

Bats in Buildings: Assessing Human Structures as Roost Sites in Glacier National Park

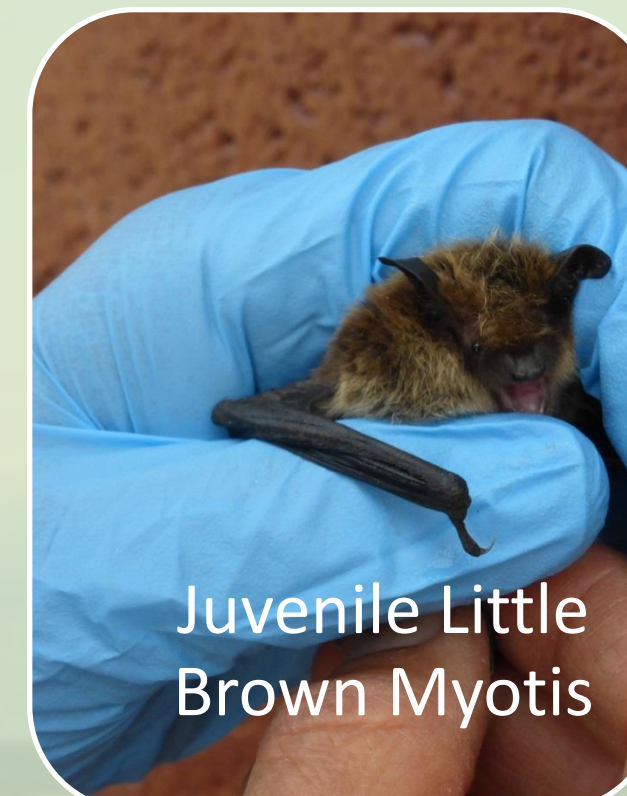
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Background and Objectives

- Populations of bats are threatened by several factors, including white-nose syndrome (WNS).
- There are several bats that are Species of Concern in Montana. Many bats use buildings for day, night, and maternity roosts.
- Understanding which structures bats use for roosting could provide necessary information to develop measures to protect bats.
- We sought to document the locations, characteristics, and types of roost sites occurring in human structures throughout Glacier National Park (GNP).



Methods

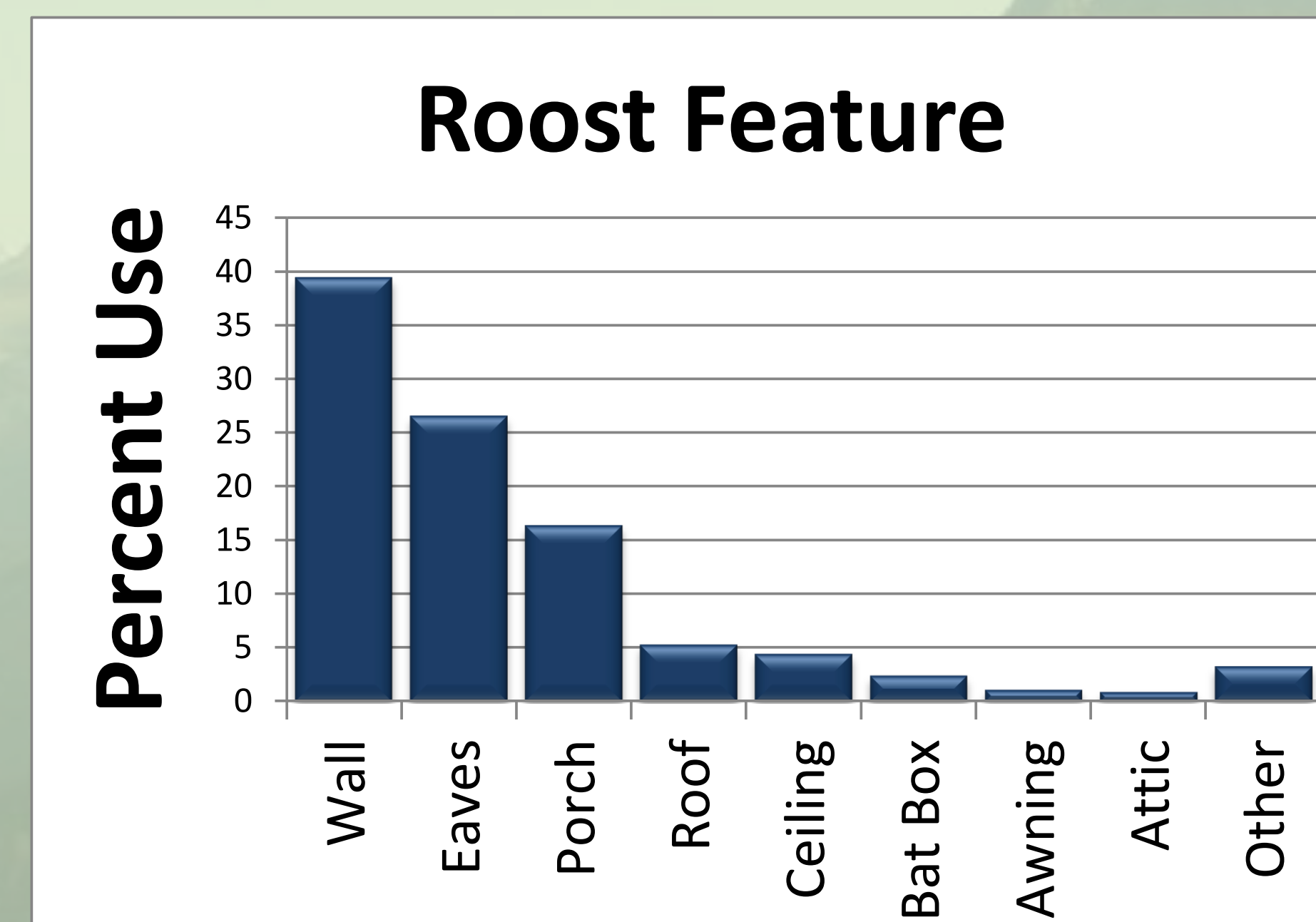
- We surveyed buildings and bat houses in GNP during the summer 2015. We inspected structures during the day, listening and looking for bats or bat sign.
- We defined a day roost as any roost where we saw or heard bats. A night roost included any sign of bat use without the presence of bats. Maternity roosts were confirmed either by the presence of pups or by mist-netting at night.
- **Building characteristics** – For each building we recorded construction date and materials, roof type, and whether the building had roosts, or potential roost sites.
- **Roost characteristics** – For each roost we recorded its location on the building (e. g. eaves, under roof, in wall, etc.), and the type of materials where a roost was found (e.g. wood, logs, tin, cement, etc.).
- We summarized characteristics of roosts and used logistic regression to compare buildings with and without roosts.

Results

- We surveyed 579 of the >900 structures in GNP
- We found 451 roost sites in 249 buildings; 83% were night roosts

Roost characteristics

- Most roosts (76%) were in a wood substrate
- Most roosts were on (or in) walls or under eaves



Building characteristics

- Night roosts were 3 times more likely to be found in buildings without tin siding compared to those with this siding. Night roosts were 2 times more likely to be in buildings with masonry than those without.
- Day roosts were 6 times more likely to be on buildings with a bat house than those without.



Bat roost sites

Management Implications

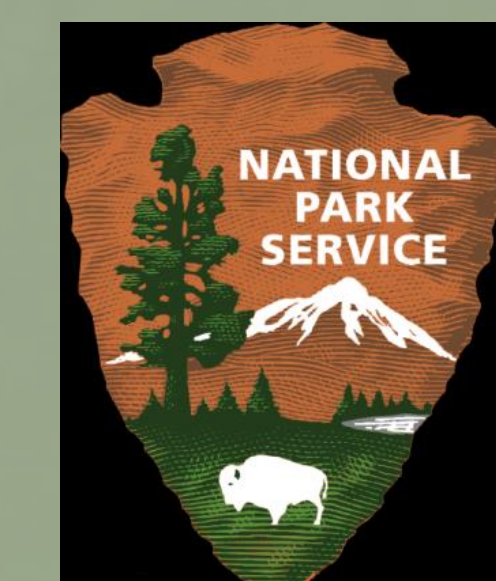
- Knowing whether a building is, or has been, occupied by bats will expedite review processes for projects aiming to remodel or repair buildings.
- We recommend conducting emergence counts where accurate assessments of bat numbers are needed (e.g. 25 counted in daytime versus 979 emerging at night).
- Baseline data on locations and numbers of bat roosts will allow biologists to better assess potential impacts of WNS, should it arrive in Montana.



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