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FOOD CACHING AND ITS POSSIBLE ORIGIN IN THE BROWN CREEPER¹

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We report here the first observations of food caching in the Brown Creeper (*Certhia americana*) and the family Certhiidae. We have not located other such observations in the ornithological literature, nor have recent reviews of food hoarding in birds (Smith and Reichman 1984, Källander and Smith 1990, Vander Wall 1990) mentioned food caching in the Certhiidae. These observations extend to seven the number of passerine families known to contain food hoarders (following Vander Wall 1990, excluding a questionable report in the Sturnidae). We also consider briefly the possible evolutionary origin of food hoarding in the Certhiidae.

Brown Creepers were observed caching small bits of sunflower seed kernels during a winter study on the foraging behavior of Black-capped Chickadees (*Parus atricapillus*; see Lima 1985); the importance of these observations has become apparent to us only recently. During this study, chickadees, and incidentally, Brown Creepers, were presented with a feeder containing bits of sunflower seed kernels ranging in size from 3 to 17 mg. Only one food item size was available during a given day. The feeder was 1 m off the ground, and

placed in the open understory of a mature, 3 ha red pine (*Pinus resinosa*) plantation surrounded by a hardwood forest (near Rochester, New York).

Brown Creepers frequently forage in mixed-species flocks formed around parids (Morse 1970), and they were often observed feeding on nearby pines when chickadees were visiting the feeder. Although the sunflower seed food was available each morning for 1.5 hr from late December, 1983, through March, 1984, creepers were not observed visiting the feeder until early February. After this time, creepers visited the feeder 27 times during seven of the remaining 20 morning observational sessions conducted over a 40 day period.

A Brown Creeper's typical feeder visit consisted merely of swallowing several bits of sunflower seeds before departing. However, on at least five feeder visits during three observational sessions, creepers (numbers unknown) cached several food items in the bark of nearby trees. They tended to do so when relatively few chickadees were present. Brown Creeper caching behavior was similar to that of nuthatches (*Sitta* spp.; Kilham 1974, Petit et al. 1989). A caching bird would carry a single food item to the trunk (20–30 cm in diameter) of a nearby red pine tree, and then carefully thrust it upward into a crevice in the bark. They made no attempt to cover their caches as do nuthatches (Kilham 1974), but caches were nonetheless difficult to detect from a distance of 1–2 m.

The creepers "scattered" food items singly (cf. Käl-

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lander and Smith 1990, Vander Wall 1990) ca. 4–6 m off the ground in a single tree or set of adjacent trees. From 3–10 items were cached in rapid succession during a single bout of caching, which always occurred at the end of the creeper's visit to the feeder site. The creepers showed no apparent preference for caching any particular item size, nor did ambient air temperature (from -16° to -3°C) appear to influence caching, but observations are too few to draw firm conclusions on these points.

Retrieval of cached food items was never observed, perhaps because observations were limited to relatively brief (1.5 hr) morning sessions. Many small food-hoarding birds, parids and nuthatches among them, preferentially cache food in the morning and retrieve food later in the day (Vander Wall 1990; Waite and Grubb 1988).

The Certhiidae contains at least one food-hoarding species, but is food caching in creepers evolutionarily unique to this group? The apparently very close phylogenetic relationship between the Certhiidae and two well-known families of food hoarders, the Paridae and Sittidae (Sibley and Ahlquist 1990), suggests that food-hoarding in certhiids may not be evolutionarily unique, but arose in the ancestor that certhiids share with parids and sittids (cf. Brooks and McLennan 1990). That is, these three families may share a common origin of food hoarding behavior. Alternatively, these families may merely share a common ancestry of certain feeding methods or food preferences that led to multiple independent origins of food hoarding, perhaps including one in creepers. However, given the apparently widespread occurrence of food hoarding in the Paridae and Sittidae (Vander Wall 1990, but see Sherry 1989), the "common origin" hypothesis is evolutionarily more conservative than one of multiple origins (as reflected in the principle of parsimony; Brooks and McLennan 1990). If correct, this hypothesis also implies that a large fraction of passerine food hoarders (parids and sittids) may derive from a single evolutionary origin of food hoarding behavior.

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