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Transport Infrastructure Ireland

TII RESEARCH

RESEARCH PROJECT TITLE: ASSESSMENT OF THE EFFECTIVENESS OF BAT MITIGATION MEASURES, EMPLOYED ON IRISH NATIONAL ROAD SCHEMES

START DATE: **October 2007**	END DATE: **September 2010**

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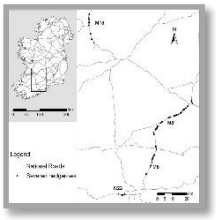

DESCRIPTION: This research project assessed the effectiveness of various bat mitigation measures used during the planning and construction phases of a road scheme to protect bat populations found in the natural environment. Particular emphasis was placed on the facilities provided by the Ennis by-pass scheme but other schemes were also studied. The work was undertaken in consultation with the National Parks and Wildlife Service.

OBJECTIVES:

- To assess the effectiveness of different bat mitigation measures used on road schemes in Ireland
- To focus the research on a number of key bat species that have the potential to be impacted by linear infrastructure, with particular emphasis on the lesser horseshoe bat which is considered an endangered species due to loss of habitat
- To develop and improve guidelines for the selection, design and management of effective mitigation measures

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BENEFITS: The research will be used to develop and improve guidelines for the selection, design and management of effective mitigation measures. This is of considerable benefit to Transport Infrastructure Ireland as it will ensure that the mitigation measures are effective, and that the high costs involved in installing these measures provide value for money.

RESEARCH FINDINGS:

- All Irish bat species cross motorways using existing under-motorway passageways. River crossings were the most widely used crossing points, emphasizing the importance of the appropriate design of these structures
- Use of under-motorway passageways increases with increasing passageway size. Connectivity of passageways with existing treelines and hedgerows was also important
- Despite their small aperture, long (approx. 100m), narrow (approx. 1m) drainage culverts were used as crossing points by several bat species, otherwise vulnerable to road impacts (especially the lesser horseshoe bat)
- All Irish bat species flew directly over the motorway at locations where mature hedgerows/treelines have been severed, even in the absence of any built structure. Such behaviour contrasts with the assumption that bats are reluctant to cross wide gaps
- The population of lesser horseshoe bat at Ennis, Co. Clare, was shown to use both large and small tunnels to cross the wide motorway, dissecting its home range. Bats were also radio-tracked crossing directly over the motorway, likely bringing them into risk of traffic collision; highlighting the challenges facing the effective conservation management of this species
- The ecological benefit to bats of passageways designed for other purposes, e.g. drainage culverts, badger pipe, access roads, farm passages, etc. should be maximized by locating and sizing them appropriately

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Image by Phil Richardson