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Planning to Facilitate Caching: Possible Suet Cutting by a Common Raven

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ABSTRACT.—Many species of birds feed on suet in winter. As far as is known, they all take bite-sized chunks by pecking into this food randomly and/or they tear off protruding pieces. I compared the peck-marks left on suet by Blue Jays (*Cyanocitta cristata*) and American Crows (*Corvus brachyrhynchos*) with those left by Common Ravens (*Corvus corax*). Although most ravens feed like jays and crows, at least one individual made distinct grooves, aligning dozens of consecutive pecks, apparently to cut transportable chunks off large suet blocks. *Received 28 Aug. 1998, accepted 7 Jan. 1999.*

The Common Raven, *Corvus corax*, is a feeding generalist (Bent 1946, Ratcliffe 1997). Ravens feed on carrion (Ewins et al. 1986), fruit, grain, eggs, and “garbage” (Nelson 1934, Marquiss and Booth 1986, Engel and Young 1989). Ravens also capture insects, reptiles, amphibians, fish, small mammals, and other birds (Marr and Knight 1982, Camp et al. 1993). I here describe a raven removing fat from a chunk of suet in an unusual or aberrant way that differs markedly from the method used by jays, crows, and most other ravens.

Chunks of beef suet that were either of sufficient size so that they could not be carried off or that were nailed onto the frozen ground

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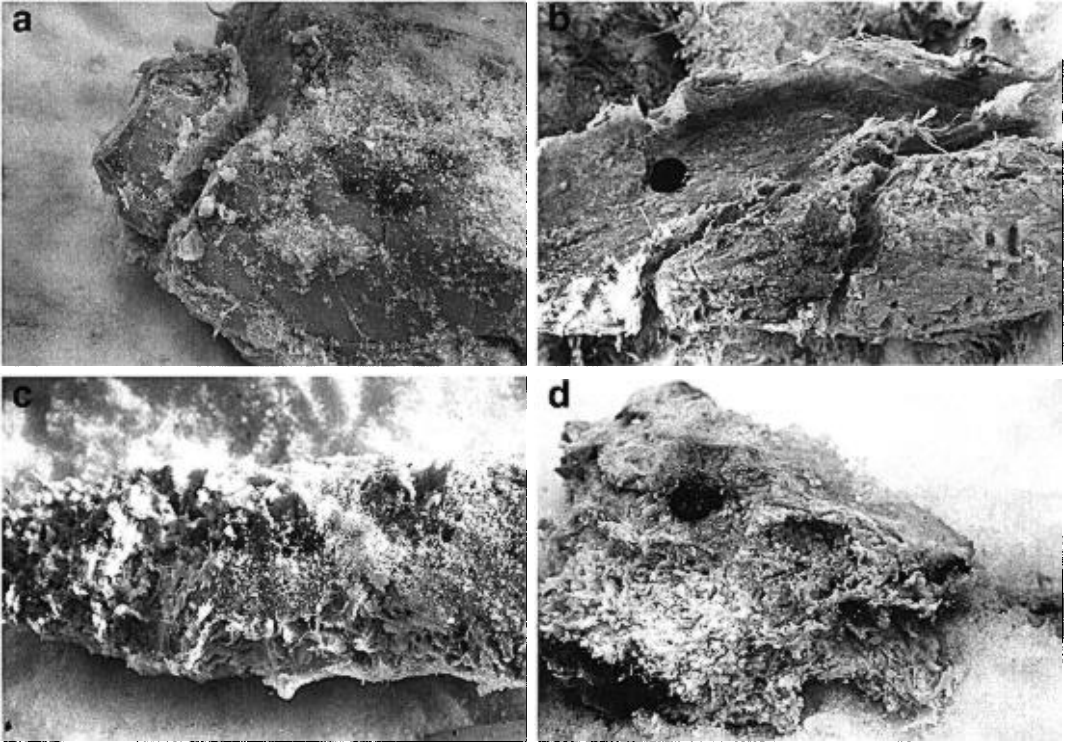


FIG. 1. Two top photographs show grooves left by ravens in suet when they were interrupted while feeding in the wild. A: Deep (1–2 cm) groove in a clear block of beef suet. B: Two grooves cut into suet adhering to ribs. C: Typical pecking pattern in suet by American Crow. D: Typical pecking pattern in suet by a Blue Jay. (Right two pictures show heads of spikes used to secure the suet onto frozen ground so that it could not be carried off.)

were provided in the forest near Hinesburg, Vermont. For many years the following species fed on suet at this site: American Crows (*Corvus brachyrhynchos*), Blue Jays (*Cyanocitta cristata*), Hairy (*Picoides villosus*) and Downy woodpeckers (*Picoides pubescens*), Black-capped Chickadees (*Poecile atricapillus*) and White-breasted Nuthatches (*Sitta carolinensis*). All of these birds fed on suet by picking into it and/or taking the most prominently protruding pieces.

On one occasion a raven flew away from the feeding station as I approached, and the pattern of pecks the raven had left on the suet was distinctive (Fig. 1A). The raven had carved a 7.5 cm long (and 1–2 cm deep) groove. I presume that I had interrupted the bird just before it had finished the task of cutting a smaller chunk of suet off the larger. The same chunk of suet had what appeared to be a pattern of a previous parallel cut (2–3 cm

anterior to the unfinished cut) where the bird had already removed one slice of fat. The readily available small pieces of frozen suet chips (2–3 mm) that had been loosened were next to the groove (Fig. 1A).

When I interrupted two ravens as they were feeding on the suet at the same site on three later occasions, I found similar grooves and only raven tracks around this suet. When I left suet that was firmly attached to ribs, the ravens cut grooves through the fat down to the bone underlying the fat. No suet chunks could be removed, but the bird(s) then cut another, parallel groove (Fig. 1B). Crows and Blue Jays whose feeding patterns were observed routinely at the same site always left only peck-marks, never grooves (Fig. 1C, D). At no time have I observed groove cutting in caged ravens that I watched routinely. Neither have I seen such behavior in hundreds of

hours of watching groups of ravens feeding on frozen muscle meat in the wild.

What accounts for the ravens' unique feeding patterns on suet? The peck marks were clearly aligned in rows. Each peck could have provided only a small immediate reward, but it made possible the removal of a large chunk of fat and hence a large reward later. Since loose "crumbs" of fat were left (Fig. 1A), the delayed (greater) reward was apparently of more importance to the birds than the small proximate reward. Ravens exhibit similar apparent foresight during some aspects of their caching behavior (Heinrich and Pepper 1998).

Food access behavior is of interest because it has traditionally provided a tool for examining cognition. Examples with corvids include studies of memory (Balda and Kamil 1989, Kamil and Balda 1985, Bednekoff et al. 1997), tool use (Hunt 1996), optimal foraging (Zach 1979, Waite and Ydenberg 1994), and insight learning (Heinrich 1995).

The fat cutting behavior is probably very rare in ravens and it is not likely an innate or hard-wired response. Therefore, the raven could have had insight of how to remove a large chunk of food for storage and/or later consumption.

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