

Notes

Chipping Sparrow Feeds Young of Eastern Kingbird

Janet Foster and Ron Tozer

On 10 July 1999, Foster discovered an Eastern Kingbird (*Tyrannus tyrannus*) nest containing three young, near the village of Tweed, Hastings County, Ontario. The nest was approximately 7 m from the ground, in an elm (*Ulmus* sp.) that was about 11 m in height. With the assistance of her husband John, Foster proceeded to set up their video camera on the kingbird nest to obtain footage of the parents feeding the young. Within seconds of focussing the 500 mm lens on the nest and rolling the camera, the first bird arrived at the nest ... and it was a Chipping Sparrow (*Spizella passerina*).

The sparrow stuffed a small green caterpillar into the gaping beak of a young kingbird, then hopped onto the nest, and began what at first appeared to be "nest maintenance". It went all around the nest, poking and probing at the grasses, vacating only when one of the parent kingbirds arrived. This amazing occurrence marked the beginning of four days of filming and observing the pair of kingbirds and the Chipping Sparrow as they cared for the three young kingbirds.

One adult kingbird (believed to be the female, since it brooded the young) appeared to pay little or no

attention to the Chipping Sparrow. Frequently this kingbird would perch on an adjacent branch, seemingly not in the least concerned by the presence of the Chipping Sparrow right in the nest. This seemed highly unusual, given that kingbirds are known for their aggressive behaviour toward other species near their nests. However, the other adult kingbird (presumed to be the male) was not so tolerant; it was seen to dive at the Chipping Sparrow at least twice, and "snapped" its bill occasionally when the Chipping Sparrow approached the nest during the kingbird's presence. The Chipping Sparrow would leave the nest a split second before this kingbird arrived, and return again the moment this adult departed.

Not long after filming began on 10 July, it started to rain. One adult (female?) kingbird settled down over the young to brood, just as the Chipping Sparrow arrived with another green caterpillar. A tiny head shot out from under the brooding adult, and the sparrow fed the caterpillar to the young kingbird. This performance was soon repeated again, as the Chipping Sparrow returned with yet another green caterpillar.

Over the next four days, it

became apparent that the Chipping Sparrow was not only helping with the feeding and nest maintenance, it was also removing fecal sacs. At one point, John Foster saw the sparrow even “defend” the nest, as it chased a Black-capped Chickadee (*Poecile atricapilla*) away from its vicinity. After feeding the young kingbirds one afternoon, the Chipping Sparrow perched on an overhead branch and sang. Confirmation that it was indeed a male came later, during viewing of the video footage, when Mary Gartshore detected the sparrow’s cloacal protruberance. Gartshore also identified the apparent “nest maintenance” by the Chipping Sparrow as “mite eating”. The sparrow spent considerable time poking and probing within the kingbird nest structure, apparently gleaning mites, which it consumed.

By 13 July, the young kingbirds were hopping out of the nest onto nearby branches. With the nest now empty, the Chipping Sparrow spent even more time gleaning mites from within it. The sparrow continued to bring caterpillars to the young kingbirds, but not nearly as frequently. On occasion, an adult kingbird and the three young would perch in a row on a branch, with the diminutive Chipping Sparrow perched between two of the young – a remarkable sight!

Foster left for Alberta on a filming assignment on 14 July, and so was unable to continue the observations. However, a friend saw the kingbirds and the Chipping Sparrow still together in the nest tree on 17 July.

Over two hours of video tape were obtained of this amazing event, and questions about the frequency of occurrence of such behaviour and why it would occur were raised.

Discussion

Shy (1982) undertook an extensive literature search concerning “the feeding of one bird by another of a different species”, and summarized 140 cases of this “interspecific feeding”. Adopting birds were represented by 65 species of 22 families, while birds that were fed were represented by 71 species of 22 families (Shy 1982). Skutch (1976) concluded that “the known combinations of species that enter into these relationships are diverse enough to suggest that every species of altricial birds has occasionally helped another altricial species of somewhat similar size with which it has been associated over a wide area for many years”. So, this behaviour is certainly not rare, although it is infrequently observed and reported.

Shy (1982) organized the published interspecific feeding occurrences into eight categories based on “their probable proximate causes”. Some observations of this behaviour involved more than one of these categories, and there was a large “miscellaneous” group which included instances where the circumstances were not known or not recorded. Interspecific feeding summarized by Shy (1982) occurred in the following types of circumstances: mixed clutches involving nest sharing or egg dumping (espe-

cially in hole-nesting species where there is intense competition for nest sites); feeding another species after their own nest or brood was destroyed; nests of two species located close together (especially where the nestlings that hatch first receive the attention of one or both birds of the other pair); the calling and begging of young birds apparently triggering the behaviour; feeding orphaned broods; males feeding at another species' nest while their mates incubated (and sometimes continuing after their own young hatched); and mateless birds (either a "single" adopting bird or a "widowed" parent bird).

Skutch (1976) noted that male birds are often so eager to feed nestlings that they may even offer food to their unhatched eggs. The feeding of a neighbour's offspring "may provide an outlet for repressed energy", and the nearest nests are likely to belong to some other species (Skutch 1976). Perhaps the most bizarre published example of interspecific feeding involved a male Northern Cardinal (*Cardinalis cardinalis*) that was observed feeding seven goldfish (*Carassius auratus*) in a garden pool for several days (Lemmons 1956). The goldfish, apparently accustomed to being fed by humans, crowded to the edge of the pool with their mouths open, and the cardinal (standing on the pool edge) fed them mouthfuls of worms, as can be seen clearly in a photograph by Lemmons (Welty 1963).

In addition to interspecific feed-

ing, "less frequent modes of helping are nest building, incubation, brooding the young, cleaning the nest, and allopreening" (Skutch 1976). "The relations between the helpers and the parents of the young that they attend" may be friendly, hostile, or neutral (Skutch 1976).

There have been several published reports of interspecific feeding involving either the Chipping Sparrow or the Eastern Kingbird with other species, but we were unable to find any previous accounts describing feeding between these two species. Female House Sparrows (*Passer domesticus*) were observed feeding fledgling Eastern Kingbirds in Kansas (Fitch 1949) and in Louisiana (Hamilton 1952), and the parent kingbirds were not seen in both cases. In Wisconsin, Snyder (1913) reported the adoption and feeding of a fledged brood of three Eastern Kingbirds by an unmated Eastern Wood-Pewee (*Contopus virens*) for about 10 days after the kingbird parents disappeared following an electrical storm. Finally, Jackson (1941) observed a pair of Chipping Sparrows that fed a brood of Purple Finches (*Carpodacus purpureus*) and their own young, where the nests were just one tier of branches apart in a small spruce (*Picea* sp.).

Acknowledgements

We appreciated the assistance of John Foster in the field, and the help of Dan Strickland with references. The comments of Ron Pittaway on an earlier draft were very helpful.



Figure 1: Chipping Sparrow and young Eastern Kingbirds in nest. Photo by *John Foster*.



Figure 2: Chipping Sparrow feeding young Eastern Kingbird. Photo by *John Foster*.

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Janet Foster, 830 Crookston Road,
R.R. 5, Madoc, Ontario K0K 2K0

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Subnival Foraging by a Golden-crowned Kinglet

Ross D. James

Snowfall in temperate or arctic regions of the world presents a challenge to many animals that try to overwinter there. For birds in particular, snow covers many sources of food on or close to the ground. And unless such snow can be relatively easily scratched, shaken, or flicked off food, it is probably not energetically worthwhile for birds to move snow in order to find food. Species such as grouse, spending much of their lives on the ground, seem to resort largely to what is available above the snow, often high in trees. Even ptarmigan that may burrow into snow to roost, pick at exposed vegetation mainly, although they will scratch through soft snow to expose plant foods (Holder and Montgomerie 1993, Hannon et al. 1998). Although Great Gray Owls will plunge-dive into snow to capture rodents (Nero 1980), raptors generally wait for food to appear on the snow.

But quite apart from moving snow, it is also possible to find food beneath snow without moving it, by entering small openings to cavities remaining under snow where it has accumulated on top of bent-over vegetation. I would expect that small birds regularly foraging on the ground would readily enter relatively light snow-covered spaces.

However, in these situations, they would largely be moving laterally, or nearly so, into spaces canopied by snow, where some of the vegetation was still visible above the snow.

However, few birds have been observed dropping vertically down into confined spaces in deep snow where vegetation is largely or completely buried. This seems to be a topic about which very few observations have ever been made, or using such subnival spaces through long winters seems to be something few birds have exploited to help them survive. Common Redpolls (*Carduelis flammea*) have been observed feeding in snow tunnels during winter in Alaska, where no vegetation was above the snow (Cade 1953). But it does not seem to be known for Snow Buntings (*Plectrophenax nivalis*), which readily enter burrows among stones where they place their nests. Nor have I found reference to subnival foraging for any other northern-wintering birds.

Observations

On the afternoon of 8 February 2001, about 1600h, I was plowing snow on my driveway through an area wooded mainly with white cedar (*Thuja occidentalis*), and a few scattered deciduous trees. It

was a winter of heavy snow, with at least 75 cm accumulated on the ground in the open. It had been snowing all day and tree boughs were heavily laden. The temperature was about minus 3°C, and had been below freezing all day.

I saw a small bird drop into an opening beside a leaning cedar stump and disappear down into the snow. I stopped the tractor and was walking closer when it re-emerged, after about 30 seconds, flew around me across the driveway, and again dropped into a small hole in the snow. This time it disappeared for about one minute. It then flew up into low branches of the cedars, and I was able to confirm that it was a Golden-crowned Kinglet (*Regulus satrapa*), as it foraged away in a more usual fashion. The way it flew to the second hole without hesitation suggested that it might have been there before.

Discussion

Golden-crowned Kinglets have been known to forage on the ground, but are rarely below 2 m, typically foraging on smaller branches well up in trees (Ingold and Galati 1997). They are not known to roost under snow in winter, and my observations were made at least half an hour or more before they might have been expected to roost for the night.

Golden-crowned Kinglets prefer to winter where there is typically snow cover of some extent

(Lepthien and Bock 1976). In such areas, there seems to be plenty of food on conifers, and they are opportunistic foragers, taking a wide variety of invertebrate items (Heinrich and Bell 1995). Even among snow-laden trees, they seem well adapted to foraging there, so it seems strange that they would be attracted to subnival foraging.

There could also be distinct disadvantages to foraging in snow caverns. Light levels might restrict their ability to forage effectively. Kinglets apparently do not take insects hidden from view (Heinrich and Bell 1995). My observations were made on an overcast day, among cedars, and late in the afternoon, further contributing to low light levels. However, as dwellers of conifer forests, they may be able to see well in restricted light. There could also be mammalian predators in subnival spaces, or such predators might trap the birds in there. Weasels and squirrels commonly enter and use such spaces.

There is a possibility that this bird was seeking something other than food, such as water or vegetable matter. But, they are not known to eat vegetable material (Ingold and Galati 1997), and with the temperature below freezing all day, water may not have been available. However, there are moist places in many spots through this low lying area, and under deep snow the temperature might have been high enough that water could

have been present. But, just what the bird was doing remains unknown.

Despite some potential hazards or difficulties, it seems that more birds ought to take advantage of subnival spaces for winter foraging. It is a thermally protected environment for them, as well as for some invertebrate prey that would make searching such spaces worthwhile. For seedeaters, it could provide easy access to quality food. That a species such as a kinglet would forage under snow suggests perhaps subnival foraging is used much more than observed, but remains poorly documented.

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Ross D. James, R.R. 3, S1480, Concession 7, Sunderland, Ontario L0C 1H0

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Forest Tent Caterpillars and Birds

David H. Elder

Participants in the 1-2 June 2001 Ontario Field Ornithologists' birding tour to Rainy River had the opportunity to experience a major insect infestation and see its effects on the forests of the area. For the second year, Forest Tent Caterpillars (*Malacosoma disstria*) had completely defoliated the trees in the predominantly Trembling Aspen (*Populus tremuloides*) forests. They had also eaten willow (*Salix sp.*), alder (*Alnus sp.*) and other shrubs, and left the landscape looking like it would in November. The occasional conifer and the ferns and grass in the ground cover were the only greenery in the forests.

Once the caterpillars had eaten all of the leaves on a tree, they moved to another. This was done by lowering themselves to the ground on a self-produced silken thread, and then crawling to and up another tree. This species does not build a tent. Since millions of caterpillars were on the move, their threads abounded in the forest and made walking therein very unpleasant.

As the tour group was watching a flock of Pine Siskins (*Carduelis pinus*) in a defoliated aspen stand on 1 June, one bird was noticed in some difficulty. This siskin had become entangled in a number of silken threads hanging abundantly

from the leafless trees and its efforts to escape were unsuccessful. Robin Dawes and Darlene Salter braved the bugs and ticks, entered the forest, and were able to capture the bird. As the rest of the group looked on, it took several minutes to disentangle the Pine Siskin from the surprisingly strong threads and release it.

A week later, another observer reported a Veery (*Catharus fuscescens*) trailing a skein of caterpillar threads from one leg as it flew through the trees. Although larger and stronger than a Pine Siskin, it is still possible that the threads could have eventually caused the Veery some trouble.

What other effects does a Forest Tent Caterpillar infestation have on the birds that live in the defoliated woodlands? Undoubtedly, they provide some food for some species. On the negative side, they eat all the leaves that other insect larvae depend on and likely reduce food availability for adult and young birds. Since the trees have no leaves, many nests are exposed to the elements and also likely suffer a higher rate of failure. In addition, birds in general are more exposed to predators in the leafless trees.

Of course, the long term effects of the Forest Tent Caterpillar on

birds are negligible, as infestations of this magnitude occur on a cyclic basis and are a normal part of the forest ecology and evolution in the

area. Still, it was very interesting to see some of the immediate effects and to realize the power of the insect world.

David H. Elder, Box 252, Atikokan, Ontario P0T 1C0

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