

OBSERVATIONS  
OF THE NESTING HABITS OF  
THE

SPOTTED SANDPIPER  
(*Actitis macularia*)

1932

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On July 1, 1932, my attention was called to the fact that in a small open cleared field back of a row of occupied cabins the Spotted Sandpipers had built a nest. It was situated on the ground under a small sumach bush about fifteen feet from a much used foot path and about two hundred and fifty feet from the beach of Douglas Lake from which it was separated by a road. The nest could hardly be called a true one as to structure, for a few bunches of grass had been collected and merely smoothed down into a rather shallow cup-shaped depression. The measurements taken were four inches for the outside, and three inches for the inside, diameter. The depth of the depression was estimated to be about one inch. There were four ovate eggs with a ground color of dirty cream buff speckled and splotched mostly at larger end with dark brown over purple gray. They were arranged with their more pointed ends toward the center. Taking two eggs at a time I weighed, measured, and marked them. The recordings are to be referred to in the technical data.

The bird (or possibly birds) were nowhere in sight and thus after staking off my claim for the purpose of keeping passers-by from stepping on the nest, I reported it to the Ornithological Department and procured a small tent about four by four feet and over six and one-half feet high. I put this up about three and one-half feet from the nest so that the peep hole would face south as that gave me a view of the more open side of the nest. Then, after cutting down all the grass weeds and twigs that could obstruct a clear view of the eggs, I left just as it was getting quite dark.

The next morning I decided to visit the nest, the weather being fair and rather warm. It was shortly after nine when I entered the blind and seated myself as comfortably as possible on a chair that I had brought with me. I had not long to wait before I heard a soft "tweep, tweep" coming from the direction of the beach. The bird alighted about twenty feet from the nest, hesitated a few moments to look around, and proceeded by a rather circuitous path, calling more softly, until reaching the nest. I noticed the characteristic white bars on the down-curved wings as it flew up from the beach, and as it stood there at the edge of the nest, the hinder part of the body teetering quite regularly, the olive-grayish brown back contrasted with the pure white underparts which were numerously spotted with dark brown. The white line over the eye, the long bill, and the yellow legs were also quite distinctive. It settled down over the eggs, facing the row of cabins on the left and the path in back of them. Inside of ten minutes the position was changed to exactly the opposite direction. A few minutes later, as two people were walking by, it left silently, taking flight but a few feet from the nest. It was almost a half an hour before the bird returned, but in this case its noisy approach was heard coming directly over the cabins which it faced again as soon as it settled on the eggs. It was facing the cabins on the right inside of ten minutes, but the violent whishing and rumbling of the tent by the wind didn't seem to affect the bird in the least. After the same length of time it was back in the original position and then it arose silently, walked a few paces around the nest and as soon as it resumed its position noticed that some one was coming about twenty-five yards away, and so walked about ten feet through

the grass to an open place and was rapidly on its way to the beach. Fifteen minutes later it approached the nest by the same route as before and faced the area on the left between the cabins and the road. It was not five minutes before the call of another sandpiper from the beach disturbed it and taking only a few steps, it flew silently and directly to the place from which the call had come. The calling of the other bird continued for about ten minutes as a soft sharp "zee swee-zee swee." Within a quarter of an hour the bird assumed the original position on the nest and didn't seem to be bothered by the same soft plaintive calling of the other on the beach this time. Ten minutes had elapsed when the bird flew suddenly off the nest for a distance of about twenty-seven yards to the right and slowly and hesitantly walked back to the nest, calling at intervals. It was then that I noticed that its call consisted of two syllable notes, the second being at a lower pitch, while the two notes of the other birds were both on the same pitch. The bird remained almost motionless upon the nest for over twenty minutes and then walked around a few paces, settled over the eggs again, to then arise, walk hurriedly a few yards away and then mount away into the air. I could discern no cause for his departure this time.

I was not able to observe from the blind again until the fifth, but had from time to time dropped by at the nest to notice the position of the eggs according to their respective numbers. I could determine no regular arrangement at all. It was a fair, slightly cloudy, warm afternoon with a little breeze when I entered the tent and the bird was nowhere in sight, but soon made his appearance. (I'm assuming the masculine gender now, not from any actual observation my-

self, but rather from the extensive investigations of others. However, I am quite positive that during my observation there was only one bird attending the nest and later the young). Giving a few short notes when alighting fifteen feet from the nest, it walked rather directly to the nest and sat facing the blind. Even though many motions and noises such as the rattling of paper were made within the tent, it seemed entirely undisturbed by it all. For twenty five minutes it remained on the eggs making no motions until finally it left silently and so swiftly that I didn't have the opportunity to see in which direction it went. After the same interval of time the cry of the bird was heard from in back of the blind, but he seemed to approach very cautiously, giving out very few notes and soon was facing the blind on the nest again. The blowing of the 4:15 P.M. horn caused him to leave the nest very suddenly, but only for a short distance. Circling back to the edge of the nest and then for a few moments stretching and preening by it, he walked off through the tall grass for about fifteen yards and then flew rapidly toward the beach. Twenty minutes later I heard the call of the bird, but as there was much confusion from the cabins, and from trucks going by, that the bird circled about cautiously in the grass before he at last attempted to settle on the eggs again. Ten minutes had elapsed before an intruder, walking out behind the blind, flushed the bird, which disappeared in rapid flight toward the beach.

It was not until July 9th that I had the opportunity to again stay any length of time in the blind. The weather was clear and warm. Coming to the blind about nine thirty in the morning I flushed the bird from the nest to the beach. There

then seemed to be much calling from that direction by at least two different birds. It was only five minutes before he was back to the nest, "tweeping" softly as he approached and picking up small twigs which were placed on the edge of the nest, as he settled down over the eggs. The bird rose suddenly from the nest and went a little distance away for another piece of grass and finally settled down, facing the sun and away from the cabins. Another five minutes and he had shifted his position to that of one facing the row of cabins. The calling of another sandpiper continued almost constantly from the beach. He seemed quite restless and kept getting up that morning at approximately five minute intervals for about half an hour. One time it was to adjust himself around the eggs, arranging them by the aid of his feet; another time to move over a bit so that the sun would not shine directly in his face. Finally he left the nest quietly, walking a few yards away before flying away to the beach, calling plaintively and rapidly. In ten minutes he was back on the nest, but had considerable difficulty in finding a comfortable and suitable position. He seemed to shift every two minutes, being uneasy and keeping his mouth open constantly with his throat pulsating rapidly. This was probably due to the heat. A quarter of an hour had passed before a startling alarm note from the beach caused the bird to arise from the nest and walk a few steps in that direction. Upon his immediate return to the nest he again had trouble in adjusting himself. Five minutes later the approach of a person walking along the path in back of the cabins caused him to leave suddenly, but he immediately circled back and was soon silently settled on the nest, facing the area between the blind and the cabins.

During the next twenty minutes, before a car caused him to arise from the nest, he changed his position twice and got up once. After looking anxiously around he settled on the nest again, facing the sun. A few minutes later he left the nest; the cause and direction of the flight were unknown. It was only a short time before the sound of his loud rapid "qwer-a-quee-queep-queep-quee" was heard. Then as he ran swiftly to the nest he emitted a few low calls and settled on the eggs facing to the left of the blind. The nervousness shown in the actions of the bird indicated that it was soon time for the eggs to be hatching.

The next day, the weather being clear and cool, I visited the nest in the afternoon and noticed a little crack on egg 4. After a little observation from the blind I noticed that the action of the parent was of the same uneasy condition as that of the previous day. That evening I went back to the nest and picked up each egg carefully and one at a time held them to my ear. A faint, slow, rather regular "pecking" was as music to me when I realized that it was the embryo pecking on the inside of the shell. Egg 4 was still cracked as it had been the day before, but not any more so. That night about ten thirty I thought that I'd take a look from the blind and see how things were progressing. However, as soon as the beam of light from my flashlight struck the nest the bird flushed without making a sound. I then went out and observed that the condition of the eggs was the same as it had been three hours before.

The next morning I arose at four o'clock and went immediately to see what had taken place during the night. I flushed the parent and found that egg 2 was cracked. Besides

the pecking or "tapping" I could hear a faint "peep." The other eggs were still the same. A half an hour later, I put in a most interesting thirty minutes. As the parent was not there and could be heard nowhere about, I sat down beside the nest and watched egg 2 which already had quite a little hole in it. The bill, at the end of which was the little white shell-tooth could be easily distinguished, and then as another piece chipped off I could recognize the toed feet. It seemed that the head was drawn up between the latter. A few kicks of the feet brought the rest of the shell off from that region. The remainder of the shell, although quite cracked seemed to stick on the back and neck of the little chick, until finally after quite a bit of squirming around it fell off, and there before me was a very newly hatched young sandpiper, "peeping" softly as it lay there by the other three eggs and struggling feebly to get to its feet. This "peeping", which remarkably resembled that of the parent had been kept up all during the hatching. The down being wet from the embryonic fluids was matted down to the body. I had no opportunity to visit the nest again until noon. Egg 1 had hatched and chick 2 was still in the nest. Egg 3 was cracked a bit and egg 4 had a little hole in it showing the shell tooth on the bill. Peeping was heard in both. Chick 2 was quite capable of walking around a bit, stopping now and then to "teeter" rather clumsily, but very characteristically. After lunch I returned and sat close to the nest. This time I was camouflaged by having a green portable blind over me. Chick 2 was off the nest most of the time, but the other one kept close under the wing of the parent. The adult was very nervous, leaving the nest at



the slightest pretence of danger and even when returning to it would often step right on one of the little ones huddled against one of the eggs. At intervals the father would give a few slow "peeps." Egg 4 had a larger hold and egg 3 showed the beak. Within an hour the latter had hatched and while the adult was away I tied a piece of colored thread around its leg. As soon as the adult came back to the nest and saw the empty egg shell he picked it up in his bill and flew directly from the nest away high over the trees, probably to the beach. I caught chick 1 and took it up to the cabin to be measured. (See technical data). A description of the downy chick would be about this: Above light grayish brown, flecked with a lighter brown; a black streak running from the middle of the forehead back to the rump except for the region from the nape to the middle of the back. Underside of head and cheeks grayish with rest of underparts pure white, and unmarked. There was also a little black line from the bill to the eye.

At four forty-five Miss Theodora Nelson came with me to take pictures. Egg 4 was not yet hatched, although cracked and with a hole in it; but when we saw red ants coming out of the latter we knew that the chick had died in the shell before getting enough strength to break the rest of the way out and thus the membranes had dried up. All three of the other chicks were running around by this time. The adult called them from the nest, but we kept them with us to take two pictures of them on the nest. Miss Nelson then set the camera the right focus for the nest and then after I stretched out full length behind it she covered both me and the camera with a khaki blanket. As she walked away the father returned to

the nest and as a result had his picture snapped. The noise caused him to flush. The same procedure was repeated, but this time the father was attracted back to the nest by my holding one of the young. It was at this time that he started to move his family toward the beach.

Early that evening I was accompanied by Miss Ethel Finster for the purpose of banding the chicks with the U.S. Biological Survey bands. Upon arriving at the nest we found that it had been entirely deserted, leaving the "dead egg" as practically the only evidence that there had been some kind of a nest there. Keeping our ears open for any familiar "pweets", we located the "brood" about ninety feet from the nest in the tall grass. The father was very much excited, but had previously warned the young ones to "freeze" to the ground. Being unable to find any of them we walked quite a distance away until we could see just where he was "hovering" them. It was not hard then to run up quickly and catch them quite unprepared for such strategic methods. They were all banded (See technical data). Later I went back about ten-fifteen and located the brood near the spot where he had banded them. The adult, which had been hovering over the young, left immediately at my approach. Neither he nor the young made a sound. I could faintly see the little ones "frozen" close together among the leaves.

The next morning early I stomped around through the brush in an endeavor to locate their position. At last I discovered thru the cries of the parent that they had crossed the road and were well on their way toward the beach, which was about one hundred and eighty feet away. They had traveled almost one hundred and twenty feet from the nest by this time. That

afternoon while at Nelson Lake a day-old sandpiper was caught (See technical data) and was taken back to camp, where some pictures were taken of him at the nest by Mr. I.A. Herskovitz who had previously taken a "shot" at the nest with the four eggs. After dinner that evening, having realized that chick 4 had had nothing to eat since a few hours after his capture, I endeavored to give him a house fly. I tried forcing it into his mouth, but was unsuccessful. As a result of its struggles and the strains of traveling, it became suddenly weak and fell limply over on its side. However, a little water applied at the bill soon revived it. After it had drunk quite a bit of water, I put a yellow celluloid band on its leg and immediately went down to the beach in search of the "family." It wasn't long before I noticed an adult flying low over the water in a semicircle about me on rapidly fluttering wings and crying "peet-weet" excitedly and most plaintively. He would run up the beach a short distance, fly around me, and then run up another way. I could thus tell that the chicks were hidden near by. I covered myself with the portable blind and placed chick 4 before me on the beach. It sat there motionless and rather weakly, suffering to quite an extent from chill, fright and hunger. I didn't have long to wait before I could make out the sharp low "cheep" of the other little ones as they came out from under "cover" and started along the beach, pecking at small insects just above the water line. Finally, after all the chicks save one had passed in front of me, completely ignoring the "newcomer", the father came along herding the last one in front of him. When he saw the blind he gave no sign of warning to the chick, but merely flew over

in a short arc before me. As soon as he joined the others he "brooded" them. By this time chick 4 had gotten to its feet and started hesitantly and unsteadily to walk slowly down to the group, emitting occasionally a few weak "cheeps." At the water's edge it drank a little water which again seemed to revive it somewhat. The adult bird, hearing this little "cheep" for the first time, gave his rapid "peet-a-weet-ta-weet" call. The chick responded immediately to this and went more quickly toward them and finally snuggled underneath the wings of the adult with the rest. I left quietly as I didn't wish to disturb them and thus gave up any chances of catching one of the little ones for the purpose of measurement. It was on the way back that the egg shell of chick 1 was found, proving the supposition that the adult carried the shell to the beach. Just why the beach is the next question to be answered.

During the forenoon of the next day my two room-mates and I started out by row-boat to skirt the shore where I had found the brood the night before. We soon noticed the little ones feeding undisturbed along the beach. I was only able to count three banded chicks and two larger ones from another group in addition to the adult. Chick 4 could not be identified at all. We landed as quietly as possible and as close to one of the small chicks as we could without alarming it. We succeeded in driving it out into the lake where it swam quite freely, but stayed as close to the shore as conditions would permit and was thus easily caught. I noted its band mark and bill measurement (see technical data) and put a green and black celluloid band on its leg. I also caught one of the other larger chicks. I tied both chicks by means of a short

piece of string to a small stake. They struggled fiercely and almost too hazardously to free themselves. In the meantime I hid myself behind a nearby bush beneath my portable blind to await the reactions of the adult, especially to the little one. However, by its continual struggle to get loose, the latter finally freed itself just as the adult was approaching, crying excitedly. Thus the two of them went far down the beach. After a long time the adult came back to see about the other young one, just as I was about to give up hopes of his returning. However, a class coming down the beach frightened him back to his brood. The fate of chick 4 is yet to be determined. It either died from the effects of the journey and the unaccustomed hardships involved or was too weak to keep up with the others, was the victim of some natural enemy, or that the adult failed to continue its adoption. However, the latter alternative is quite improbably. I might mention at this time that while I was banding the smallest chick the adult approached quite closely and then, crying loudly and flapping his wings quite violently, started down the beach without the use of his legs at all, making a vain attempt to attract my attention and free the little one.

About the same time the next day I skirted the shore to the Point and back, but was unsuccessful in finding any of the group and saw only two sandpipers, but they were in juvenal plumage and able to fly short distances over the water. Two days later I repeated the attempt, but was still unsuccessful.

Finally, four days had passed, until one afternoon while rowing up to the Point I spied a small sandpiper marked with a metal band and by drifting into shore I was able to get close

enough to it to see where he went after he realized my presence. When he had "frozen" under the root of a tree I merely had to pick him up. He had on a green-black band. Although he was not able to fly, his wings had grown considerably (See technical data). The juvenal plumage was rapidly filling out under the down most noticeably in the wings. The light brownish olive on the back had not yet appeared, but the pure white feathers on the underparts could easily be distinguished and also the grayish tail was tipped with cream or buff. The length of the bill had grown from seven to thirteen millimeters since the time of hatching, showing that on an average the age of a sandpiper chick can be determined by the length of its bill, as it grows practically one millimeter per day. When the chick was placed in a snake bag during its capture it kept up a continuous effort to try to feel its way out of the bag by shaking its bill violently against the cloth. After taking complete measurements I rowed up the Point until I could hear other sandpipers calling on the beach, and then freed my captive, which dove as soon as it was placed on the water and swam under water using its wings most of the way to the edge of the water. There he took a few drinks of water and then went down the beach as calmly and naturally as if nothing had happened.

-Technical Data-

Measurement of eggs on July 1, 1932:

Number	Length	Width	Weight
1	19-32 inches	30-32 inches	8.04 grams
2	19-32 inches	30-32 inches	7.66 grams
3	17-32 inches	30-32 inches	7.80 grams
4	19-32 inches	30-32 inches	7.70 grams

Measurement of young:

Date	July 11, 1932	July 13, 1932	July 19, 1932
Age	5 hours	2½ days	7 days
Egg Number	1	2	2
Weight	8.0 grams		21.07 grams
Length	70.0 mm		140.0 mm
Extent	61.0 mm		233.0 mm
Wing-body	25.0 mm		101.0 mm
First Primary	-		39.0 mm
Unsheathing	-		15.5 mm
Tarsus--toe	43.0 mm		45.0 mm
Bill--nostril	7.5 mm		12.0 mm
Bill--eye	4.0 mm		4.5 mm
Eye diameter	3.5 mm		5.0 mm
Tail	19.0 mm		19.0 mm
Foot	23.0 mm		31.0 mm
Bill-gape	21.0 mm		22.0 mm
Bill	7.0 mm	10.0 mm	17.0 mm
Toe Number 1	4.0 mm		5.0 mm
Toe Number 2	13.0 mm		12.0 mm
Toe Number 3	20.0 mm		17.0 mm
Toe Number 4	15.0 mm		13.0 mm

Nail Number 1	1.5 mm	1.0 mm
Nail Number 2	2.5 mm	2.5 mm
Nail Number 3	3.5 mm	3.0 mm
Nail Number 4	2.5 mm	2.0 mm

Banding of young:

Check Number	1	2	3	4
U.S.B.S. Bands	B187091	B187093	B187092	B187094
Colored Bands	Green	Green and black	Purple	Yellow
Date	July 11, 1932	July 11, 1932	July 11, 1932	July 12, 1932
Where found	U.M.B.S.	U.M.B.S.	U.M.B.S.	Nelson Lake

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