Bat Nursery Roost – Tree Features

Tree roosting bats prefer trees in older forests with many of the following criteria:

- Moderate decay (tree classes 2–5)
- Large diameter (> 50 cm dbh) trees are the most effective roost trees. Small bats will use smaller dbh trees if suitable features present.
- Vertical hollow cavity accessed via a stem scar
- Woodpecker excavations, especially pileated woodpecker
- Deep stem cracks; hollows where branches have broken off at the bole
- Most bark intact but loosening
- Any defect that results in a crevice ≥1-2 cm wide and ≥10 cm deep
- Long-duration tree species such as ponderosa pine, western red cedar, western larch, Douglas-fir or cottonwood
- Potential roost entrance 3m off the ground
- Open vegetation conditions on the side of the tree with the roost feature

Site Characteristics that increase the value of a potential roost site:

- Within 1 km of water that provides drinking habitat. Suitable water sources include small waterbodies, quiet streams or river areas, or wetlands with open water.
- Within 1 km of wetlands which are used for foraging.
- Connected to other forest patches with landscape or vegetation features. Connectivity features can be narrow, such as a single line of trees or tall shrubs with a limited number of gaps greater than 20 m across.

Photos left to right: Province of BC, Jared Hobbs

A BAT NURSERY ROOST

Definition

A feature that houses an aggregation of female bats and their young.

Location

- **Aspect:** Preference for warm, south – southwest aspects with long periods of sun exposure.
- **Elevation:** Generally, below the ESSF and upper MS BEC zones. Upper slopes in valley bottoms are common warm sites. Lower elevations can be used, particularly if within 1 km of water.
- **Exposure:** Nursery roosts need to be dry and provide protection from the weather and wind.
- **Temperature:** Bats select for warmer sites to promote pup development but locations with extreme temperatures (over 40°C) are often avoided.
- **Habitat Connectivity:** Some bat species will not cross large open spaces surrounding a roost site. Locations with forest connectivity within 1 km of a water source can be suitable.

Features

- **Tree roosts:** Tree features can include hollow trees, trees with defects, stub trees, cavities, or gaps behind loose, sloughing bark. Bats using tree roosts prefer trees in older forests. Roost entrances are often 3m high or higher.
- **Rock roosts:** Suitable rock features include rock crevices, cliffs, rock outcrops, boulder fields, and talus slopes in warm sites on south-facing aspects. Most naturally occurring caves are not suitable for nursery roosts.

Notes

- **Sensitive Timing: April 30 to September 1**

Similar features to a bat nursery roost

Bat hibernaculum (rock crevice)

- Hibernation sites are in opposite aspects (cool sites)
- Crevices for hibernation are deep (reach under the frost line)

Cavity nesting birds

- Different signs of use. No preference for south – southwest aspects

Bat Nursery Roost – Rock Features

Bats using rock roosts prefer warm sites on south-facing aspects that meet many of the following criteria:

- Crevice openings are at least 1-2 cm wide or more
- Crevice depth of 15 cm or more
- Crevices may be horizontal or vertical
- Can be lower than 3 m off the ground but needs to be high enough to all bats to 'drop and fly' from the opening

Site Characteristics that increase the value of a potential roost site:

- Within 1 km of water that provides drinking habitat. Suitable water sources include small waterbodies, quiet streams or river areas, or wetlands with open water.
- Within 1 km of wetlands which are used for foraging.
- Connected to other forest patches with landscape or vegetation features. Connectivity features can be narrow, such as a single line of trees or tall shrubs with a limited number of gaps greater than 20 m across.

Photos: Top, Mandy Kellner.
Bottom, Doug Burles

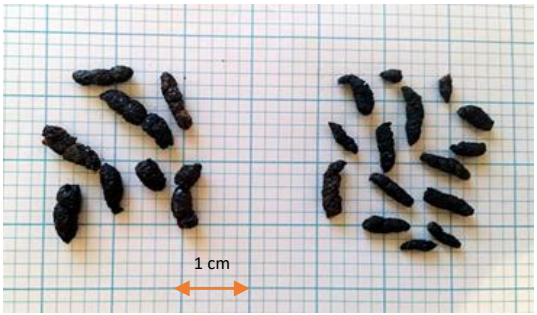
Identifying an Occupied Nursery Roost

Evidence of use by a group or repeated use include:

- Large accumulations of bat feces (guano) under the roost site
- Dark staining on roosting surfaces from the natural oils in their fur
- Urine stains and/or "pissicles" (light coloured staining or hardened, light yellow icicle-shaped features made of urine)
- Distinct smell of bat guano and urine.

Basic measures for assessing occupancy:

- Inspect suspected nursery roosts cautiously by briefly shining a flashlight into the entrance and looking for individuals
- Monitor at night for direct visual observations. At dusk, bats may be seen emerging from, or flying around, the entrance.
- The smell of ammonia from bat urine may be noticeable at recently used roosts.
- Look for bat guano. Often present at the base of an entrance.
- Bat guano looks like mouse droppings but contains chewed up bits of insect exoskeletons and wings that crush into a crumbly powder and may appear to have shiny flecks. In comparison, mouse droppings are solid and claylike.
- If guano is found, collecting a sample for DNA analysis will allow verification of species



Bat Guano (feces): Similar in size, shape and colour to mouse droppings. Easily crush into a rough powder of undigested insect parts. Big brown bat (left); little brown myotis (right) guano pellets (Photo: Cory Olson)