Designing spaces for birds and bats: Roosting

A practical ecological approach

Birds and bats always need **safe places to roost**, though their shelter requirements may change throughout the year. These resting sites provide shelter for **sleep, digestion**, and **preening**, and are crucial for **thermoregulation**, especially during colder periods.

- For **bats**, roosts are indispensable for **raising young, hibernation**, and **protection** from predators and environmental extremes.
- **Birds** often engage in **communal roosting**, which provides several benefits, including **shared body heat, reduced risk of predation** through the dilution effect (where the presence of many individuals decreases the likelihood of any one being targeted), and **improved foraging efficiency** as they can exchange information about food sources.

The **loss of natural roosting habitats** due to deforestation and urbanization poses significant threats to these species, highlighting the importance of **conserving existing roosts** and **creating artificial ones** to maintain healthy bird and bat populations.

What are the best places for roosting?

A not very bright horizon for birds and bats

Research farms near you

Mature native trees make ideal roosting sites for birds and bats, offering essential features such as **dense canopies, hollows, cracks**, and **splits** in their trunks and limbs. These trees are typically found **in woodlands, hedgerows**, and even as **isolated individuals** in open landscapes. **Dead trees** are highly valuable for roosting, as their decaying structure provides a variety of shelter options for different species.

Management recommendations

- **Identify** and **preserve trees** with visible signs of roost use.
- **Retain surrounding trees** and **shrubs** as buffers to maintain favorable microclimates.
- Plant tree species with dense canopies and food resources:
  - **Prunus spp.** (Flowering cherry)
  - **Sorbus spp.** (Rowan)
  - **Betula spp.** (Birch)
  - **Malus spp.** (Crab apple)

This project receives funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 862480.

Buildings as roosting sites

Older structures, such as barns and abandoned buildings, are frequently used by birds and bats because they often **feature cracks, gaps**, and **perches** that provide suitable roosting spots.

While **new buildings** are typically less accessible for roosting due to their more sealed construction, they can **still be adapted** to include designated roost spaces, offering valuable shelter for these species.

Management recommendations

- **Preserve existing buildings** with roost potential.
- **Do not disturb** known **roost sites**, even if they appear unoccupied.
- **Check for usage** before sealing gaps or conducting repairs.
- Involve qualified **ecologists for any structural changes** that may impact roosts.
- Integrate **access features** for birds and bats **in new constructions.**

Purpose-built roosts

Artificial roosts should be constructed from thermally stable, draught-proof materials such as **untreated wood** or **woodcrete** to ensure a stable and comfortable environment. Additionally, **integrated roost boxes** built directly into new buildings are particularly effective for bats, as they tend to be more permanent and less prone to disturbance compared to externally placed roosts.

Placement recommendations

Bats

- Height: Preferably above 4 m (minimum 2 m)
- Sun exposure: Full/partial sunlight, more than one orientation

Birds

- Height: 1–2 m for ground access and maintenance, or up to 4 m for better occupancy
- Orientation: North to east facing

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Best techniques

- Use **acoustic lures** and **olfactory cues** to boost uptake.
- Locate boxes near **hedgerows, treelines**, or other natural features.
- Density:
    - ~20–25 **bird boxes**/hectare
    - ~2–4 **bat boxes**/hectare
    - Predatory birds (e.g., owls): Install sparingly due to territorial needs

Keep in mind...

- Roosts must be **safeguarded** from damage or interference, even when vacant.
- Bats and birds use various **features** for roosting, including **narrow crevices** as small as 15–20 mm.
- **Dead trees, old buildings**, and even **modern constructions** can be suitable if properly managed.
- Proximity to **natural habitats** (ideally <**450 m**) significantly increases the chances of roost uptake.
- Artificial boxes are **species-specific** and must be **strategically placed** for effectiveness.

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