

the result of bird pox or some other ailment seen regularly in wild birds (Charles Ely and A. R. Phillips pers. comm.).

Additional points in favor of considering the Louisiana bird to be wild are: (1) the specimen is in extremely fresh, first-year plumage lacking any indication of cage wear; (2) the nails show none of the abnormalities regularly seen in cage birds; (3) the collecting locality is reasonably distant from major population centers from which escaped cage birds are more likely to originate; (4) Hackberry Ridge (less than 16 km from the Texas border) superficially resembles an arid western wash rather than a typical Louisiana coastal "chenier" and has produced records of several southwestern or western species in 1979–1980 [three Lesser Nighthawks (*Chordeiles acutipennis*), three Anna's Hummingbirds (*Calypte anna*), one Black-throated Gray Warbler (*Dendroica nigrescens*)]; (5) it seems highly unlikely that the occurrence of four birds within 3 months of one another in areas of Louisiana and Texas heavily visited by bird-watchers for decades is purely coincidental. A limited, northeastward, extralimital movement of this species in 1979–1980 seems at least as likely, especially because analogous annual movements in this direction are made by White-winged Dove (*Zenaida asiatica*), Groove-billed Ani (*Crotophaga sulcirostris*), and Vermilion Flycatcher (*Pyrocephalus rubinus*), and less regularly by Inca Dove (*Scardafella inca*), Buff-bellied Hummingbird (*Amazilia yucatanensis*), and Great Kiskadee (*Pitangus sulphuratus*).

Although obviously none of these points alone is irrefutable evidence of wildness, we feel that together they make a very strong case against considering the bird to have escaped from captivity.

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Male Participation in Incubation and Brooding in the Blue Jay

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Although there is one reported observation of male participation in incubation in the Blue Jay, *Cyanocitta cristata* (Thayer 1901, Bird Lore 3: 50), it is generally believed that only the female incubates and broods in this species (Hardy 1961, Univ. Kansas Sci. Bull. 42: 13; Goodwin 1976, Crows of the world, New York, Cornell Univ. Press, p. 264). Indeed, the lack of male participation in these events is often described as a trait characteristic of corvids in general (Goodwin 1976, p. 47). In the following report I describe male participation in both incubation and brooding in a population of Blue Jays.

These observations are part of a larger ongoing study of the breeding biology of a population of Blue Jays located in Putnam County, New York, about 8 km east of the village of Cold Spring. The population consists of both marked (U.S. Fish and Wildlife serialized bands and plastic color bands) and unmarked individuals that inhabit an oak/birch/beechn forest. My procedure was to begin observations at individual nests at dawn and end between 1200 and 1300, with a 2-h period at each nest. Spot checks of 5–30 min were made during the afternoon hours at some of the nests as well. I used both a 7 × 35 binocular and a 20× spotting telescope to facilitate these observations. The events described below include information from one nest of the 1979 breeding season and four nests of the 1980 breeding season. Except for one of the 1980 season, the nests consisted of banded pairs.

Incubation patterns.—As is typical of the species, incubation in this population lasts about 17 days (range 16–18). I never observed a male sitting on the nest before day 2 or after day 12 except for one case in which the male continued to help with incubation throughout the period. (This male was also the only one to brood.) Essentially, the pattern within this time frame for all nests ($n = 5$) consisted of the male relieving the female at the nest for a period of from 1.5 to 5 min (average 3.8 min), although in one case a male sat for 30 min before the female returned and relieved him. Rarely (five times throughout the incubation period), rather than an actual exchange occurring, a male would simply approach the nest

and sit while the female was off. Regardless of whether the female was present or not, this was typically a silent event without any apparent displays. If the female was sitting, the male flew in, approaching the nest gradually by hopping from branch to branch. He might or might not feed the female, who would then fly off. After she left the male would often perch on the rim of the nest for 2–3 s before sitting. Unfortunately, I was not able to discern the presence or absence of an incubation patch. The female could be seen moving through the branches of nearby trees as the male sat. When he left the nest, the male would typically join the female and often feed her before she returned to sit. During this time I would often hear the soft chirps, chattering, and food begging calls associated with feeding in the Blue Jay.

Brooding.—The description that follows is based on activities occurring at one nest during the 1980 season. Because neither bird was banded, I used both morphological and behavioral criteria to identify individuals. Thompson and Caputo (1977, *IBB News* 49: 83) have suggested that it is possible to identify individuals by assessing differences in the neck band. As one bird had a much thinner band than the other, it was possible to do so in this situation. Moreover, this same bird consistently sat on the nest for much longer periods than the other and was only fed; it never offered food. I therefore designated it as the female and the other as the male. Essentially, both birds brooded the young for the first 13 days of an 18-day period. During the last 5 days, either the female brooded alone (day 14 and day 16) or the young were not brooded at all during the observation periods (days 15, 17, and 18). When the female did sit during these last days, it was for very short periods only; the longest period I recorded was 11 min and the shortest 3 min.

Because there was some behavioral variation associated with the male's participation in brooding of the young, I have organized the types of interactions between the pair into four categories:

I. The adults were visible moving through the trees in the nest area. The male approached the nest, perched on the rim for 2–3 s and then sat. Upon leaving, he might or might not join the still visible female. If he did join her, he would often feed her as well. The nest would remain without an adult bird for a period no longer than 5 min, after which the female would approach, as did the male, by standing on the rim first and then sitting. No vocalizations or displays were apparent.

II. The adults were visible moving through the trees in the nest area. The male silently approached the nest, fed the young, and then sat. The female would then do the same, feeding the young while the male remained perched on the rim of the nest. He would then fly off, and she would continue to sit. Again no vocalizations or displays were involved in this exchange.

III. The adults were visible moving through the trees in the nest area. Both birds would come in to the nest simultaneously, and both would feed the young. The female would then fly off while the male sat. She was frequently visible in the area during the time the male was on the nest. In this type of interaction, she would then approach the nest vocalizing. I heard three different types: two versions of the "jaay" cry, which I have called the long and short beep, and the "squeaky gate" (terminology after Hardy 1961). Regardless of the type of vocalization, the male would leave the nest before the female arrived.

IV. The adults were visible moving through the trees in the nest area. The male would come in, feed the young, and then sit. Again, the female would come in vocalizing as above, but in this situation the male would stay on the nest until the female had landed on the nest rim. They would then touch bills (no food was exchanged, but the bills would touch each other), and the male would fly off. The female would then sit on the nest.

Regardless of the type of exchange, the male never sat for longer than 4 min (range 2.5–4) before he was either replaced by the female or flew off.

I found no greater occurrence of one type of exchange over another or of one vocalization over another, nor did I discern any correlations in terms of prevailing weather conditions, time of day, time since the female had last left the nest, or time in the nesting cycle itself. I can draw no specific conclusions at this time but suggest that further study should reveal some important aspects of the contribution of the male to the nesting cycle of the Blue Jay.

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