

VOICE IN THE BROWN TOWHEE

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The Brown Towhee (*Pipilo fuscus*) has a fairly large, though not strikingly varied, repertoire of notes. It is the purpose of this article to survey these notes, with the exception of the male song which has already been discussed (Quaintance, Condor, 40, 1938:97-101), and to comment on their significance. Observations forming the basis of these statements were made chiefly on the towhees (*P. f. petulans*) in the vicinity of Berkeley, California, in 1937.

The tsip note.—The most familiar note of the Brown Towhee is the loud clear metallic *chip* or *tsip*. This note may be given with monotonous regularity for as much as twenty-five minutes at a time. The frequency of the *tsip* note varies. Ten a minute may be given, but thirty is the most usual number.

The *tsip* note is not necessarily correlated with activity, although it does announce the beginning of activity in the early mornings and again, the cessation of activity in the evenings before the towhees go to roost. On the other hand a towhee may *tsip* for fifteen minutes without any activity. In flight it may give several *tsips* or none at all. An emphatic *tsip* may announce the take-off, and a *tsip* or two may be given upon alighting from a flight. A towhee may *tsip* on the ground while it is foraging, or it may forage for minutes without giving a sound. Frequently, in the nesting season, the *tsiping* is done from a high station such as the top of a laurel tree, or thirty or forty feet up in a eucalyptus, or from the peak of the highest available house or telephone pole.

The general *tsip* note seems to have different functions. It may serve as a contact note between birds, especially birds of a pair, as a protest note, or as an alarm or warning note. Further study of this note may yet resolve it into at least three different notes corresponding to the behavior induced. In other words, although the *tsip* may sound the same to us, the variations in manner of delivery or loudness may have meaning.

The *tsips* of a female disturbed at the nest are immediately answered by her mate and if her notes become hurried and excitable, he may come racing in to her side, no matter what part of the territory he may be in. Both birds may then utter loud *tsips* of protest at an intruder. This protest note invariably brings neighboring towhees close to the nest in disregard of territorial boundaries. Birds of other species are also attracted to the region of the nest in apparent curiosity. The Spotted Towhee, the Western Flycatcher, the English Sparrow and the Robin have been found to come.

The tsink note.—In the nesting season the *tsip* note of the adult often takes on a *tsink* sound; it then has an extremely rapid tempo. One adult towhee, with young probably under cover, gave over eighty to a minute (May 13). Another gave ninety-seven in one minute.

Both the *tsip* and the *tsink* variation are effective in controlling behavior of the young. For instance a male parent gave these notes sharply to hush the hunger notes of its fledgling which "froze" at once. Even at the age of forty-three days a fledgling "froze" at the warning *tsip* of its parent.

Banded nestlings eight or nine days old, when released on the ground, followed the *tsips* of their parents to cover. The rapid *tsink*, besides acting as a warning to the young, probably warns the female if she is on the nest.

The tssp note.—There is another variation of the *tsip* note, a much softer one which is less audible to the human ear. It is an aspirate *tssp* or *tss*. Hunt (Condor, 24, 1922:203) wrote that it is "a faint high attenuation of what we may call the *family 'tseep'* of the Fringillidae, some version of which is found in most of the sparrows."

Given softly and slowly, this note seems to have the effect of keeping mated birds in contact when they are only a short distance apart yet are hidden from each other, as by thick shrubbery. A single captive bird voiced a few loud *tsips* whenever startled, but otherwise it was either silent or else gave this faint *tssp*. At first the *tssp* note was given frequently, but after a few days, less often; it may have given this note to locate its mate. Once when a stuffed skin was placed in its cage, it hopped around it quietly and persistently, intermittently giving the *tssp*.

Hunger notes of the young.—The hunger note of the nestling is *puhlee*; this is reminiscent of the doorbell song of the Spotted Towhee (*Pipilo maculatus*). This note of the nestling is a chorus kept up by the young birds for as long as thirty seconds at a time; it reaches a peak at about twenty seconds. In the nest the open, up-tilted gape of a nestling is probably a great stimulus in itself to the adults, but the *puhlee* of the young is undoubtedly a strong factor in awakening the feeding reaction of the parent.

The hunger note of the fledgling is quite different from that of the nestling; it is loud and penetrating. It is *tst tst tst*, similar in general pattern to the hunger notes of the young of many sparrows such as the Song Sparrow, but it is probably louder than those of most of the other sparrows. The note is given slowly at first, but is greatly accelerated when the adult approaches with food. This *tst tst tst* of the fledgling may be sufficient stimulus to send the parent bird searching for insect larvae or other food which they feed the young. The biological utility of the hunger notes of both the nestling and the fledgling is obvious.

First notes in young birds.—Young birds give a note which approximates the faint *tssp* of the adult. The *chip* of a sixty-hour old nestling was given very faintly with each exhalation. The *chips* of birds several days older are answered by *tsips* from the parent. Fledglings do not give the sharp adult *tsip* for some time, but they give a *tseep* note while hopping.

The towhee squawk.—Whenever towhees are handled, an utterance is given which is not unlike that of the squawk of a young chicken. It rather startles the holder. Even nestlings have this squawk. A nestling put on its back utters this squawk while trying to right itself. The squawk of a young bird appears to act as a signal of distress to the parents, since they become greatly excited, rushing to the scene and *tsiping* loudly.

When the squawk note is given by an adult in nature, it may serve as an intimidation note as well as a note of distress. On one occasion the writer was attracted by a series of piercing squawks from a towhee. The bird had lost control of its wings, and when placed on the ground, it could only spin around on its back. What caused the squawking was not apparent, although California Jays (*Aphelocoma californica*) on the ground at the scene may have been implicated. The notes were surely those of distress and may have served to intimidate the jays. If a predator seized a towhee, such a series of terrified squawks might conceivably be of survival value in causing the predator to relax its grip for the instant necessary to permit the towhee to reach cover.

The mate-call and its significance.—A most familiar utterance of the Brown Towhee is one which Hunt (*loc. cit.*) described as "a succession of eight or nine rather distressed-sounding squeaking sounds, somewhat as one might squeak with one's lips." His use of the adjective "distressed" indicates that he misconstrued its significance. It is true that the appearance of the birds when giving this note may lead an observer to think that the birds are quarreling. For instance, two birds may be foraging not far apart on a lawn when suddenly, perhaps for no apparent reason, they fly to a near-by tree and facing each other with beaks open, as though with bared fangs, give this utterance.

To me, the basic *tsip* note is distinguishable in this peculiar series of notes. The utterance sounds something like this: *tss' tss' tss' tsurr tsurr tsurrr*, starting with fast staccato notes and getting faster toward the end. Because these unique notes are given almost exclusively between birds of a mated pair, they are referred to in this study as mate-notes or as the mate-call.

The tendency to associate these notes with quarreling and fighting is not uncommon. For instance, Hoffmann (*Birds of the Pacific States*, 1927:315) states: "Two or more birds often squabble and utter a succession of squeaking and gurgling notes." Later in speaking of the Abert Towhee, he says that it "skulks and chips and quarrels with others of its kind with the same noisy, scolding splutter that the Brown Towhees give." To one who is not familiar with the territories of Brown Towhees, and who has not observed banded birds, the conclusion reached by Hoffmann may seem entirely correct. Although the mate-notes may be given at the moment of chasing and fighting, they are not, so far as can be determined, given between combatants, but rather by either one or both members of a pair doing the chasing. In other words, they are only incidental to the chase and have no direct bearing upon it.

Examples of pursuits or clashes accompanied by mate-calls follow. Frequently, when a resident male pursued a bird to the edge of his territory, the resident female appeared by his side and the mate-call ensued. Often, early in the morning two pairs meet near the boundary between their territories, and the mates of each pair utter the mate-calls. Such a scene sometimes precedes a chase. For example, two pairs of towhees met (April 30, 5:45 a.m.) and gave their mate-calls almost simultaneously. There was a chase shortly afterward and then the resident pair returned toward their nesting shrubbery, voicing the mate-call again. In another instance (January 3; note date) a pair and a third bird were at the edge of a territory; the mate-call was given by one of the members of the pair and the third towhee was then chased a short distance. The members of the pair flew back to the shrubbery, where they had been roosting, and the mate-call was again given.

In most of these instances the meaning of the mate-call might have been misconstrued if the whole action was not carefully followed. In over a hundred recorded observations these mate-notes were given between members of a known pair when they met and in no instance did the two fight. Moreover, in approximately one hundred clashes or boundary disputes between birds of different pairs, no mate-call was given. Once, however, after a severe clash between two unmated males, the apparent winner flew to a vantage point and gave the mate-call. In this instance another bird, possibly a wandering female, had been present but had flown over the fence at the beginning of the combat and had disappeared. Whether or not the mate-call had relation to this bird, the call was given after the fight.

During the nesting season the mate-call is heard frequently throughout the day. The following instances will serve to show the range of situations under which the call is given. A male gave its mate-call as it flew into the shrubbery, but getting no response and not seeing its mate, it flew to another part of the shrubbery where the two met, giving the mate-call. Again, a female running with a leaf in her beak in pre-nesting activity, dropped it, and flew to join her mate at a window; the mate-call ensued. As a mated pair met in a tree, the mate-call was given; they then flew to the adjacent tree where they were building their nest. When the male, leaving the nest, meets his mate coming in with a load of food, the mate-call ensues.

A pair may give the mate-call at times of disturbance at the nest or when the safety of their fledglings is threatened. Once the writer put his hands into a nest which

held newly-hatched young. The female protested violently by *tsip*ing, and then she and her mate flew from perch to perch voicing their mate-notes and chasing a Song Sparrow.

On rare occasions the mate-call is given under circumstances other than the meeting of mated birds. For example, a parent bird, disturbed when its fledgling was being stalked, at once gave an excited mate-call which appeared to spur the young to quick retreat. Such exceptions to the rule demonstrate the intense excitement which the call seems to connote.

In at least one instance the mate-call preceded copulation. One bird gave a loud *tsip* as it flew to a wire where it gave a mate-call. At once a second bird flew to the wire beside the first and two successive attempts at copulation ensued.

Outside of the nesting season the mate-calls are given less often. Before meeting in the morning, the members of a pair may forage separately for a while; when they meet, the mate-call is given. If birds of a pair have been separated as when being banded, the reunion brings an excited mate-call. Generally speaking, the mated birds forage together in the winter months and since the meetings are relatively fewer, the mate call is given less.

It is difficult to tell which sex gives the mate-call. Sometimes it appears that only one of the birds gives the call but more often it seems to be a duet. On several occasions it was clear that both members of a pair gave the notes. Once on February 6, a male lit in a big oak, giving the mate-call, and the female responded at once by flying from the ground and giving the mate-call herself. The female may initiate the call. For instance, a female flew down from an oak to a laurel shrub, giving a mate-call; the male flew to her side and hopped up to the top of the shrub where the mate-call was repeated. This was in the nesting season, on May 22.

The latter part of a mate-call is like a trill. When heard alone it may signify something different than the ecstatic greeting of mated birds. On March 11, an unmated male sang from the top of a leafless tree, then flew across the road into the territory of a mated pair. He came near the mated birds, posturing and uttering the singular mate-call trill. One of the birds, presumably the male, chased him away. However, for ten minutes or more the unmated bird stayed within twenty feet of the pair, and at least once again uttered this trill. Perhaps it was the awakening of the mate-call through the stimulus of a towhee of the opposite sex.

To summarize, the mate-call which is such a familiar part of the vocabulary of the Brown Towhee is almost invariably given between birds of a mated pair after they have been separated. The series of notes is given under a variety of conditions. Although it may be given at the time of a fight, it does not appear to be a fighting note, but rather a means of establishing or reinforcing the bond between members of a pair.

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