

FALL MIGRATION NOTES FROM THE
SAN FRANCISCO MOUNTAIN REGION, ARIZONA
(WITH TWO PHOTOS)

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(Contribution No. 424 from the Museum of Vertebrate Zoology of the University of California)

DURING the fall of 1922 the present writer spent two months in field work in the vicinity of San Francisco Mountain, Arizona. This work was conducted in conjunction with Dr. Francis B. Sumner, of the Scripps Institution for Biological Research, and his assistant, Mr. Ralph R. Huestis. The expenses of the trip were defrayed in part by Mr. E. W. Scripps, through the Scripps Institution, in part by Miss Annie M. Alexander, through the Museum of Vertebrate Zoology. Dr. Sumner was in charge of the expedition, the main object of which was a study of certain small rodents of the region explored. (See "The supposed effect of the color tone of the background upon the coat color of mammals," by F. B. Sumner and



Fig. 47. DOVE TANK, NEAR DEADMAN FLAT; ARTIFICIAL STORAGE OF SURFACE WATER IN A REGION WITH FEW PERMANENT SPRINGS AND STREAMS. PHOTOGRAPHED OCTOBER 11, 1922.

H. S. Swarth, *Journal of Mammalogy*, vol. 5, May, 1924.) Mammal collecting took up all of the time of Dr. Sumner and Mr. Huestis, and a large portion of my own. I did give some time to birds, however, keeping notes on all species observed, and, especially in the latter part of our stay, collecting specimens of many of the species. Most of the mammals and all of the birds I collected, together with field notes and photographs, are in the Museum of Vertebrate Zoology.

The following notes are presented mainly for their value as statements of occurrence. Our time in the field covered most of the period in the fall when birds were actively migrating, and in many cases I was able to ascertain exact dates of arrival and departure. I believe there have been few observations of the sort from this section.

We arrived at Flagstaff on September 3, and on September 5 we established a permanent camp 21 miles northeast of that city. This was on Deadman Flat, northeast of the main San Francisco Peak and a little northwest of O'Leary Peak. This section has recently been opened to settlement, and several ranchers are attempting, more or less experimentally, to raise crops of various sorts by dry farming. We were able to establish ourselves comfortably in a cabin belonging to Mr. Carr H. Schwarz, for living quarters and work shop. Our meals we obtained at the nearby ranch house of Mr. W. J. Osborn. To Mr. and Mrs. Osborn and their family, and to Mr. Schwarz, we are indebted for many kindnesses. The interest they took in our work and the aid they gave us were important factors in making a success of our trip, and it is a pleasure here to make acknowledgment of our indebtedness.

The region about San Francisco Mountain is historic ground to the zoologist. In 1851 the Sitgreaves expedition traversed this section en route from Santa Fé, New



Fig. 48. LOOKING TOWARD DEADMAN FLAT FROM THE SOUTH, AT THE LOWER EDGE OF THE YELLOW PINE BELT. PHOTOGRAPHED OCTOBER 12, 1922.

Mexico, to San Diego, California. Dr. S. W. Woodhouse, naturalist attached to the party, made collections and reported upon the natural history of the expedition.¹ From the printed account it is evident that Sitgreaves' route led directly across the section where our own work was pursued. We were there at the same time of the year and it proved of decided interest to compare our own day-to-day observations with the diaries printed in Sitgreaves' report.

During August and September, 1889, San Francisco Mountain again served as a field for zoological observations, this time by a party under the direction of Dr. C. Hart Merriam. Observations of the birds are included in the report subsequently published.²

¹ In "Report of an Expedition down the Zuni and Colorado Rivers," by Captain L. Sitgreaves, Washington, 1858; 198 pp., 77 pls., map.

² Results of a Biological Survey of the San Francisco Mountain Region and Desert of the Little Colorado, Arizona. U. S. Dept. Agric., N. Amer. Fauna no. 3, 1890, pp. 1-136, pls., figs.

In view of Merriam's detailed description of the region there is no need of going into particulars here, but there are some points that it seems well to emphasize. Our headquarters was in the piñon belt, and most of our work was done there. Many short trips were made into the yellow pine belt, at a slightly higher altitude, and several to points above the limits of the yellow pine. This whole region is extremely arid. There are no running streams and very few springs, and there is in consequence a marked scarcity of certain types of small birds, of the sorts that frequent such shrubbery as appears in the vicinity of streams. In the piñon belt and in the yellow pine belt there is very little underbrush.

At a few places in the pines, and more numerous at lower levels, gullies have been dammed to check the flow of surface water, with resulting reservoirs, primarily for the use of cattle, that are locally known as tanks. These become filled with water as a result of winter snow and of the heavy thunder storms of midsummer, and they diminish in size at other seasons. Some of the larger tanks attract a few passing water-fowl.

The plains at the base of San Francisco Mountain are at an altitude of about 6000 feet, and in consequence of this high elevation the winters are rather severe. When we arrived, the first of September, the summer heat was still intense, and warm weather continued until early in October. On the morning of September 24 the green belt of quaking aspen, conspicuous on the higher slopes of San Francisco Mountain, was seen to have suddenly developed spots of brilliant yellow and orange, an indication of the first frost at that height. A few days later the green had all changed to yellow, and early in October there was a light frost at the level of our camp. On October 27 a light rain that began to fall late in the afternoon changed to snow during the night, the beginning of a storm that lasted three days. When I left for home, November 2, the weather had not been warm enough to melt the fallen snow to an appreciable extent.

Erismatura jamaicensis. Ruddy Duck. One seen October 15 on a tank some thirty miles north of San Francisco Mountain. There were flocks of larger ducks on the same tank, too far distant to be identified.

Fulica americana. American Coot. Several seen at the same time and place as the last mentioned species.

Totanus melanoleucus. Greater Yellow-legs. Two seen October 15, at a tank some thirty miles north of San Francisco Mountain.

Oxyechus vociferus vociferus. Killdeer. Seen throughout September and October, usually a single bird or two together at the edge of a tank.

Columba fasciata fasciata. Band-tailed Pigeon. One seen September 14, at about 10,000 feet on San Francisco Mountain. Reported from the same mountain by Woodhouse, but not found by Merriam. According to local report it occurs sometimes in fair abundance.

Zenaidura macroura marginella. Western Mourning Dove. In fair abundance during the first two weeks in September. A single bird appeared October 29; none had been seen for the previous six weeks.

Circus hudsonius. Marsh Hawk. Seen frequently during September; became rare by the middle of October. An adult male was seen on October 29, drifting over the prairie in a driving snow storm.

Accipiter velox. Sharp-shinned Hawk. Seen at frequent intervals; last noted October 27.

Accipiter cooperi. Cooper Hawk. Seen, rather infrequently, until October 12. Two killed, not preserved, while attacking poultry.

Astur atricapillus. Goshawk. Two seen circling overhead at Deadman Flat September 11.

Buteo borealis calurus. Western Red-tailed Hawk. Seen frequently during the whole of our stay.

Archibuteo ferrugineus. Ferruginous Rough-legged Hawk. First seen October 9. Fairly common thereafter, and seen to the end of my stay, November 1. On one occasion a Ferruginous Rough-leg and a Western Red-tail were seen perched on the ground about twenty feet apart, each with a freshly killed prairie dog.

Aquila chrysaetos. Golden Eagle. Of frequent occurrence. Sometimes five or six seen in one day.

Falco mexicanus. Prairie Falcon. Encountered at frequent intervals during the whole of our stay. Once observed in pursuit of domestic pigeons in Flagstaff, and several times after poultry about ranch houses. The one specimen preserved was shot while making off with a chicken.

Falco columbarius, subsp.? Pigeon Hawk. Two seen on the outskirts of Flagstaff, October 31 and November 1, respectively.

Falco sparverius sparverius. Sparrow Hawk. Common during September, and early in October. A single bird seen October 31 was the only one noted after October 15.

Otus asio, subsp.? Screech Owl. The call of a screech owl was heard several times during the night of October 15 in piñon and juniper woods thirty miles north of San Francisco Mountain.

Bubo virginianus, subsp.? Horned Owl. Heard hooting occasionally; apparently not numerous.

Dryobates villosus leucothorectis. White-breasted Woodpecker. A few seen, mostly in the pine woods. Late in October individuals occasionally strayed down to lower levels.

Sphyrapicus varius nuchalis. Red-naped Sapsucker. Two seen October 13 in junipers near a tank.

Sphyrapicus thyroideus nataliae. Williamson Sapsucker. First noted September 14, in the pines, and on several occasions thereafter. On October 10, 11, and 17, others were seen in junipers, far from the mountain.

Asyndesmus lewisi. Lewis Woodpecker. A few seen near Flagstaff early in September.

Colaptes cafer collaris. Red-shafted Flicker. Fairly common, mostly in the pines during September; descending into the piñon and juniper woods in October.

Phalaenoptilus nuttalli nuttalli. Poor-will. Last seen September 29.

Aëronautes melanoleucus. White-throated Swift. A few seen at irregular intervals.

Sayornis sayus. Say Phoebe. A few seen early in September.

Empidonax griseus. Gray Flycatcher. An immature male, still undergoing the post-juvinal molt, was collected in juniper woods September 6. An unidentified *Empidonax* seen October 5 was the only other individual of this genus that was seen.

Otocoris alpestris leucolaema. Desert Horned Lark. The horned larks collected all appeared to be migrants. During the first two weeks in September they were rare. Then flocks appeared more and more frequently, and by the middle of October they were abundant, though restricted to certain favored localities. The twenty-eight specimens collected, from September 11 to October 26, appear to belong all to the same subspecies.

Cyanocitta stelleri diademata. Long-crested Jay. Abundant in the pines along the road between Deadman Flat and Flagstaff. Decidedly rare in the pine woods on the northern slope of San Francisco Mountain. Merriam speaks of its occurrence "everywhere from timber line to the lower part of the cedar belt," but I saw none in the piñons and junipers. Two immature birds collected September 14 are in the midst of the post-juvinal molt. In the northern subspecies, *stelleri* and *annectens*, this molt is usually accomplished by the end of August.

Aphelocoma woodhousei. Woodhouse Jay. Rather uncommon, and, as noted by Merriam, usually "shy and difficult to procure." Restricted to the piñon-juniper belt. In the lower portion of this belt there are far more junipers than piñons; in the upper portion the piñons preponderate markedly. The Woodhouse Jay was always among piñons, although this year there were no cones on any of the trees. The juniper woods,

bearing a fairly plentiful crop of berries, were seldom entered; in fact I did not see a single Woodhouse Jay in certain sections where there were nearly pure stands of juniper.

Corvus corax sinuatus. Southern Raven. Beginning October 10 a few ravens appeared, apparently migrating. At any rate, these scattered companies, containing from three to ten individuals, were always drifting in a southerly direction.

Nucifraga columbiana. Clark Nutcracker. A few seen at high altitudes, above the yellow pine belt.

Cyanocephalus cyanocephalus. Piñon Jay. Abundant and in flocks numbering hundreds of individuals throughout the piñon-juniper region. Failure of the crop of piñon nuts had left these jays without their usual food, and they were doing considerable damage to some ranch crops. Certain fields of corn and beans were raided constantly. Curiously enough there were other fields, around which the jays were seen daily, which they never touched. I was told that ordinarily, with a normal supply of piñon nuts, the jays did not damage cultivated crops. There was no indication of an exodus of the birds as a result of the absence of their usual food.

Xanthocephalus xanthocephalus. Yellow-headed Blackbird. Occasional individuals appeared in the corn fields or else about the Osborn ranch house. Seen from September 16 to October 7.

Agelaius phoeniceus fortis. Thick-billed Red-winged Blackbird. Migrating southward in small numbers, never more than eight or ten in a flock. First seen October 7, and from then on until my departure.

Sturnella magna hoopesi. Rio Grande Meadowlark.

Sturnella neglecta. Western Meadowlark. Meadowlarks were present in the region when we arrived, September 1, but whether or not both species breed there, could not be ascertained. Eleven specimens of *hoopesi* and three of *neglecta* were collected, but this is no indication of their relative abundance. A special effort was made toward securing *hoopesi*, and the call-notes and songs of the two species are so different that there seldom was any doubt as to which kind I was pursuing. Meadowlarks were plainly migrating southward. They would be present in a field one day and absent the next, and flocks were seen again and again that were rapidly drifting in a southerly direction, walking and feeding on the ground and always flying in the same general direction when disturbed. For *hoopesi* to be migrating southward through this part of Arizona is an indication that the breeding range extends some distance farther north, probably into southern Utah and perhaps into southwestern Colorado. By the third week in October Meadowlarks had become very scarce, but some were seen on October 31.

Specimens of *hoopesi* collected September 9 and 11 were molting from juvenal to first winter plumage. On October 9 several Meadowlarks were seen that were molting, so as to be able to fly but with difficulty. Wing and tail feathers had apparently been lost almost all at once, and were but partly replaced.

It is of interest to compare the occurrence of these two species in this region with Wetmore's reports of conditions in the vicinity of Bill Williams Mountain (Kansas University Science Bulletin, IV, Sept., 1908, p. 381; CONDOR, XXIII, March, 1921, p. 62).

Euphagus cyanocephalus. Brewer Blackbird. Seen during September and the first half of October. Usually about barns and corrals.

Carpodacus cassini. Cassin Purple Finch. First seen October 17 at about 8000 feet altitude on San Francisco Mountain. After the heavy snow storm of October 28-30, Cassin Purple Finches appeared in numbers in the lowlands. Between Deadman Flat and Flagstaff flock after flock was seen feeding in weed patches alongside the road.

Carpodacus mexicanus frontalis. House Finch. First appeared September 19, a single bird. A few others were seen, never more than three or four together, at long intervals.

Passer domesticus. English Sparrow. First seen at Deadman Flat on October 7. That morning I was standing in the yard of the Osborn ranch when, with a whirr of wings, a flock of about twenty English Sparrows, all females, swooped from the sky and settled down in the chicken yard. I shot three and the survivors, rising high in the air, flew to the northward until out of sight. Later on, other flocks were seen, both here and in the town of Flagstaff.

Their manner of occurrence at Deadman Flat is plainly indicative of a tendency to wander at the close of the breeding season, even though there is no established migration route to be followed. It shows one way in which the species spreads, and the manner in which the birds will pick out an isolated ranch for occupancy. I have never seen an English Sparrow drop down into "wild" country in the manner in which they constantly came to this and other nearby ranches.

Astragalinus psaltria hesperophilus. Green-backed Goldfinch. A few seen from time to time on the road between Deadman Flat and Flagstaff. Last noted October 17.

Calcarius ornatus. Chestnut-collared Longspur. An abundant migrant. A single bird seen September 18, three together September 20, and then flocks every day. Last observed October 26.

Rhynchophanes mccowni. McCown Longspur. One specimen collected October 16. A few others were seen in company with the abundant Chestnut-collared Longspur.

Poocetes gramineus confinis. Western Vesper Sparrow. Present when we arrived, September 1, and in increasing numbers for about two weeks. By September 15 swarms of Vesper Sparrows arose everywhere one went in the grass land and rabbit-brush. On September 19 their numbers had decreased markedly, and by October 1 they were rather scarce. Last seen October 11.

Passerculus sandwichensis nevadensis. Nevada Savannah Sparrow. None present early in September. First seen September 20 and abundant for some days thereafter. On September 29 they were swarming in the grass land and in cultivated fields but nearly all were gone on the 30th and none was seen later. Two birds were collected, both distinctly referable to *nevadensis*.

Chondestes grammacus strigatus. Western Lark Sparrow. Seen in fair abundance early in September, mostly along the road between Deadman Flat and Flagstaff. They disappeared early in October.

Zonotrichia leucophrys leucophrys. White-crowned Sparrow.

Zonotrichia leucophrys gambeli. Gambel Sparrow.

Two specimens of the subspecies *leucophrys* were shot on September 21, the first arrivals. White-crowned sparrows of one kind or the other were seen occasionally from then on, never in abundance. On October 18 the last were noted; several seen that day were definitely recognized as *gambeli*.

Spizella passerina arizonae. Western Chipping Sparrow. Seen from the lower part of the yellow pine belt downward. Abundant during September and in lessening numbers early in October. Last seen October 17.

Spizella breweri. Brewer Sparrow. In fair abundance on Deadman Flat during September. Exact time of departure was not noted, but no observation of this species was recorded in October.

Junco hyemalis hyemalis. Slate-colored Junco. A male bird seen near the lower edge of the yellow pine belt (about 7500 feet altitude) on October 27, in a small flock of *shufeldti* and *caniceps*.

Junco oreganus shufeldti. Shufeldt Junco. Arrived October 8. Seen thereafter in fair abundance, mostly in the piñon-juniper belt, but also upward to the lower edge of the yellow pines.

Junco mearnsi. Pink-sided Junco. First seen October 17 at about 7500 feet altitude. A few noted at irregular intervals during the rest of my stay, usually single birds in flocks of *shufeldti* and *caniceps*.

Junco caniceps. Gray-headed Junco. An adult female collected October 1 on Deadman Flat was the first migrating junco of any kind to appear. By the middle of October *caniceps* was present in fair abundance, in the piñon-juniper belt to some extent, but in greater numbers in the yellow pine belt. Flocks of juncos were frequently encountered composed of as many as fifty or sixty individuals. Nine-tenths of such a flock would consist of *caniceps* and *shufeldti* in about equal numbers, with a few *mearnsi* and perhaps an occasional *hyemalis*.

Junco dorsalis. Red-backed Junco. The breeding species of Junco. Found by me in the same sections as are designated by Merriam, "throughout the upper levels of the pine plateau region and in the balsam and spruce belts." One specimen was collected in juniper woods September 28, accompanied by another that was supposed to be of the same kind. This was the only occasion on which *dorsalis* was seen below the yellow pine belt. When the migrating northern juncos arrived, the mixed flocks of

caniceps, *shufeldti* and others were abundant at the lower edge of the pines and in the piñons and junipers, but no specimen of *dorsalis* was found in any of these aggregations. I found *dorsalis* at a higher altitude, in small flocks, and never accompanied by any other species.

On September 14, specimens were collected that were still in molt, some young birds with remnants of the juvenal plumage. The species was still abundant at the end of October, and is probably permanently resident.

Amphispiza nevadensis nevadensis. Sage Sparrow. First seen at Deadman Flat September 25. Ten days later a few more appeared and by October 17 they were present in fair abundance. At the end of the month the Sage Sparrows had disappeared again, but it might be that they had merely been driven to lower levels toward the Painted Desert by the storm that, during the last week in October, covered the higher country with snow.

Pipilo maculatus montanus. Mountain Towhee. Of rare occurrence. Three specimens collected, on September 8, October 10 and October 13, respectively, and two or three others seen at long intervals, were all that were noted. Those collected were found in juniper woods, where they must be merely of transient occurrence.

Oberholseria chlorura. Green-tailed Towhee. Fairly common throughout September. Last noted October 2, though probably present for another week at least.

Piranga hepatica. Hepatic Tanager. Seen once, an adult male, September 14, in the yellow pine belt, at about 7500 feet altitude.

Petrochelidon lunifrons. Cliff Swallow. A few seen migrating overhead on September 12.

Hirundo erythrogaster. Barn Swallow. Seen migrating during September. Last noted September 30.

Iridoprocne bicolor. Tree Swallow. A few seen migrating September 12.

Tachycineta thalassina lepida. Northern Violet-green Swallow. Migrating in fair abundance during September. Last seen September 28.

Stelgidopteryx serripennis. Rough-winged Swallow. A few seen migrating September 9.

Bombycilla cedrorum. Cedar Waxwing. Two seen October 16 feeding on juniper berries.

Lanius ludovicianus excubitorides. White-rumped Shrike. Seen at intervals during September and early in October, always in the piñon-juniper belt. Last noted October 17.

Dendroica aestiva, subsp.? Yellow Warbler. A few migrating Yellow Warblers were seen near Flagstaff September 4 and 5.

Dendroica auduboni auduboni. Audubon Warbler. Seen in small numbers early in September. On September 23 the species was fairly abundant at the lower edge of the yellow pine forest, and a little later many appeared in the piñon-juniper belt. Last seen October 19.

Dendroica nigrescens. Black-throated Gray Warbler. A rare migrant. Several were seen on September 7, one on September 13, and one (the last noted) on September 22, all in the piñon-juniper belt.

Wilsonia pusilla pileolata. Pileolated Warbler. One seen September 24.

Anthus rubescens. Pipit. First seen October 17 and occasionally thereafter.

Oreoscoptes montanus. Sage Thrasher. First seen September 11; a few days later this became the most abundant bird species in the piñon-juniper belt. The Sage Thrashers were obviously migrating, and some days all the birds seen would be rapidly moving southward, an advancing army really impressive in numbers. Scores were in sight at once on the ground, running from bush to bush, others were taking short flights through the trees, and still others were in scattered companies overhead, almost like flocks of bluebirds in flight. The usual call-note is a harsh *chuck*, suggestive of that of a blackbird, but some thrashers were heard giving fragments of their striking song from perches in the junipers.

By the middle of October the number of Sage Thrashers had markedly diminished. On the 20th none were seen, but on the 23rd two appeared, the last observed.

Salpinctes obsoletus obsoletus. Rock Wren. Very few seen. Usually on lava flows.

Catherpes mexicanus conspersus. Cañon Wren. A few seen or heard on lava and in rocky gulches on the lower slopes of San Francisco Mountain.

Thryomanes bewicki eremophilus. Desert Wren. One seen September 19, and one collected September 29 (both in junipers) were all observed.

Troglodytes aëdon parkmani. Western House Wren. One seen at the lower edge of the yellow pines September 8. Not otherwise observed.

Certhia familiaris montana. Rocky Mountain Creeper. One collected October 27 on the northeast slope of San Francisco Mountain at about 8000 feet altitude; the only one seen.

Sitta carolinensis nelsoni. Rocky Mountain Nuthatch. In small numbers at the lower edge of the yellow pines, and occasionally in the piñons and junipers.

Sitta canadensis. Red-breasted Nuthatch. One bird seen October 17 at about 8000 feet altitude on the northeast slope of San Francisco Mountain. Not otherwise observed.

Sitta pygmaea pygmaea. Pygmy Nuthatch. Fairly abundant in the yellow pine belt, but not once encountered in the piñons and junipers just below.

Baeolophus inornatus griseus. Gray Titmouse. Closely restricted to the piñon-juniper belt. Not abundant anywhere; at the most perhaps six or eight might be seen in a forenoon.

Penthestes gambeli gambeli. Mountain Chickadee. Fairly common in the lower part of the yellow pine forest and throughout the piñon-juniper belt. On October 16 my eye happened to be caught by a single Mountain Chickadee coming straight down from high overhead, to alight in an isolated juniper. This seems clear evidence of migration.

Psaltriparus plumbeus. Lead-colored Bush-tit. Not at all common. Small flocks were encountered at long intervals, near the upper limit of piñon and juniper and in the lower portion of the yellow pines.

Regulus satrapa olivaceus. Western Golden-crowned Kinglet. In Woodhouse's report on the natural history of Sitgreaves' Expedition down the Zuni and Colorado Rivers (1853), there is casual reference to the occurrence of this species on San Francisco Mountain (p. 68, under *Parus montanus*). The date of observation would have been somewhere from October 9 to 22. There was no more definite record for Arizona until Cooke (Auk, 1914, p. 404) reported a specimen taken by C. Birdseye, September 14, 1908, in the White Mountains. On October 24, in a clump of Douglas fir near the upper edge of the yellow pines, at 7500 feet altitude on the northeast slope of San Francisco Mountain, I heard the lispings note of the Golden-crowned Kinglet. I collected one bird and heard one or two others. It was interesting thus to be able to corroborate Woodhouse's observation of many years before, and at a point that must have been within a few miles of where he crossed the northern shoulder of the mountain.

Regulus calendula calendula. Ruby-crowned Kinglet. Several seen at high altitudes on San Francisco Mountain September 14, two at Deadman Flat September 29, and one at 8000 feet altitude on San Francisco Mountain October 27.

Poliophtila caerulea obscura. Western Gnatcatcher. Two seen at Deadman Flat September 6. Not otherwise observed.

Myadestes townsendi. Townsend Solitaire. Appeared in the piñon-juniper belt September 28, when two were seen. By the middle of October they were abundant, and remained so through the month. On October 11 about sixty Townsend Solitaires were in sight at once about a small "tank".

Planesticus migratorius propinquus. Western Robin. Abundant in the juniper thickets, where they were feeding on the berries, the latter part of September and throughout October.

Sialia mexicana bairdi. Chestnut-backed Bluebird. Seen in some numbers in the yellow pine region near Flagstaff upon our arrival there, September 3. A few days later they appeared at Deadman Flat, and in increasing numbers during September and throughout October.

Sialia currucoides. Mountain Bluebird. As with *S. m. bairdi* this species was seen early in September in the yellow pine belt, and a little later at Deadman Flat. During the latter part of October both species of bluebirds were extremely abundant in the juniper thickets. On October 25, at Dove Tank, there was a solid mass of bluebirds congregated at the water's edge that I estimated to contain two hundred or more individuals, a brilliant blue margin bordering one entire side of the tank. About two-thirds of the flock were *currucoides*.

Berkeley, California, December 20, 1923.