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PAUL I. V. STRONG, *240 Nutting Hall, Univ. Maine at Orono, Orono, Maine 04469*; JOHN A. BISSONETTE, *Maine Cooperative Wildlife Research Unit, 240 Nutting Hall, Univ. Maine at Orono, Orono, Maine 04469*; AND RICHARD SOUZA, *1139 Sarah Sherman Road, Rochester, Massachusetts 02770*. (Present address PIVS: *Sigurd Olson Environmental Institute, Northland College, Ashland, Wisconsin 54806*; JAB: *Utah Cooperative Fish and Wildlife Research Unit, Utah State Univ., Logan, Utah 84322.*) *Received 13 Nov. 1985, accepted 3 Feb. 1986.*

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Use of fencepost cavities by nesting Eastern Bluebirds in southwestern Virginia.—Fencepost cavities are often mentioned as providing suitable nest cavities for Eastern Bluebirds (*Sialia sialis*) (Hegner 1899, Howell 1932, Zeleny 1976). Relatively little information, however, exists on Eastern Bluebirds nesting in natural cavities, as distinct from nest boxes or other artificial nest cavities. Exceptions are data from tree cavities reported by Conner and Adkisson (1974) and Pinkowski (1974, 1976). We report on the use of fencepost cavities as nest sites in the rural farmlands surrounding Blacksburg, Virginia, and on the dimensions of those cavities.

Study area and methods.—The study area lies within the Ridge and Valley Province, with elevations from 550–760 m. The general pattern of land use consists of wooded, sparsely settled ridgetops, with cleared pastures and farmlands in the valleys, along the floodplains, and along the lower slopes.

During the breeding seasons of 1976 and 1977, Eastern Bluebird nests in fencepost cavities were found by driving roads in rural areas and searching for adult bluebirds on utility wires or fencerows. Once adults were spotted they were observed until we determined presence or location of the nest cavity. We also searched fencerows on foot for nest cavities. (However, when bluebirds were present in an area their vocalizations and their perching in open areas made them conspicuous.) All nests were within 32 km of Blacksburg.

Measurements of nest cavities were made after the breeding season in 1977. Nest material was removed from the cavity before interior dimensions were taken. Measurements included (1) height of the cavity entrance, the distance from the ground to the bottom of the cavity entrance; (2) entrance diameter, the average of the vertical and horizontal dimensions of the cavity entrance; (3) interior diameter, the average of four measurements, two taken at the cavity entrance and two taken at the cavity bottom; and (4) cavity depth, the distance from the bottom of the cavity entrance to the cavity bottom. Cavity volume was calculated from interior dimensions.

Means of cavity dimensions were tested for significance using the Mann-Whitney *U*-test (Blalock 1979).

Results and discussion.—Thirty-five nests of Eastern Bluebirds in fencepost cavities were found (Table 1). Other nests found in fencepost cavities included those of European Starlings

TABLE 1

DIMENSIONS OF FENCEPOST CAVITIES USED BY EASTERN BLUEBIRDS AND EUROPEAN STARLINGS IN SOUTHWESTERN VIRGINIA, 1976–1977

	Mean ± SE (N) [range]			
	Eastern Bluebird		European Starling	
Cavity height (cm)	133.6 ± 3.8[a]	(35) [78.9–181.3]	96.8 ± 11.1	(6) [64.0–122.4]
Entrance diameter (cm)	4.8 ± 0.3[b]	(35) [3.4–11.0]	5.7 ± 0.4	(6) [4.4–6.8]
Interior diameter (cm)	7.7 ± 0.2[b]	(33) [5.8–11.9]	10.0 ± 1.2	(4) [7.4–13.0]
Cavity depth (cm)	16.1 ± 1.0[c]	(33) [6.8–35.0]	31.6 ± 3.3	(6) [24.5–46.7]
Cavity volume (cm^2)	808.4 ± 99.2[a]	(33) [252.4–2736.3]	2572.5 ± 496.5	(4) [1680.2–3919.0]

[a] Probability of significant difference between means using Mann-Whitney *U*-test, $P < 0.01$.
[b] Probability of significant difference between means using Mann-Whitney *U*-test, $P < 0.05$.
[c] Probability of significant difference between means using Mann-Whitney *U*-test, $P < 0.001$.

(*Sturnus vulgaris*) (6), Carolina Chickadees (*Parus carolinensis*) (1), House Wrens (*Troglodytes aedon*) (1), and Northern Flickers (*Colaptes auratus*) (1).

Pinkowski (1976) considered the minimum cavity depth observed in his study to be a critical minimum below which the cavity was unacceptable for Eastern Bluebirds. One fencepost cavity observed in this study, however, had a depth of 6.8 cm, 0.8 cm less than the minimum reported by Pinkowski (1976). Cavity depth may influence nesting success, with shallower nest cavities being more susceptible to predation. Indeed, the nesting attempt in the shallowest fencepost cavity failed due to predation. On the other hand, an even shallower tree cavity in this study (Pierson 1978), which had a depth of 5.2 cm, was successful.

One fencepost cavity observed in this study had an entrance diameter of 3.4 cm, 0.3 cm less than the minimum reported by Pinkowski (1976). The female at this site struggled somewhat while entering the cavity, which appeared to be close to the minimum diameter usable by Eastern Bluebirds.

European Starlings nested in fencepost cavities that had significantly larger entrance diameters, larger interior dimensions, and were closer to the ground than those used by Eastern Bluebirds (Table 1).

Thirty-two (91%) Eastern Bluebird fencepost nest cavities studied were excavated by woodpeckers, having a more or less circular entrance hole in the side of the fencepost; three (8%) were produced by natural decay, having entrances to the nest cavity from the top of the post. Fenceposts with nest cavities were probably 30–40 years old. Age and natural decay in some fenceposts had advanced to the point that some fenceposts had a side entrance originally excavated by woodpeckers, as well as an opening at the top. Others had vertical gaps along the grain of the wood, and still others had small (0.4–3.0 cm diameter) holes in the portion of the post containing the nest cavity.

Two fenceposts that contained nest cavities were replaced with new wooden posts between the two breeding seasons; the top of a third post collapsed due to decay and was not used for nesting in 1977. No new cavities made by woodpeckers were discovered during the study. Thirty fenceposts that had cavities in 1976–77 were reinspected in 1983. Of the 30, between 6 and 10 were still usable. Seven of the original fenceposts had been replaced; ten posts had decayed to the point that a cavity no longer existed; two cavities were obscured by vegetation; and a house had been built near another fencepost cavity. Dennis (1969) reported an average longevity for Northern Flicker nest cavities of two or three years, with a maximum of nine years for a fencepost cavity.

Conclusions.—Fenceposts in rural farmlands such as those surrounding Blacksburg, Virginia, can provide suitable nest cavities for Eastern Bluebirds. Conner and Adkisson (1974) recommended that standing dead snags be left in clearcuts to provide nesting cavities for Eastern Bluebirds. We recommend that steps be taken to assure the availability of fencepost nest cavities. In light of our results, we urge that landowners allow old fenceposts containing nest cavities to remain standing and to buttress them with a new, sturdier post.

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THOMAS A. PIERSON AND PATRICK F. SCANLON, *Dept. Fisheries and Wildlife, Virginia Polytechnic Institute and State Univ., Blacksburg, Virginia 24061.* (Present address TAP: *13813 Cabernet Court, Chantilly, Virginia 22021.*) *Received 28 Oct. 1985, accepted 30 Jan. 1986.*

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Little Blue Herons nesting among cattails.—Little Blue Herons (*Egretta caerulea*) are known to nest in willow (*Salix* spp.), cypress (*Taxodium* spp.), mangrove (*Rhizophora* spp.), buttonbush (*Cephalanthus* spp.), and bamboo (*Smilax* spp.) (Bent 1926, Meanley 1955, Palmer 1962, Hancock and Elliott 1978). Burger (1978) recorded Little Blue Herons nesting in poison ivy bushes (*Rhus toxicodendron*), and Rodgers (1980) reported Little Blue Herons nesting in Brazilian pepper (*Schinus terebinthifolius*), cabbage palm (*Sabal palmetto*), black mangrove (*Avicennia germinans*), mulberry (*Morus rubra*), gray nicker (*Caesalpina crista*), marsh elder (*Iva frutescens*), and white mangrove (*Laguncularia racemosa*). This paper is the first report of Little Blue Herons nesting among cattails (*Typha domingensis*), an herbaceous vegetation. Burger (1974) reported Black-crowned Night Herons (*Nycticorax nycticorax*) nesting among cattails in northwestern Minnesota.

On 1 May 1985 I observed Little Blue Herons nesting on an 1130-ha reservoir at the Savannah River Plant in Barnwell County, South Carolina. The heronry was in a dense stand of emergent cattails in 1–2 m of water, 45 m from a stand of mainly loblolly pine (*Pinus taeda*). The cattail stand was approximately 20 × 15 m, with emergent leaves about 2 m high. Nests were constructed of small hardwood twigs laid less than 1 m above the water on the top of dead, flattened cattails. Cattail leaves around the margins of each nest may have been used to stabilize the nests. Leaves were not used in linings of nests. Burger (1978) reported Little Blue Herons nesting in *Rhus* bushes less than 1 m above ground in New Jersey. The 25–30 Little Blue Heron nests were spaced about 1–2 m from each other. Similar distances between nests have been recorded by Burger (1978) and Wiese (1978). On 1 May most nests contained 3–5 eggs. No nestlings were observed on 16 May, but by 31 May, 3–4 chicks were observed at most nests.

The herons may have nested in cattails because of climatic conditions. During the first 6 months of 1985, westcentral South Carolina received 20 cm less rainfall than normal. An island herony dominated by willow 500 m to the southwest of this site had no nesting in 1981, 1982, and 1985, all low water years. During these years, lower water levels at the reservoir may have made nests at the willow herony more accessible to terrestrial mammals, thus resulting in a movement of the herons to a more desirable location over deeper water.

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