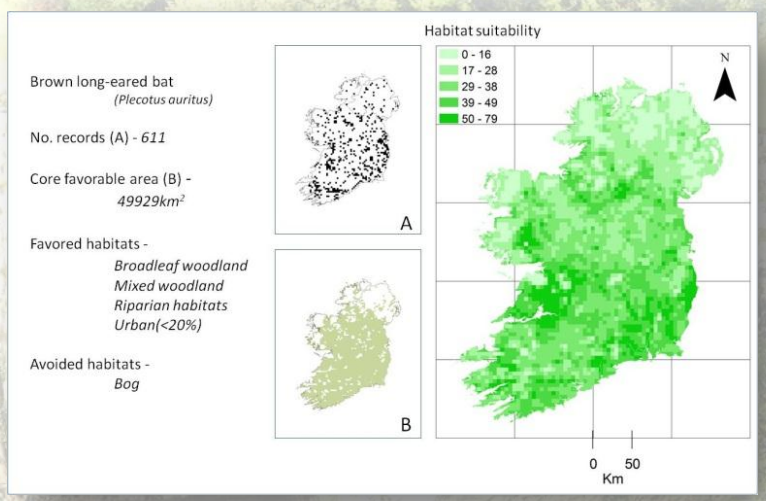
Landscape Conservation For Irish Bats

WHAT WERE THE PROJECT AIMS?

This project aims to provide a landscape conservation guide for Irish bat species. Using an existing database of species records we analysed the habitat and landscape associations of all bat species that commonly occur in Ireland:

- common pipistrelle
- soprano pipistrelle
- Nathusius' pipistrelle
- Leisler's bat
- Daubenton's bat
- Natterer's bat
- whiskered bat
- brown long-eared bat
- lesser horseshoe bat

Figure 1 (below): Habitat association summary of the brown long-eared bat.
Insert A: shows the distribution of records used to create the landscape model.
Insert B: shows the core area of favourable habitat for the species.



WHAT WAS THE METHOD USED?

Maximum Entropy Models (MEM) were constructed for each bat species using records from the Bat Conservation Ireland database from 2000-2009. This method allows species' records that have not been collected in a systematic survey to be analysed. The results help explain patterns of species' occurrence and predict where species might occur.

Landcover (CORINE), topography, climate, soil pH, riparian habitat and human bias factors were incorporated into the models.

Predictor layers were constructed on grids of increasing spatial scale of size = 0.5km, 1.5km, 2.5km, 4.5km, 6.5km, 10.5km and 20.5km.

WHAT ARE THE PROJECT RESULTS?

1. The geographical areas that are suitable for individual species are identified.
2. The associations that result in these patterns are summarized.
3. For each species, the 'core favourable area' is identified.
4. Roosting habitat associations of each species are identified.
5. Patterns of selection for specific aspects of roost type, such as building types or wall construction material, are also described.

This combination of analyses provides a picture of the broad scale geographic patterns of occurrence and local roosting habitat requirements for Irish bat species.

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Sligo
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Wexford
Wicklow

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The results show that, for the majority of species, suitable areas exist in all regions of Ireland. The lesser horseshoe bat and rarely recorded Nathusius' pipistrelle are exceptions with more restricted distributions. Complex, species specific, patterns of roosting habitat association are shown. Some generalisations can be made such as

- **positive selection for broadleaf woodland and mixed forestry**
- **avoidance of peatlands and some anthropogenically modified areas, such as conifer forestry.**

Go to www.biodiversityireland.ie to see maps from the project
Go to www.batconservationireland.org/pubs/reports/Landscape_Conservation_Irish_Bats.pdf for the final report
For information about the Centre for Irish Bat Research go to www.cibr.ie

A summary of habitats associations of Irish bats

Below is a summary of the habitats favoured and avoided by bats. Two elements of habitat association are identified; direction of association (positive or negative) and scale of association (fine scale or broad scale).

Direction of association: The colour of the box identifies the direction of association. Three relationships are identified; a positive association, a negative association and an intermediate association. An intermediate association reflects that a species is positively associated with a small area of this habitat but as this area increases this association becomes negative. A non-filled box signifies that this habitat is not an important predictor of that species occurring.

Scale of association: The size of the circle identifies the scale of the habitat that is most important – a small circle identifies that this habitat is important in the immediate area whereas a large circle reflects an association with a that habitat at a wider landscape scale.