

TOOL USE BY THE FAN-TAILED RAVEN (*CORVUS RHIPIDURUS*)¹

STAFFAN ANDERSSON

Department of Zoology, University of Göteborg, Box 25059, S-400 31 Göteborg, Sweden

Key words: Tool use; Fan-tailed Raven; *Corvus rhipidurus*.

Tool use has been documented in a number of bird species (E. O. Wilson, 1975, *Sociobiology*, p. 172, Harvard Univ. Press, Cambridge). The use of twigs by the Woodpecker Finch *Cactospiza pallida* to dig out insects from tree bark and the habit of dropping stones onto eggs recorded in Egyptian Vultures *Neophron percnopterus* are among the more well-known examples. In corvids, the Common Raven *Corvus corax* is known to drop bones in order to crack them, although this is not tool use in the strict sense, meaning use of an inanimate object as a functional extension of the animal's own body (D. McFarland [ed.], 1987, *The Oxford companion to animal behaviour*, p. 575, Oxford Univ. Press, Oxford). The Common Raven has also been reported to loosen rocks and drop them onto intruders (S. W. Janes, 1976, *Condor* 78:409), although this finding has been suggested by Bernd Heinrich (1988, *Condor* 90:270–271) to be an incidental consequence of a type of displacement behavior found also in other corvids. I report here on a single but very clear observation of tool use by the East African Fan-tailed Raven *Corvus rhipidurus*.

On 7 December 1987 at a camping ground at Lake Baringo, Kenya, I watched for several minutes a Fan-tailed Raven handling a ping-pong ball that it obviously believed to be an egg. When I first noticed the raven

it was flying with the ball in its bill and landed some 20 m away from me. It dropped the ball to the ground (in loose sand, so the ball did not bounce) and started to hammer it with its bill in short bursts of activity for about 30 sec, without success. The raven then got hold of a stone, about half the size of a fist, lying nearby. It could not lift the stone (it seemed to try!) but dragged it close to the ball and, with the aid of its bill, flipped the stone over the ball, again of course with no other result than the ball rolling away a little. The raven then picked up a smaller stone (2–3 cm in diameter) and, holding it in its bill, hit the ball with it four or five times before dropping the stone (not on the ball). After this last failure to crack the ball, the raven picked it up and flew away.

Apparently, this bird had prior experience with eggs, but unfortunately I have no idea from which species. It is interesting that the raven was "fooled" by an extremely light object such as a ping-pong ball, which suggests that it judged the contents of the object by its appearance only, not by its mass. The observed action pattern when handling the "false egg" strongly indicated that at least this individual Fan-tailed Raven regularly used stones as tools (in the strict sense) to crack eggs that resisted hammering by the bill. Unlike the behavior of the Egyptian Vulture, this raven did not drop the stone onto the "egg." However, it is quite possible that this method is also used sometimes, as the "behavioral step" from striking the egg with a stone to dropping the stone onto the egg is probably small.

¹ Received 5 April 1989. Final acceptance 1 June 1989.

I thank an anonymous reviewer for helpful comments.