TEN THOUSAND WILLET

By N. J. McDonald and Julian K. Potter

The ability to make quick and accurate counts of concentrations of birds has long been a valuable tool in the equipment of the field ornithologist. A new method of counting the nesting willet along our Jersey marshes may then be of interest.

In 1941, we made a breeding bird census of the usual fifteen acres of an undrained salt marsh at Fortescue, N. J., along the Jersey shore of the Delaware Bay. We listed with other birds, the four pair of willet actually found nesting on the area, but noted the interesting fact that on entering the area for the census, invariably the intrusion was marked by thirteen willet "squeaked up." At this date, June 23, most of the breeding willet had young and were very susceptible to the squeak, rising out of the grass and circling about, voicing alarm.

Far away in the distance over the marsh, we could see other willet, though these paid no attention to us. But always a constant number of willet responded to our intrusion. The marsh is flat, intruders can easily be seen and if they squeak, as we did, they can always be heard. Therefore with the intrusions being identical, and assuming that the intrusion response in each willet is identical, there would seem to be a relation between the number of birds that will respond to intrusion and the number that will breed on, say fifteen acres, of the area. In the case of the census area this was as thirteen to eight.

If this were true then to "census" the entire marsh, it would only be necessary to obtain the average number of breeding birds per acre by "squeaking up" birds at a number of different stations and applying this ratio.

This we did and the following tabulation shows the numbers of stations visited and the results. There was no effort to select stations with large populations, for instance, at Sea Breeze no birds at all were in evidence when the test was started. The tests were made at various points, indiscriminately, in wet and dry marsh, near the bay and back against the mainland, near the road and away from the road, etc. The procedure of the intrusion, squeaking, etc., was the same in all cases.

COUNTS MADE JUNE 23, 1941

Test Stations	*Number of Birds "Squeaked up"*	*Location of Test Station, and Type of Marsh*
1.	13	Fortescue, N. J. The breeding census area. Undrained salt marsh.
2.	15	One mile east of 1. Undrained.
3.	6	Along Fortescue Road near mainland. Undrained.
4.	10	Delcher Marsh—off mainland, south of road to Gandy's Beach.
5.	11	Along road, north of Gandy's Beach. Drained, dry.
6.	5	Half mile from Delaware Bay. Gandy's Beach, north side of road. Drained, dry.

COUNTS MADE JUNE 23, 1941—*Continued*

Test Stations	*Number of Birds "Squeaked up"*	*Location of Tesl Station, and Type of Marsh*
7.	4	Newport Landing, end of road—wet spot, near creek. Undrained.
8.	6	East of Turkey Neck. Wet.
9.	4	Turkey Neck—Ogden's Creek. Ditched.
10.	7	Sea Breeze, south side of road. Ditched, dry.
11.	7	Sea Breeze, north side of road. Ditched, dry.
Total	88	Average 8, at each of eleven stations.

From the above, we obtained the following ratio

13 : 8 :: 8 : 5

For, if thirteen birds "squeaked up" indicate eight breeding birds actually on fifteen acres, then the average of eight birds "squeaked up" at the eleven stations would indicate an average of five breeding on each fifteen acres of the marsh, or one bird to each three acres.

Between Cohansey Creek and Maurice River, this interesting marsh stretches over some 30,000 acres. If, as the count shows there is one bird on each three acres then this means there are ten thousand willet breeding on the entire marsh.

Doubtless this method of counting does have flaws. But at least it is a method of considerable merit. Is there a better method?