Unusual Anthropogenic Nest Sites of Carolina Chickadee (*Poecile carolinensis*) in the Central Business District of Rockingham, Richmond County, North Carolina

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The Carolina Chickadee is one of the most common and widespread species in most of southeastern North America (Mostrum et al. 2002), including North Carolina (Mason et al. 2007, Seriff 2018, LeGrand et al. 2021). They readily occupy a variety of wooded habitats, including residential areas and parks in suburbia where this secondary-cavity nesting species breeds in natural nest sites and anthropogenic nest sites such as nest boxes (e.g., Davidson, NC; Stanback et al. 2009). Most documented anthropogenic nest sites used by Carolina Chickadees such as nest boxes, nest posts or poles, or nest tubes (Pitts 1998) and artificial snags (Grubb and Bronson 1995) have been constructed for explicit use by birds. However, Carolina Chickadees may infrequently use anthropogenic nest sites not deliberately constructed for use as nest sites, such as an open vertical steel pipe with a mounted stop sign along a street in Texas (Sialis 2017), an open vertical pipe beside the front porch of a house in Henderson County, NC (eBird 2021a), or an open top horizontal bar of a swinging metal gate in Missouri (eBird 2021b) and in Richmond County, NC (McNair, unpubl. data). These observations were in rural or suburban, not urban areas. Unusual anthropogenic nest sites in urban areas have not been described from central business districts of a city or town in North Carolina, where Carolina Chickadees occur in much lower breeding densities compared to many suburban areas (e.g., 14.7 territories/40 ha in Bethabara Park, Winston-Salem, NC; Thorington and Brand 2014). This field note documents two unusual anthropogenic nest sites of Carolina Chickadees and the context in which they were used in the central business district of Rockingham, Richmond County, NC, where chickadee breeding densities were low and nest boxes, nest posts or poles, or nest tubes were not present.

Carolina Chickadees were absent from the central business district of Rockingham (25-block study area of 42.4 ha; see McNair 2021 for full description and location of blocks) during the breeding season of 1994 but did nest nearby. The breeding density of Carolina Chickadees within the study area 27 years later was 3.3 territories/40 ha in 2021, when nest boxes, bird feeders, and bird baths were absent.

The only natural cavities present within the study area in 2021 were in dead tops of ~5 trees. One unpaired male Carolina Chickadee examined the very fresh entrance of a north-facing cavity located 0.45 m below the dead top of an 8.5 m tall water oak (*Quercus nigra*) in poor condition in Block 17 in late April and early May 2021. In addition, one pair frequently foraged along the northern boundary of the study area, but nested off-site within an adjacent wooded residential area with many mature trees.

The other two pairs of Carolina Chickadees present within the central business district of Rockingham in 2021 nested at two unusual anthropogenic nest sites. One pair nested in an active electric service mast that protruded through the roof of a commercial building in Block 19 (Figure 1). The other pair nested near the top of a security lamp pole on an unoccupied but landscaped property in the center of downtown Rockingham in Block 25 (Figures 2 and 3). I observed adults at both nest sites feeding young in late April and early May and young successfully fledged from at least the electric service mast nest site. I did not measure the diameters of the two cavity entrances, but they could be described as small at the electric service mast and large at the security lamp pole.

Figure 1. This active electric service mast that protruded 3 m above the roof of a single-floor commercial building in Block 19 was used as a nest-site by a pair of Carolina Chickadees (*Poecile carolinensis*) in 2021. Nest material can be seen extending from the bottom of the lower right hole (and lower left hole, difficult to observe in the photo), where one of the three insulated service entrance conductors enters one of the three larger circular apertures. However, the chickadees always entered the nest-site through the top aperture. Photograph taken on 9 May 2021 © D.B. McNair.

House Sparrows can compete for and usurp nest boxes of the Great Tit (*Parus major*) if the diameter of the cavity entrance exceeds 2.8 cm in Israel (Charter et al. 2013) and of the Carolina Chickadee if the diameter of the cavity entrance exceeds 3.2 cm in Tennessee (Pitts 1998). House Sparrows were common in downtown Rockingham where they only nested in anthropogenic nest sites, including active and abandoned electric service masts in both years (1994, 2021; McNair, unpubl. data). In 2021, when Carolina Chickadees were present, House Sparrows would have the potential to usurp nest sites of

the much smaller Carolina Chickadee if the latter species selected unusual anthropogenic nest sites at cavities with large entrance diameters. House Sparrows used five different electric service masts within four blocks in 2021, although not in the two blocks where Carolina Chickadees nested. Furthermore, masts used by House Sparrows had cavity entrances with larger diameters than the mast used by Carolina Chickadees, reducing or eliminating the threat of nest site usurpation. Carolina Chickadees are uncommon at best within the central business district of Rockingham, but despite potential usurpation of nest sites by House Sparrows, two pairs did nest at two unusual anthropogenic nest sites in downtown Rockingham where nest boxes were absent and natural cavities were scarce in 2021.

Figure 2. Carolina Chickadees nested at this tall (6.25 m) active security lamp pole on unoccupied but landscaped property in Block 25. Photograph taken on 9 May 2021 © D.B. McNair.

Figure 3. The active security lamp pole contained one large circular entrance 5.5 m above ground level, used by Carolina Chickadees, in a cone-shaped sub-terminal structure that supported the large light cap. Photograph taken on 9 May 2021 © D.B. McNair.

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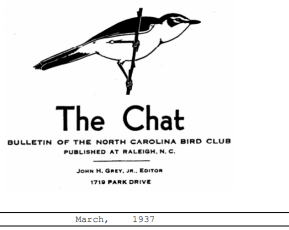
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