

## Short Notes

### Tool Use by a Mountain Chickadee

A Mountain Chickadee *Parus gambeli* in a flock of eight was observed using a very unusual foraging method that I have interpreted as tool use. The incident occurred on 17 July 1980 at 0920 MST in Ponderosa woods of the Dry Lake Hills, just north of Flagstaff, Coconino County, Arizona.

The chickadee was foraging about seven meters up on a dead, barkless tree. It began very excitedly probing with its bill a vertical crack about one cm wide and about one half meter long. It pecked at the side of the crack and pulled off a splinter about five cm long, having a grip on the splinter about two cm from one end. It then pushed the long end of the splinter back into the crack and probed several times. It moved down the crack again and probed with the splinter once more before flying to an adjacent tree, still carrying the splinter in its bill. It held the short end of the splinter with its foot and pulled it through its bill until it had the other end in its bill. It then made several chewing movements on the splinter before discarding it and flying off. I had seen nothing impaled on the end of the splinter before the chickadee pulled it into its bill.

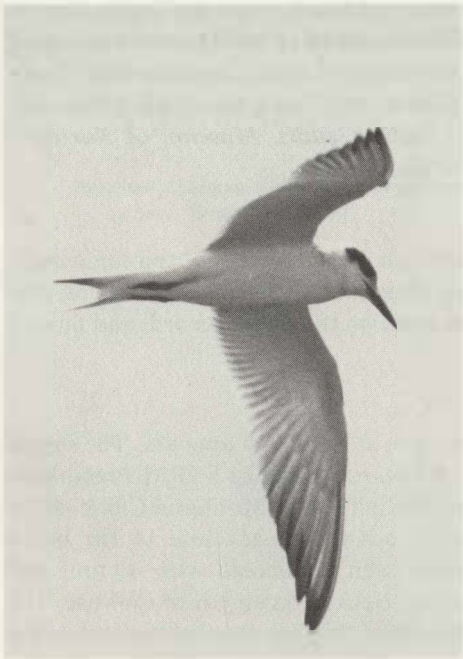
Mountain Chickadees frequently excavate in decayed wood, usually flipping removed chips over their shoulder. In over 100 hours observation of this species, this was the first time it was seen to use one of the removed pieces as a tool. This incident is reminiscent of tool use by the Galapagos finches described by Millikan and Bowman (*Living Bird* 6:23-41), which use cactus spines and sticks to extract insect larvae. To my knowledge, no other example of tool use has been reported for a Mountain Chickadee or for any other North American parid. — Philip Gaddis, *Museum of Northern Arizona, Route 4, Box 720, Flagstaff, AZ 86001.*

*Editor's note:* Tool-using by birds is uncommon. The subject has been extensively reviewed by Jeffery Boswall (1977, *Avicultural Magazine* 83: 88-97, 146-159, 220-228; 1978, *op. cit.* 84: 162-166). I asked him to comment on the above record, and he sent the following reply. — K.K.

To define tool-use is much more difficult than at first sight appears. The recent volume by Benjamin B. Beck (*Animal Tool Behaviour*, Garland STPM Press, New York, 1980) makes this very clear. In the case of Philip Gaddis' Mountain Chickadee it would be difficult to credit any interpretation other than tool-use to the bird's observed behaviour. However the bird was not seen to succeed with its tool and therefore, *pro tem*, the instance can really only be regarded as apparent tool-use. The fact that in over 100 h of observations on this species this was the first time that tool

behaviour has been observed might mean that tool behaviour is not a regular behavioural trait among these chickadees. Further, the fact that the species in any case works with wood to excavate its nest hole means that opportunities to employ a splinter as an implement must have occurred many, many times. And yet the species (like, apparently, the vast majority of the world's birds) has not become a tool user. This in turn suggests that only in exceptional circumstances is the use of an external object a more parsimonious path for natural selection than the evolution of body structures or other behavioural traits to solve the same problem. Thus when we come across a lone observation of a species apparently using a tool, we are tempted to ask is the explanation that — to word it teleologically — it is an experiment that doesn't pay off?

I used to think that the fragmentary nature of much of the data on tool using by wild birds was due to inadequately-systematic observation, and no doubt this *may* to some extent be the explanation. I now think that the observers may have been witnessing some "errors" in a process of trial and error learning. Two other individual instances of parids (two Blue Tits *Parus caeruleus*) using a piece of vegetation as a poker or prod are given in my 1977 paper (p. 150), as are *single* instances of individual birds of six other passerine species using an elongate object as a probe. Of these three were seen to succeed. But even success with a "new" method of food extraction need not mean that the behaviour pattern will be "taken up" as part of a species' behavioural repertoire. It may still be a less economic method of foraging. It must be added that there is of course one bird species well known regularly to employ a probe, and at least two others that are almost certainly regular in their use of such an instrument. — Jeffery Boswall, Birdswell, Wraxall, Bristol BS19 1JZ, England.



The challenge in the preceding issue featured this tern, photographed at a southern beach in autumn. Can you identify it to species?

## Answer to Snap Judgment 6

KENN KAUFMAN