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## THE BREEDING LIMICOLAE OF UTAH

WITH SEVEN ILLUSTRATIONS

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*Steganopus tricolor*. Wilson Phalarope. The beautiful little Wilson Phalarope is not uncommon in the Salt Lake Valley, Utah. The first individuals appear about the last week in April (my earliest record is April 25), but most of them arrive about the middle of May. After the first influx of migration, Wilson Phalaropes are usually seen in pairs, three's or small flocks, about ponds and small lakes throughout the valley. The actual mating season begins some ten days after their arrival. During this period they are most frequently seen in pairs or in three's, two females and one male.

During the breeding period the females show some rivalry over the males, and two are frequently seen displaying their attractions before one male. This continues until the males actually begin to incubate the eggs. The female has some concern and interest in the nest for a short time after incubation begins, as I have frequently flushed a female who was standing guard a few feet from the incubating male. Before incubation is completed the females assemble in small flocks. Shortly after the eggs are hatched the females disappear, the males having assumed the full family duties and care of the young. By the last of July both the young birds and the old males have moved southward and the few remaining Wilson Phalaropes seen in the Salt Lake Valley after the first week in August are, I believe, migrants from points farther north.

In choosing a nesting site, these phalaropes select a patch of thick, short grass, usually in the vicinity of a pond. The situation is quite typical, the grass short and thick but never bunched. They never nest in colonies, but a small area of especially suitable cover will frequently attract several pairs. When the original nesting site is selected, I believe that the ground is always dry; however, the flats are frequently flooded later. In this case the difficulty is remedied by the bird gradually building up the nest with small weed stems and grass.

I found such a nest, June 4, 1925, which was built up four and one-half inches above the ground and standing in water that was then nearly up to the top of the nest. This nest was composed of dead grass and weed stems and was lined with grass. In the same vicinity there were two other nests, each built up several inches high; both were deserted and the eggs were barely covered with water.

Except in cases as noted above, the nest is usually a slight depression in the ground and lined only with a few small stems of dry grass. If the ground becomes wet or flooded the nest is built up as required to keep the eggs dry.

The Wilson Phalarope breeds in suitable situations throughout Salt Lake Valley and in the mountain parks and valleys of the Wasatch Range up to at least 8000 feet altitude.

**Recurvirostra americana.** American Avocet. Avocets are common in Salt Lake Valley, but do not breed in any of the surrounding mountain parks. The first arrivals reach Salt Lake City and vicinity about the last of March, and by April 10 the birds are common. I believe that the avocets, like the willets and curlews, are already mated when they arrive, because they take up the duties of housekeeping at once. These noisy and showy birds frequent the mud flats and shallow alkali ponds, where some are continually in the air and their persistent yelping becomes



Fig. 4. NEST AND EGGS OF AMERICAN AVOCET.

Photo by Sgt. L. Curbow.

an irritation at times. Three or four to fifteen or twenty pairs constitute a nesting colony. When a man visits a colony the birds make a great fuss, usually flying out several hundred yards to meet the intruder, then circling and crying in loud, shrill tones. When the eggs are much incubated or if there are young ones around, avocets will make repeated dives at the intruder, and although I have never been struck, a long bill has frequently zipped within a few inches of my head. If this form of attack is not successful another ruse may be used. One or more of the birds will alight on the ground or in shallow water a few yards away. In pretense of being wounded or dying the bird will nearly lie on its side, both wings quivering and one leg distended, the voice changing to a rather low and plaintive whimpering note.

The nesting site, as well as the nest, of the avocet is varied. The nest may be any place in the vicinity of water. (See figs. 4 and 5.) A favorite situation is

on the mud just bordering the edge of an alkali pond or on small lumps among the dead roots of a clump of greasewood. When in this kind of a location the nest is usually a slight depression lined with a few stems, greasewood twigs, and grass. Not infrequently there will be a border of snail shells around the edge of the nest. Another site commonly selected is in salt grass at the edge of a pond, either on dry ground or where the water is two or three inches deep. When in this situation the nest is built up one or two inches from the ground, the base being of coarse grass stems and weeds, with a lining of grass. I once found a nest built on top of a square post, the top of the post being about three inches above the water level of a shallow alkali pond.

The first eggs are laid by April 15 and the breeding period is extended until well into June. However, the later nests are probably second efforts. After the eggs are hatched both parents are very solicitous of the young and take care of them until they can care for themselves. I have seen them attack a dog in the protection of their offspring. When surprised on an open mud flat, the adult birds will drive their chicks to the nearest cover before centering their attention on the



Fig. 5. NEST AND EGGS OF THE AMERICAN AVOCET.

Photo by A. D. Boyle.

intruder. As soon as the young ones are out of the eggs, they are active, they have no hesitancy in taking to the water, and they swim easily.

The usual number of eggs is four, frequently only three. I have seen nests containing five and even six eggs that were all exactly alike and which I am sure were laid by the same female.

**Himantopus mexicanus.** Black-necked Stilt. The Black-necked Stilt is a common bird in suitable localities all over the valley but is not as abundant as the avocet. The first stragglers arrive from the south about the first of May, and the number increases until by the middle of the month all of the breeding pairs are located on their favorite grounds. The habits of stilts and avocets are similar; both are to be found around the borders of sloughs and shallow alkali ponds. Stilts, though often found in company of avocets, usually select situations where there is a good growth of short marsh grass with water a few inches deep. They are always noisy. If an intruder approaches their nesting grounds, several will fly out as a reception committee, circle around, and make enough noise to attract all of the waders within a quarter of a mile. Stilts are also good at the broken-wing ruse,

in which they will alight on the ground, stretch out, and with wings extended will limp and flutter along, all the while uttering a rather low plaintive note.

In the Salt Lake Valley the stilts begin nesting about the middle of May, and fresh eggs may be found as late as the last week in June. The majority, however, nest about the last of May. The nesting site is somewhat varied, but usually close to water, and most often on wet ground in salt grass along the edge of the water or even in the water. When in such a situation the nest has a good base of grass stems and short pieces of reed, and it is usually lined with dry grass. Another situation, but not so common, is on a mud flat where the ground is wet but with no grass or other concealment. In this situation the nest is a slight depression lined with a few blades of grass, or perhaps with a slight base of stems, all depending upon how wet the ground may be.

May 25, 1926, while I was wading through a mass of dead tules and marsh grass, with water and mud nearly half way to my knees, I was surprised to find a stilt's nest built on top of a bunch of dead tules. This nest was well constructed and built up about six inches above the water; it was composed of tule leaves and bits of dead reeds and grass, with a lining of dead grass. June 1, while searching for nests of the Black Tern, I found another nest in a similar situation. This one was in water about a foot deep and built on the broken-off stubs of some tules. The general situation was exactly like that selected by the Black Terns and within a few feet of a tern's nest. The usual number of eggs in a stilt's nest is three or four, most frequently the latter number.

*Capella gallinago delicata*. Wilson Snipe. The Wilson Snipe is a rather rare bird in this locality but is commoner than is generally supposed. Unless the observer is well acquainted with its habits and the type of ground it inhabits, the bird is seldom seen.

Snipe are among the first spring arrivals among the Limicolae, usually reaching the vicinity of Salt Lake City by the first week in April, or even at an earlier date if there is an early spring. These first arrivals probably move on northward and their places are taken a week or two later by the residents. It is impossible to determine just when the breeding birds migrate in the fall, as their place is again taken by migrants from farther north; however, snipe are occasionally found in the valley as late as the middle of October. The favorite haunts of these interesting birds are around any fresh-water marsh, bog, or marshy meadow where there is plenty of grass, but the ground must be wet and spongy. A well-pastured meadow in which there are boggy spots is an especial favorite for a breeding ground. The size of the bog seems to make little difference as I have found individual pairs inhabiting wet spots which covered much less than an acre. Each pair is somewhat solitary, but several pairs may be assembled in and around the larger meadows. The breeding area includes suitable spots all along the western slope of the Wasatch Range, and in the mountain parks up to an elevation of about 8000 feet.

If a person be near their nesting haunts in the late afternoon or the early morning, the male snipe can usually be seen going through his aerial maneuvers and may be heard making the peculiar booming-winnowing noise. This courtship or mating flight takes the general form of a circle about 500 yards in diameter, of which the incubating female is the center. With rapid wing beats the male makes a series of wide circles, mounting higher and higher in the air, all the while uttering a series of plaintive love calls, which resemble a continuous *hu-hu-hu-hu*, which increases and then decreases in intensity. After he has reached the desired height and circled for some little time, he seems suddenly to coast down, the waver-

ing vibrations evidently coming from the air passing through the feathers. He may repeat this action several times or drop directly to the ground.

My first introduction to the nesting site of the Wilson Snipe was on May 30, 1925, when in company with Mr. A. D. Boyle. A nest was located close to a dwelling house and on a small patch of wet ground. The meadow contained fifteen or twenty acres, but the bog was only about ten yards square. Mr. Boyle flushed presumably the female nearly under his feet; she fluttered in the grass as if wounded for about twenty feet and then took wing. The nest contained four eggs which were just hatching. It was a depression in the top of a slight hump; the ground just under the nest was dry, but surrounding the hump it was wet and spongy, covered by an inch or two of water.

With this nest and the surrounding terrain as a guide, I located at least fifteen breeding pairs in the immediate vicinity of Salt Lake City. The situation was



Fig. 6. NEST AND EGGS OF THE WILSON SNIPE IN SMALL MARSH NEAR PARK CITY, UTAH.

Photo by Sgt. L. Carbow.

always practically the same, a low meadow containing a spot of wet spongy ground and well covered with short grass. The nests themselves are exceedingly hard to find. Snipe have no regular or definite actions as concern the brooding bird; one will flush just under your feet and then flutter along the ground with the usual broken-wing action, while another bird will flush from the nest when you are fifteen or twenty yards away and with no hesitancy fly straight across the meadow. These actions are irrespective of whether the eggs are fresh or heavily incubated. The action seems to be characteristic of the individual.

The favorite location for a nest is on top of a small hump or knee, where the ground is dry just under the nest, but wet and probably covered with an inch or two of water surrounding the hump. Sometimes, however, a location is selected on dry ground and some little distance from the bog. The amount of nesting ma-

terial used varies according to the location and is usually added to as incubation proceeds. A typical nest, found May 29, 1926, was on a slight hump in a small bog; the grass surrounding the nest was about ten inches high. The nest was a slight depression 3½ inches in diameter and ¾ of an inch deep; this was lined with grass stems broken down and arranged in the depression with a few additional pieces of grass; the bottom of the nest was wet. Another, found June 3, 1927, was on the edge of a wet boggy marsh; the nest was 3½ inches in diameter and 3 inches high; it was composed of grass stems and bits of weeds, slightly hollowed on top and lined with grass. This nest had probably been originally built on fairly dry ground; but the meadow had been flooded and as the water surrounded the nest it had been gradually built up until it stood in water about two inches deep.

The usual number of eggs is four, occasionally only three. The eggs of this species run through a greater range of color and markings than do the eggs of any other of the local *Limicolae*. The ground color varies from a pale light green, gray and drab to dark brown, and the shell markings from lilac to deep chocolate.



Fig. 7. NEST AND EGGS OF THE WESTERN WILLET.

Photo by A. D. Boyle.

*Catoptrophorus semipalmatus inornatus*. Western Willet. The Western Willet is a common and conspicuous bird throughout the valley, but I have never observed it in the mountain parks. The first arrivals in the spring reach the vicinity of Salt Lake City about April 10; the main body arrives a week or ten days later. The birds are to be found around the shallow ponds bordering Great Salt Lake and on the wide expanses of alkali flat. This noisy wader, with broad white wing patches, is characteristic of this terrain and cannot be confused with any other species.

When one approaches a pond where a pair of willets is feeding, the birds immediately take flight and circle around and around, or with rapid wing beats hover just overhead, scolding and fussing at the visitor. They have a great variety of call notes which are beyond my description, but when once heard they are never forgotten. Sometimes one or two birds seem to have come from some distance, and their object is just a general inspection; they will circle around overhead, scolding and yelping until their curiosity is satisfied, and then disappear across the flats. Although willets are exceedingly noisy around their breeding grounds, in the immediate vicinity of a nest, the individuals concerned are absolutely quiet. The observer

will never know that there is a willet within a mile until one is flushed directly underfoot, when she will let out a few squawks, circle around overhead once or twice, and disappear. After the young are hatched it is a different story; both parents will then be much in evidence and the racket will be so intense that most of the willets in that part of the country will come about and join in the chorus.

Willetts do not colonize, but several pairs may be found breeding in the same general locality. They are birds of the marsh and shallow ponds, but the nesting site is selected on the dry alkali flat and frequently a half mile or farther from water. Willets and Long-billed Curlews, in general, inhabit the same ground, yet their nesting sites are totally different. Birds of both species sit very close on the nest. The gray, mottled color of the willet blends exactly with the gray, alkali-flaked ground, and even though every square foot of the ground is searched, usually the first indication of a nest is the bird that flushes from the nest directly under one's feet.

The first nest of this species that I ever found was on a low ridge between two marshes. There were a few scattered bunches of sage, probably fifteen or twenty yards apart, and the ground between these was practically bare except for a spray of grass here and there that was not over an inch high. My first thought was that not even a field mouse could find concealment between the bunches of sage; but just then a willet flushed from between my legs. After a nest is located and marked, it is an easy matter to approach quietly, then with a slow movement lean over and stroke the sitting bird or lift her from the eggs.

The typical nest is placed on a spot very sparsely covered with grass, the ground bare except for a few scattered stems or small greasewood sprouts. The center of a bunch of greasewood two or three inches high is also a favorite location. A depression is scratched out, about five or six inches in diameter and three inches deep, which looks just like a good big soup bowl. This depression is occasionally very scantily lined, but in most nests there is a good lining of weed stems, grass, or fine greasewood twigs. I have seen a few nests that were placed in salt grass six or eight inches high, but such a location is most unusual for the Salt Lake Valley. In the *Condor* (xxi, 1919, p. 39) Van Denburgh writes of finding nests of the willet in Lassen County, California, that were "built up on the mud at the edge of the water." His description is exactly that of many avocet's nests that I have seen, but in this locality such a situation is never selected by willets.

The Western Willet usually lays four eggs, rarely three. I have found one nest containing two eggs that were nearly ready to hatch; because of the early date, this could hardly have been a second set.

**Actitis macularia.** Spotted Sandpiper. The Spotted Sandpiper is a common bird all over the valley as well as along the mountain streams and lakes as high as 9000 feet elevation. My earliest observation of spring migrants was April 28, but it is quite probable that they arrive a week or two before that date. These little waders are versatile in their habits and are able to adapt themselves to any convenient surroundings. They seem to be equally at home around a shallow alkali pond in the Salt Lake area, among the rocks of a swiftly rushing mountain stream, or along the border of an isolated and quiet mountain lake.

In the vicinity of Salt Lake City, eggs are deposited about the third week of May, and correspondingly later at the higher altitudes. The nest is well concealed and extremely hard to find, as the bird can never be flushed. The brooding sandpiper will leave the nest at the least intimation of danger, sneak some distance away, and then watch the intruder. The nest is usually in short grass or beneath a small

weed or bush and not far from water. The only sure way to locate one is to find a pair of birds that seem nervous and then to retire a short distance and watch the brooding bird return to the eggs. It will usually return within fifteen or twenty minutes.

The nest is a slight depression in the ground and may be lined with anything that is available: sometimes short bits of grass, at other times small pieces of gravel, shells, or bits of wood. I once found a nest that was near a railroad, and the depression was filled nearly a half inch deep with cinders. Four eggs are usually deposited in the nest; three make a full set for a second laying or if the nest has been disturbed.

*Numenius americanus*. Long-billed Curlew. This large wader is one of the beauties of the alkali wastes, and any ornithologist will experience a real thrill when he sees it on the breeding grounds. The advance guard of the spring migration reaches the vicinity of Salt Lake City about the last of March. The earliest date observed by me was March 25. The main body of resident birds arrives about

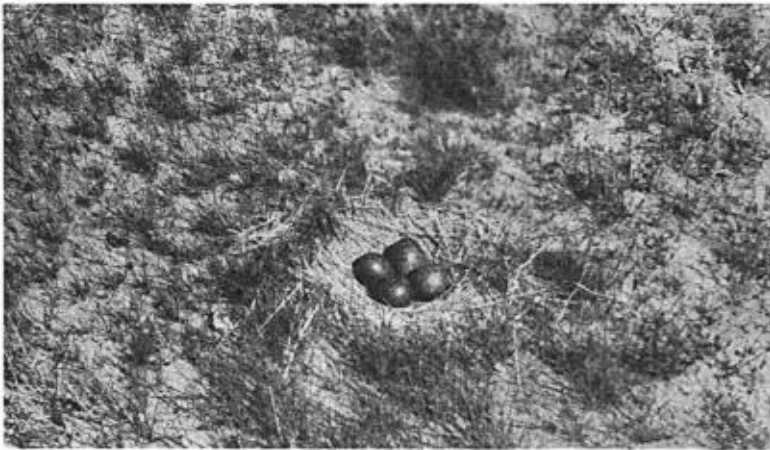


Fig. 8. NEST AND EGGS OF THE LONG-BILLED CURLEW.

the second week of April and at once begins preparations for raising the annual family. I believe that the pairs are mated before their arrival, as I have never been able to observe any manifestation in the way of mating. As soon as the young are able to fly the curlews assemble in groups of two or three families and leave the alkali flats. They remain around the shores of the shallow ponds for a short time thereafter but soon move southward. Very few are seen after the middle of July, and I believe that all curlews seen after the first of August are migrants from farther north.

The haunts of the Long-billed Curlew are the dry alkali wastes, frequently a long distance from water. Where scattered bunches of greasewood are separated by bare alkali deposits and fringed with scant growths of fine grass, the curlew reigns supreme and shouts his ownership to all comers.

The curlews are almost as noisy as willets, and when several birds of both species are flying around overhead the din and racket ceases to be a pleasure. They have a multitude of call notes. The most common is a rather soft, clear *pile-wil*, *pile-wil*, repeated several times in succession, quite similar to one of the calls of the willet. Their alarm note is a loud shrill *kee-he*, *kee-he*.



In the selection of a nesting site, a pair of curlews may locate any place on the prairie, yet these birds most frequently use certain places that can be recognized as characteristic. The ideal location is in short grass and on a slight rise of ground, close to and overlooking a wide alkali deposit. The picture with Mr. Boyle at a nest is most typical (fig. 9). The white areas in the background are bare alkali flats. When not disturbed, the male curlew spends much of his time as a guardian of the nest and will be standing around some place within about a hundred yards of the incubating female. Whenever an intruder appears, the male flies out to meet him, then circles around and around, all the time uttering loud cries of protest. The incubating female sits very close to the nest and is usually flushed within a few steps. When she leaves the nest, with a lusty squawk, her action is quite



Fig. 9. MR. A. D. BOYLE AND HIS "PET"  
CURLEW.

like that of a turkey, as she will run along for ten or fifteen yards, toes just touching the ground, wings flopping, and neck outstretched.

Some ornithologists have stated that the female is quite conspicuous as she sits on the nest. This certainly is not the case in this locality. Her mottled back is so blended with the surrounding gray, green, and brown background that it is a difficult task for even an experienced observer to see her. Of course there are occasional nests in exposed positions, and then the female is easily seen; but she is hard to recognize, as she looks exactly like a small mound of earth or lump of old manure. When a brooding bird is located some distance away, and one makes a slow cautious advance, it is not at all difficult to approach within a few feet. Sometimes she will wait to be stroked gently on the back or even handled and lifted off the nest.

The nest is a slight depression in the ground. This is lined with grass, weed stems, burrs, sheep dung, or any other available material. A few nests are scantily lined, but most of them have a thick pad one or two inches in depth. The nest is seven to ten inches in diameter and two or three inches deep. The eggs are usually four, occasionally only three, and very rarely as many as eight. It is reasonable to suppose that any number over four has been the product of two females, but I have seen two different nests of eight eggs in which all of the eggs in the nest were exactly alike. I am firmly convinced that occasionally one female will deposit as many as eight eggs. The eggs of the Long-billed Curlew vary a good deal in size, shape, and color. One egg of a set is frequently off color, but is usually the same size and shape as the others.

I believe that the curlews are diminishing in numbers within the Salt Lake Valley. My own observations were not extended over a sufficient length of time to obtain any definite count; however, vast areas of their former breeding range



Fig. 10. THE AUTHOR STROKING A CURLEW WHILE ON ITS NEST.

Photo by A. D. Boyle.

have recently been reclaimed, and more land is fenced and tilled every year. Sheep probably do more actual damage to their nests than any other enemy. Most suitable breeding areas are heavily pastured by thousands of sheep, and in such places there is hardly a square foot of ground that does not show dozens of hoof marks. I have seen nests of both curlews and willets, as well as ducks' nests, that had been trampled upon.

*Oxyechus vociferus*. Killdeer. Killdeers are among the best known birds in the United States, and so much has been written regarding their habits that additional notes will be of little interest. They are abundant summer residents all over Salt Lake Valley and are frequently seen in the mountain parks as high as 8000 feet altitude.

Killdeers are the first of the army of waders to reach the valley in the spring. The first birds arrive about the first of March, and shortly thereafter they are to be found almost everywhere. Around some of the shallow brackish ponds, where there is a little gravel and small patches of bare alkali ground, killdeers are so

abundant that they constitute almost a colony. They begin nesting activities early, fresh eggs having been found as early as April 10. The breeding season is irregular and is continued until the middle of June. The late breeding pairs may be only those whose first eggs have been destroyed, but it seems to me that more than one brood of young is indicated. However, it is practically impossible to check up the nesting activities of any given pair of birds.

Killdeers are most abundant on the alkali flats, but breeding pairs are found all over the valley. A nest may be placed in a plowed field, little-used road, gravel deposit, or pile of rubbish. The ideal nesting site on the flats is the top of a small mound, just a few inches higher than the surrounding ground. Frequently there will be a small mound with a few dead roots projecting from the top. Nearly every one of these will be scratched out, showing that it was considered as a possible nest. Near every occupied nest there will usually be found several small scratched-out depressions that look like nests in the course of construction or perhaps just ready for eggs. It is an interesting conjecture as to whether these are meant to be some kind of a decoy nest, or whether the killdeers are just naturally fickle and change their minds.

The nest is just a small depression lined with bits of gravel, shells, or anything else that may attract the attention of the builder. The nest lining and background always harmonize with the color of the eggs, and the eggs are hard to see even when one is looking right at the nest. The usual number of eggs is four, late sets frequently have only three, and I have seen an occasional set of five eggs.

*Charadrius nivosus nivosus*. Snowy Plover. Snowy Plovers have been seen April 27; but many must reach the Salt Lake Valley at an earlier date, because I have found complete sets of eggs as early as May 5. The birds are found only on the alkali flats, on some bare space and close to brackish water. As one walks along in such places, small gray figures will scurry around the shore some fifteen or twenty yards ahead, and their low *peet-peet* note can be heard. The Snowy Plover is such an inconspicuous little fellow and its color is so well blended with the surroundings that one has to be especially watchful in order to notice the bird at all. The color is so much like that of the alkali soil that as soon as a bird stops moving it seems to disappear. Snowy Plovers are hesitant to take wing and if not pressed too closely they will run a long distance before flying; but one never flies very far at one time.

The nesting time of the Snowy Plover is irregular; eggs have been found May 5 and as late as June 10. This suggests the probability of there being more than one brood of young in a season, but no definite check could be made on any one pair. This plover has the same habit as the killdeer in making several dummy nests in the vicinity of the real one. The typical nesting site of the Snowy Plover is on the bare ground, sometimes close to a piece of drift or other object, and at other times among the dead roots of greasewood. The nest is merely a scratched-out depression, lined with bits of roots, pebbles, or shells. I do not believe that these are added as a real nest lining, but are put there in order to add to the protective coloration of the background. The eggs are two or three in number, two being found as frequently as three. Their gray and black coloration is such that they are invisible a few feet from the nest.

*Manila, P. I., January 25, 1930.*