

Use of Hornet Nests for Winter Roosting by the Carolina Wren in the Southeastern United States

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The Carolina Wren (*Thryothorus ludovicianus*) is one of several species of wrens found in the Carolinas. This small-bodied bird is found year-round through much of the eastern United States and south into Mexico (Peterson and Peterson 2002). It is the only wren in eastern North America that does not migrate to warmer climates in the winter (Sibley 2000). This overwintering habit makes the species vulnerable to harsh winter temperatures, particularly in the mountains of the Carolinas and in the northern portion of the bird's range. Many researchers have concluded from studies in the colder portions of its range that winter survival is directly related to low temperatures (Brooks 1936; Root 1988; Link and Sauer 2007). Other researchers have suggested that it might be linked to the availability of food resources (Job and Bednekoff 2011). Ultimately, both factors contribute to the bird's range, and changes in climate temperature have been directly correlated to the gradual northward range expansion of the species (Job and Bednekoff 2011).

In the mountains of Rutherford County, North Carolina, we have frequently observed an interesting phenomenon that may contribute to the winter survival of Carolina Wrens. After the autumn killing frosts, we encounter large nests of the Bald-faced Hornet (*Dolichovespula maculata*) with one or more holes approximately 10 cm in diameter torn into the side (Fig. 1). There are often remnants of bird scat near the opening (Fig. 2), and the hollowed out cavity is generally substantially larger inside. We believe that Carolina Wrens tear these holes into the

hornet nests; on winter nights, one or more can often be found roosting in the well-insulated cavities (Fig. 3).



Figure 1. Bald-faced Hornet nest hung under the shelter of a porch roof with hole made by a Carolina Wren for winter roosting.

The thick, paper-like walls built by the hornets during the summer months are very insulating and apparently help the wrens to withstand low winter temperatures. Every year for the last ten years, we have collected one or more large Bald-faced Hornet nests and hung them under the roof of a porch. We have yet to observe a winter during which one or more wrens have not roosted in the hornet nest. Although this roosting behavior appears to be common, at least in our region, it has seldom been reported in the literature. West Virginia

naturalist Professor Maurice Brooks reported that in the fall of 1927, a hornet nest was hung in an outbuilding, and by late winter, a pair of Carolina Wrens was regularly roosting there and continued to do so for the next five winters (Brooks 1932). In Ohio in 1932, Louis B. Kalter reported seeing a Carolina Wren using a hornet nest that had been placed on a porch as a winter roosting place; Kalter comments: "This may be an entirely new and individualistic adaptation of the Carolina Wren to man's civilization, or it may indicate one type of its normal winter roosting place" (Kalter 1932). These two reports from 1932 in West Virginia and Ohio are the only published accounts we have found that outline this behavior in Carolina Wrens. There are other accounts of these wrens roosting in different insulated items such as coat pockets, shirts on a clothesline, folds in curtains, etc (Members 1943; Bent 1948).



Figure 2.
Carolina
Wren scats
around the
opening of a
winter roost
in a Bald-
faced Hornet
nest.

It is apparent from these formerly published notes and our observations that this winter roosting behavior is likely far more widespread among Carolina Wrens than has been previously reported. Bald-faced Hornets are widely distributed in North America (Milne and Milne 1980), and in the colder portions of the Carolina Wren's range, they may play a vital role in the bird's ability to overwinter. Further research is needed to understand how widespread and important this roosting behavior is among Carolina Wrens and other related bird species. It is also necessary for data to be collected regarding this behavior where hornet nests have been left in the wild and have not been moved to sheltered environments by humans.



Figure 3.
Carolina
Wren roosting
inside a well-
insulated
Bald-faced
Hornet nest
on a cold
winter night.

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