Bats responses to woodland creation

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STUDY OVERVIEW

102 woodland sites surveyed using ultrasonic detectors. 2 study areas (Scotland and England) during 2013-14. 816 recording hours, 57,000 bat passes recorded. 6+ species detected:

- Soprano pipistrelles (48% of all passes)
- Common pipistrelles (41%)
- Myotis sp. (2%)
- Nyctalus sp. (1%)
- Brown long-eared bats (0.2%)
- Barbastelle bats (<0.1%)
- Other or unidentified sp. (<8%)



MANAGEMENT RECOMMENDATIONS

Improve local habitat quality - particularly important for low and intermediate mobility species. Specifically:

- Manage woodlands to promote old-growth habitat structure, e.g. large trees, relatively low tree densities and open canopies.
- Increasing understorey cover would benefit gleaning bats but negatively affect aerial hawkers.
- Maintain low levels of urbanisation adjacent to woodland patches.

Improve the surrounding landscape – particularly important in more homogeneous and intensively farmed landscapes where woodland loss and fragmentation have been more severe. Specifically:

- Enhance the amount and quality of ponds and rivers in the landscape.
- Increase amount of broadleaved woodland in the landscape adequate conservation strategy for highly mobile species.
- Increase woodland connectivity in the landscape spatially targeted planting to improve connectivity would particularly benefit less mobile species which are often less likely to fly across open spaces.



RESULTS HIGHLIGHTS

Woodland Creation &

Ecological Networks

For higher mobility species: surrounding landscape is more important than local habitat; increasing woodland amount is a valuable conservation strategy.

For less mobile species, improving woodland connectivity is important.

Vegetation structure



Surrounding landscape

Surrounding landscape







Pipistrellus pipistrellus



Pipistrellus pygmaeus





Vegetation structure

Vegetation structure



For intermediate mobility species: local habitat quality and landscape attributes are equally important.

For lower mobility species: local habitat quality is more important than surrounding landscape.



Fuentes-Montemayor et al. (2017) "Species mobility and landscape context determine the importance of local and landscape-level attributes". Ecol Appl 27:1541-1554

low

high

species mobility