BEHAVIOR-WATCHING FIELD NOTES

by Donald and Lillian Stokes, Carlisle

In order to encourage as much participation as possible, the authors would be glad to have you call in your observations of bird behavior. We are interested in all interactions between birds. Whatever you see is important. It may never have been recorded before or even if it has, it is important to hear about it again, for additional observations always create additional information. So, Bird Observer now has a "Behavior Hot-line." Call 369-8488 and ask for Don or Lillian Stokes, or send your observations on 3 x 5 cards to Behavior Field Notes, 52 Nowell Farm Road, Carlisle, MA 01741.

FIELD NOTES ON BEHAVIOR

Since our last issue we have received some behavior observations from John Andrews, and they are fine examples of the type of behavior that we all see but rarely take the time to observe carefully and record. The first two observations describe wing-quiver displays; the second two describe tail-spreading displays.

3/22/81 Tufted Titmouse
Female gave very high "teeteetee" call while quivering wing-tips and remaining in a horizontal posture. After displaying like this for about ten seconds, it flew a few feet and sang normal song, "peer, peer," four times. Another titmouse a short distance away seemed to answer with the "peer, peer" song. The first bird flew down into a thicket, and the second bird was never seen.

4/30/81 Purple Finch
A female was with a larger flock in maples. She fluttered her wings with primaries extended and simultaneously gave high-pitched thin notes, about four per second. She was perched above another female that seemed to be the object of her display, but there may have been a male hidden nearby in the foliage.

Comment: Wing-quivering is a common display in the repertoire of many of our smaller species, and it is always fascinating to see. Two common circumstances under which it is given are the following: by fledglings when they are being fed by their parents and by adult females when they are being fed by their mates during courtship and during the early stages of breeding. It can also be done by either male or female in aggressive encounters and in pre-copulatory displays. Wing-quivering is usually accompanied by high, thin calls as in both of the above examples. This association may be due to the visual display being conspicuous and therefore needing a call that is harder for predators to locate, a characteristic of high, thin calls.

In the example of the Tufted Titmouse, the displaying bird was probably a female (there is no way to tell from appearance), and she was probably in a stage of courtship where mate-feeding takes place. Her mate may well have been the bird that seemed to answer her "peer, peer" song, for titmice pairs keep in close contact during courtship. We know less about the behavior of Purple Finches, but since the displaying bird was in a flock, the wing-quivering may have been an aggressive display used to express dominance during feeding.

It used to be assumed that since fledglings did this display when getting food, it reflected begging and subordinance. But a new interpretation by Smith (1980) points out that wing-quivering can also be a display of dominance and intimidation. She suggests that in many species females dominate males during breeding, when they are fed by the male, and that fledglings in fact may dominate parents. Clearly, we need more observations of wing-quivering and the circumstances surrounding it to obtain a better understanding of the uses of the display.

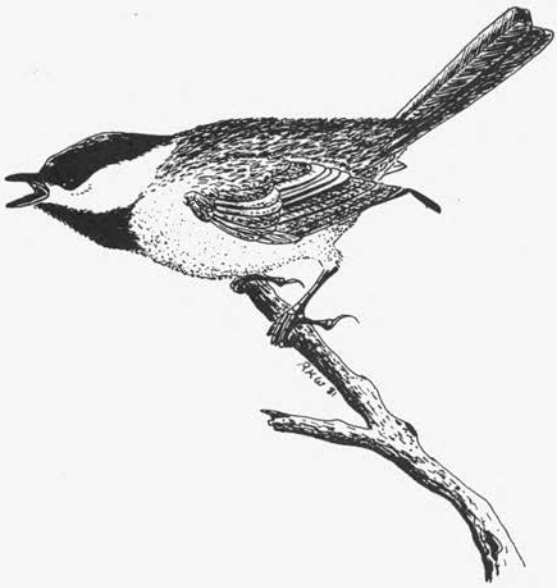
5/20/81 Song Sparrow
Bird flew up into shrub, gave quick energetic song with tail widely spread, then flew across and attacked another sparrow in the same bush.

6/21/81 Common Grackle
Bird sitting in a tree gave occasional spread-tail display. Body feathers may have been slightly ruffled. No vocalization heard. Tail was held spread for 1/2 to 3/4 second. There were about four seconds between displays.

Comment: Tail-spreading is another important and widely-used display. In many cases the colors on tail feathers have evolved to heighten the effect of this display such as the white band at the tip of the Eastern Kingbird's tail. In the case of the Song Sparrow observation above, the tail-spread is held and seems to be associated with aggression. For the grackle, the tail was only flicked open. This is often associated with uneasiness on the part of the displaying bird as when a ground predator (as opposed to aerial) is in the area. Tail-spreading and tail-flicking at times may not be communicative and thus are not displays, as when birds use their spread tails to balance on a perch or when they preen or sunbathe. It is always interesting to question what part of a bird's actions is part of its "language." This is not an easy question to answer but an essential one to ask as you begin to be more sensitive to the behavior of birds around you.

BEHAVIOR-WATCHING IN THE MONTHS AHEAD

Undoubtedly the most common and welcome calls to pierce the cold silence of our winter woods are those of the Black-



Black-capped Chickadee *Illustration by Richard Walton*

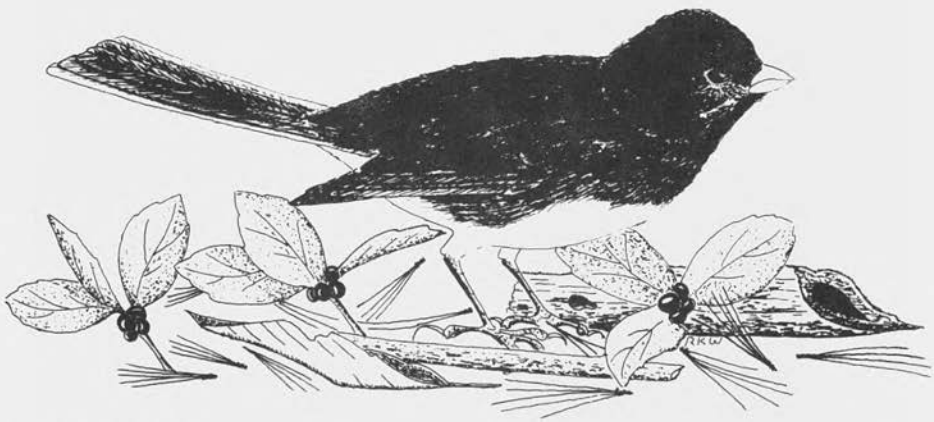
capped Chickadee. The chickadee is always enjoyed by northern birders who appreciate its conspicuousness and endless activity as it seems to get four or five meals off twigs that look absolutely bare to us. But as with most common birds, chickadees, after initial glances of recognition by birders, are largely ignored. We would like to suggest a new winter activity with chickadees. It is this: locate a flock of chickadees in a fairly open woods and follow it for ten to twenty minutes. In doing this you will see that chickadees have some fascinating features of social behavior that make them unique among our winter birds.

Chickadees remain in fixed flocks throughout winter. They are not only fixed in membership but also in hierarchy, there being both a male and a female that are dominant over all others of their sex. As you follow a flock, the most common call you will hear is the quiet "tseet" call. This call probably functions to keep the flock together by keeping them in aural contact as they look for food. If one bird gets too far from the flock to hear this note, it may give a "chickadeedee" call that will then be answered by another member of the flock. This call may be a long distance contact call enabling the bird that is far away to join the others. If you stay with the flock long enough, you will find that they remain in an area of about twenty acres and that they have preferred feeding spots within that area. This results in the flock repeatedly feeding in a spot, moving twenty to thirty yards, and then stopping to feed again.

So, for the most part, chickadee flocks move about quietly, most giving the "tseet" call. But as you follow a flock, you may suddenly notice other louder calls being given and then begin to see about twice the number of chickadees in the area. The calls will include the "dee-dee" call, the "tseedeleedeet" call, and various other short, harsh calls. This is an indication that two chickadee flocks have met and that one flock has encroached on the winter feeding territory of the other. During these encounters the birds continue to feed but also give the louder calls and participate in brief chases. After five to ten minutes of this behavior, the flocks separate, and each continues to feed quietly within its own territory. We would welcome notes about any interesting behavior you observe while following a chickadee flock. There is still a great deal about these birds that is unknown.

BEHAVIOR RESEARCH ARTICLES

Winifred Sabine (1949, 1956) extensively studied winter flocks of Dark-eyed Juncos and Tree Sparrows, and her work gives some unique insights into their lives. Sabine discovered that winter flocks of juncos were generally stable and that members of a flock remained in a given area. Within the area the birds move about among favorite feeding spots; they may move as a whole flock, as sub-flocks, or as individuals. Birds return to the same winter feeding areas year after year, and generally the first to arrive are the ones that have been there before. Newcomers arrive with or after the more experienced birds and follow them about to learn the best places to feed and roost. There is no hostility between flocks in adjacent feeding areas, and in times of food shortage such as during a big snowfall, birds from one flock may temporarily join another flock in their area.



Dark-eyed Junco *Illustration by Richard Walton*

Through observing the interactions between banded birds at her feeding station, Sabine discovered that the flocks of juncos were organized into a straight line pecking order where A is dominant over B, B over C, C over D, etc. These relationships were the same throughout the winter; no bird changed its status. The same was true for a group of Tree Sparrows that she observed. Sabine ranked the birds in their pecking order based on behavioral interactions in which one bird was determined to be dominant over another. Four types of dominance-subordinance behavior were observed. (1) A dominant bird would peck at another causing it to retreat. These pecks were gestures, not hard attacks, and varied from a bill thrust toward another to a run or flight over to the other bird. (2) A subordinate bird might hover but not land near a more dominant bird, and it might fly off immediately when a more dominant bird landed nearby. (3) In a threat display a dominant junco elevates its body and with bill closed "throws its head up repeatedly." A Tree Sparrow threatens by fanning its tail, opening its bill, and lunging toward another bird. If two juncos gave the threat display and one of them left, the remaining bird was considered the more dominant. Sometimes while feeding, a subordinate bird would approach a more dominant bird and give the threat display. The dominant bird would respond in kind, but then, both birds would remain and feed together. (4) Fighting occurred infrequently and might appear as a brief skirmish near the ground or as a vertical flight ten to twenty feet up with both birds facing each other. Fights were not always conclusive, and after one, both birds might return and eat peaceably.

It became clear to Sabine that individual birds recognize each other at least at short distances. If a bird came to the feeding station where primarily more dominant birds were feeding, it would move away slightly and feed near a more subordinate bird.

The interactions between the juncos and Tree Sparrows at the feeding station were interesting. In a flock of eleven juncos the four most dominant juncos were subordinate to the flock of Tree Sparrows, but the six subordinate juncos were dominant over the flock of Tree Sparrows.

In summary, Sabine found that juncos and Tree Sparrows winter in stable groups with a highly specific social organization and that these groups move about to favored feeding spots within a defined area. The birds have several stereotyped ways of communicating dominance and subordinance within their groups.

There are many intriguing questions that spring to mind as a result of these studies. Why has this system of behavior evolved? Why do birds return to the same area each winter? Why do they spend so much time involved in aggressive interactions? Maybe through your own observations and musings you can come up with answers to these and other questions.

REFERENCES

Sabine, W., "Dominance in Winter Flocks of Juncos and Tree Sparrows," Physiol. Zool. 22 (1949), 64-85.

Sabine, W., "Integrating Mechanisms of Winter Flocks of Juncos," Condor 58 (1956), 338-41.

Smith, S. M., "Demand Behavior," Condor 82 (1980), 291-5.

Donald and Lillian Stokes are naturalists and authors. Don's works include A Guide to Nature in Winter, A Guide to the Behavior of Common Birds, and The Natural History of Wild Shrubs and Vines. He and Lillian are presently working on a second volume of the bird behavior book soon to be published.
