

9th Meeting of the Standing Committee
19th Meeting of the Advisory Committee

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Report of the Intersessional Working Group
on Man-made Purpose built Bat Roosts

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1. Introduction

One of the causes of declines in bat populations across Europe has been the loss of suitable roosting sites. For woodland bat species this has been due to clearance of old growth woodland and unsympathetic woodland management practices. Bats that roost in buildings have faced a different set of challenges. With increases in human population density there has been a corresponding growth in the need for housing, and although housing stock has generally increased, modern building practices and materials have often resulted in reduced roosting opportunities for many bat species. This has progressed alongside the demolition or renovation of derelict or semi-derelict buildings, which are often highly suitable for roosting bats. In many jurisdictions, development protocols established through national or European legislation have required building mitigation into the development process. Although this is often achieved by the provision or retention of features suitable for bats, in some cases this is not possible and the construction of a man-made purpose-built bat roost is the only viable mitigation measure.

At a local or national level the development of these structures may be evident, but there is little information at a European level regarding the development of ideas and practice in this field. The Intersessional Working Group on Man-made Purpose-built bat roosts was convened at the end of AC 15 in Bonn. Its role is to:

- *Look at good practice across the Eurobats region*
- *Draw together case studies of successful schemes for a range of species*
- *Synthesize this information into a publication*

2. The Information gathering process.

Initial information gathering was achieved through the distribution of a questionnaire to scientific focal points (Appendix A). This was followed up by internet searches and targeted enquiries to individuals and organisations actively involved in bat conservation.

Completed questionnaires were received from 37 countries. There was a degree of confusion in some of the questionnaire responses regarding what exactly was a man-made purpose-built roost. In the initial discussions at AC 15 we had agreed that for the purpose of this IWG we would not include bat boxes and that we were only interested in newly-built, stand-alone structures, not the adaptation of existing structures for bats. It may be that this was not sufficiently explicit in the questionnaire; the summary of questionnaire results in Table 1 omits those responses relating to bat boxes or the adaptation of existing structures.

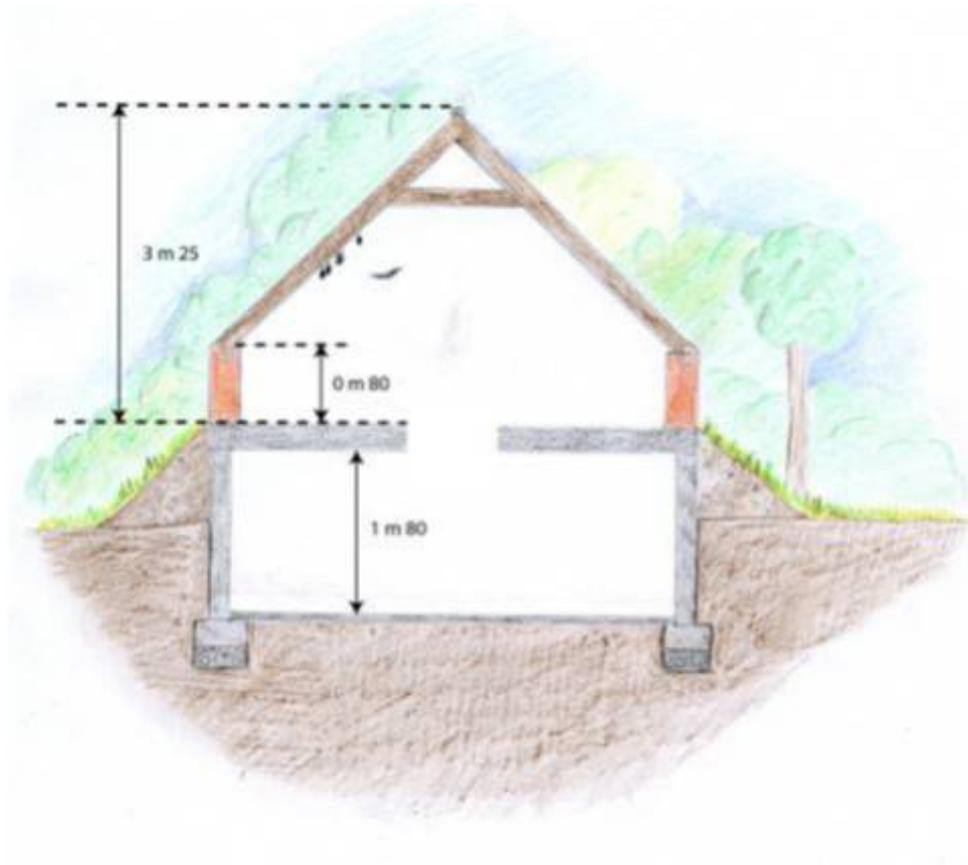
Table 1. Summary of the results from the Questionnaire

Country	Man-made purpose-built bat roosts constructed	Are these winter or summer roosts or both	Reason for the project	Species involved	Was it successful?
Armenia	No				
Belgium Wallonie	No				
Bosnia Herzegovina	No				
Bulgaria	No				
Croatia	No				
Czech Republic	No				
Egypt	No				
Finland	No				
France	Yes	Both	Research	<i>Rhinolophus ferrum-equinum</i>	Yes
Georgia	No				
Germany	No				
Ireland	Yes	Both	Research/Mitigation	<i>Rhinolophus hipposideros</i>	Yes
Israel	No				
Italy	No				
Jordan	No				
Latvia	No				
Lebanon	No				
Luxembourg	No				
FYR Macedonia	No				
Madeira	No				
Malta	No				
Moldova	No				
Monaco	No				
Montenegro	No				
Morocco	No				
Netherlands	Yes				
Norway	No				
Poland	No				
Portugal	Yes	Summer	Mitigation	<i>Tadarida teniotis</i> , <i>Eptesicus serotinus</i> , <i>Pipistrellus pygmaeus</i>	Yes
Serbia	No				
Slovakia	No				
Slovenia	No				
Sweden	No				
Switzerland	No				
Turkey	No				
UK	Yes	Both	Mitigation	<i>Rhinolophus hipposideros</i> , <i>Plecotus auritus</i> , <i>Pipistrellus spp.</i>	
Ukraine	No				

3. Examples of man-made, purpose-built bat roosts

3.1 France

This roost was constructed for *Rhinolophus ferrumequinum* in Brittany. There was an existing hibernation site close-by and the construction of this roost was speculative, to see whether the winter colony could be attracted into a new summer roost.



Sketch Plan of the new roost



Photograph of the building

The design incorporated both a maternity roost and hibernaculum. It took only a few months before the building was used as a hibernation site but five years before it was adopted as a maternity roost. The winter population numbers 124 individuals and there are some 100 bats in the maternity colony. The building is also used by *Pipistrellus pipistrellus* and *Myotis mystacinus*.

3.2 Ireland

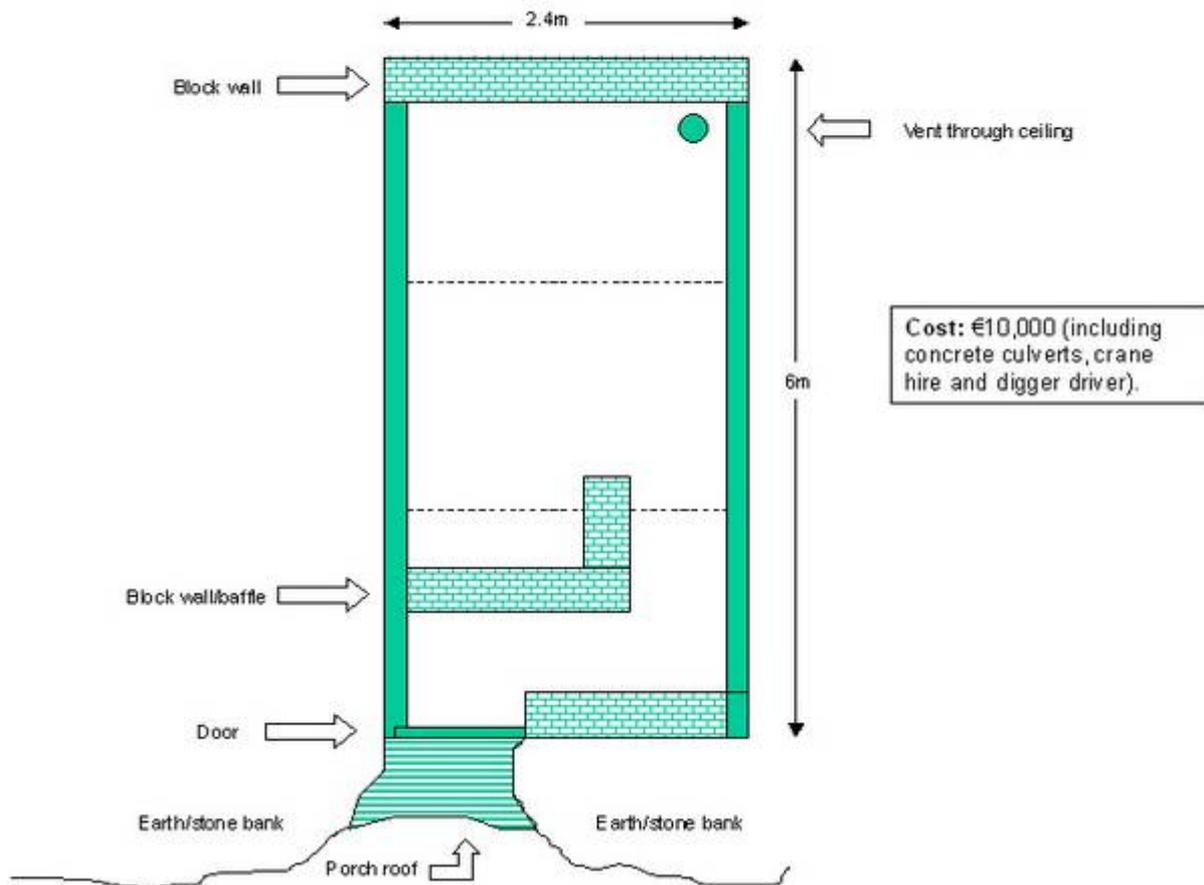
Four roosts, all for *R. hipposideros*, were reported from Ireland. These included a purpose-built hibernaculum constructed of pre-cast concrete culvert pipes.



Pre-cast culvert being loaded onto the site

A block-work wall formed the rear of the roost and a light baffle was built behind the entrance door.

Flahives' Hibernaculum



Plan of the new hibernaculum

This structure has been used by 220 hibernating bats.

In County Clare, a new roost was built as mitigation for the loss of an original *R. hipposideros* roost due to a new road being constructed. The new roost was a three-storey building and like the example from France included a hibernaculum and maternity roost.



The new roost shortly after construction

Take up at the site has been slow; it took three years before bats were found to be using the building. To date only two bats have been recorded in the hibernaculum and one in the maternity roost.

3.3 The Netherlands

In the Netherlands a number of bat towers have been constructed. These are aimed at attracting *Plecotus* and *Myotis* species.



Artist's impression of the bat tower



The bat tower during construction

3.4 Portugal

In Portugal a new roost has been successfully constructed following the demolition of a building used by *Tadarida teniotis*, *Eptesicus serotinus* and *P. pygmaeus*. The developer, in consultation with the Statutory Nature Protection Organisation, built a new roost 150m from the site of the original. Although it was smaller than the original roost it was designed to replicate its thermal characteristics. The new building has been used by all three species, although fewer in number than were found in the original site.



The original roost (left) and its replacement (right)

3.5 UK

There were a number of examples gathered from the UK and were usually a product of mitigation for the destruction of existing roosts during housing development. Similar structures to the hibernaculum in Ireland have been successfully constructed for *R. hipposideros*, *P. auritus* and *Myotis spp.* In addition to hibernacula, summer roosts have also been built. One of the earlier examples of this was at the site of an old hospital where a colony of *R. hipposideros* was roosting in a heated cellar. The building was due for demolition to make way for a new housing estate and a replacement roost was built for the bats. As with the sites in France and Ireland, this consisted of a maternity roost and below ground hibernaculum.



New roost on the edge of a housing development



Entrance point for the bats on a shaded gable wall

This site is now used by a colony of some 180 bats

During the construction of a new road in southern England a nearby deserted cottage was vandalised and the roof slates were stolen. A colony of 12 *R. hipposideros* was found roosting in the chimney stack of the building but by this stage the structure had deteriorated so much it had to be pulled down. A new roost was built 100m away using an L-shaped ground plan. It was a number of years before the new roost was adopted by bats but it now has a colony of some 60 animals.



The L-shaped layout was designed to maximise solar gain

Apart from *Rhinolophus hipposideros*, the other species to benefit from purpose-built roosts in the UK is *P. auritus*. Following the demolition of a roost in south-east England to make way for new housing, a single room structure was built on the site to accommodate the bats.



New *P. auritus* roost

4. Discussion

Surprisingly, these structures have proved to be quite unusual in a European context and have generally been created for *Rhinolophus spp.*; although in a few cases have also been gathered for species such as *P. auritus* and *T. teniotis*. Geographically these new roosting structures were centered on the France, Ireland, the Netherlands, Portugal and the UK. The expense of constructing new roosts may be a limiting factor; the cost of the examples cited range from €15,000 to over €100,000.

Very many more examples of instances where existing structures have been adapted to make them suitable for bats have been reported during the work of this IWG. These have a wide geographical spread and address the needs of a broader range of species. With this in mind the IWG will broaden its scope to explore the range and success of these types of projects.

Appendix A

Questionnaire for the Intersessional Working Group on Man-made Purpose-built Bat Roosts

In high human population density areas of Europe the renovation of derelict or semi-derelict buildings is reducing the availability of roosts for bats. Mitigating for this requires the provision of replacement roosts. To this end, there are many individuals and organisations in a variety of countries building man-made purpose built bat roosts. The role of this IWG is to-

- *Look at good practice across the Eurobats region*
- *Draw together case studies of successful schemes for a range of species*
- *Synthesize this information into a publication*

1. Do you have experience in your country of man-made purpose-built bat roosts? Y/N

2. Who is responsible for building these roosts?

National/Local Government Y/N

NGOs Y/N

Ecological Consultants Y/N

Private individuals Y/N

3. Types of roosts that have been built

Summer Y/N

Winter Y/N

4. For any man-made purpose-built bat roosts in your country

Location

Reason for project

Predominant Habitat

Information on original site

Roost type (Maternity, Night Roost, Hibernaculum)

Species

Size of colony

State or privately owned?

Information on the replacement site

What type of structure was built?

Approximate dimensions of the new structure. H W L.....

Distance from original roost

Has the new roost been used by bats? Y/N

If so, what species?

How long did it take for bats to use the new site

Were any methods used to attract bats to the site? Y/N

If so, what methods?

Is the new roost still monitored? Y/N

How was the construction funded? (Government/Developer/NGO/Other)

Is there provision for long-term maintenance? Y/N

Case studies

The IWG is interested in acquiring both successful and unsuccessful case studies including:

- Maps
- Plans of the structure
- Photographs
- Reports
- Data on rate of take up by bats if successful
- Any conclusions as to why new structures may not have been successful