

## Roost resilience audit for horseshoe bats

This form can be used to highlight opportunities to improve and safeguard horseshoe bat roosts for conservation purposes. For optimal use, it should be completed with guidance from the Lesser Horseshoe Handbook (Schofield, H.W., 2008) and EUROBATS publication series 4: Protection of overground roosts for bats (Marnell, F. and Prestnik, P., 2010).

Site name:
Date completed:
Completed by:

### What species are present in the roost?

*Rhinolophus ferrumequinum* ☐

*Rhinolophus hipposideros* ☐

### How are the bats using the site?

Maternity/Nursery ☐

Hibernation ☐

Night roosting ☐

Satellite/transitionary roost ☐

### What is the general population trend, based on annual count data?

Increasing ☐

Decreasing ☐

Stable ☐

Unclear/Unknown ☐

### Modifications recommended (complete after filling out sections 1 - 7 below)

Optimising space ☐

Draught and lighting ☐

Perching areas ☐

Entrances ☐

Building materials ☐

Exterior safety ☐

Surrounding landscape ☐

**Summary of planned improvement works (complete after filling out sections 1- 7 below)**

*Summarise below the potential works required on the bat roosting site. The key considerations for planned works should be longevity of the site's integrity as a bat roost and knowledge gaps regarding key habitats for the colony. The works should be categorised in terms of priority and a general timeline and expenses should be considered. Any limitations to the work being carried out, such as disturbance to the colony, should be highlighted in this summary.*

### Section 1.1. Optimising space

This section will cover the internal roosting opportunities available for the bat colony. Ideal horseshoe bat roosts should have a variety of roosting opportunities, providing the bats with the range of micro-climatic conditions needed in their annual cycle. Having a range of micro-climates within a roost can make the colony more resilient to extreme weather periods, which are predicted to become more frequent with climate change.

- (a) Does the roost have a hotbox(s) and is this of a suitable size for the colony?
  
- (b) Are there roosting opportunities on the south facing side of the building?
  
- (c) Is there enough height to the apex of the roof, with uncluttered space for free flying?
  
- (d) Are there cooler areas for the bats to use during extreme high temperatures? Such as a cool tower?
  
- (e) Is there a heater installed to maintain the hotbox temperature during cold weather?

### 1.2. Considering all the features above, can any modifications be made to improve the roosting areas?

### Section 2.1. Draught and lighting

This section covers the importance of draught and lighting in the roosting space. Minimising draught is important to maintain the thermal dynamics within a roost space and light spill must be minimised to avoid disturbing the bats. Draught exclusion and light baffles are two modifications that should be considered to optimise a roost.

- (a) Are there visible gaps around the eaves of the roof space?
- (b) Is any light coming directly into the roosting area from the entrance(s)?
- (c) Can any internal spaces be closed to reduce airflow?
- (d) Does the roof space have compartments using triangular baffles?

### 2.2. Considering all the features above, can any modifications be made to reduce draught and light spill?

### Section 3.1. Perching areas

This section covers the importance of suitable perching areas within a bat roost. Surface material and ample coverage are important features so that bats can utilise as much of the space as possible.

- (a) Is the roofing felt used suitable? Can it be improved or does it require repairs?
  
  
  
  
  
  
  
  
  
  
- (b) Can the perching surfaces be enhanced by the implementation of mesh?
  
  
  
  
  
  
  
  
  
  
- (c) Are there perching areas along the gradient of the roof or at different heights within the roost?

### 3.2. Considering all the features above, can any modifications be made to improve the perching areas?

### Section 4.1. Entrances

This section covers the importance of the entrances bat utilise to come and go from the roost. An ideal roost has entrances on the ground floor and facing vegetation. Size and number of entrances are also important features.

(a) Is the entrance at least 50cm by 50cm for lesser horseshoes or 75cm by 75cm for greater horseshoes?

(b) Does the entrance have a porch or provide a shaded area for the bats to light-sample?

(c) Are the entrances accessible to predators?

(d) Are the bats covered by vegetation when they exit the roost?

(e) Are the entrances exposing the roosting area to weather or nesting birds?

### 4.2. Considering all the features above, can the entrances be modified to improve the roost?

### Section 5.1. Building materials

This section covers appropriate building materials for bat roosts and whether modifications are appropriate. Appropriate building materials are important for horseshoe bats roosts as they affect interior thermal dynamics, humidity and longevity of the site.

- (a) What are the walls constructed from, are they insulated?
  
  
  
  
  
- (b) Does the roof material provide optimal solar gain for the bats?
  
  
  
  
  
- (c) Does the building contain any exposed breathable roofing membrane?
  
  
  
  
  
- (d) Does the flooring material retain moisture to maintain humidity?
  
  
  
  
  
- (e) Is the roofing membrane suitable for perching bats?

### 5.2. Considering all the features above, can modifications be made to improve the building?

### Section 6.1. Exterior safety of the roost

This section covers external safety features of the roost site. Bat roosts should be secure from vandals, structurally sound and not be compromised by vegetation that could fall and damage the structure.

- (a) Are any large trees overhanging the building that could cause structural damage?
  
- (b) Is the site secure from vandals entering the site and disturbing the bats?
  
- (c) Is there clear signage to state that entering the site violates domestic and European legislation?
  
- (d) Is the building structurally sound? Are repairs needed?
  
- (e) Is the site safe for ecologists to enter and conduct monitoring work?

### 6.2. Considering all the features above, can safety be improved on the exterior of the site?



### Section 7.1. Landscape around the roost.

This section covers the suitability of the habitat around the roost. Ideal roosts have known foraging habitat within the core sustenance zone around the roost and good vegetated corridors for dispersal. The nearest site that provides roosting conditions not provided here should ideally be known and close by.

- (a) Are the frequently used corridors by the bats in this roost known?
- (b) How much vegetative cover is available in the immediate vicinity of the roost?
- (c) Are the foraging areas known and/or protected?
- (d) Are there known satellite/transitional roosts nearby? Are these protected?
- (e) Is the location of the bats in this roost known throughout the year?
- (f) Is there artificial lighting near to the roost/affecting important corridors?

### 1.2. Considering all the features above, can landscape features be improved for this site?