

# FIRST EVIDENCE OF NESTING FOR THE BLACK-CAPPED CHICKADEE FROM NORTH CAROLINA

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*Abstract.*—The Black-capped Chickadee has long been known to breed in the southern Appalachian Mountains, but positive evidence of nesting within North Carolina has not been published. This paper offers evidence of breeding in the state. A preflight bird was banded and photographed. Sonagrams from recordings of the vocalizations of the young bird and its parents are compared with those of known Carolina and Black-capped Chickadees.

In his paper on the ecology and distribution of the Black-capped Chickadee (*Parus atricapillus*) in the southern Blue Ridge Mountains, Simpson (1977) pointed out that there are no published nest reports from North Carolina even though the species is known to be present in certain ranges throughout the year.

On 9 August 1978, I was recording the vocalizations of Black-capped Chickadees at the Richland Balsam overlook on the Blue Ridge Parkway in Jackson County, N.C. On a slope about 10 m above the roadway, I heard a chickadee-like call with which I was not familiar. A careful search revealed a preflight chickadee perched in a thick tangle of brush on the hillside. After recording its calls, I captured the bird by hand, banded, measured, photographed, and released it.

The young chickadee (Fig. 1) was still developing its juvenal plumage, but showed little or no natal down. Although the wing coverts and secondaries were completely grown, the



Fig. 1. A preflight young Black-capped Chickadee was captured and banded at Richland Balsam, Jackson County, N.C., 9 August 1978. (Photo by Michael Tove)

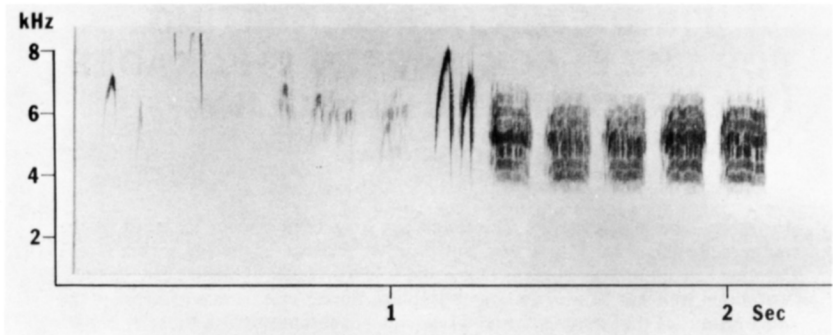


Fig. 2. The sonagram of the Chick-a-dee call complex of an adult chickadee that accompanied the young bird banded at Richland Balsam on 9 August 1978 shows marked similarities to the sonagram (Fig. 4) of the same vocalization given by a bird positively identified as a Black-capped. (Recording by Michael Tove)

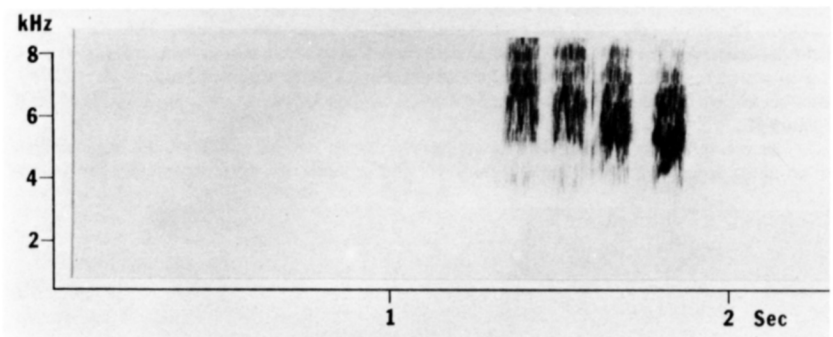


Fig. 3. The sonagram of the Begging Dee calls of the young bird banded and photographed (Fig. 1) at Richland Balsam shows the slow rate of delivery typical for the Black-capped Chickadee. (Recording by Michael Tove)

primaries and rectrices were still in sheath. The bill was not full-sized, but the legs and feet were fully developed. The bib was smaller than might be expected, and the buffy flanks were lacking. Otherwise, the fledgling resembled its parents. The bird was banded with an aluminum U.S. Fish and Wildlife Service band and a red plastic leg band. Its measurements were wing cord 47 mm, tail 31 mm, bill from nares 5 mm, and weight 8 g.

Bent (1964) noted that Black-capped Chickadees experience a partial postjuvencal molt around midsummer, but it involves only the contour plumage and wing coverts. This clearly was not the case with the young chickadee banded on 9 August because that bird was still acquiring its first flight feathers and not molting contour plumage or secondary coverts.

Three factors led to the identification of the preflight bird as a Black-capped Chickadee rather than a Carolina Chickadee (*P. carolinensis*), which is widespread and common in North Carolina and sometimes breeds at high elevations in the mountains (Tanner 1952).

First, the bird was found at an elevation above 1900 m, which is considerably higher than the usual 1250-1370 m region of contact between Black-capped and Carolina Chickadees in the southern Appalachians.

Second, both parents were seen and their voices recorded. The calls included both the

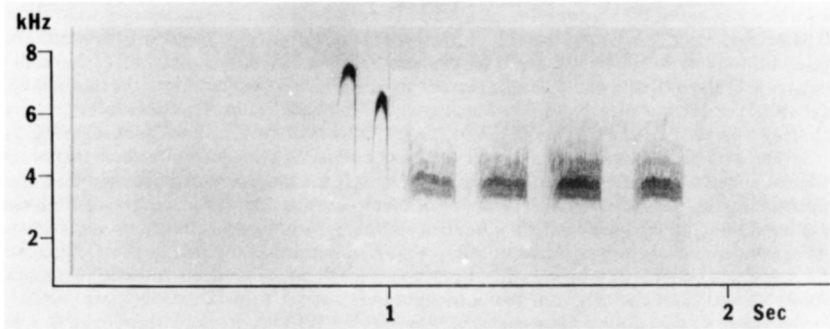


Fig. 4. The above sonagram shows the B, C, and D syllables of the Chick-a-dee call complex in the voice of a Black-capped Chickadee recorded 5 May 1952 at Ithaca, N.Y., by A.A. Allen and P.P. Kellog. (Courtesy of the Laboratory of Ornithology, Cornell University)

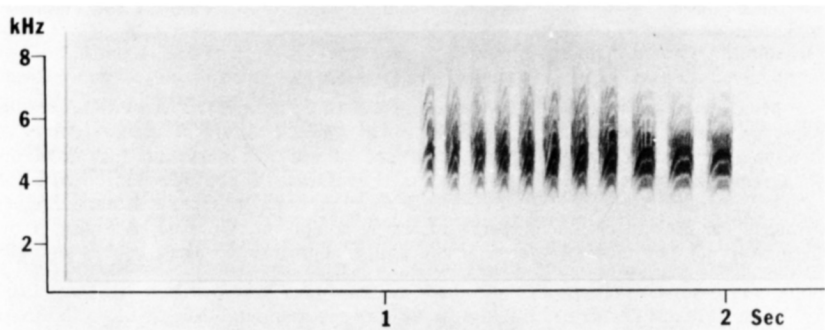


Fig. 5. A sonagram of the D syllables of a Carolina Chickadee recorded 25 March 1955 in Georgia by A.A. Allen and E.G. Allen shows the rapid rate of delivery typical for the species. (Courtesy of the Laboratory of Ornithology, Cornell University)

typical Fee-bee and the Chick-a-dee call complex as described by Ficken et al. (1978).

Third, the young bird had a large amount of white in the folded wings, which was due to the whitish-tan or off-white margins approximately 2 to 3 mm in width on the secondaries. Examination of specimens of both Black-capped and Carolina Chickadees from the U.S. National Museum of Natural History in Washington, D.C., revealed a significant plumage difference in the secondaries of the two species. Carolina Chickadees show whitish-gray in the wings, which is due to at most a narrow edging on the outer webs. Black-capped typically have broad white margins that may be as wide as 2 or 3 mm. The Begging Dee calls of the young bird were recorded.

Recordings of vocalizations were made with a Tandberg model 11 tape recorder equipped with a Dan Gibson model 200 parabolic reflector and microphone. Sonagrams were made with the aid of a Kay Electric Company Sona-Graph model 6061A. All sonagrams were produced at normal speed on a wide band filter.

Sonagrams of the Chick-a-dee call complex of the adult (Fig. 2) and the Begging Dee of the young (Fig. 3) show patterns consistent with the findings of Ficken et al. (1978) for the Black-capped Chickadee. In the calls of the adult, the duration of the last five notes or D

syllables was about 0.15 second for each note. The intervals for these same notes were about 0.04 second. For the young bird (Fig. 3), the note duration was about 0.10 second, and intervals were about 0.04, 0.04, and 0.07 respectively. In addition, the sonagram of the adult's call (Fig. 2) shows a rate of 5.8 D syllables per second which is comparable to the rate of 4.8 D syllables per second of a bona fide Black-capped Chickadee (Fig. 4). These rates contrast sharply with the rate of 11.5 D syllables per second of a bona fide Carolina Chickadee (Fig. 5).

The data presented above constitute the first convincing evidence for the breeding of the Black-capped Chickadee in North Carolina. Although the discovery of a preflight bird does not necessarily provide satisfactory proof of local nesting, this particular young bird was captured by hand well within the boundaries of North Carolina and does not seem likely to have wandered here from an adjacent state. A thorough search of the area was conducted, but no nest could be located. This was due in part to the high density of the surrounding spruce-fir forest as well as to the height of the individual trees.

Tanner (1952) found four nests of Black-capped Chickadees in the Great Smoky Mountains, but all of these were in Tennessee. He reported that nesting activities of this species began there in late April and early May. The 9 August date that the fledgling was captured thus seems unusually late for the species. If one assumes 12 days of incubation and an additional 16 days to fledge (Bent 1964), then the approximate date for laying was 12 July. The late date strongly suggests that the Black-capped Chickadee is at least occasionally double-brooded in the southern Appalachians. Obviously much remains to be learned about the relict populations of Black-capped Chickadees in the North Carolina and Tennessee mountains.

#### ACKNOWLEDGMENTS

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