

NOTES ON THE FLIGHT PERFORMANCE OF THE WILSON SNIPE

By RALPH HOFFMANN

ON JUNE 1, 1924, in a wet meadow near the outlet of Eagle Lake, Lassen County, California, I found Wilson Snipe (*Gallinago delicata*) executing the flight performance characteristic of the bird in the breeding season. As many as half a dozen birds were in the air at one time in a cloudless sky for several hours after sunrise; at least two birds were still at it when I left the spot at 9:30 A. M.

Recalling the frequent discussions I had heard in the Fresh Pond marshes in Cambridge, Massachusetts, where the sound came from migrating birds flying overhead in the dusk, and remembering that the source of the sound was then considered even by eminent ornithologists a moot point, I observed the birds of Eagle Lake with care and was able to come to a definite conclusion. When I looked the point up later in the literature at my command, I found so much uncertainty in the majority of standard works and such strong confirmation of my conclusions by the few writers that seemed to speak from actual observation, that it seemed worth while to sum up the whole matter and put it on record.

The Snipe which I watched mounted high over the small meadow, reaching as near as I could estimate a height of well over 200 feet. Each bird then flew with rapid wing beats in wide sweeps, during which he dipped sharply downward from time to time but without altering the rate of his wing beats. These dips varied from short, shallow ones to longer, deeper ones. I soon noticed that the tail, which was closed on the level sweeps, was fully opened during the dip, so that the sun shining through the central tail feathers brought their rufous color out prominently. This color did not show when the tail was closed. The characteristic sound which came from the bird during the flight, which I attempt to transcribe by the syllables *hōō*, *hōō*, *hōō*, *hōō*, *hū*, *hū*, *hū*, became shriller toward the end of the downward plunge; the length of time that it continued was strictly coincident (allowing for the time the sound took to travel) with the period between the opening and the closing of the tail, so that I could invariably predict an instant or two beforehand the beginning of the sound.

I quote now a few statements from standard works which show plainly that the authors have not based their statements on actual observation under favorable circumstances.

Barrows, Michigan Bird Life, p. 178: ". . . making a peculiar sound with the wings, and probably also at the same time with the voice."

Eaton, Birds of New York, vol. I, pp. 302-303: "The sound is evidently produced by air rushing through the feathers of the rapidly vibrating wings."

Sanford, Bishop and Van Dyke, The Water Fowl Family, p. 345: ". . . the rushing of their wings causing a peculiar roaring sound."

Thompson (The Birds of Manitoba, pp. 498, 499) has evidently observed the performance, but seems to have confused two sets of notes and contradicts himself. On page 498 the wings are "rigidly set" and on page 499 they are "vibrating with great rapidity."

Newton was the first author that I came upon who gave the tail as a possible source of the sound. Speaking of the European bird he says (A Dictionary of Birds, p. 885): "Others again assert that it is caused by the vibration of the webs of the outer rectrices," and refers to Meves' experiment with feathers affixed to a rod and drawn rapidly downward.

It was only when I came upon Dawson's account in his *Birds of California*, which I had not yet seen when I made my own observations, that I found clear evidence that the writer had seen and correctly interpreted the actual flight performance. A little later my attention was called by Mr. W. P. Taylor to an admirable account by E. A. Kitchin in *The Murrelet*. I give the two accounts in the order of their publication.

"The noise is undoubtedly produced with the tail, and I do not think the wings or any other part of the body had anything to do toward producing the vibrating sound. The noise is made when the bird suddenly dips in its flight. At that time the tail is held downward at right angles with the direction of flight. The tail feathers are spread out fan-like and the sound is undoubtedly created by the wind passing through the stiffened feathers. The sound stopped the instant the bird brought his tail to its natural shape and he again sought his former level. I witnessed these performances not a few, but many times, and many times directly overhead.

"The weather this day was rainy and cloudy, as were all other days when we witnessed these peculiar 'aviating' flights. They never 'went up' on bright days. The flights were generally of from five to twenty minutes duration" (E. A. Kitchin, in *The Murrelet*, vol. II, no. 3, 1921, p. 11).

"I have come to the conclusion that the body of the sound is produced by the impact of the air upon the sharp lateral feathers of the tail, held stiffly, while the pulsations of sound are produced by the wings. . . . The sound is never produced save when the tail is spread to the utmost, so that the two outer pairs of rectrices, which are much the shortest, are thrown forward at right angles to the axis of the body" (W. L. Dawson, *The Birds of California*, p. 1219).

The fact that Kitchin's account is published in a journal of very limited circulation and that Dawson's excellent account does not stand out in a work of such length will perhaps justify me in giving my own observations and in this way calling a more general attention to the two previous ones with which they correspond. Mr. Dawson's, it will be noted, goes farther than either Mr. Kitchin's or mine, and accounts, it seems to me correctly, for the definite rhythm into which the sound is broken. If the wings were not beating rapidly on the down pitch, the sound would be continuous. I might add that the shriller tone which I seem clearly to detect toward the end of the downward plunge would be due to the increase in velocity and the corresponding increase of vibration in the tail feathers.

It may be of interest to add a few other notes made while observing the Snipe in the above mentioned meadow. I was struck by the fact that no birds at any time used the usual "scaipe" note. The common note when rising or descending, when on the ground or when flying from one part of the meadow to the other, was an excited, rapidly repeated *kik kik kik* or *kek kek kek*. A bird which I flushed just after it had come down from a flight flew a short distance across the meadow, calling *kek kek kek*, and using a pitching flight with wings raised and held extended during each pitch. A bird which I took to be a female when flushed flew to a fence post and at first crouched on the post, calling *kuk kuk kuk* in a low tone. Later she stood upright and uttered a louder note, *kekta kekta kekta*. This she kept up for a long time, suggesting a guinea-fowl. The birds were at all times tame, allowing an approach within three or four feet before flushing.

Carpinteria, California, July 18, 1924.