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ough-winged Swallow
. *In* The birds of North
and F. Gill, Eds.). The
es, Philadelphia, Penn-
Ornithologists' Union,

ugh-winged Swallow
Pp. 270–271 *in* The at-
ew York State (R. F.
Eds.). Cornell Univ.

lants at Tree Swallow
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ough-winged Swallow
Pp. 194–195 *In* The
ermont (S. B. Laughlin
iv. Press of New Eng-
hire.
URY, AND R. R. COHEN.
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11 (A. Poole, P. Stet-
The Academy of Nat-
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Union, Washington,

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Tool Modification and Use by an American Crow

Carolee Caffrey[1]

ABSTRACT—An American Crow (*Corvus brachyrhynchos*) was observed to modify and use a piece of wood as a probe. *Received 21 Oct., 1999, accepted 19 Feb. 2000.*

The use of tools has been described in many species of birds, including several corvids (Jones and Kamil 1973; Boswall 1977, 1978, 1983a, 1983b; Beck 1980). Members of a few species of the genus *Corvus* are known to use, and even manufacture, tools (Montevecchi 1978, Hunt 1996), yet such behavior has not been reported for other species. Here, I describe a recent observation of tool modification and use in American Crows (*Corvus brachyrhynchos*).

As part of a study on American Crows in Stillwater, Oklahoma, I marked individuals with patagial tags and colored leg bands. On 21 September 1999, while observing three members of a family of five crows foraging in a residential area, I saw the lone unmarked individual walk along a wooden fence railing to the end post. With its bill, it attempted to probe the interior of the hole supporting the railing but the space was too small for the bird to penetrate very far. The crow then pecked at the wood surrounding the hole and loosened a section at the top, which it pulled until a triangular piece broke off. It took the piece of wood and placed it under its feet, with the

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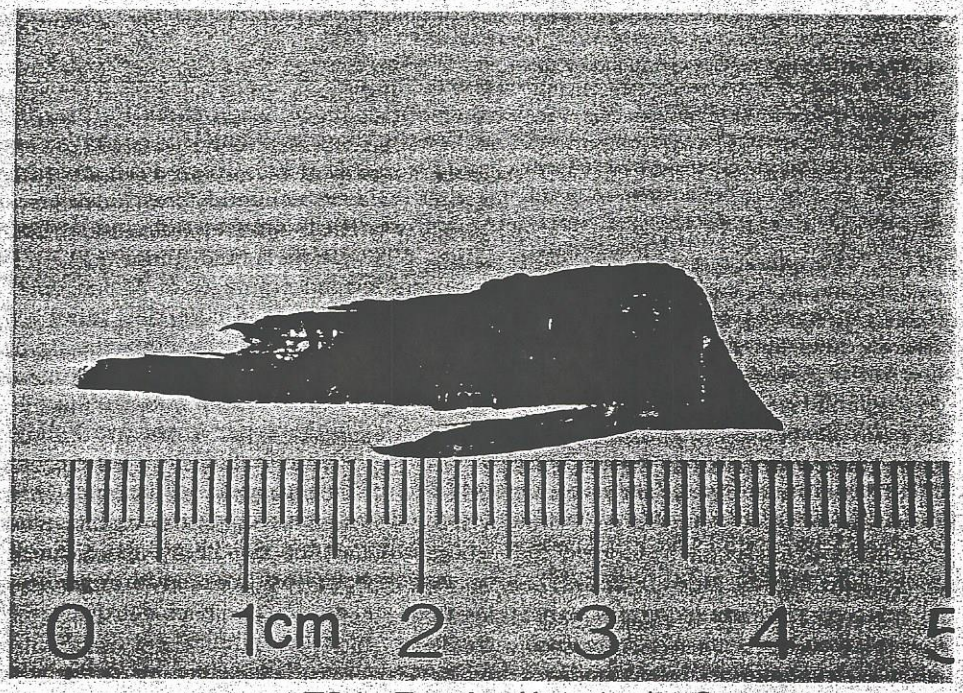

FIG. 1. The tool used by an American Crow.

wide end closest to its body, and hammered several times at the tapered end. It then picked up the piece of wood by the wide end and probed the hole with the pointed end for approximately 20 seconds. The female breeder, who had just left the area, called from a tree about 200 meters away and the individual probing the hole stopped and looked toward her. It turned and placed the tool into the hole and flew to join the female. I went to the hole, saw only the remains of a spider's web inside, and retrieved the piece of wood (Fig. 1). It did not match exactly the gap from which it had been pulled; the tapered end had been narrowed. A few days later, when I approached the post, a large spider dashed out of the hole and disappeared.

LITERATURE CITED

BECK, B. B. 1980. Animal tool behavior: the use and manufacture of tools by animals. Garland STPM Press, New York.

BOSWALL, J. 1977. Tool-using by birds and related behaviour. Avic. Mag. 83:88–97, 146–159, 220–228.

BOSWALL, J. 1978. Further notes on tool-using by birds and related behaviour. Avic. Mag. 84:162–166.

BOSWALL, J. 1983a. Tool-using and related behaviour by birds: more notes. Avic. Mag. 89:94–108.

BOSWALL, J. 1983b. Tool-using and related behaviour by birds: yet more notes. Avic. Mag. 89:170–181.

HUNT, G. R. 1996. Manufacture and use of hook-tools by New Caledonian crows. Nature 379:249–251.

JONES, T. B. AND A. C. KAMIL. 1973. Tool-making and tool-using in the northern Blue Jay. Science 180: 1076–1078.

MONTEVECCHI, W. A. 1978. Corvids using objects to displace gulls from nests. Condor 80:349.

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First Description of Nest and Nesting Behavior of the Nightingale Wren

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ABSTRACT.—Nests and nesting behavior of the Nightingale Wren (*Microcerculus marginatus*) in Panama are described. Two nests were found at the ends of horizontal burrows in dirt banks, presumably excavated by other species. The nest chambers were lined with dead leaf fragments. Clutch sizes were two and three eggs. Incubation period was 19 or 20 days for one nest, and the nestling period was 16 or 17 days for the second nest. A comparison of nests in the Troglodytidae shows the nests of *M. marginatus* to be most similar to those of the genera *Salpinctes*, *Catherpes*, and *Hylorchilus*, all of which are secondary cavity nesters. If nest type is a phylogenetically conserved characteristic, then these four genera may be more closely related than is reflected in current classifications. *Received 29 June 1999, accepted 13 Nov. 1999.*

The Nightingale Wren (*Microcerculus marginatus*; A.O.U. 1998; Troglodytidae) is a terrestrial resident of humid forest undergrowth from Costa Rica south to Bolivia and Brazil (Stiles 1983, Ridgely and Tudor 1997). The vocalizations and plumages of *M. marginatus* have been described (Slud 1958, Stiles 1983, Hardy and Delaney 1987); however, its nest and nesting behavior are unknown. Hilty and Brown (1986) noted a bird "nest building" on 15 February in the upper Anchicayá Valley of Colombia, but we could find nothing they published about the nest. Schönwetter (1979) described one repaired egg from Venezuela as white, but mentioned nothing about the nest or nesting behavior. Lack of information on the nests and nesting behavior of tropical birds hinders comparative studies and development of conservation plans. Here we describe the first known nests of the species and nesting

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