

which may be mentioned the local races of valley quail, wren-tit, bush-tit, brown towhee, spotted towhee, and rufous-crowned sparrow.

Intergradation between *confinis* and *eremophila*, which takes place in extreme northern Lower California and southern San Diego County, tends to be "spotty," but there can be no doubt that the average north of the boundary is closer to the latter form. In a series of twenty-seven specimens from San Diego County I find four which by every test are *confinis*, if one cares so to identify them individually. These are from La Puerta Valley, the Laguna Mountains (Nat. Hist. Mus.), and Campo (Dickey coll.); but other specimens from the same localities are clearly *eremophila*, or else are intermediates. Under the circumstances it seems doubtful if *confinis* can be considered to occur north of the California-Lower California boundary.

MEASUREMENTS

Although it was at first thought that southern birds were larger than those from farther north, this was not borne out by measurements of large series. There is, however, a slight lengthening of the crest to the southward from *palmeri* to *eremophila*, as the following measurements (in millimeters) show.

| MALES | | | FEMALES | | |
|-------------------|----------|---------|-------------------|----------|---------|
| | Extremes | Average | | Extremes | Average |
| 10 palmeri . . . | 39-73 | (65) | 14 palmeri . . . | 36-57 | (51) |
| 17 picta . . . | 59-72 | (67) | 13 picta . . . | 43-60 | (55) |
| 15 eremophila . . | 70-87 | (73) | 12 eremophila . . | 56-70 | (58) |
| 25 confinis . . . | 60-73 | (63) | 14 confinis . . . | 53-62 | (55) |

In conclusion I wish to thank the Museum of Vertebrate Zoology for the privilege of examining its entire series of mountain quail and for the outline map upon which the ranges of the races are shown.

Dickey Collections, California Institute of Technology, Pasadena, California, November 5, 1936.

NOTES ON THE INTRODUCED SKYLARK IN THE VICTORIA DISTRICT OF VANCOUVER ISLAND

WITH MAP

By G. D. SPROT

Because little has been published on the Skylarks (*Alauda arvensis*) of Vancouver Island since their introduction over thirty years ago, the following observations made in the course of an exceptionally open season, from September 10 to December 28, 1935, may hold something of interest. The area under observation represents about one-third of the range of the Skylark on the Island.

The first introduction of the species was made in 1903 when the British Columbia Natural History Society, with financial assistance from the Provincial Government and a number of island residents, placed an order with a New York foreign bird importer for 200 Skylarks and a few other species of European birds. These birds left England about the middle of October, arriving on the Island late in November. The losses en route were heavy among the other species, but the hardy Skylarks, although badly cramped in two small cages, stood the journey with the loss of but two birds.

The exact number of Skylarks liberated on Vancouver Island unfortunately is unknown. The minutes of the Society give the number as 100. According to the correspondence, the secretary could only make "as fair a division as was possible under the circumstances" of the 198 survivors of the journey, and about one-half was shipped directly to the mainland, the remainder being released in aviaries in Beacon Hill Park. Late in December this "remainder" was made up into "parcels" (the number in each

parcel was not recorded) and certain of these were forwarded to Duncan, North Saanich, Colwood, and Cedar Hill. Some were liberated in fields adjoining the Jubilee Hospital and some at Beacon Hill. Those released at Duncan, Colwood, North Saanich, and Beacon Hill soon disappeared, but at least a few of the Cedar Hill and Jubilee Hospital birds survived.

Fresh blood was introduced by the Society in 1913, when 49 additional Skylarks were distributed as follows: 34 at Rithet's Farm, 9 at Lansdowne Road, and 6 at Cadboro Bay. Unfortunately no records were kept of the increase, and although Skylarks were found by me in 1935 in isolated groups north as far as the North and South Saanich boundary line (about 14 miles north of Victoria), it is impossible to state as to whether these Saanich birds were from those released in Victoria or, as I believe them to be, from overlooked survivors of the early North Saanich introduction. (On July 14, 1936, I found about eight Skylarks as far north, on Saanich Peninsula, as Sidney. The owner of the land assured me that these birds were present in winter as well as in summer and had been in that area for a number of years.)

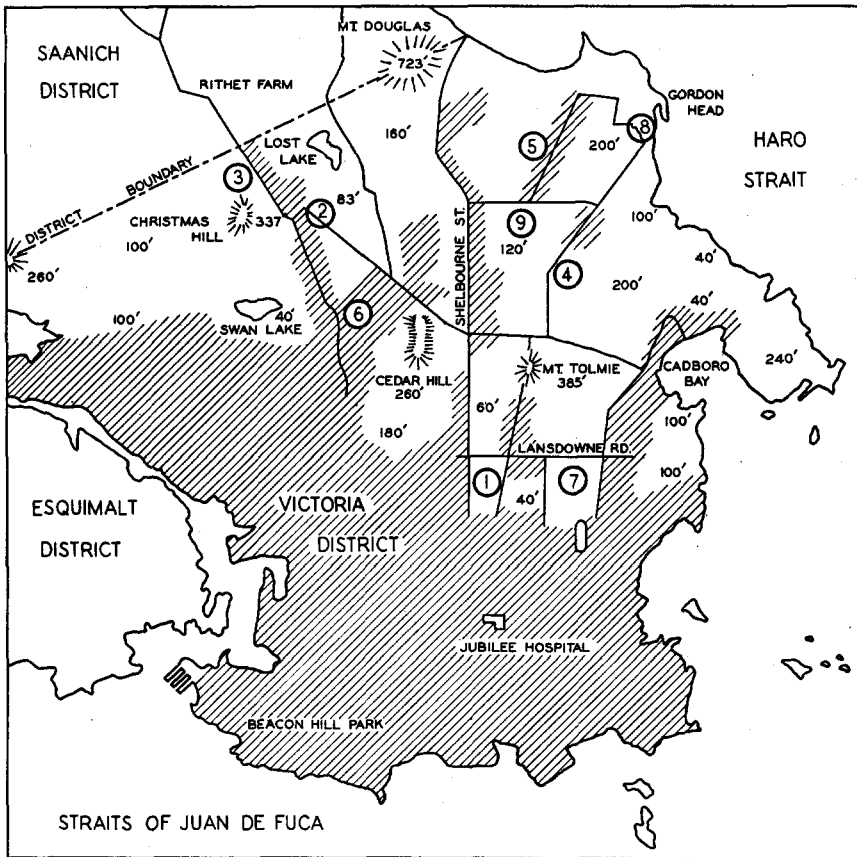


Fig. 8. Map showing distribution of Skylarks in the vicinity of Victoria, Vancouver Island, British Columbia. Shaded areas signify city and suburbs; numbers in circles indicate groups of Skylarks.

The Victoria District in which these observations were made is the southernmost district of Vancouver Island. It consists of a lowland peninsula, roughly twenty-five square miles in area. Noticeable features of its landscape are several glacially rounded hills or monadnocks varying in height from 300 to 700 feet which, with a number of narrow drift ridges of 100 to 200 feet, break up the lowlands into small parallel valleys running north and south. The city and suburbs of Victoria cover, in solid formation, about half the entire district, and extensions spread out across the remaining cultivated area to, and beyond, the district's northern boundary. Market gardening, fruit growing and dairying are carried on in this cultivated section.

Throughout the greater part of the district today, oaks (*Quercus garryana*) predominate. Douglas fir (*Pseudotsuga taxifolia*) occurs along the northern boundary in the vicinity of Mt. Douglas (723 feet elevation) and extends as a patchy coastal fringe south from Gordon Head to Cadboro Bay and along the eastern slope of the gravel ridge (200 feet), terminating in Mt. Tolmie (385 feet). On the western slope of this ridge are to be found perhaps the majority of the Skylarks in the district. Along the summit of the opposite slope of this long valley, down which runs Shelbourne Street, oaks crop out thickly, and, with occasional parklike clearings, extend north to Mt. Douglas, south to the city, east to the coast, south of Mt. Tolmie, and west to the valley of North Quadra and Christmas Hill (337 feet). Near this hill a few stubble fields occur and, consequently, a fair number of Skylarks. To the west of Christmas Hill firs again show up among the oaks, becoming increasingly common as the highlands are reached near the northwest boundary.

After a week or two spent in locating the whereabouts of the Skylarks, it became obvious that their major habitat in winter was grain stubble and that the Victoria stubbles might be divided into three types: (A) The most popular with Skylarks; second growth crops of wheat or oats, such as result from the dairyman's method of cutting early for the silo or for feeding stock in summer. (B) Fairly popular; light stubbles, where on the poorer soil of the highlands the crop has matured and has been harvested early, and over which a considerable amount of grain has been spilt and a growth of weeds has gone to seed. (C) The least popular; coarse stubbles on rich soil that has been cleanly farmed; for the most part seeded to clover, the grain having served as a cover crop. Other types of cultivated land, such as fall-sown wheat, were also frequented, but it was later observed after tramping many acres of such land that fall-sown wheat was frequented only in one area where stubble had almost given out.

Once the major habitat was discovered, observations were simplified, and by the middle of October the greater number of the Skylarks had been located and the stubbles mapped. It was learned from the taking of a number of censuses, that several stubble fields, if separated by a hedge or road, were usually frequented by a single group of Skylarks. But, if two such stubble fields were separated by a twenty-acre pasture, then it was quite likely that the fields would be held by two distinct groups of larks. This was the case in the Tyndall Avenue and North Quadra areas where, after a few censuses had been taken over several stubble fields, it was noted that the number of Skylarks frequenting each stubble field that was separated from the others by a distance of but 100 to 200 yards remained constantly at about the same level.

My observations indicated that each group was closely attached to its own area in winter. Rather than desert an area to which they had become attached, some Skylarks appeared to be adapting themselves to the changes brought about by suburban extensions and the consequent retirement of dairy farmers from the area. What suggested this perhaps more than anything else was the difference in the habits of the

birds in areas 1 and 7, compared with those in all the other regions. Area no. 1 was near the Jubilee Hospital, now an airport, where the birds of the first introduction were released and where they were known to have survived; and 7 was the Lansdowne Road area where 9 birds were released in 1913. Both areas are now almost enclosed by buildings. Number 1 had, I am told, many stubbles at one time, but these dwindled as the suburbs of Victoria extended, until, at the time my observations were made, only the airport had a stubble, and that a poor one of about 6 acres. Number 7 had probably always been what it is today, a Chinese market garden with perhaps an occasional stubble; but at the time these observations were made there was none. Both areas, however, had large acreages of fall-sown wheat. The birds of no. 7 preferred weedy arable land to sprouting wheat, for I never found them on the latter in any of its stages of growth. Those of no. 1, a much larger group, were forced to rely on newly sown or sprouting wheat, and weed seeds, as an alternative to moving out to the next nearest stubbles two miles north.

On November 28, when visiting no. 1, I found that germinating wheat was no longer available. No birds were to be found on the ground grown to wheat and but 22 on the now near-bare stubble. Instead of searching, as I should have done, the remaining rough-grass section on the borders of the airport, I felt convinced that, since area 7 was only a quarter of a mile to the east, and since it included several acres of lately sown wheat, the missing birds would be found there. But after working that area thoroughly, I found only 7 birds. On my next visit to no. 1 I found a small acreage had been freshly seeded to wheat, and on walking on it, I raised the usual number of Skylarks—forty odd. I could not be certain whether or not the missing larks of November 28 had remained in their own area and had been overlooked, but since the freshly sown wheat section of no. 7, so close at hand, had not been taken advantage of, it seems hardly likely that they had travelled north to the next nearest stubble area and returned within a fortnight. (See census table.) Thus I feel safe in assuming that they had not left their own area.

What might have happened had the season not been favorable to this further sowing of wheat in no. 1 is problematical. I was told by a resident that he had never been able to entice larks to a food tray in close proximity to the house, but that the larks in hard weather would occasionally seek food in vacant lots or back yards if not too enclosed. It is not suggested that individual Skylarks never join up with those of other groups, for it was often suspected that they did do so. On December 14, when taking a census over several areas, I found but 1 bird left out of 8 in no. 8, which area had been ploughed since my last visit. There were 8 additional larks in no. 5; 7 of these I have every reason to suspect were the missing birds of no. 8. I was always inclined to treat small variations in the numbers of birds in the large areas as errors in the counts, but the variations in numbers occurring at times within the smaller groups, 3, 6, 8 and 9, could not be so satisfactorily accounted for.

It may be found later that my group divisions are too fine and that all outlying small groups are but outposts of the main group in the same valley. Nevertheless, in treating each large group as a whole I feel certain that it is stationary in its own area, which may be the whole of a small valley and the slopes thereof. Such large groups at least are stationary in winter, if not throughout the whole year.

Before the middle of November it was only by chance that an accurate count could be obtained for groups 1, 4 and 5 on account of the erratic behavior of the Skylarks. A change in their habits became noticeable about November 19. Formerly, on being disturbed, they had risen one by one, or in little flurries of 3 or 4, and, while some flew

low, either dropping back into the stubble or pursuing each other to the far end of the field, others would soar to about thirty feet, twittering weakly, to be playfully lunged at by some rival songster and driven to earth.

After the middle of November the birds appeared to sober down. They stayed closer together, and after one or two had been disturbed, the others would often rise with them and all would remain in the air. Eventually, if the field was fairly small, after circling it several times at a considerable height, they usually would fly off out of sight. If the area was a large one, they departed in much the same manner; only rarely would a small party move off by itself without the usual circling; more often, however, each party as it rose from its corner of the field would join the others in the air, whereupon the whole group moved off as a unit. They usually returned in about four minutes, sometimes before I had left the field, yet on rare occasions they would absent themselves for fifteen minutes or more; but they always returned.

If the weather was mild and the wind light, they soared to a great height and drifted to a considerable distance until lost in the mists. While drifting in this way, they would occasionally pass above the stubbles of other groups, and although they sometimes landed temporarily on nearby pastures, they were never seen to land within the valley occupied by any of the other large groups. Thus census-taking after November 19 was a fairly simple matter, for the larks could be counted as they rose, again while circling, and yet again as they returned. When a large group returned, a quick count as they came into view was necessary, for although they would at times circle and spread before alighting, it sometimes happened that as they reached the home field, numbers of them just fell to the ground like hailstones.

Estimates based on attempted counts had to serve as a guide to the numbers of Skylarks present in September and October, although on rare occasions a satisfactory count was secured during these months. Excepting group 3, most of the small groups were not discovered until November when the district became better known and the cultivated areas more carefully explored. The following list includes actual counts only.

| | October | November | December |
|-------------------|---------|------------|------------|
| Group 1 | 44 | 22 | 41; 45; 43 |
| Group 2 | ---- | 26 | 33; 27 |
| Group 3 | 14 | 14; 14; 14 | 17 |
| Group 4 | ---- | 32; 47; 44 | 38 |
| Group 5 | ---- | 37; 37 | 45 |
| Group 6 | ---- | 2 | 5; 1 |
| Group 7 | ---- | 7 | 8 |
| Group 8 | ---- | 8 | 1 |
| Group 9 | ---- | 11 | 10; 6 |

Names of groups: 1, Lansdowne Airport, near the Jubilee Hospital; 2, North Quadra Street, Cedar Hill; 3, near Rithet's Farm; 4, Municipal Airport; 5, Tyndall Avenue; 6, Lakehill Recreation Park, Cedar Hill; 7, Lansdowne Road; 8, Gordon Head; 9, Feltham Road.

If the smaller groups, as was suggested earlier in this paper, are but outposts of the larger groups, then no. 6 would be included with 2, and 8 and 9 with 5, giving five distinct groups for the Victoria District. Taking the highest count of the birds in each group, there would be a grand total of 219 Skylarks.

During the winter, at least, there is nothing as yet to show that the status of our native species of birds is in any way disturbed by the presence of the Skylark. The Skylark has few competitors among native species in winter, and, incidentally, few enemies. Almost the entire stubble community of birds in the district is composed of domestic, semidomestic, and introduced species. It might then be argued that this condi-

tion may account for the scarcity of native species on the stubbles in winter. If this be so, it is certainly not through overcrowding of the stubbles, nor through scarcity of seed or grain, for in late December several second-growth crops of grain were untouched in parts of Victoria and Saanich, and it is known that considerable areas of wasteland in those districts carry their crops of weed seeds untouched through the winter. Furthermore, similar habitats just beyond the present range of the Skylark have not as yet been taken advantage of by birds other than perhaps the introduced pheasant. With the exception of three individuals, even the Red-wing was absent from the area under observation, although it was fairly common in winter in other districts farther north.

Restricted as it appears to be in winter to one, or at most three, types of habitat, and, as is assumed to be the case, apparently confined to a single valley, the Skylark should be the first to suffer through the invasion of the stubbles by excessive numbers of other introduced species, none of which, not even *Perdix*, is so restricted. I have not closely observed the conditions in this district in summer, but the natural scarcity of native species over cultivated land in other parts of Vancouver Island is well known to me.

The stubble community in the Victoria District after October 23, barring an odd snipe and a Marsh Hawk, was composed of eight species: Mallard, European Partridge, California Quail, Ring-necked Pheasant, Domestic Pigeon, Skylark, Western Meadowlark, and House Sparrow. One only, the meadowlark, is a native, and this species was found as often on other types of arable land and pasture as in stubble. The Mallard may claim the distinction of being a native species, but in the stubble areas these birds are almost all half-tamed individuals from the local park sanctuaries. A complete census of the stubble community over all known stubbles in the district was attempted on one day in December, and although this was rather hurriedly carried out, the only birds that might have been missed were probably a few Skylarks and close-lying partridges. The result was: European Partridge, 12; Ring-necked Pheasant, 14; Domestic Pigeon, 75; Skylark, 182; Western Meadowlark, 31; House Sparrow, 24; total of 182 Skylarks to 157 of all other species. Although members of the community, the quail and the mallards do not figure on this list. Quail were rare on stubble, and although Mallards become active at night, except in one instance the stubbles showed little sign of having been much frequented by this species. The regular evening bombardments by sportsmen, carried on well into the night, would in any event hardly permit any special abundance.

The total acreage of stubbles could not be satisfactorily ascertained, but in area 4, where the acreage was known, the average number of Skylarks per acre of stubble was about 3. In some other areas, where all or part had to be roughly estimated, the results were much the same, never less than 2, nor more than 3, per acre.

Observations in parts of the Saanich Peninsula showed Skylarks to be fairly common there also. One group of 31 birds was located in a small valley running east and west on the south side of Mt. Newton. Smaller groups were found near Elk Lake and in the long valley running from the lake north to Saanichton. Numbers of rich stubbles of the A type in these valleys were frequented neither by Skylarks nor by other species of birds.

It would be unwise to attempt to state, at this time, which factor or combination of factors accounts for the Skylarks' continued presence. The extreme scarcity, both now, and formerly, of native species of birds in the area now frequented by Skylarks has suggested the possibility of there having been, about 1903, a vacant ecological niche brought about by the clearing of the forests. This niche, connected with cultivation,

obviously was not, and has not as yet been, fully taken advantage of in winter. Nor has it to any appreciable extent been occupied in summer by native species. At the time of the first Skylark introduction, pheasants and quail were possibly the only species present on the stubbles; and quail, as before stated, rarely frequent stubbles unless these be in close proximity to some cover such as that afforded by broom (*Cytisus scoparius*).

Some of our native species more or less closely associated with cultivation, as for example Killdeer, Cliff Swallows, and Goldfinches, among the most common of our island species today, were unknown on the island before 1910. In a matter of a few years they increased rapidly, undoubtedly because, in part, there was no serious opposition from other species.

Of other birds connected with cultivation, the northward advance of one in particular, the Brewer Blackbird, is interesting and might well be recorded here. Now one of our most abundant residents, it was unknown before one was taken by S. N. Rhoads (Proc. Acad. Nat. Sci. Phila., 1893, p. 47), in 1892. Spreadborough (Macoun, Cat. Canadian Birds, part 2, 1903, p. 409) in the following year reported "... one specimen seen on Vancouver Island" and "... none seen afterwards," in that year. Swarth (Univ. Calif. Publ. Zool., vol. 10, 1912, p. 52) reported it as common on the east coast in 1910: "A very few were seen near Alberni, but on the west coast they seemed to be entirely absent..." From the cultivated areas of Alberni to the nearest point to the west of similar nature would mean a "hop" of thirty miles, as the crow flies, over forest and mountain. Thus its arrival on the west coast was delayed until 1923 when in the winter of that year Mr. George Fraser of Ucluelet, an interested observer, reported to me that one was seen with some robins, and several months later, that ten were seen. Incidentally Fraser also reported the first arrival of the White-crowned Sparrow on that coast: "a pair, and likely to nest" on May 18, 1932. This was twenty-two years after Swarth reported it as not having reached Alberni and seventy years after specimens had been collected at Victoria by James Hepburn.

It seems only reasonable to conclude that so small and isolated a habitat, or group of habitats, as that afforded by cultivation upon a forested island might long remain undiscovered by native species. At the time of the introduction of Skylarks in 1903, lack of competition coupled with a natural scarcity of those predatory species usually associated with cultivation favored the establishment of the species. The Skylarks were introduced, under ideal conditions, to far more congenial surroundings than their fellows possibly found awaiting them in the earlier-established cultivated mainland areas where other acclimatization societies have exercised their meddling activities.

It may be merely a coincidence, but I believe that in regard to North America, the only two near-successful experiments with this species were on two islands, Lulu Island, British Columbia, and Long Island, New York. The conditions, especially with regard to farming activities and the status of other species of birds, that prevailed in those areas at the times of the introductions, and the conditions that prevail today, might, if recorded, reveal something of interest in this connection.

Consideration must of course be given to the position and climate of the Victoria Peninsula. Sheltered by mountain ranges from most of the prevailing, moisture-laden winds, its precipitation, as compared with other nearby coastal districts, is not heavy, amounting to about 32 inches. Again, the tempering effect of the sea breezes prevents any extremes of temperature; 40° is the average in winter, and 55° the average in summer. Snow, which does not often occur, rarely lies long upon the ground.

Major Charles Bendire in his Life Histories of North American Birds (Smithsonian

Contributions to Knowledge, no. 985, 1895, p. 327) gave February, 1888, as the date of disappearance of *Alauda arvensis* from Long Island, following a blizzard. A few must have survived, however, for Dr. Phillips (U. S. Dept. Agr. Tech. Bull. no. 61, 1928, p. 50) gives 1899 as "the last notice of their presence" in that area. Harvie-Brown (Proc. Nat. Hist. Soc. Glasgow, vol. 4, 1879, pp. 164-165) described the effect of prolonged cold weather on this species in Scotland, where they "disappeared except where fed," but he notes also observations by Robert Service: "An increase during the breeding season of 1879 was observed in S. W. Scotland, where of late years they have been on the decrease." Presumably this increase was the result of a concentration of survivors from the colder northern and eastern parts of Scotland. The climatic conditions in the vicinity of South Vancouver Island, and especially at Victoria and on Saanich Peninsula, may therefore be considered favorable, and if the present methods of farming be continued, there seems to be no reason why the Skylarks should not continue to hold their own, or even, as the timber becomes cleared to the west, extend their range.

Cobble Hill, Vancouver Island, British Columbia, August 18, 1936.

BIRDS OF THE COALINGA AREA, FRESNO COUNTY, CALIFORNIA

By JOHN R. ARNOLD

The following is a list of birds positively identified within Pleasant Valley, Fresno County, California, in which valley the town of Coalinga is situated. Observations were made here by me from September, 1933, to June, 1934, from September, 1934, to June, 1935, and from September, 1935, to May, 1936. A number of additional observations were made from time to time by Dudley DeGroot and John G. Tyler, and these I have been permitted to use.

This area is in the Lower Sonoran Life-zone; elevations range from 550 feet to 800 feet. The area has the following incomplete natural boundaries: Anticline Ridge on the northeast; Guijarral Hills on the east; Kettleman Hills and Plains on the southeast; and the Kreyenhagen Range and the Coast Range on the south, west and north. For most of the place-names here employed see Coalinga sheet, United States Geological Survey.

Colymbus nigricollis californicus. Eared Grebe. Fall resident, from September 9 (1934) to December 4 (1933), in groups of four to nine; also observed on May 4, 1934.

Ardea herodias hyperonca. California Great Blue Heron. Recorded November 11, 1933, and April 18, 1934, at the stock farm near the Guijarral Hills.

Egretta thula brewsteri. Snowy Egret. Seven seen on April 18, 1934, at the stock farm.

Butorides virescens anthonyi. Anthony Green Heron. Observed on October 9, 1933, May 5, 1934, and May 8, 1935.

Nycticorax nycticorax hoactli. Black-crowned Night Heron. Four birds recorded on April 28, 1934.

Plegadis guarauna. White-faced Glossy Ibis. One bird recorded on April 27, 1934.

Anser albifrons albifrons. White-fronted Goose. Observed twice in the area: March 7, 1934, seven birds; March 9, 1934, twelve.

Anas platyrhynchos. Mallard. An occasional visitor; does not remain long.

Mareca americana. Baldpate. Seen on November 12, 1934.

Querquedula cyanoptera. Cinnamon Teal. Observed during December, February, and March. The largest group, twenty-eight birds, was seen on March 9, 1934.

Spatula clypeata. Shoveller. A male and a female were observed on January 27, 1935.

Erismatura jamaicensis rubida. Ruddy Duck. On May 4, 1934, a male and a female were found dead in the road beside a reservoir.