

# HABITAT FEASIBILITY ASSESSMENT FOR A REINFORCEMENT OF PINE MARTEN (MARTES MARTES) POPULATIONS IN WALES

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## BACKGROUND

Historically pine martens were distributed throughout Britain, but by the 21st century, few records were confirmed outside Scotland and Ireland. Vincent Wildlife Trust concluded that, without intervention through reinforcement, populations in England and Wales were unlikely to recover and could decline further (MacPherson and Wright, 2021).

Habitat (Birks and Messenger, 2010) and persecution (Langley and Yalden, 1977) are major factors in the historical decline of pine martens, and poor habitat suitability is negatively associated with success of marten reintroductions (Lewis, Powell and Zielinski, 2012).

## OBJECTIVE AND SCOPE

A feasibility assessment (MacPherson, 2014) was carried out to identify whether there was adequate suitable habitat, an appropriate source population and other environmental factors to justify a translocation of pine martens, with the long-term goal of supporting the restoration of viable populations to England and Wales.

Phase II of the feasibility assessment (unpublished) was expected to evaluate social feasibility and include more detailed field studies, but this was out of scope of the 2014 report.

## DISCUSSION

### Scope and ecology

Habitat suitability was assessed using GIS data to compare habitat type and woodland cover against presence data in Scotland to determine potential release regions (“PRRs”). This method was unable to provide meaningful predictions of denning sites, competition/predation or structural complexity (Birks, Messenger and Halliwell, 2005) and it was acknowledged that field studies would be needed prior to release. The PRRs were chosen by their relative suitability, but this does not confirm their actual suitability.

As a carnivore, there is a risk that pine martens may negatively impact prey species. Yet detailed assessment on protected species was reserved for birds only, which relied heavily on a single 1999 study. Consideration of impact on bats was reserved to the identification of accessible and significant colonies in PRRs, and there was no mention of reptiles.

Harris, McLaren and Morris (2000) suggests that there is already inadequate availability of prey and there is likely to be competition with red fox (*Vulpes vulpes*) (Baker et al., 2006). Habitat type informed evaluation of prey species availability, but no field studies were conducted to ground-proof food abundance due to the practicalities of surveying large areas, and on the assumption that pine martens would adapt to the food sources available. Although the PRRs contain a high proportion of commercial coniferous forest, there was no assessment on the potential impact of an absence of denning sites.

There is a complex interaction with red foxes, as both predator and competitor (Lindström et al., 1995). Raptors are also known to prey on martens (Lyly et al., 2015). The authors anticipated that the risk posed by foxes would form part of later assessments, and the risk from raptors was not evaluated.

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## INTRODUCTION

Under International Union for Conservation of Nature (IUCN) guidelines for translocations (IUCN, 2013), a feasibility assessment is required to evaluate the habitat suitability and other environmental factors in the potential release area for a translocation.

Conservation translocation involves the “*deliberate movement of organisms from one site for release in another. It must be intended to yield a measurable conservation benefit*” (IUCN, 2013:10). Historically occupied habitat may no longer be the best available habitat and the translocation must be compatible with current permitted land uses and the population’s biotic and abiotic needs.

## TRANSLOCATION METHODS AND RESULTS

51 pine martens were translocated from Scotland to Ceredigion between 2015 and 2017 (Soorae, 2018). The animals were monitored with radio-tracking collars, genetic sampling and camera traps. The 2014 assessment did not contain quantitative metrics for project success; however, the stated objective was to reinforce an existing population, with success measured by breeding and an expanding population.

There has been evidence of breeding every year since 2016 in the release area (MacPherson and Wright, 2021) and there is recent evidence of expansion (Figure 1) and breeding outside the release area (Fairbrother, 2022) (Figure 2). The project coordinators consider the short term indicators for success to have been met (Soorae, 2018). The establishment of a viable population is expected to take at least another 10 years, so it is too early to say whether the project will be successful in the long term.

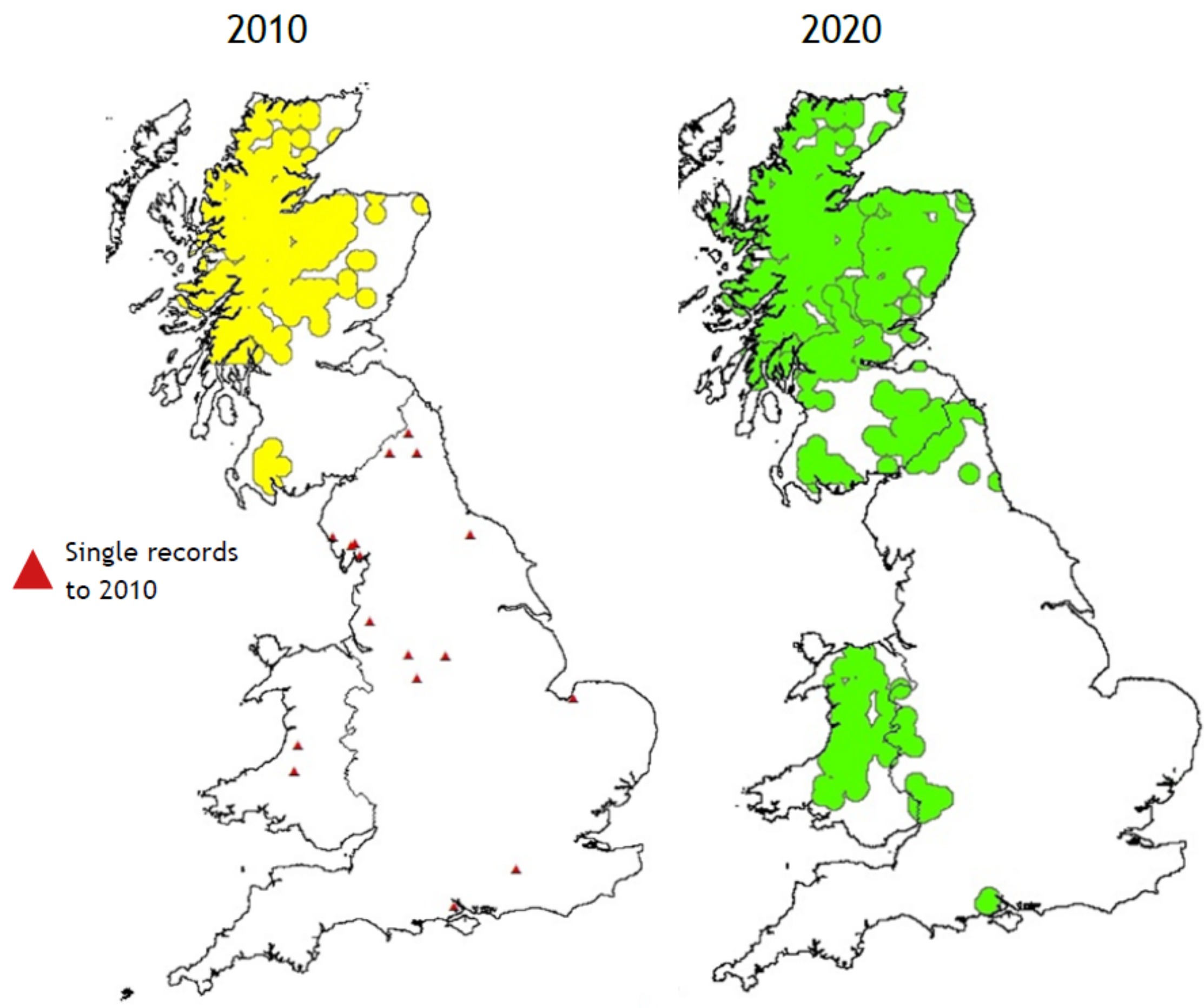


Figure 1: Pine marten distribution to 2010 and to 2020, following translocation (MacPherson and Wright, 2021)

### Donor population

Genetic studies show key shared haplotypes between Scottish and remnant Welsh populations and habitat suitability was based on habitat occupied by Scottish martens. Evidence-based consideration was given to the minimum number of individuals needed to establish a viable population versus the maximum proportion that could be taken from a source population. The expanding population of Scottish pine martens were therefore considered the best candidate for a donor population.

### Long term monitoring

The low rate of reproduction and large home range of pine martens were identified as challenges for the long-term ability to monitor and support a reinforced population (Lewis, Powell and Zielinski, 2012). The dispersal ranges were greater than predicted (McNicol et al., 2020; MacPherson and Wright, 2021) and technical challenges arose with GPS tracking over long ranges and in difficult terrain (Soorae, 2018). Home range assessment was based on a single study, Caryl, Quine and Park (2012), based on surveys in Scottish Highlands. Further review could have been included from other landscapes in Western Europe.

Save for high level habitat modelling, assessment of mortality risk and ecological impact was reserved to PRRs, despite expansion being an indicator for success. With distribution expanding outside PRRs, effective monitoring relies on effective working with stakeholders outside PRRs.



Figure 2: Pine marten family in Brecon Beacons



Figure 3: Red fox with vole

## CONCLUSION

While there were some gaps in the initial feasibility assessment, primarily due to practical reasons, detailed primary and secondary research was conducted prior to release. The released populations have successfully bred and expanded into the habitat available, suggesting a good choice of release site.

Habitat loss and land use conflict were identified as key issues at an early stage and resources reserved to meet the challenges they pose in the long term. The project founders have put in place a long term commitment to the project, including extensive outreach and partnership working, yet success will be measured over decades, and funding and interest in pine marten conservation may not always be so available.