

A SINGING FEMALE WOOD THRUSH

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THE female Wood Thrush (*Hylocichla mustelina*) of a color banded pair whose two nestings I studied in Baltimore in 1943 sang frequently during the laying and incubating stages of both nestings. Her utterances differed in form from the songs of males and were weaker and less musical, but their sustained and vibrant quality marked them definitely as songs. (This female did not return in 1944.)

I have mentioned (1943:82) another female Wood Thrush that, during a defense of territory, voiced at intervals a short, explosive cry that had a musical quality and suggested rudimentary song; other observers have reported song by females of two other hylocichlids, Bicknell's Thrush (*H. minima bicknelli*) and the Veery (*H. fuscescens*). Wallace (1939:314) states that practically every sitting Bicknell's Thrush that he watched sang occasionally during incubation, hatching, and brooding. The dates given by Halle (1943a:103, 1943b:46-47) for the singing of a Veery that seemed to be a female suggest a song cycle extending from courtship three-fourths of the way through incubation.

The songs. The songs of the female Wood Thrush were of two distinct forms. The one I heard oftenest I recorded as *huh-huh-huh-cheee*. The *huh* notes were much like the common soft call of the Wood Thrush, but "heavier" or "solider"; although usually three or four in number, they varied from one to six. *Cheee*, the accented note of the phrase, was a somewhat prolonged, definitely vibrant note, resembling the final note of a male Wood Thrush's rising song phrase but hoarse and much below a male's in volume.

The second song form was *huh-huh-huh huh-o-wee*, the introductory *huh*'s as in the first song, but the *huh-o-wee* a slurred, flat-toned whistle, with the accent on *wee*.

There were some variants of both main forms, and also occasional songs that combined the characteristic sections of both, as: *hoo-yuh-wee cheee* (the first phrase a flat-toned whistle, accented on the *hoo*), and *huh-huh-huh-huh hoo-wee cheee* (accent on the *wee*).

Song cycles. The mate of the singing female, a color-banded bird from 1942, returned to his nesting territory on May 8, 1943; the female was present by May 9; nest building occurred May 10 to 13, laying May 14 to 17, hatching May 28 to 30, and the young left the nest (prematurely) June 7. Building of the second nest began June 11, laying occurred June 16 to 18, hatching June 28 to 30, and the young left the nest between July 10 and 12.

The female's song was cyclical. Each cycle began, as far as I observed, early on the morning of the second laying day. The first cycle was at least 16 days, May 15 through May 30, song last being heard

some hours after the hatching of the fourth and last egg. The second cycle was at least 5 days, June 17 through June 21, song last being heard on the third day following completion of the clutch of three eggs. (On five occasions on four later days during incubation and hatching, I watched this nest for one to four hours at a stretch without hearing the female sing.) This decline in the female's singing from brood to brood resembles the decline in attentiveness that in a previous study (1943:86) I recorded for both members of a pair of Wood Thrushes. Nice (1943:127) found that female Song Sparrows (*Melospiza melodia*) sang only before the first nesting.

Place of song. On the first day of each song cycle the female sang both from the nest rim and from perches out in the territory. On the second day of the first cycle I once saw her sing in the home tree a few yards from the nest. With these exceptions, I saw her sing only when she was sitting on the nest (however, once steady incubation had begun I never followed her on her foraging trips between sittings).

The greatest distance from the nest at which I observed singing was 43 yards, on May 15. Other song perches that day were 30, 27, and 23 yards from the nest. On June 17 some singing was done 21 yards and 4 yards from the second nest.

Except for one that was only 3 feet up, the perches used were 10 to 18 feet above the ground. The first nest was 17 feet and the second nest 11 feet above the ground.

Wallace (1939:314-315) actually observed female Bicknell's Thrushes singing only from the nest. I infer from Halle's accounts (1943a:103, 1943b:46) that the female (?) Veery sang when away from the nest.

Hours of song. The female Wood Thrush sang at all hours of the day. The distribution of my records parallels to some degree my opportunities for observation; most records during both nestings fell between 5:00 and 7:00 a. m.; during the first nesting there were a number between 5:45 and 6:45 p.m. and a scattering between 10:00 and 11:30 a.m.; during the second nesting there was one at 2:45 p.m.

Wallace (1939) mentions that one female Bicknell's Thrush sang "at various intervals during the day" (p. 341) and that two sang in the late evening (p. 338).

Rate. The highest rates of song observed were: May 15, 5 songs given in 30 seconds; May 19, 7 given in each of 2 (non-consecutive) minutes, 4 in one minute; June 19, 3 in each of 2 (non-consecutive) minutes.

For periods of continuous singing the highest rates were: May 15, 23 songs in 9 minutes (from the nest rim), 19 songs in 8 minutes (away from the nest); May 19, 59 songs in 27 minutes (on the nest); June 19, 29 songs in 45 minutes (on the nest).

Volume. The songs varied considerably in volume. At their weakest they almost justified "whisper" designation; at their loudest they were still far below male song. I did not determine their carrying power exactly, but on May 19 I heard song from a distance of 16 yards and on June 21 from 23 yards; these songs would have been easily audible at considerably greater distances—possibly 35 yards. The songs were loudest at the start of each cycle.

Attitude when singing. I never saw the female Wood Thrush adopt an unusual attitude when singing; she perched or sat in her customary ways; sometimes there was not even a perceptible bill or throat movement.

Song stimulus. During the two nestings I observed the female's starting to sing 26 times. The apparent stimuli were: the male's song, 14 times (12 times in first nesting); the male's calls, once (second nesting); the singing male's nearer approach, once (first nesting); the male's silent approach to a distance of about 25 yards, once (second nesting); a neighboring male's song 80 yards or more away, once (first nesting); the cries of a full-grown young Robin (*Turdus migratorius*) being banded 23 yards away, once (second nesting); no observed stimulus, 7 times (4 times in first nesting).

On the occasion when the singing male's nearer approach appeared to be the stimulus, the nearer perch from which he sang was one of his most-used ones. Every time during the first nesting that his song seemed to stimulate the sitting female to sing, he sang from about that same place (he was not always visible to me). I do not believe he was ever visible there to the female, but I cannot be sure.

The interval between the male Wood Thrush's starting to sing and the female's response (when she did respond) varied from "at once" to 7 minutes. The female's reaction was quickest at the height of her song cycles. Thus, of 8 song bursts evoked by the male's singing May 15-19, 4 came "at once" and the others after 30, 60, and 75 seconds, and 4 minutes of singing by the male. Of 4 such bursts May 25-30, only one came "at once" and the others after 30 seconds, 6 and 7 minutes. Of 3 such bursts June 17-19, the intervals were 15, 60, and 75 seconds.

"Responsive" singing. Paired birds of a number of species sing "responsively." Such song is of three types: (1) the singing of the male inspires the female to sing—apparently the reverse of this order is uncommon—but the songs of the two birds are entirely uncoordinated; (2) the two birds sing song for song in alternation; (3) the female's notes begin as the male's end and the phrases of the pair, thus added together without a perceptible break, comprise the species song.

As has been indicated, the song of the female Wood Thrush was, for the most part, responsive to the male's in the first sense. So also was the song of female Bicknell's Thrushes (Wallace, 1939:338). Only once did I observe responsiveness of the second type by the Wood Thrushes: on May 15, while singing away from the nest, the female for a very short time "answered" the male's song phrase for phrase; this appeared to be a chance occurrence.

On one occasion (May 23) the male Wood Thrush sang in response to the female; after she had given two songs from the nest he broke more than 25 minutes of silence by singing half a dozen low phrases from a favorite perch, then flew within a foot of the nest for a few seconds (his whereabouts during his silent period were not known).

Only one other time did the song of the female Wood Thrush appear to influence the male's behavior in any way. On May 15, immediately after she had sung her second song within 45 seconds, the male flew from a perch about 50 feet away to one within 2 feet of her; then after a minute's idleness both birds flew to the ground and foraged.

Shaver (in Laskey, 1944:27) states that in response to song by the female Cardinal (*Richmondia cardinalis*) the male may appear and feed her or copulate with her.

Masculinity in the female. Saunders (1929:17) was "inclined to think that in most cases singing females . . . possess some trace of masculine characteristics." Nice (1943:127) found that to be true of singing female Song Sparrows insofar as their song was "always given from an elevation . . . in contrast to the female's usual behavior of staying close to the ground," and (p. 128) insofar as two out of four outstanding singers were (at least on occasion) "both unusually aggressive in defending their territories"; however, she noted that one of those two females had a normal nesting history, while the other for three straight years was the earliest layer of all her birds.

As already noted, the female Wood Thrush always sang from elevated places. Which bird of the pair occupied the higher or more commanding spot at the times the female sang could seldom be determined with certainty. However, twice the female was higher than the male, and twice I think she was lower, when his song moved her to sing (there was no correlation between her relative position and the promptness of her response); she once was higher than he, and once on about the same level, when she sang with no observed stimulus. Wallace relates (1939:338) that female Bicknell's Thrushes when they sang were sometimes above and sometimes below their mates.

This singing female Wood Thrush was no more active in defense of territory than the female of a pair that I studied intensively in the preceding year (1943:82); once I imperfectly saw an apparent defense against another Wood Thrush, and once the female helped her mate drive off a Blue Jay (*Cyanocitta cristata*).

SUMMARY

A female Wood Thrush, studied in Baltimore in 1943, frequently sang during the laying and incubating stages of her two nestings. Her songs differed in form from those of males, and were weaker and less musical. She sang less during her second nesting than during her first. She sang both from the nest and from perches out in the territory, chiefly in the early morning and the evening. The male's singing was the commonest stimulus observed. Except on one (apparently chance) occasion there was no coordinated responsiveness in the singing of the two birds. Only twice was the male observed to react to his mate's singing: both times he flew to her, once first responding with a few songs. This female showed no other signs of masculinity.

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