this exquisite woodland creature.

Funding to 2020 and beyond

At the time of writing we have over £500,000 of funds received or pledged from external parties to match our own contribution of some £400,000. Recent commitments from the Garfield Weston Foundation (£50,000) and Waterloo Foundation (£10,000) have given the year a boost, and we are hopeful that a number of grant applications pending will be successful towards the outstanding amount of £300,000.

There are plans a foot to undertake a third translocation of martens this autumn to further boost the marten population in Wales, and we are working on a major bid to extend the project beyond 2020. The coming years will see the Trust focusing on a sustainable monitoring programme of the expanding marten population and the greater involvement of local communities, businesses and education providers. Alongside this we are publicising our results for others to learn from and follow, and indeed we have several parties and partnerships interested in potential England reintroductions (all subject to licensing of course) and the monitoring of the spread of martens naturally from Wales and Scotland. With regard to the latter, we are a delivery partner in the Back from the Brink project, recently awarded a £4.6M Heritage Lottery Fund grant, a proportion of which will support a pine marten monitoring and community engagement project in the north of England.

Our aim has always been to establish a sustainable population of pine martens in both England and Wales – Wales is on the way and England is only a matter of time.

Natalie Buttriss
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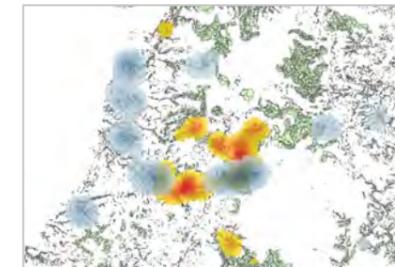
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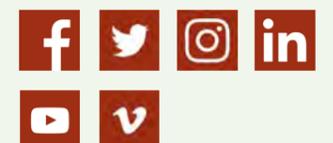
Hilary Macmillan is tracking pine martens in Scotland

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Paving the way for pine martens

by Dr Steve Carter, Mustelid Programme Manager



The various articles in this edition of the newsletter, quite rightly, celebrate the success of the Pine Marten Recovery Project, from the survival and territorial establishment of martens recently translocated to Wales to their breeding success to date. However, we recognise that not everyone shares our excitement over the return of this charismatic small predator to our woodlands, following a long-overdue absence.

With this in mind, we ensured that we had the support of landowners and other stakeholders in the release area prior to the first translocation in 2015 and we have continued to engage with them as the project progresses. Whilst we have developed a good relationship with stakeholders within and around the release area, including those rearing pheasants for game shooting, the long-term success of the project will be measured by the wider spread of pine martens across Wales, and ultimately over the border into England.

Meeting with members of the National Gamekeepers' Organisation

Therefore, we are actively engaging with organisations and individuals where there is a potential conflict of interest. As an example, we

recently hosted a visit to the Welsh pine marten release area for members of the National Gamekeepers' Organisation (NGO). We convened at The Hafod Hotel in Devil's Bridge where we began the day with talks by David Bavin, one of our Pine Marten Project Officers, and Kevin Sadler from the National Association of Regional Game Councils in Ireland.



(Top) Pine marten and kit © A. Achterberg.
(Above) Kevin Sadler talking at the NGO meeting.

Kevin demonstrated how predator-proof fencing designed to keep foxes and badgers out of pens containing young pheasants (poult) can be modified to keep out pine martens and other potential predators. Dave outlined the biological and ecological reasons we believe pine martens are unlikely to be a significant problem for pheasant shoots and poultry keepers in the first place. This was followed by an afternoon visit to the release area, including a masterclass in radio-tracking by Dave and our Community Development Project Officer, Josie Bridges, and finishing with a visit to a local pheasant shoot, where the owner was happy to share his experience of rearing pheasants alongside the newly establishing population of pine martens.

The aim of the day was for our visitors to be better informed about the project and pine marten ecology in general, as well as being an opportunity for us to listen to any concerns they have over the return of pine martens. Despite



coming from very different viewpoints, the day was deemed a huge success by everyone that attended, with some open and frank discussion and a productive exchange of information. Whilst we cannot say with certainty that conflicts will not arise in future, and we may not necessarily agree on what action should be taken to resolve them if and when they do occur, some consensus was

reached and we are continuing the dialogue towards a future where pine martens are not only thriving across all areas of Britain that can support them, but are widely tolerated by landowners and managers across the country.

(Above) Predator-proof fencing developed and tested in collaboration with the Kilcormac Gun Club, Ireland. (Below) Josie Bridges giving a masterclass in radio-tracking pine martens.



Meeting with National Trust rangers

On the back of the success of the NGO visit, we recently held a similar event for National Trust rangers at Llanerchaeron in the Aeron valley. Although the Trust and the rangers themselves are positive about the return of pine martens, they may find themselves at the frontline of questions by their tenants and neighbouring landowners, so the visit served to ensure they were well-equipped to address any concerns as well as being able to spot the tell-tale calling cards (scats) of martens when they do eventually recolonise Llanerchaeron and other sites within the rangers' jurisdiction. Before leaving, Dave and the team erected a wooden den box in preparation for the return of the first furry visitor! Both days were highly enjoyable for us and, we hope, highly informative for our visitors and hosts. We will be holding similar 'paving the way' workshops as part

of our community engagement work in Wales, the Back from the Brink Project in the north of England and other areas of Britain where pine martens are expected to return, either under their own steam or as part of any future translocation.

(Right) VWT's David Bavin carrying the den box to be erected in Llanerchaeron. (Below) The pine marten team with the National Trust rangers.



Practical advice

Because pine martens do not occur at very high densities and are not specialist bird predators, we do not anticipate predation of gamebirds or poultry to be a significant problem, but there are simple practical measures that can often be taken to mitigate the risk of predation. We do, however, recognise that such measures may not always be practical or cost-effective to implement, so we are

(Right) The VWT's leaflet 'How to exclude pine martens from game and poultry pens' is available to download for free from our website.

continuing to work with partners to develop more affordable measures that can be used in a wide variety of circumstances. Information on living with pine martens and practical guidance to exclude pine martens from game and poultry pens is available on our website and we are happy to be the first point of contact for anyone living within and around the release area who feels they have a pine marten related problem that needs resolving. So far, I am happy to report that the pine marten 'hotline' has been very quiet!

Save the date

We are pleased to announce details of the upcoming 32nd European Mustelid Colloquium.

The Colloquium will be held in Lyon, France, on 15th-17th November 2017.

Registration will be open soon. In the meantime, please save the date!

For more information, visit the Colloquium website: 32mustelidscol.sciencesconf.org

If you have any questions, please contact Lizzie Croose at the VWT: elizabethcroose@vwt.org.uk



Back from the Brink

by Lizzie Croose, Mustelid Conservation Officer



The Trust is about to embark on an exciting new pine marten recovery project in northern England. This project is one of several species recovery projects within the Back from the Brink Programme; a partnership project with Natural England and several wildlife

conservation NGOs that aims to prevent the extinction and promote the recovery of multiple threatened species in England.

The project will pave the way for the recovery of the pine marten in northern England as the population spreads south from Scotland, where martens are currently faring well. We will be surveying woodlands in Northumberland and Cumbria to monitor re-colonisation and will also be installing den boxes to provide resting and breeding sites for martens. A key aspect of the project will be to raise awareness of pine martens with local communities, landowners and land managers and offering opportunities for them to get

involved in survey and monitoring work.

A promising start occurred with a pine marten road casualty recorded in Northumberland in April. Whilst obviously sad for the individual marten, this is encouraging news as it is the first confirmed road casualty record in the county, and in northern England, for over a decade and hopefully means that there are other martens in the area.

A project officer will be joining us in due course to deliver the Back from the Brink project. In the meantime, if you would like further information or are interested in getting involved in the project, please contact us.



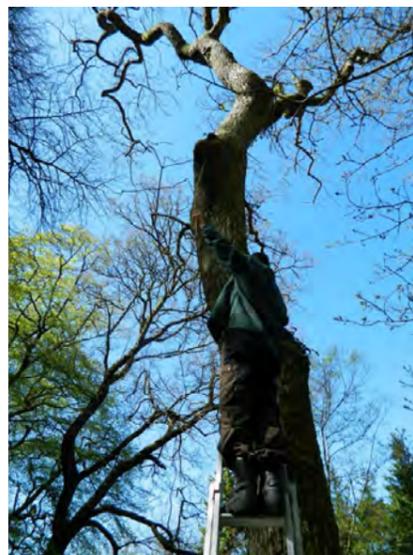
Relocation and recovery

by Dr Jenny MacPherson, Pine Marten Project Manager



Following on from the first twenty martens released in Wales back in autumn 2015, a further ten males and nine females were brought down from Scotland between September and early October 2016. They were released into woodlands in the release area where we knew there were no

resident martens from year one. As with the first animals, they were all intensively radio-tracked until they established home ranges, and after that they have been located daily and then weekly. From March onwards, radio-tracking of females is ramped up again so that we can locate denning sites of any that are breeding. Camera traps are also used as part of the process of detective work to find out which animals have had kits and to monitor them. As we reported in the autumn newsletter, we were able to confirm that at least four females successfully reared kits in the first year following release. This was slightly easier to check last year, as two of the breeding dens were in wooden den boxes. This year, however, it has been a little more challenging as they have



(Top) Pine marten in a release pen © Nick Upton
(Above) Dave trying to get our borescope camera into a tree cavity beyond the reach of the ladder.

found many more inaccessible, natural den sites such as high tree cavities on steep slopes.

One of the females released in 2015, PM16, has established a territory in some lovely continuous cover forestry to the south of where she was released. Huw Denman, who has been helping with VWT's pine marten projects for many years, has been baiting camera traps in the area and was able to confirm that she has had kits in one of the den boxes that he put up. This is another milestone for the project, the first Welsh-conceived kits. She was also one of the females who successfully bred last year so this is great news and means there is also a male marten nearby.

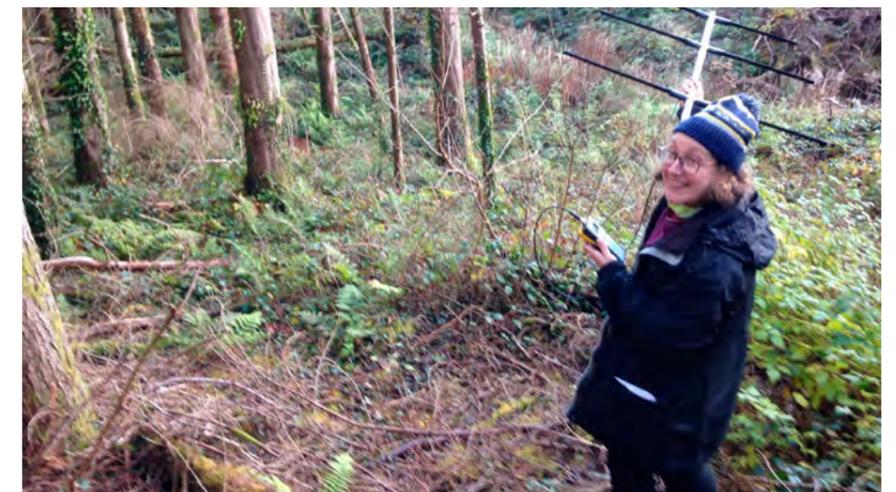
We tried out new GPS loggers on a small number of the martens released last year and waited with bated breath to see if the loggers would be able to cope with the challenges of getting fixes in the craggy habitats and thick forest cover that martens occupy. Earlier this year, we were able to remotely download the data from almost all of them and were thrilled to find that they had worked. These data have proved a valuable supplement to the huge number of fixes obtained by the field team using traditional radio-tracking.

We continue to review what we are doing to see whether we can refine or improve the methods and protocols for translocation and release. All pine marten mortality is monitored and carcasses are sent for post-mortem examination as part of an ongoing health surveillance programme. During the course of the year following release, six of the first twenty martens died. This was within the range of average annual mortality for marten populations, which is

reported as being between 30 and 50 percent for adult animals. The cause of mortality for most was natural predation, likely by foxes. So far, we have not recorded any mortality of the animals released in year two, although the majority of predation last year occurred over the summer.

Because of the way the animals have spaced themselves out through the landscape in mid Wales - quite sparsely in some areas - there is still scope for more territories. So we are planning to do a third and final year of releases this autumn. With that in mind, we carried out surveys at further potential source sites in Scotland during March of this year. As with the previous source sites, these are all in extensive Forestry Commission Scotland woods with high indices of marten activity. Forestry Commission Scotland has supported the project with staff providing help and advice, and by allowing access to sites for surveys and trapping.

(Right) As the kits get larger and more active at this time of year, they often take a tumble out of the den and have to learn to climb back up.
(Below) My delight at being able to remotely download data from one of the GPS collared martens.



"This is an exciting project and we are very happy to play a part in re-establishing pine marten in Wales. The project was extremely well planned and has been managed in a very professional manner, so it has been a pleasure to participate. An added bonus is the fact that the VWT are learning how to track martens with the latest technology and we hope to benefit from this experience to improve our marten studies in Scotland."

Kenny Kortland
(FCS Species Ecologist)



Martens on the move

by David Bavin, Pine Marten Project Officer

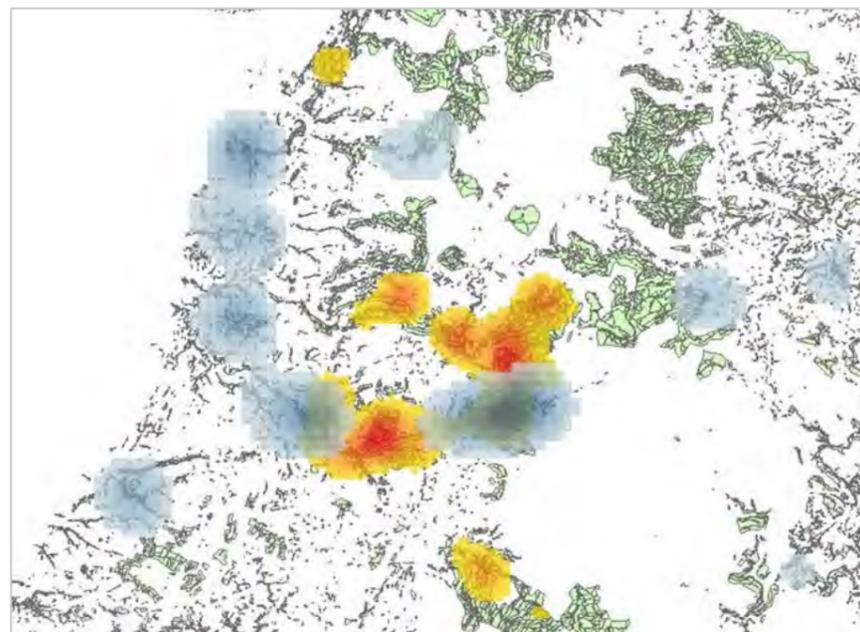


Fortunately for our charges we have had a very calm and settled winter, in contrast to the wet and stormy weather of 2015. Since they were released from their short period of acclimatisation in release pens during September/October, we have been hot on the trail of the 19 pine martens brought down from Scotland for the second phase of our Pine Marten Recovery Project. As we learnt from the first round, the animals initially moved

far and wide in their explorations, though this is not unusual for the species. The extent of movement for the phase two martens was overall greater than those of the first tranche, likely to be as a result of the latter having set up a network of territories in the core area of the release site; the phase two animals had to move further afield to find sufficient unoccupied woodland. Though they have travelled further in distance, they settled down into territories much more quickly than the first animals – the phase one animals provided a core of occupancy around which the second phase animals could cluster. It's becoming clear that they like their space, but they also like to know they have neighbours! Amazingly, we went home for Christmas knowing that the eighteen martens we had under surveillance (PM25, male, slipped our net; there's always one!) were

all alive and settled – they had come through the most testing part of the translocation, as had we!

Josie organised a very successful scat survey in January during which we collected approximately eighty scats from our core release area around Devil's Bridge and the Ystwyth valley; we will glean information on diet from this, and I will use them in my PhD research to investigate the martens' stress levels – will they be higher or lower than Scotland, are they doing as well as we think? Catherine McNicol will be doing the dietary analysis at the University of Exeter. Prey remains found at den sites have so far highlighted predominantly small mammals, with some obvious remains comprising wood pigeon, corvids (crows and jays), grey squirrels and fruit. This is purely based on observation of the more easily identifiable remains, not a quantitative analysis.



(Above) Core marten population in mid Wales – red/orange is the first year, blue the second. (Right) Sarah Purdon, one of our regular volunteers, collecting a scat with her canine companion!



It is somehow now May, and we have just finished the first week of checking female den sites for kits. We have been paying very close attention to five of our females who became restricted to single den sites in late March; an encouraging sign that they might have given birth to young. All of the females have since moved den sites at least once. This is not unusual, and they might move for a number of reasons: the kits can outgrow the original sites chosen; parasites and fleas can build up inside the den; there is a predator threat, or perhaps too much scent builds up around the den, increasing the risk of discovery by predators. To our delight (and minor frustration), all of our breeding females have chosen tree cavities as their primary choice for giving birth and rearing their young this spring. This week we have been on the ladder up against

an old ash, a contorted sweet chestnut, and a huge scots pine (the biggest I've seen in Wales at approx. 60 feet tall and 1m wide at the base!), poking our remote camera on its telescopic pole into the cavity entrances. We have confirmed kits from two dens – the third, in the scots pine, was beyond us, the hole being approximately 25 feet off the ground on a 45 degree slope. Josie, however, heard at least one kit "Waaahing" when she originally located the site. We will continue to monitor the den sites with camera traps, hopefully confirming the number of young when they emerge with their mother over the next three weeks. Aside from that, we are keeping tabs on the males and non-breeding females, and getting ready for round three. This is necessary to consolidate the efforts thus far, and ensure that the odd gap in their distribution is

plugged so that the more far flung individuals do not become isolated. So...a deep breath before the plunge again!



(Top) Male marten during the soft release period. (Above) Looking down into the natal den of PM21, in an old oak. This was after she had moved on to another den. Note the scratch marks on the trunk where she had been climbing in and out.

Pine martens & grey squirrels

by Catherine McNicol, PhD Student

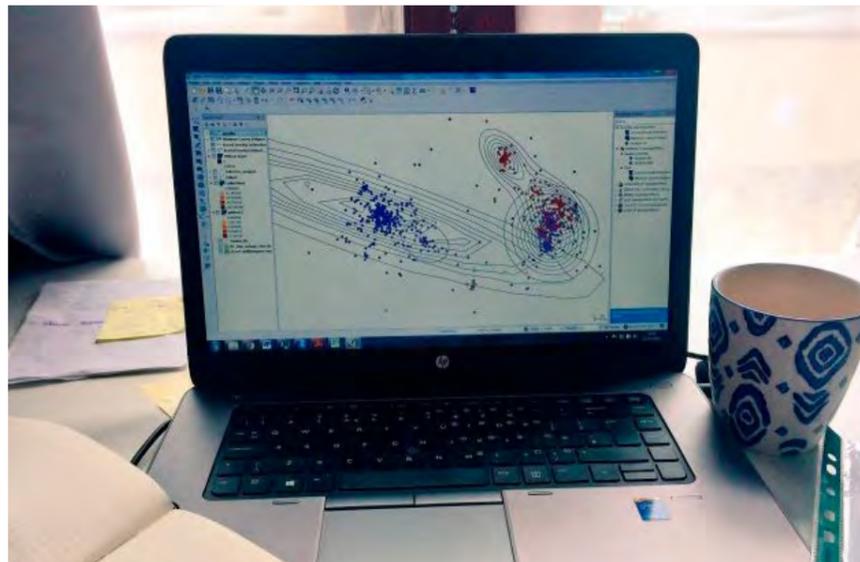


After many months of tracking grey squirrel movement through the Welsh woodlands, analysis has now begun on the ranging behaviour of squirrels in relation to pine marten presence. Although it is too early to provide any results, we can be sure that many of the grey squirrels being monitored have been exposed to pine marten presence, often confirmed by their remains in pine marten scat. This is unsurprising as squirrels are a normal part of the pine martens diet in continental Europe, where their ranges overlap. However we cannot yet tell if this will impact grey squirrel numbers.

I have been assisting the pine marten team in their analysis of the pine marten movement data, looking at changes in the ranging of animals after translocation. This has provided some interesting and really encouraging results. While I continue to analyse the spatial data from this study, I have returned to Wales to further my investigations into how grey squirrels perceive and respond to the pine marten, if at all. This involves monitoring

grey squirrel feeding behaviour with the help of two Masters students from Exeter University. We are focusing on the foraging behaviours of squirrels in different habitats, where they may experience different levels of predation. The rationale behind the study is that when animals feel threatened or at risk from predators, they tend to display more vigilant behaviour and are likely to forage for shorter periods of time. In the long-term, these behaviours could be detrimental to their survival.

amount of food they leave behind, enabling us to quantify a giving-up threshold, where risk outweighs reward. We hope this study will aid in our understanding of the grey squirrels' perception of the pine marten. It may be that grey squirrels are naive to the threat of marten predation and ultimately provide another easy food source for our translocated pine martens. The coming months have many hours of number crunching, data and video analysis in store, no doubt we will have some insightful findings for your next update.



This study involves providing grey squirrels with trays filled with sand and peanuts. The squirrels have to forage in the sand to discover the peanuts, which decline as they eat them. The squirrel then has to decide if its desire for food is greater than its desire for safety. The ultimate dilemma! We film the squirrel as it forages and weigh the



(Top) Squirrel home range analysis. (Above) A grey squirrel in a tray filled with sand and peanuts.



(Top) PM13 with her kit

Caught on camera

by Josie Bridges, Pine Marten Project Officer: Community Development



For the past 18 months, I have been field assistant to the Pine Marten Recovery Project and for all that time I have lived and breathed the project so it feels very strange to be passing over the baton to Alastair, our new field assistant. Back in September 2015, I really had no idea what I was letting myself in for. I had come fresh from my MSc at the University of Exeter and was very eager at the prospect of a full-time job that was almost 100% fieldwork. Within a

week of moving to Wales, the first martens travelled down the M6 and arrived here, and I was really thrown in the deep end. I still hadn't found anywhere permanent to live at this point so having to explain to my Airbnb hosts why I was coming and going at all hours of the night led to some amusing conversations. Especially as we were keeping the exact date and location of the marten arrivals on a strictly need to know basis.

The last year and a half of radio-tracking newly translocated martens has been a dream job. Even in the rain, hail, snow and (occasional) sunshine that Wales had to offer, it was such a joy to track these animals slowly exploring their new homes. In addition to chasing these animals up and down the country, my field assistant role also included giving talks, checking den boxes, gathering DNA samples through hair tubes, and my new favourite

hobby camera trapping! I had used camera traps quite a few times before I started with the Trust and all in all I had found it rather disappointing. Setting out cameras in Borneo and Kenya in the previous years had raised hopes of cheetahs and orang-utans, but in reality all we ever got were mice, which had been very underwhelming.

But remote filming of martens has been a completely different story, despite their notoriously elusive reputation. Although it is fair to say we do have the ultimate cheat up our sleeves, since the martens are all radio-collared and therefore trackable to den sites. For the first few months after release, we were too concerned with just keeping track of our animals to spend much time on trying to film them, but as they settled down into spring we had much more opportunity. When we suspected the first of our females had started



(Top) A still from a camera trap of PM02 with a grey squirrel in her mouth. (Above) PM02's kit learning to climb a tree. (Below) A pine marten showing its bib pattern to the camera whilst trying to eat peanut butter inside a 'jiggler'.

to restrict herself to a single den box (a good sign she may have had kits), I set out a number of cameras surrounding the site in the hopes of proving she was there. Over the next month I got near daily footage of her coming and going from the den box and we were confident enough from this that we wanted to confirm she had had kits and check her den box. We waited one day for 12 hours on the side of the valley until PM02 left her box to go foraging and sure enough inside were two gorgeous, perfect kits - the first confirmed Welsh Pine marten kits in countless years. We were then able to chart the kits' journey through the camera traps without disturbing them further and were treated to clip after clip of their first few months of life.

There were a few heart-stopping moments when the babies started to explore the world outside the den box for the first time. They developed a nasty habit of falling from the den box and crying on the forest floor until mum rushed down to pick them up. There were some exciting moments when they captured the first clip of a pine marten catching and eating a grey squirrel in mid Wales. And some truly heart-warming ones when they caught PM02 showing her kit how to climb up the tree herself, presumably after mum had had enough of carrying her well-fed kit back up to the den box again and again. That clip of the kit making slow, scrambling movements up the tree is one of my favourite from the first year.

All of this kit footage has been a great way to keep updated on the body condition of our animals, but it is only since we have started to remove collars from our animals that we have really realised the full potential of our cameras. With no collars our only other way of touching base with our released martens, and working out where they are spreading too, would be expensive and time consuming DNA testing of either hair or scat



collected from their territories. The camera trapping has allowed us a cheap and easy way to keep tabs on many of our now collarless martens and this has led to a lot of fun games of 'spot the difference' for the PMRP team. Every marten has a unique bib pattern that we take a photo of before they are released, which we can then compare to any wild footage we get of our martens and work out which individual it is. This is much easier for some animals than it is for others though. Some martens have a really distinctive bib that is hard to mistake for any other. Whereas some animals, like PM17, have a very plain bib so a lot of time is spent comparing minuscule differences in the notches at the edge of the bib to make a positive ID. Of course other factors such as animal size and area the footage was from can be helpful to piece the puzzle together. We are also going to utilise 'jigglers' a lot more in the future. These are long flexible metal poles with a tea strainer filled with peanut butter at the end, which a marten will 'meerkat' up towards, giving the camera a perfect bib-shot. Our cameras have also managed to confirm that at least two of the kits born last year are still healthy and

happy, which is great news. Marten kits have a very high mortality rate in their first year, so it is a relief that we can confirm a year later that they are still alive. One of the surviving kits is PM13's offspring who you may remember from a number of clips last year; where he is doing everything to try and distract his poor mother from eating. He is often caught on camera in Coed yr Brenin by one of our brilliant volunteers based up there, Matt Davies. Matt has been trudging up hills in all weathers to check cameras for us, saving us a lot of time and effort. And he has captured some amazing footage of mum and her now grown kit. While they now for the most part have separate territories, they still

occasionally buffer up against each other (quite often at Matt's bait station) and will tolerate each other in the hopes of a free meal. Poor PM13 still sometimes seems at her wits end over her rambunctious offspring, and I suspect she is quite glad he has left home!

And so to my new post! Pine Marten Recovery Project Officer: Community Development... what a mouthful! This role will be paving the way for the future of the sustainable population of pine martens in Wales. We will be training local volunteers in how to keep track of the now uncollared martens; teaching them how to use camera traps, hair tubes, how to check for scats, and how to work

out if den boxes are occupied or not. We will be continuing to develop our relationship with the local pheasant shoots in the area to keep them involved in mitigation plan decisions. We will also be working with local businesses to assess any ecotourism opportunities that have now opened up with the translocation of the martens. As the second rarest mammal in the UK, it is perhaps unsurprising that pine martens are often at the top of tourist's lists of animals to spot when visiting Scotland. With other charismatic and rare species already present in mid Wales, such as red squirrels, red kites and ospreys, it will be interesting to see if the new pine martens will soon be on the Welsh wildlife tourist's map.

Welcome Alastair

Alastair Willcox is our new Pine Marten Project Field Assistant



Hello I am Alastair, the new Field Assistant on the Pine Marten Project, taking over Josie's old role. I am very pleased and excited to be working on such an important and worthwhile project.

Prior to starting this role, I had been a long term volunteer for

the Trust for a few years whilst studying at Aberystwyth University. When I volunteered with the Trust, I took part in the feasibility studies prior to the first year of translocations as well as the radio-tracking, scat surveys and other fieldwork activities once the translocations had taken place. I loved my time volunteering on the project and I gained a lot of experiences from it including knowing that I'd like to work in this type of ecological fieldwork.

My first few weeks in the role have been great, working on locating the maternal den sites for kits along with radio-tracking

and checking the condition of den boxes throughout mid Wales. My second day on the job was one I'll remember, whilst locating a maternal den site up a suitably steep hill, we heard a kit squeaking, likely complaining to the mother which was amazing to witness.

Whilst I was involved in most of these tasks when I was a volunteer, it has been interesting to be part of the meetings and organisation aspect of the project. It has made me understand and appreciate the amount of work that is put in behind the scenes and the deeper objectives that the Trust would like to achieve.

Information for visitors

Interpretive panels have been installed at sites around Ceredigion to provide information on the pine marten in mid Wales.

A panel is located in the outside seating area of the Cwtch Café and Community Shop in Pont-Rhyd-Y-Groes, where visitors can enjoy tremendous views of Ystwyth valley.

Another panel can be found along the Nature Trail at Devil's Bridge Falls. The Nature Trail is within a Site of Special Scientific Interest and provides visitors with the unique opportunity of seeing the spectacular 300ft waterfalls.

(Top) The interpretive panel at the Cwtch Café. (Above) Pine Marten Project Officer, David Bavin, with the panel at Devil's Bridge Falls.



People and pine martens

by Keziah Hobson, PhD Student



Enterprise England, with several supporting partners including The Vincent Wildlife Trust, Red Squirrels Northern England, Forest Research, and the Confederation of Forest Industries. The overall aim of my research is to better understand the two-way interaction between people and pine marten, and to assess the positive and negative impacts of each upon the other.

I began my PhD studentship at the University of Aberdeen in October last year and am now heading into my ninth month. My project is a collaboration between the University of Aberdeen and Forest

Only a few decades ago, the pine marten was practically extinct in the UK, but due to increased legal protection and conservation efforts the Scottish population has recovered spectacularly in recent

years. Pine marten are now found as far south as the Scottish Borders, with one record from Kidland Forest in Northumberland from 2010. Research by Dr Sheehy and Dr Lawton in Ireland found that where pine marten populations recovered to high numbers, the local grey squirrel populations were heavily depressed. Red squirrels on the other hand, naturally recolonised exclusively those areas with healthy pine marten populations. It is not known whether this effect will occur across entire landscapes or how it may depend on the type of habitat, land use, and the availability of alternative prey.



The recovery of pine marten could bring substantial economic and conservation benefits if the invasive grey squirrel population is reduced, as this species has had a devastating impact on the native red squirrel and broadleaf forestry by damaging trees through bark stripping. However, with the recovery of a predator there is also the potential for conflicts to arise where the species poses a threat to other wildlife or causes negative impacts to the livelihoods of local people.

Part of my research will focus on studying the ecology of pine marten populations at different stages of recovery to better understand how they persist in areas comprising different human land uses and habitats. I am gathering data using feeder boxes with stickies (hair traps) on the underside of the lid to collect pine marten hair samples for genetic analysis to identify individuals. This information will allow me to conduct spatial capture-recapture analysis to estimate the density of each population, and investigate how density varies across the landscape and over time. I will also

use data collected on squirrels to further investigate the relationship between pine marten and squirrel distribution. I am two weeks into my pilot survey taking place in Aberdeenshire, and slowly getting to know my way around the larger forests and smaller woodlands scattered amongst farmland, villages, and several castles and estates. After assessing the survey design used for the pilot, and making any needed tweaks, the survey will be rolled out in three further study areas.

The other key component of my research is investigating the socio-economic aspects of pine marten recovery, including assessing the impacts of pine marten at varying population densities. This will involve interviewing the people living and working in the areas where the field surveys take place to gather information on the perceived costs and benefits of living alongside pine marten and how these have shaped people's attitudes towards the species.



(Top) A feeder box with stickies to collect pine marten hair samples. (Above) A camera trap image of a pine marten visting a feeder.

The information gathered through this research will help to inform future decisions and plans involving the pine marten, including reintroduction projects in different parts of the country and adapting management. The overarching goal is to gather information and learn from the current relationship between pine marten and people, which can be used to inform relevant policy and management in such a way that it promotes biodiversity conservation and brings benefits to rural economies including forestry.

I look forward to keeping you updated on the progress of my research over the next three years!

Pine martens in Ireland

by Ruth Hanniffy, Ireland Projects Support Officer



the Shalvey family and the viewers at home learned about the covert lives of some of Ireland's most fascinating wild animals whilst exploring new technologies in farming using drone technology, sensors and genetic research. Patrick, Geraldine and their three children were the perfect hosts to a film crew and 150-strong live studio audience on the rolling drumlin hills overlooking the farm.

Blessed with a range of hedgerow, grassland, woodland, wetland and open water habitats, it was

2017 has been a very busy and exciting year for VWT Ireland with our work on the lesser horseshoe bat and the pine marten.

Big Week on the Farm

In early March, we received a phone call from the producers of 'Big Week on the Farm' asking the VWT to take part in this year's show to discuss the pine marten live on RTÉ One! The programme celebrates the start of spring every April, running nightly over the course of a week. There are live studio demos, discussions, hatchings and births amidst the chaos of spring calving and milking. The Shalvey family farm in County Cavan was this year's chosen location, and is home to a vast array of wildlife: great-crested grebes, heron and kingfisher inhabit the farm's lake – Cavan is said to have a lake for every day of the year; buzzards fly in search of carrion and small mammals; and elusive mammals like otter, pine marten and deer inhabit the surrounding hills and woodlands. With animal behaviour experts, zoologists and hidden cameras,



(Above) Ruth on the set of Big Week on the Farm held in County Cavan.

unsurprising that Ross, the cameraman, filmed otter, fox, mink and also pine marten. Patrick is a member of the local gun club and raises a small number of pheasants on the farm, so this was a valuable opportunity to discuss the importance of good animal husbandry, and to bring some key facts about martens to a national audience. In the weeks leading up to the live show, some of the

pheasants were killed within the enclosure, and part of my role was to travel to Cavan prior to the show to determine whether the enclosure could adequately keep out a carnivore, in particular a pine marten. Unfortunately this was not the case, as the gaps in the wire would have easily enabled a marten, or similarly sized carnivore to climb through. The enclosure was not protected with electrified netting – an important first line of defence. Mammals are inquisitive and, often under the cover of darkness, have ample time to

find and enlarge a pre-existing hole in wiring or chew through rotten wood. Electrified netting takes away the opportunity to investigate for weak points. The enclosure was netted over the top, which is essential because the site was surrounded with trees and martens are agile climbers.

The live show approached quickly and there was a great buzz around the farm on the day of filming. The Shalvey family and crew had been



(Above) Ruth on the set of Big Week on the Farm held in County Cavan.

a pleasure to get to know, and it was great to see them again. I had a short rehearsal with the presenter Ella McSweeney, and before I knew it the show began, and it was time to be fitted with my microphone! Patrick and I discussed with Ella the loss of his pheasants, with a view to identifying what may have happened. The truth is that we cannot be entirely certain without having footage of the incident taking place. It may have been a pine marten or another of the carnivores we know are in the area. Martens have a very wide-ranging diet – insects, berries, small mammals, frogs, birds, and also carrion, and with inadequate protection could have entered the enclosure. In essence the message is the same, good animal husbandry, electrified netting and quality steel mesh with protection over the top of a pen are essential when rearing birds in an enclosed space. As a native, protected and necessary part of our natural ecosystem, martens are slowly

returning to our forests and woodlands. Their return can pose some challenges for us, and the VWT and partners are researching and trialling solutions to these challenges. Such an approach is the very principle of living in harmony with a native mammal, and one that belongs in our landscapes and woodlands. Nature enriches our lives and Big Week on the Farm helped us to celebrate this.

Pine Marten Population Assessment

In the first half of 2016 the VWT took part in the Pine Marten Population Assessment. This study was funded by the National Parks and Wildlife Service and conducted under the leadership of Pete Turner and Catherine O'Reilly at Waterford Institute of Technology and Declan O'Mahony from the Agri-food and Biosciences Institute in Belfast. Using non-invasive genetic survey techniques, this

large-scale study will give an updated density and abundance for the pine marten in the Republic of Ireland. The results will contribute to the conservation management and future monitoring of the pine marten and the findings have been recently published in the European Journal of Wildlife Research.



O'Mahony, D. T., Powell, C., Power, J., Hanniffy, R., Marnell, F., Turner, P., & O'Reilly, C. (2017). Non-invasively determined multi-site variation in pine marten *Martes martes* density, a recovering carnivore in Europe. *European Journal of Wildlife Research*, 63(3), 48.



Forest of Dean feasibility study

by Dr Andrew Stringer, Pine Marten Project Manager Gloucestershire Wildlife Trust



The feasibility study is to examine whether pine martens should be reintroduced to the Forest of Dean and Wye Valley. It's a partnership project between The Vincent Wildlife Trust, Gloucestershire Wildlife Trust, and the Forestry Commission. We're also being

supported by Forest Holidays and the Woodland Trust.

The area was previously identified as having excellent pine marten habitat. A second major release of pine martens would have a variety of benefits for the recovery of the species in England and Wales. The Forest of Dean is close enough to the central Wales reinforcement that it shouldn't be too long before the populations joined as one larger meta-population. This would also be useful for bolstering the genetic diversity of the wider population, to reduce any inbreeding in the short-term, and increase genetic adaptability in the long-term.

The feasibility study is in three key sections. The first investigates whether a stable population of pine martens can exist in the



(Top) The Forest of Dean © Gloucestershire Wildlife Trust. (Above) Pine marten © Robert Cruickshanks.

Forest of Dean and Wye Valley region. This includes assessing the habitat quality of the area, analysing potential sources of mortality, and predicting the size of the population that might live here. One key risk that was previously identified was that the road density in the area is far higher than in the areas of Scotland and Wales where they currently live. We're currently assessing pine marten populations in the Netherlands (where road density is also high), to see how populations cope living alongside a potential high cause of mortality.

The second section investigates the costs and benefits pine martens may have on the ecology of the local area. Predation is a key component of a healthy ecosystem. Pine marten are most likely to eat what is most common. This means they can have an important balancing effect on ecological communities, letting rarer species thrive. However, we must also assess any potential direct impact on rare and protected species. For instance, the Forest of Dean and Wye Valley have important populations of

both lesser and greater horseshoe bats. It is essential that we assess the risks to those populations, which is done by thoroughly analysing the evidence. The reintroduction will not go ahead if we think there are going to be large impacts on protected species, or that any impact cannot be mitigated.

The third section of the feasibility study investigates potential impacts and opportunities for people living alongside pine martens. There are many benefits, such as potentially increasing ecotourism, and the sheer joy of having pine martens in the woods outside your door! However, there are also potential risks, such as the risk pine marten pose to domesticated poultry. It's important we assess those risks, record how often they happen, and consider what can be done to mitigate them.

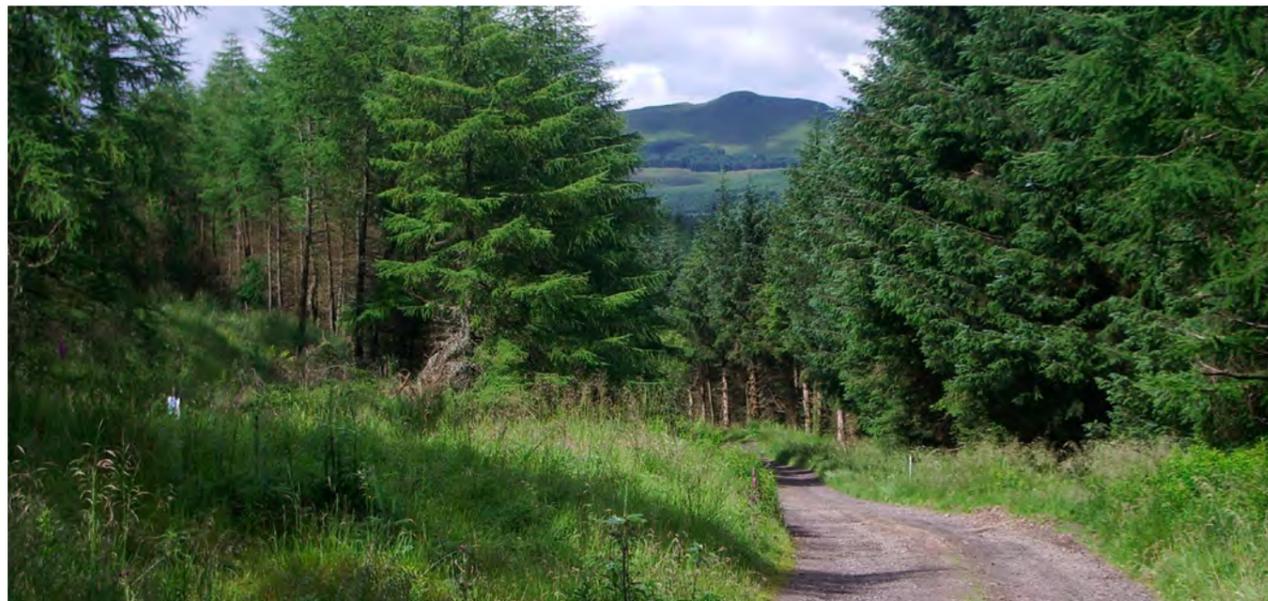
We're hoping that we will have completed the feasibility study by Autumn 2017. There will then be a period of engagement with local communities, discussing the costs



(Above) Forest of Dean © Gloucestershire Wildlife Trust. (Below) Members of the Gloucestershire Wildlife Trust team looking for tree cavities © Gloucestershire Wildlife Trust.

and benefits of a reintroduction, and decide whether concerns can be overcome. This will culminate in a public opinion survey, and the project will only go ahead with the support of local communities. We hope that a decision on whether pine martens should be reintroduced to the area can be made by Spring 2018. It should be an interesting year ahead.





(Above) A survey transect in Scotland.

VWT working as a team

by Hilary Macmillan, Communications Manager



There is no shortage of volunteers amongst VWT staff when it comes to helping with the pine marten project and it is very much a team effort. Hilary Macmillan, The Trust's Communications Manager, jumped at the chance of helping with fieldwork in Scotland. The piece below is an edited version of an article that appeared in the latest People's Trust for Endangered Species magazine. PTES are a major funder and partner of the

project and we are hugely grateful to PTES, and to all our other project funders, partners and supporters.

Scat hunting in Scotland

I'm on the first transect of the day and I am about to check how much more rain is needed before I can use the word diluvian. The Scottish Highlands is my backdrop, and I'm sniffing poo. I'm told the aroma is akin to that of parma violets. I've never been a big fan of parma violets, so I'm rather relieved when it is clear that what I am holding between two lolly sticks smells more like – well it's difficult to explain – just more like pine marten. To me, a marten scat is musky and sweet. The sweetness escalates with a diet heavy on ripe fruit, but at this time of year I am looking for signs of a more carnivorous meal deal – fur,

feathers or the delicate bone fragments of field voles. Quite bizarrely, a fellow scatologist recently came across a scat full of chewing gum. At least this this backs up the oft repeated phrase that pine martens are opportunistic feeders.

I do need to use all my field identification skills here – fox droppings can wrong foot the best scatologist. I'm positive: this one is pine marten. Martens have a curious custom of hip wiggling while scatting, and as a result if you collect enough scats you may end up with a complete set of the letters of the alphabet. Woodland paths or tracks are a favourite toilet location. Such territorial marking makes finding marten scats relatively easy in contrast to the lavatorial preferences of some of its mustelid cousins – try looking for

polecat poo. I say easy but only when martens are abundant. Where martens are scarce you have no chance: well, if you haven't got any neighbours, why mark your territory? I put the scat in a plastic bag and move on, confident of my find.

To play my small part in this landmark project is a real privilege – although right now I rather wish I worked for Forestry Commission Scotland. For me there is a real sense of place here: the remoteness, the sheer beauty of the mountains, often stark but always inviting, and the richness of the wildlife around me: often elusive but always present. Imagine getting up each morning to work in some of the most jaw dropping landscapes in Britain: from the ancient Caledonian pinewoods to the luxuriant western oakwoods. I make a mental note to suggest we open a VWT office in Fort William. I also make a mental note to forget the recent conversation I had with a forestry ranger about their need for tick-proof clothing.

Today I leave early, and, as every day, I cross my fingers in the hope that I will be rewarded for my commitment to the cause of marten conservation. Thrilling though it is to come across a tidy pile of faeces nestling neatly on a path-side boulder, perhaps today I will actually see a pine marten and not just field signs. My morning starts with the usual daily map folding battle – why are transects always on the fold? I park just off the road close to a clearly little-used and barely passable footpath, realising that wearing my new high performance soft shell was not my best decision of the



(Left) Pine marten scat © Lizzie Croose

day – but too vain to have packed the old thornproof Barbour. And then I see it – there in the distance the chestnut fur setting off a flamboyant apricot bib, and the characteristic heart-shaped face that gives such an endearing quality to this masterful killer. It is unmistakable. It is achingly beautiful. It is dead. I pick up the animal, still warm, from the middle of the road and place it gently on the verge. I do this as a warning to other martens who might take their chance crossing this busy route north – a pointless gesture I know.

My second transect of the day proves to be more of a challenge: unlike my first path, which was at least passable, here the path on the map no longer exists. With GPS in hand, I plough my way through a dense cover of young conifers, clearly planted since my map was printed. Despite their name, pine martens are not particularly fond of pine trees, and neither am I right now. Martens will use conifer plantations if there is a

well-stocked larder but like to make their dens in tree holes – and you don't find many of those in trunks barely the width of a telegraph pole. I decide that this transect is a lost cause. I stop to post all the scats I have collected so far. I stand in the queue hoping the lady behind the counter does not ask me what's in the envelope, or worse why it smells. As a precaution, to mask any odour seeping from the package, I open a pack of parma violets purchased in a shop down the road and eat one.

Acknowledgements

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How you can help

You can support The Vincent Wildlife Trust in the following ways:

- **Report a sighting** and encourage others to do the same. If you have seen a pine marten in England or Wales please get in touch.
- **Become a friend** of the VWT to receive newsletters and other updates on the Trust's work.
- **Donate** to the VWT to help continue our work on those species that need our help, including bats, polecat and pine marten.

Visit www.pine-marten-recovery-project.org.uk for more details.

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