

RETURN RECORDS

Chipping Sparrow.....	44	Cardinal.....	8
Brown Thrasher.....	4	Palm Warbler.....	1
Mockingbird.....	1	Florida Blue Jay.....	1
Red-bellied Woodpecker.....	3	Blue Jay.....	6
White-eyed Towhee.....	1	White-throated Sparrow.....	4

73

New Birds.....	610
Return Records.....	73
Repeats.....	3348

Total..... 4031

Quincy, Illinois.

NOTES ON THE NESTING BIRDS OF NORTHERN
SANTA FE COUNTY, NEW MEXICO.

BY J. K. JENSEN.

Plates XXVIII-XXIX

It has been my good fortune to spend the five years 1918-1922 with the birds of northern Santa Fé County, New Mexico. Although my leisure for bird work has been very limited, I have spent some time in the field and succeeded in locating the nests of more than 100 species.

As the country hereabout is for the most part exceedingly rough, with only very few second and third class roads leading through, and the largest part only accessible by walking or with pack train, it is very difficult to thoroughly explore, and I am certain that a great many nesting species have escaped my notice.

The country examined forms roughly a square of some, 1,600 square miles. With Santa Fé as the center, I have taken in a good 20 miles in every direction.

Santa Fé is located at the foot of the Sangre de Cristo Mountains at an altitude of 7,000 feet. The southern part of my range has been the Indian Pueblos of Santo Domingo and Cochiti near the foot of La Bajada Hill, at an altitude of about 5,500 feet; the

northernmost, the San Juan Indian Pueblo, thirty-five miles north of Santa Fé; while the highest point reached is Lake Peak northeast of Santa Fé, altitude 12,600 feet and in part above timberline. From Santa Fé to the top of Lake Peak the country is one continuous round of mountains and canyons. Through the Santa Fé Canyon leads the only road for a distance of about ten miles, passable for automobiles.

Southeast of Santa Fé the country becomes more level, but in places deep box canyons, like Apache Canyon, cut through. South and west the country seems level or rolling but sloping toward the south, here and there cut with narrow valleys with rimrock on one or both sides. At La Bajada the country makes an abrupt drop of about 900 feet.

South, east and west of Santa Fé, the country is covered mostly with a sparse growth of piñon or nut pine (*Pinus edulis*), juniper (*Juniperus utahensis*) and cacti; while north of Santa Fé the Sangre de Cristo Mountains are covered with timber, mostly yellow pine (*Pinus scopulorum*) and Douglas spruce (*Pseudotsuga mucronata*), and at the higher altitudes with blue spruce (*Picea parryana*). Along the river courses are small groves of narrow-leaved cottonwood (*Pupulus angustifolia*), alder (*Alnus tenuifolia*) and several species of willows. Burnt over areas are usually covered with aspens (*Populus tremuloides*).

In the piñon covered areas, which I shall henceforth refer to as the "Piñon Flats," snow usually stays only a few days, while on the higher mountains snow may be found from September 1 to late in July, and in patches the whole year round.

In the mountains the larger carnivorous quadrupeds are still to be found in some numbers, and often on my rambles I have come across tracks of bear, puma, timber wolf and bobcat; while on the Piñon Flats the coyote is common.

Over the entire district are found many odd geological formations of which I shall mention the "Crater," because this particular place often serves as a nesting place for some of the larger birds. It is a hole, probably an old crater or gas vent, in almost level ground 15 miles southwest of Santa Fé. It has a diameter of about 25 feet, growing somewhat larger toward the bottom, and a depth of from 300 to 400 feet.

The birds included in the following list have either been found nesting or been seen during the nesting season, so they are actually all summer residents of northern Santa Fé County:

1. **Colymbus nigricollis californicus.** EARED GREBE.—During April and May a flock of from 50 to 100 of these birds may be seen at the upper reservoir in the Santa Fé Canyon. About June 1, they leave for their nesting places. During 1921 one pair remained and they could be seen together constantly until July 1, after which date only the male was seen. The only possible nesting place in the reservoir is a small island covered with tall grasses. I had no way of examining this. During the latter half of July and all of August I was absent from Santa Fé, so I am unable to state whether or not there were any young raised. At this writing, July 9, 1922, two pairs seem to be making their homes at the same place.

2. **Oxyechus vociferus.** KILLDEER.—These birds are abundant wherever a little moist ground can be found. Often discovered nesting along the streams well up into the mountains, at least, to an altitude of about 7500 feet. Average set 4 (3). Fresh eggs, April 20 to May 10. These birds are much more noisy before incubation commences and after the young are hatched, than during the period of incubation.

3. **Podasocys montanus.** MOUNTAIN PLOVER.—A few pairs seem to be nesting on the mesa between Domingo and Pena Blanca.

4. **Callipepla squamata squamata.** SCALED QUAIL.—A common bird, nesting on the Piñon Flats. Sets usually 10 to 15 eggs. Fresh sets May 15 to June 10.

On May 18, 1918, after dark, some Indian boys brought four eggs of the Scaled Quail, which they told me they had found in a one-gallon tin can lying in a shallow arroyo about a mile west of the Government Indian School. I was anxious to secure a set of eggs for my collection, so I went with the boys to the place and found a well built nest of straw and weeds in an oil can. I returned the eggs to the nest, and a week later, May 25, it contained a set of ten eggs.

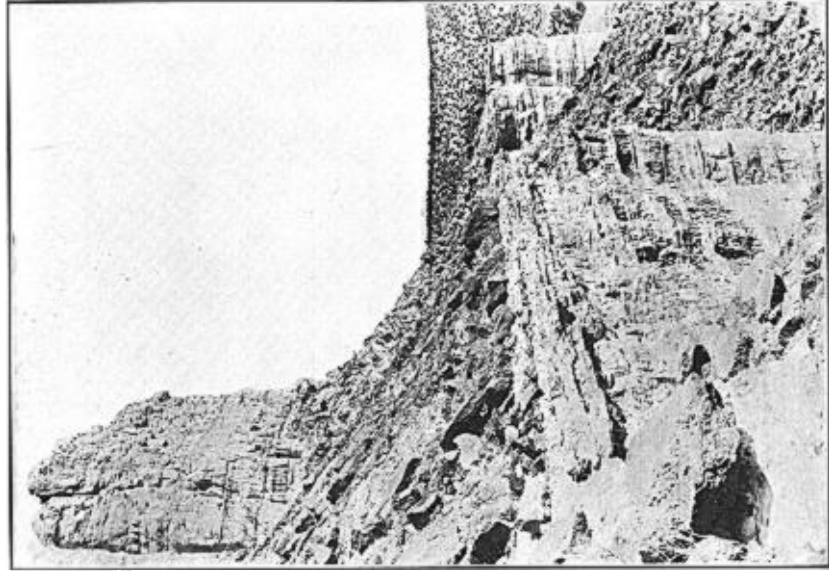
5. **Lophortyx californica californica.** CALIFORNIA QUAIL.—A common game bird nesting on the Piñon Flats. Sets 10 to 15. Fresh eggs May 1 to June 15.

6. **Dendragapus obscurus obscurus.** DUSKY GROUSE.—A closed season of several years duration has been favorable for these birds, and they have increased considerably in numbers and are now quite common in the mountains from 9,500 feet to timberline. I have learned from sheep herders that nests containing from 7 to 14 eggs have been found.

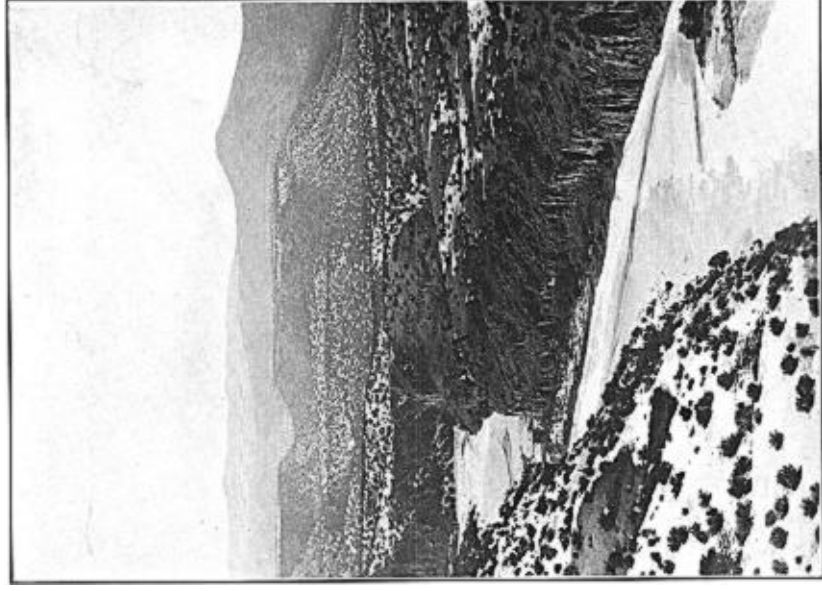
A female, shot at Bear Head in the James Mountains November 21, 1921, had been feeding entirely upon the needles of the Douglas fir.

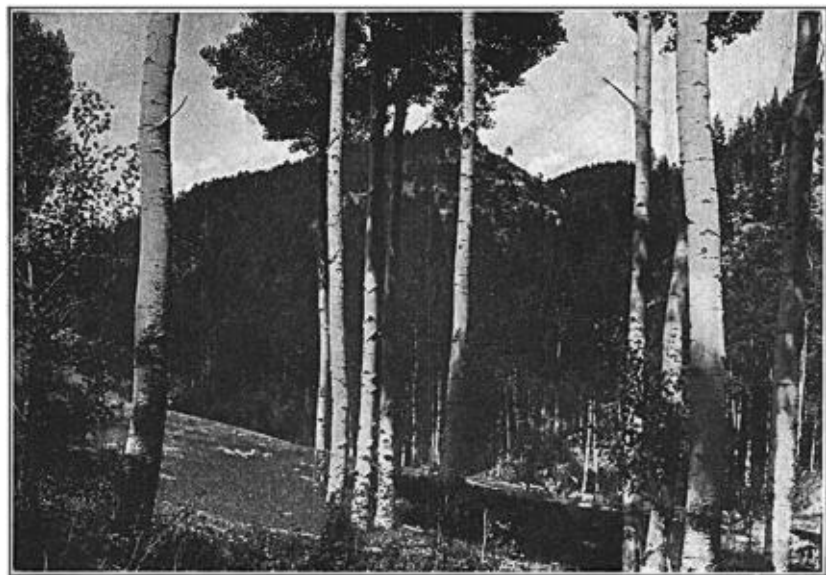
7. **Lagopus leucurus leucurus.** WHITE-TAILED PTARMIGAN.—Few are left on the higher peaks of the Sangre de Cristo Mountains.

8. **Meleagris gallopavo merriami.** MERRIAM'S TURKEY.—Locally these birds are quite common, nesting well up in the mountains during the



1. Sandstone Cliffs near La Bajada Hill, N. M. 2. White Rock Canyon, Rio Grande. Typical Piñon Pine Country.





SANGRE DE CRISTO MTS., N. M.

1. Lake Peak (12600 ft.). 2. Aspens in Sante Fé Canyon.

latter part of May. Sheep herders and ranchers tell me about nests with as many as eighteen eggs.

October 23, 1920, I shot two birds, and the next day another. All were young, and weighed from eight to ten pounds each. October 23, 1921, I met a flock of twelve birds in the Santa Fé Canyon, less than six miles from the city.

The feathers of the Wild Turkey are highly prized by the Indians, who use them in their ceremonial dances and as offerings (prayersticks).

9. **Columba fasciata fasciata.** BAND-TAILED PIGEON.—These are rare in the Sangre de Cristo range; they are more common in the Jemes Mountains. My only nesting record is April 23, 1922, on which date I found a nest, with one well incubated egg, sixteen miles northeast of Santa Fe. The nest was placed in a slender spruce sixteen feet up and four feet out on a limb. Although the tree was shaking and bending I managed to climb to the nest. The female stayed on until I almost touched her. The altitude at this point was 10,500 feet, and at the time well above the snow line.

10. **Zenaidura macroura marginella.** WESTERN MOURNING DOVE.—Abundant, nesting on the Piñon Flats and up to 8,000 feet in the yellow pine.

11. **Cathartes aura septentrionalis.** TURKEY VULTURE.—Common. May 27, 1922, I saw a pair of these birds about eighteen miles west of Santa Fé. They acted as if they might be nesting in a large pile of boulders broken off from the rimrock.

12. **Accipiter velox.** SHARP-SHINNED HAWK.—On two occasions I have met this Hawk in the Santa Fé Canyon during the nesting season.

13. **Accipiter cooperi.** COOPER'S HAWK.—These birds are common in the early spring, and a few remain during the nesting season.

14. **Buteo borealis calurus.** WESTERN RED-TAIL.—Common. Nesting at least up to 9,000 feet. They nest both on trees and in pockets on precipitous cliffs. For several years a pair nested on a shelf in the "Crater." May 31, 1920, I found a nest in a large yellow pine. The nest was up about 40 feet and contained three heavily incubated eggs. April 2, 1921, I found an occupied nest in Canyon el Diablo near Buckman placed in a pocket on a perpendicular cliff about 250 feet up. May 27, 1922 I located a nest with two downy young on the rimrock eighteen miles west of Santa Fé. Most of the nests found are in inaccessible places on the rimrock.

The Pueblo Indians use the red tail feathers in their ceremonial dances.

15. **Aquila chrysaetos.** GOLDEN EAGLE.—Not uncommon as a nesting bird, but most of the nests are located so as to be inaccessible during the early part of the nesting season. April 11, 1920, I located a nest in a pocket on a 150 foot cliff in the Apache Canyon. The nest then contained two downy young. Late in May, I again visited the nest and found the young nearly full grown. February 27, 1921, I again went to the nest and collected a set of two nearly fresh eggs. On neither occasion did the

Eagles show fight, but left at my approach, and while I was actually standing in the nest, they never came nearer than fifty feet.

Other nesting places may be found near La Bajada Hill; in the Sangre de Cristo Mountains fifteen miles northeast of Santa Fé; in White Rock Canyon; at the head of Rito de los Frijoles; near St. Peter's Dome; and near Jemes Pueblo.

The Indians use a large number of Eagle feathers for head dresses. For the sake of these feathers, Eagles are held in captivity in several Indian pueblos, among which are Sia and Jemes. The Pueblo Indians, as well as the Navajos, have their "Eagle catchers"—men trained to capture the full grown birds. My Indian friends tell me that no traps are used, as these would bruise the Eagles' legs. Their method of catching them is as follows: A hole about three feet square and from five to six feet deep is dug in the ground near a tree. The "catcher" then places himself in the pit, which later is covered with limbs and turf, except for a small opening just large enough to slip the hand through. A dead rabbit is placed on top as bait, with a tame Eagle as decoy. If a soaring Eagle spies the tame Eagle, it alights in the tree, and after examining the surroundings for some time, it darts for the rabbit. This is the concealed man's opportunity. He reaches out and catches the Eagle by the legs, and pulls it down into the hole which is too narrow for the Eagle to fight in.

16 **Falco mexicanus.** PRAIRIE FALCON.—Not uncommon and can be found nesting in pockets in the rim-rock. In May, 1919, a pair acted as if they were nesting in one of the old cliff-dweller caves on the mesa above Buckman, and in April 1921 a pair was nesting near La Bajada Hill.

17. **Falco peregrinus anatum.** DUCK HAWK.—During May, 1921, I saw a male several times hovering in the air near one of the tall trestles on the Denver & Rio Grande Western Railway one mile west of Santa Fé.

18. **Falco sparverius phalaena.** DESERT SPARROW HAWK.—Abundant. Nesting in hollow trees, cornices of buildings, old abode walls and nesting boxes, but most frequent in holes in cut banks. Average set 4 (3-5). Fresh sets May 1 to June 15.

19. **Otus asio cinereus.** MEXICAN SCREECH OWL.—May 15, 1921, I found a nest of this species in a Flicker hole in a large cottonwood on the river bank in Santa Fé. It contained four nearly full grown young.

20. **Otus flammeolus.** FLAMMULATED SCREECH OWL.—A pair has for the last five years been nesting at the Indian School campus. I have not been able to locate the nesting place, which is probably in one of the buildings.

September, 1918, I caught one of these little Owls while it was sleeping in a peach tree in the school orchard.

21. **Bubo virginianus pallescens.** WESTERN HORNED OWL.—Common. Nesting in cavities in large cottonwood trees, but more often in cut banks. A pair is nesting regularly in a cut on the Santa Fe-Lamy Railway near Arroyo Hondo. The incubating bird is only about six feet

from the passing trains. Average sets, two, sometimes three eggs. Fresh sets March 10–April 10.

22. **Speotyto cunicularia hypogaea.** BURROWING OWL.—Fairly common. Found a small colony near Santa Cruz, where from prairie dog holes I took two sets of six and seven eggs respectively on May 9, 1920. A few scattered pairs are nesting on the Piñon Flats.

23. **Glaucidium gnoma gnoma.** PYGMY OWL.—I have never found the home of the Pygmy, but they are supposed to nest quite commonly in Flicker holes near Lamy and Glorieta.

24. **Geococcyx californianus.** ROAD-RUNNER.—Quite common. My friend Mr. John S. R. Hammitt collected a set of four fresh eggs from a nest in a willow two miles southwest of Santa Fé.

December, 1918, I saw a pair of Road-runners feeding with the chickens on a ranch near Santa Fé. The owner of the ranch told me that they came regularly for a "hand out" and often went to roost in the poultry house.

25. **Coccyzus americanus occidentalis.** CALIFORNIA CUCKOO.—Rare in this locality. June 24, 1918, I saw one at San Juan Pueblo. June 18, 1919, an Indian girl brought me a wounded Cuckoo she had found on the Indian School campus. June 5, 1922, I heard one in the Indian School orchard.

26. **Ceryle alcyon alcyon.** BELTED KINGFISHER.—Not uncommon, probably nesting in the banks of the Rio Grande.

27. **Dryobates villosus monticola.** ROCKY MOUNTAIN HAIRY WOODPECKER.—Quite common in the Sangre de Cristo Mountains, from 8,000 to 11,000 feet. June 21, 1920, I found a nest thirty feet up in a large quaking aspen. This tree stands on the edge of a place where an avalanche has plowed its way down through the timber on the mountain side, depositing trees and rocks in a great heap for hundreds of feet around the tree. The nest contained young, and judging from the noise they made, were quite well developed. The parent birds were very noisy.

May 22, 1921, I made my way through four feet of snow to the same tree. A new nest had been made, and the female flew off when I was about 150 feet away. I cut into the nest and found a set of four eggs on which incubation had just commenced. The altitude at this point is 11,000 feet. May 26, 1922, I found a nest with young about seventy-five feet up in an aspen. This was in the Santa Fé Canyon at an altitude of 8,000 feet.

28. **Sphyrapicus varius nuchalis.** RED-NAPE SAPSUCKER.—Common between 8,000 and 9,000 feet. Nesting in aspens ten to twenty-five feet up. Average set four (3–5). Fresh sets June 1–15.

In the winter these birds quite often visit the Indian School campus.

29. **Sphyrapicus thyroideus.** WILLIAMSON'S SAPSUCKER.—Not very common. June 1922, a pair nested in a pine stump in Santa Fé Canyon. Altitude about 9,500 feet. It is possible to identify this Sapsucker from the way he pounds a dead limb, at least during the nesting season, because

he strikes two blows, and after a short pause four blows. This is repeated over and over.

30. *Melanerpes erythrocephalus*. RED-HEADED WOODPECKER.—During 1919 and 1920, a pair nested in a hole in a telephone pole, near the crossing of the Santa Fe-Lamy Railway and Cerrillos Street in Santa Fe. During 1921, a pair of Sparrow Hawks took possession, but this spring, 1922, the Woodpeckers were back again.

31. *Asyndesmus lewisi*. LEWIS'S WOODPECKER.—Abundant in the fall. Fairly common during spring and summer. August 9, 1919 near Pojaque I saw one feeding its young. May 10, 1922, I saw a male in a cottonwood 10 miles east of Santa Fe. I could not, however, locate any nest.

32. *Colaptes cafer collaris*. RED-SHAFTED FLICKER.—Very common. I have found them nesting all over the district covered and from 5,500 to 12,500 feet. Average set, seven eggs (5-8). Fresh sets May 20-July 1.

February 1, 1922, a Flicker was seen hanging to a wire screen on a sleeping porch at the U. S. Indian School, eating berries of the Boston Ivy. Temperature 2 above zero.

33. *Phalaenoptilus nuttalli nuttalli*. POOR-WILL.—Rare. I have seen a few birds on the Piñon Flats, and August 21, 1920 I shot one of a pair two miles west of the Indian School.

34. *Chordeiles virginianus henryi*. WESTERN NIGHTHAWK.—Abundant. Nesting over the Piñon flats, during the first half of June. June 20, 1920, and June 26, 1922, I saw and heard Night Hawks flying over the summit of Lake Peak in the Sangre de Cristo Mountains. Altitude 12,600 feet.

35. *Aeronautes melanoleucus*. WHITE-THROATED SWIFT.—Common. During 1920 and 1921, quite a colony was nesting on the 300 foot perpendicular cliffs in Canyon el Diablo near Buckman. June 1921, I found a good sized colony in the rimrock eighteen miles west of Santa Fe, but in 1922 only two pairs were left in the place last mentioned. May 27, I let an Indian boy down over the 100-foot cliff to try to get a nest, but the top of the cliff overhung the nests, so when the boy came down on a level with the nests he was about fifteen feet from the cliff, and was unable to get close enough to collect a set of eggs.

36. *Archilochus colubris*. RUBY-THROATED HUMMINGBIRD.—I have seen a few birds here.

37. *Selasphorus platycercus*. BROAD-TAILED HUMMINGBIRD.—Common. June 29, 1919, I took a set of two eggs in the Santa Fe Canyon, at an altitude of 8,000 feet. The nest was placed in a low shrub overhanging the stream and only about eighteen inches above the water. Two pairs were nesting on the Indian School campus in 1921, and again in 1922.

June 26, a pair of birds spent a good bit of time in a small dead spruce near the cabin on Lake Peak. Altitude 12,000 feet.

August 5, 1918, I counted 119 Humming birds resting on a telephone wire—this during a five-mile auto trip.

38. **Tyrannus vociferans.** CASSIN'S KINGBIRD.—Very common. Nesting up to 7,500 feet. It usually makes its home from ten to fifty feet up in some shade tree, but the nests may also be found in Piñon pines. Average set four. Fresh sets June 1-15.

39. **Myiarchus cinerascens cinerascens.** ASH-THROATED FLYCATCHER.—A few pairs are nesting in Bluebird boxes placed on piñon pines three to five feet up. I have seen several nests destroyed by pack-rats and chipmunks. Average set, four. Fresh sets, June 1-15.

40. **Sayornis sayus.** SAY'S PHOEBE.—Very common. Nesting to 7,500 feet. The nests are often placed in buildings, under bridges, but most commonly in a pocket in the steep bank of an arroyo. Average set, four (3-6). Fresh sets May 1-June 15. Very few eggs are marked with brown spots.

41. **Myiochanes richardsoni richardsoni.** WESTERN WOOD PEWEE.—Common near water up to 8,000 feet altitude. Average set, three (1-4). Fresh sets June 15-July 1.

42. **Empidonax difficilis difficilis.** WESTERN FLYCATCHER.—Very common near water from 7,500 to 10,000 feet. I have found nests placed on the sheer face of a ledge; in a cut bank; on a stump and in a tree cavity. Nearly always four (3-5) eggs make an average set. Fresh sets June 15-July 1.

43. **Empidonax trailli trailli.** TRAIL'S FLYCATCHER.—No nesting record. A pair spent the summers of 1920 and 1921 in the Santa Fe Canyon near the Elk's Cabin. Altitude a little over 8,000 feet.

44. **Empidonax wrighti.** WRIGHT'S FLYCATCHER.—Not common. June 6, 1922, I found on a very dry hillside far from water, ten miles southeast of Santa Fe, a nest with three well incubated eggs. This was placed on one of the lower limbs of a piñon pine three feet up. Altitude 7,500 feet.

45. **Otocoris alpestris leucolaema.** DESERT HORNED LARK.—Common all through the Piñon Flats. Average sets three to four eggs. Fresh sets April 1-June 1.

46. **Pica pica hudsonia.** MAGPIE.—Rare in the spring; common in fall and winter. May 27, 1921 I found a nest in a grove of willows along the Santa Fe River two miles southwest of Santa Fe. It was placed six feet up in a willow and contained five half grown young. Altitude 6,800 feet.

47. **Cyanocitta stelleri diademata.** LONG-CRESTED JAY.—Quite common in the foothills. Very common in the mountains, where I have seen them at an altitude of at least 11,000 feet. The birds keep very quiet during the period of incubation. Most nests found contained young. May 11, 1919, I found a nest containing five eggs in Apache Canyon twenty miles southeast of Santa Fe. April 30, 1922 a nest with five fresh eggs was located in a small spruce in the Santa Fe Canyon two miles above the

Elk's Cabin. The nests are usually less than ten feet from the ground. Sets average from three to five eggs. Fresh sets April 20–May 10.

48. *Aphelocoma woodhousei*. WOODHOUSE'S JAY.—Not as common as the Long-crested. It is more commonly a bird of the foothills than the mountains. A common nesting site is in a piñon pine two to four feet up. Average set, three eggs. Fresh eggs April 1–May 1.

49. *Perisoreus canadensis capitalis*. ROCKY MOUNTAIN JAY.—June 27, 1922, I saw two, I think a male and a female, on the Lake Peak trail. The birds were very tame. Altitude 11,500 feet.

50. *Corvus corax sinuatus*. RAVEN.—Rather common, nesting in almost inaccessible places in the rimrock and in box canyons. April 18, 1921 I located a nest in the "crater." It was placed fifty feet down on a little shelf. I wanted the eggs for my collection, so by fastening boards together until I had a rod seventy feet long, with a wire hoop and a bag at one end, I succeeded in lifting out the six eggs. May 8, the Ravens had built another nest nearer the surface and it contained a second set of six eggs. April 15, 1922 I again found a nest on the shelf referred to above in the "crater." This also contained six eggs.

April 22, a nest with six eggs was found on the rimrock near La Bajada Hill. It was placed in a pocket sixty feet from the bottom and fifteen feet from the top of the rock.

May 20, 1922 I found a nest on a cliff near the Lake Peak trail containing four half grown young. The La Bajada nest was at an elevation of 6,500 feet, and the Lake Peak nest 10,500 feet. The eggs in the two nests had been deposited at very near the same date, so it seems altitude makes no difference in the nesting time of the Raven.

Usually the Raven will leave the nest before I get very close, but the birds in the "crater" act differently. On one occasion a dozen shots from a highpower rifle were fired into the rim of the nest before the female left, and then it was only thirty seconds before she settled on the eggs again.

51. *Corvus brachyrhynchos hesperis*. WESTERN CROW.—Common, nesting in the cottonwood groves along the water courses. I have found nests along the Pecos River near Valley Ranch, in the Santa Fé Canyon, along the Nambe River, between Nambe Falls and Pojaque, and along the Rio Grande near San Juan and Santa Clara Indian pueblos. The average number of eggs seems to be five. Fresh sets in the latter part of April.

52. *Nucifraga columbiana*. CLARKE'S NUTCRACKER.—Abundant in the higher parts of Sangre de Cristo and the Jemes Mountains.

May 15, 1921, I saw a pair feeding young out of the nest near Granite Point ranger station in the Santa Fé Canyon. Altitude 7,500 feet. July 4, 1921 three nests with young were located in a small caynon below Santa Fé Lake. Altitude 12,000 feet. May 8, 1922, I saw birds flying with nesting material in the Santa Fé Canyon—this at an altitude of 8,500 feet. Although I spent considerable time searching, I did not find any nests.

53. **Cyanocephalus cyanocephalus.** PIÑON JAY.—This pretty little Crow is very common on the Piñon Flats, and sometimes seen in flocks of hundreds or thousands. Even in the nesting season they can be seen together in large numbers, and are often found nesting in colonies. On account of the roving habits of these birds, it is rather good luck to find the nests, as they never seem to be in the same locality twice, and furthermore, the nesting season extends from February to June, during which time fresh eggs may be found. They seem to nest whenever and wherever time and place suit them best. May 18, 1918 I found a set of four fresh eggs, and on March 19, 1921 a colony of thirteen nests each containing four young, some full grown. The average number of eggs seems to be four, but three is quite common. Of the fifty-four nests examined only six contained five eggs, and one had six young.

March 15, 1922, I located a colony of seventeen nests three miles south of the U. S. Indian School—all with fresh sets as follows: two, three; eleven, four; and four, five. The colony covered about ten acres.

The nests are quite bulky. Bark strips, weeds, wool and hair well felted together form the warm inner nest which rests on a rough platform of dry sticks. The birds sit so close they can be touched. All the nests found were placed from two to eight feet from the ground—average height five feet, and all but one were built in piñon pines, this one being placed four feet up in a juniper.

The birds nesting in colonies usually breed much earlier than the single pairs.

Mexican ranchers believe that the Piñon Jay does not nest at all.

54. **Molothrus ater ater.** COWBIRD.—Common. I have found the eggs deposited in the nests of the Western Chipping Sparrow, Brewer's Sparrow and House Finch.

55. **Xanthocephalus xanthocephalus.** YELLOW-HEADED BLACKBIRD.—Flocks are often seen during the spring. I have never found the nest but believe they breed in the swamp along the Rio Grande.

56. **Agelaius phoeniceus neutralis.** SAN DIEGO RED-WING.—Common, usually nesting in the willows along the rivers, from ten to twelve feet above the ground; but I have also found the nests in junipers. Average set four (3-5). Fresh sets May 20-June 15.

57. **Sturnella neglecta.** WESTERN MEADOWLARK.—Common on the Piñon Flats and in cultivated fields. Average set, five eggs. Fresh sets May 20-June 10.

58. **Icterus bullocki.** BULLOCK'S ORIOLE.—Common, nesting in Lombardy poplars, large cottonwood, box elders and sometimes in the very tip-top of a pear tree. Average set, four eggs (3-5). Fresh sets June 10-20.

59. **Euphagus cyanocephalus.** BREWER'S BLACKBIRD.—A few pairs nest occasionally along the rivers in willows and other shrubs. June 3, 1919, I collected a fresh set of six eggs from a nest in an apple tree twelve feet from the ground. June 13, 1919, a nest was located in a rather peculiar position, as it was placed like the nest of an Oriole

near the end of a drooping limb of a large cottonwood, sixteen feet up and twenty feet out from the trunk of the tree. During the fall of 1920 a large flock spent several days near the U. S. Indian School, and among these was one with several pure white feathers in wings and tail.

60. **Hesperiphona vespertina montana.** WESTERN EVENING GROSBK. —During April and the early part of May 1918, I saw my first Evening Grosbeaks. A flock of about fifty birds spent about six weeks on the U. S. Indian School campus. This was repeated in 1919 and 1920. February 4, 1921, a flock of sixteen arrived and stayed three days. These were the only birds seen during 1921. In the spring 1922, only a few birds put in an appearance during April and May. In the fall I have seen on a number of occasions quite large flocks on the Piñon Flats feeding on juniper berries. June 3, 1922, I saw a pair carrying nesting materials. I had very little time then to watch the birds, but later I spent considerable time searching, but was unable to locate the nest. Several times, however, I saw the male in the same locality.

This was in the Santa Fe Canyon at an altitude of 7,500 feet, and the mountains there are covered with a growth of large Douglas firs.

61. **Pinicola enucleator montana.** ROCKY MOUNTAIN PINE GROSBK. —June 27, 1922, I saw two birds, male and female, in a large spruce close to the cabin on Lake Peak. Altitude 12,000 feet.

62. **Carpodacus mexicanus frontalis.** HOUSE FINCH. —Abundant. They are causing a lot of damage to fruit crops. They eat peaches, pears and apples, until only a shell is left. They are not at all particular about a nesting site as they build in the branches of a tree, in cavities of trees and walls, in tin cans hanging on fence posts, and I have even seen a nest on the ground under a rabbit weed. It is one of the few birds which will use a "cholla" cactus for nesting site. Average set four eggs (3-5). Fresh sets April 1-August 1.

63. **Astragalinus psaltria psaltria.** ARKANSAS GOLDFINCH. —Abundant. During 1921, twenty-two pairs were nesting on the Indian School campus. Average set four (3). Fresh sets June 15-October 1.

64. **Spinus pinus pinus.** PINE SISKIN. —Common on the Indian School campus during April and May. About June 1, they leave for the mountains. June 3, 1920, my son found a nest with four eggs on the campus. It was placed on a horizontal limb of a box elder 12 feet up. This is my only breeding record of this species. I have often seen the birds in the mountains, and June 26, 1922, I saw a pair near the ranger's cabin on Lake Peak. Altitude 12,000 feet.

65. **Passer domesticus.** ENGLISH SPARROW. —Abundant. During the spring and summer 1919, I destroyed 1020 eggs on the Indian School campus.

66. **Poocetes gramineus confinis.** WESTERN VESPER SPARROW. —Common on the Piñon Flats and in the cultivated fields. July 4, 1918, I located a nest of the Vesper Sparrow a short distance south of the Indian School, under a small juniper. It contained two eggs and two young. Straight above it, and only six inches up, was a nest of a Brewer's Sparrow

with one egg and three young. Average set, three or four eggs. Fresh eggs May 15–July 15.

67. *Chondestes grammacus strigatus*. WESTERN LARK SPARROW.—Fairly common as a nesting bird through the Piñon Flats.

68. *Zonotrichia leucophrys leucophrys*. WHITE-CROWNED SPARROW.—Common in the spring, and I have seen them as late as July 1 in the willow thickets near the Santa Fe River.

69. *Spizella passerina arizonae*. WESTERN CHIPPING SPARROW.—Abundant, nesting up to 8,500 feet.

70. *Spizella breweri*. BREWER'S SPARROW.—Locally abundant. From the Indian School, south and west for about three miles, it nests in large numbers, and I have often found a dozen nests in a three to four mile walk. The nests are usually placed low in junipers, but also in sage brush. Average set, three (2–4). Fresh sets May 20–July 10.

71. *Junco phaeonotus dorsalis*. RED-BACKED JUNCO.—Common from 7,500 to 9,500 feet. June 5, 1922, my friend Mr. John S. R. Hammitt collected a set of four fresh eggs near Summit Sanitorium, two miles east of Santa Fe. The nest was placed under a bunch of grass on a dry mountainside, and well concealed. The female flew off the nest almost under his feet, and although he waited patiently for more than an hour, it never returned. I have several times seen the birds building, in which case the nests always have been abandoned. I have seen three nests with four young each. Average set seems to be four. Fresh eggs in the early part of June.

72. *Junco phaeonotus caniceps*. GRAY-HEADED JUNCO.—During the latter part of June, 1922, I spent a few days camping on Lake Peak and found these birds fairly common from 11,500 to 12,400 feet. Although I found no nests, the birds were evidently breeding at that time.

73. *Melospiza melodia montana*. MOUNTAIN SONG SPARROW.—A few pairs have nested in the willows along the river between Santa Fe and the reservoir at the mouth of the canyon. June 19, 1921, I found a nest with four fresh eggs placed three feet up in a willow on the river bank. I have seen nests as high up as 12 feet, usually placed in some vine clinging to the willows.

74. *Pipilo maculatus montanus*. SPURRED TOWHEE.—Fairly common in the foothills. May 31, 1920, I collected a set of four fresh eggs two miles southeast of Santa Fe. The nest was placed under a small sagebrush and well concealed.

75. *Pipilo fuscus mesoleucus*. CAÑON TOWHEE.—Abundant on the Piñon Flats. The nests are usually placed two to four feet up in piñon pines or junipers; also in sagebrush. April 14, 1918, I found a Towhee nesting under rather unusual conditions. In passing an old board shed, I saw a bird enter the building through a large knothole, and on investigating I found a nest with three newly hatched young. The nest was built of straw and weeds placed on a cross timber supporting the side of

the barn, and a foot to one side of the entrance hole. This is by far the earliest nesting record, as the usual time is from May 20–July 15. Average set, three eggs. Sets of two are common, and I have only seen two sets of four eggs each.

76. **Oberholseria chlorura.** GREEN-TAILED TOWHEE.—Common from 7,500 to 9,000 feet wherever sage, juniper and rosebushes form a thicket. All the nests I have found were within a few hundred feet of water. Average sets, four eggs (3). Fresh eggs, May 20–July 10.

77 **Zamelodia melanocephala.** BLACK-HEADED GROSBEEK.—Very common. Two or three pairs nest on the Indian School campus. Nests are common in the willows along the streams and in the scrub oaks on the mountain sides up to 10,500 feet. Average set, three eggs (4). Fresh sets May 20–July 1.

78. **Guiraca caerulea lazula.** WESTERN BLUE GROSBEEK.—Common in the willows along the streams and also in orchards where they usually nest in peach trees. The Blue Grosbeak seems as partial as the Crested Flycatcher is to using a cast-off snake skin for nesting material and of twenty-three nests located here during the last five years, twenty-one had as a foundation a snake skin, or part of one. Average set three eggs (2–4). Fresh eggs June 15–August 1.

79. **Passerina amoena.** LAZULI BUNTING.—June 13, 1921, I located a nest placed eight feet up in a bunch of willows on the river bank above Santa Fe. It was built of the same materials as the nest of the Blue Grosbeak, and although it looked small I set it down as such. June 19, I happened to pass the place again, and to my surprise found the female Lazuli Bunting on the nest. She left the nest, but kept fluttering among the branches uttering sharp “chips” and immediately the male arrived, so I had a good view of both birds. The nest contained a set of four eggs in which incubation had just commenced. Altitude 7,100 feet.

80. **Calamospiza melanocorys.** LARK BUNTING.—May 25, 1919, I saw male and female on the flats below La Bajada Hill. May 7, 1922, I saw four males and one female two miles south of the Indian School, and the same day, six miles south of the Indian School, about fifty birds in a flock. August 4, 1922, male and female near San Ildefonso Pueblo.

81. **Piranga ludoviciana.** WESTERN TANAGER.—Common in the mountains from 7,500 to 10,000 feet. Most of the twelve nests located were placed on horizontal branches of Douglas firs, ten to twelve feet up and as far from the trunk of the tree. Only one nest was placed in a scrub oak. Average sets three to four eggs. Fresh sets June 1–15.

82. **Petrochelidon l. lunifrons.** CLIFF SWALLOW.—Common, nesting in large colonies on cliffs and often under the cornices of buildings. About one hundred and fifty pairs are nesting on the sandstone cliffs near La-Bajada Hill. Another colony is on a cliff facing the Rio Grande near Cochiti Indian Pueblo.

83. **Hirundo erythrogastra.** BARN SWALLOW.—Common. June 22, 1918, I collected a set of six fresh eggs from a nest placed in one of the building at the Indian School. Average set five eggs (6). Fresh sets June 1–July 1.

84. **Tachycineta thalassina lepida.**—NORTHERN VIOLET-GREEN SWALLOW. Very common, nesting from 6,500 to at least 10,500 feet. June 18, 1922, I found a nest with young inside the wall of a frame building at the Indian School. The birds gained entrance through a knothole.

They nest commonly in the dead tops of large pines, where they utilize Woodpecker holes for nesting sites. In the mountains a hole in a quaking aspen is often used. In the Santa Fe Canyon, about twenty pairs build in cracks and crevices in Monument Rock, a 150 foot sandstone cliff jutting out in the canyon like a steeple. At an altitude of 7,000 they nest from June 1 to June 15; but at 8,000 feet nesting does not commence until sometime in July. Average set, five eggs.

85. **Riparia riparia.** BANK SWALLOW.—Common. June 13, 1918, I found two nests in the side of a dry arroyo near the Indian School. A large colony is nesting in the Santa Clara Canyon in the Jemes Mountains.

86. **Lanius ludovicianus excubitorides.**—WHITE-RUMPED SHRIKE. Very common on the Piñon Flats. Average set, six eggs (5–7). Fresh eggs April 20–June 1.

87. **Vireosylva gilva swainsoni.** WESTERN WARBLING VIREO.—Abundant in the mountains where they nest in quaking aspens. Average set, four eggs (3–5). Fresh eggs June 1–15.

88. **Lanivireo solitarius plumbeus.** PLUMBEUS VIREO—Locally common. May 31, 1920, I collected a set of four fresh eggs from a nest on a piñon pine, three feet up, ten miles southeast of Santa Fe. Altitude 7,500 feet.

89. **Dendroica aestiva aestiva.** YELLOW WARBLER.—Common in the willows along the streams, nesting up to 7,500 feet. Average set four eggs. Fresh sets June 1–15.

90. **Dendroica auduboni auduboni.** AUDUBON'S WARBLER.—Common from 7,500 to 10,000 feet. The nests are usually placed on a horizontal limb of a pine or spruce, but also among dead twigs on the trunks of cottonwoods, and even in a cavity of some tree. All nests found were lined with a few feathers of Bluebirds and Long-crested Jay. June 6, 1920, I collected a set of four somewhat incubated eggs. It was placed among dead limbs of a cottonwood, ten feet up. June 5, 1921, I found a nest containing five fresh eggs near the top of a small yellow pine, about twenty feet up.

If a nest with young is discovered, both parent birds try every means possible to draw the attention of the intruder away from the nest. Often I have seen them drop with folded wings from the top of a tree and flutter among the leaves as if each had a broken wing. Average set, four eggs (3–5).

91. ***Dendroica graciae***. GRACE'S WARBLER.—Not uncommon in the Sangre de Cristo Mountains. June 26, 1922, I saw a male on Lake Peak. Altitude 12,400 feet and June 13, 1922 three near the Lake Park trail, 9,000–10,000 ft.

92. ***Dendroica nigrescens***.—BLACK-THROATED GRAY WARBLER. Not very common, but once in a while I see a few birds on the Piñon Flats where they nest. May 22, 1920, a little Indian girl found a nest in the top of a small piñon pine three feet up. It contained four fresh eggs. June 11, 1922, I found a nest with two fresh eggs, with the parent birds near; but a few days later only an empty nest remained. This nest was also placed in a piñon pine, five feet up. Both nests were near Arroyo Hondo about six miles southeast of Santa Fé.

93. ***Oporornis tolmiei***. MACGILLIVRAY'S WARBLER.—On rare occasions this Warbler visits my garden and feeds on insects mainly on the rosebushes.

94. ***Geothlypis trichas occidentalis***. WESTERN YELLOW-THROAT.—Not common. I see a few in my garden occasionally or among the willows near the river.

95. ***Icteria virens longicauda***. LONG-TAILED CHAT.—Three or four pairs are nesting along the Santa Fé river in a distance of as many miles. The nests are usually placed in a bunch of willows or in a tangle or vines, two to four feet up. Average set, four eggs. Fresh sets June 10–July 1.

96. ***Wilsonia pusilla pileolata***. PILEOLATED WARBLER.—Not common in the Sangre de Cristo Mountains, where I have seen them up to 10,500 feet. I have only one nesting record. June 5, 1921, near Monument Rock in the Santa Fé Canyon, I found a nest with five fresh eggs. The nest was placed on the mountain side, well concealed in the edge of a large heap of dry leaves near a little stream.

97. ***Anthus rubescens***. PIPIT.—Common on the grass-covered mountain tops in the Sangre de Cristo range between 12,000 and 13,000 feet. June 21, 1920, I saw several birds above timberline near Lake Peak. The males could be seen hovering in the air singing, and the notes were similar to those of the Meadow Pipit (*Anthus pratensis*). June 26, 1922, I saw five birds in the same place.

98. ***Cinclus mexicanus unicolor***. DIPPER.—Common along the mountain streams. I have often found the nests on sheer rocks facing the stream, usually two to four feet above the water. A nest seen on the Pecos River near Cowles was placed in a little pocket in the face of a cliff twenty-five feet above the water. If a set of eggs is taken, the Dipper will deposit another set in the same nest. I have seen this repeated three times. I believe that some writers who exalt the beauty of these nests overdo it somewhat. The nests here, although strongly built, are rather coarse structures of mosses, weed stems, and pine needles, and they appear to fade quickly. Average sets, four or five eggs (3–6). Fresh sets April 1–May 15.

99. **Oreoscoptes montanus.** SAGE THRASHER.—July 3, 1921, I saw my first Sage Thrasher. Mr. Ligon of the Biological Survey called my attention to a pair of birds on the Piñon Flats three miles south of the Indian School. May 30, 1922, I located a nest in the same locality. It was placed one foot up in a juniper and contained three half grown young. Nearby I saw two more pairs of Sage Thrashers.

100. **Mimus polyglottos leucopterus.** WESTERN MOCKINGBIRD.—Abundant on the Piñon Flats. Average set, four eggs. Fresh sets June 1-15.

101. **Dumetella carolinensis.** CATBIRD.—June 24, 1918, a pair was feeding young in a garden in San Juan Indian Pueblo. June 13, 1921, I located a nest with four fresh eggs. It was placed six feet up in a thicket of young cottonwoods on the Santa Fe River off College Street in the city of Santa Fe. June 15, 1922, I found a nest in a tangle of willows and vines about a mile from the former. It contained a set of five eggs in which incubation had just commenced. I believe these nestings to be records for northern central New Mexico.

102. **Salpinctes obsoletus obsoletus.** ROCK WREN.—These birds used to nest rather frequently in arroyos near the Indian School, but have now been driven out. They are quite common, however, near the entrance to the Santa Fe Canyon and towards Glorieta. In 1920, Dr. A. V. Kidder showed me a nest in the ruins of the deserted Pecos Indian Pueblo. June 26, 1921, I cut into a finished, but empty nest, in the same place.

103. **Catherpes mexicanus conspersus.** CAÑON WREN.—Common near the foot of La Bajada Hill and in Canyon el Diablo near Buckman.

104. **Troglodytes aëdon parkmani.** WESTERN HOUSE WREN.—Abundant, nesting at least up to 9,000 feet. June 22, 1922 I found a nest in the Santa Fe Canyon near the Elk's Cabin. It was placed in a cavity of a quaking aspen. The opening in the tree is fully two feet high, and the birds had filled it in with small sticks so only a small entrance hole was left at the top. The Wren nests very often in my bird boxes. Average set, six eggs (4-7). Fresh eggs June 10-July 1.

105. **Certhia familiaris montana.** ROCKY MOUNTAIN CREEPER.—A common spring visitor to the Indian School campus, but I very rarely meet it in the mountains.

106. **Sitta carolinensis aculeata.**—SLENDER-BILLED NUTHATCH. Common. May 27, 1920, I found a nest in a cavity in an oak ten miles southeast of Santa Fe. I cut into it, and found small young; closed the opening and watched the birds raise the family. May 15, 1921, I examined the nest and found a set of eight heavily incubated eggs, which I left, and these also were hatched and raised. Several pairs nest in the Santa Fe Canyon up to 7,800 feet.

107. **Sitta pygmaea pygmaea.** PYGMY NUTHATCH.—Common from 7,500 to 10,000 feet. All of eight nests found were placed in pine stump

in holes excavated by the birds. Sets, six to seven eggs. Fresh eggs June 1-15.

108. **Baeolophus inornatus griseus.** GRAY TITMOUSE.—Nest abundantly in bird boxes placed in piñon pines, three to five feet from the ground. They seem to be most common in altitudes from 6,500 to 8,000 feet. Average set, five eggs (4-6). Fresh eggs, May 1-June 10.

109. **Penthestes gambeli gambeli.** MOUNTAIN CHICKADEE.—Common, often nesting in bird boxes in altitudes from 7,500 to 10,000 feet. I have also found the nests in cavities in pine stumps, in quaking aspens and under rocks. May 14, 1921, a nest with eight fresh eggs was located in a Bluebird box eight miles east of Santa Fe. May 30, 1921, a nest with seven eggs, also in a box, was found in the same locality. June 5, 1921, a nest containing eight well incubated eggs was found in a pine stump in the Santa Fe Canyon, and a nest with seven fresh eggs was located in a quaking aspen near the Elk's Cabin the same day.

110. **Poliophtila caerulea obscura.** WESTERN GNATCATCHER.—Frequently seen in pairs or small flocks on the Piñon Flats during May and June. No nesting records.

111. **Myadestes townsendi.** TOWNSEND'S SOLITAIRE.—Common in the Sangre de Cristo Mountains above 8,000 feet. June 22, 1920, I located my first nest of this species. It was in a clay bank beside the road in the Santa Fe Canyon. The bird had evidently scratched the little pocket out in which the eggs were deposited. The four eggs were resting on the bare ground, and there was not even a suggestion of nest building. The same day, I found three more nests, all in similar positions; but these nests were quite bulky—made of pine needles, weeds and sticks, and so loosely and carelessly put together that they fell apart upon removal. One of these nests contained four, and one five, fresh eggs, while the third held five young about ready to leave the nest. June 16, 1921, a nest with three eggs was found in the same locality. June 11, 1922, a nest with three well incubated eggs; June 27, 1922, one with four small young, and July 12, 1922, one with four fresh eggs were located in the same locality. All of the nests, excepting the first found, were rather bulky, some consisting of almost a peck of rubbish and most of them looked more like a heap of trash than a nest. The birds, while incubating, sit very close.

112. **Hylocichla guttata auduboni.** AUDUBON'S HERMIT THRUSH.—Common in the Sangre de Cristo Mountains from 7,500 feet to timberline. It is a rather retiring bird nesting in shady, dark places. The nests are usually placed low in a small pine or spruce, but I have also found them in willows and on the tops of pine stumps or behind loose bark on aspens. Average sets, nearly always four eggs (3-5). Fresh eggs June 10-July 1.

113. **Planesticus migratorius propinquus.** WESTERN ROBIN.—Abundant; nesting all through the territory covered. June 26, 1922 a pair had just completed a nest in a small spruce near the ranger's cabin on Lake Peak. Altitude 12,000 feet. The Robin is very destructive to

crops of small fruits. Average set, four eggs (3-5). Fresh eggs April 20-July 10.

114. *Sialia mexicana bairdi*. CHESTNUT-BACKED BLUEBIRD.—Common from 7,500 to 9,000 feet. Average set, 5 eggs (4-6). Fresh sets May 20-June 20.

115. *Sialia currucoides*. MOUNTAIN BLUEBIRD.—Abundant to 8,000 feet. Average set, five eggs. Fresh sets May 1-June 20.

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OBSERVATIONS ON THE BIRD LIFE OF PORTO RICO.

BY PARKE H. STRUTHERS.

It has been my privilege during the past eighteen months to study bird life in Porto Rico and the two neighboring islets Mona and Desecheo. Much of the time has been spent in preparing a collection which includes all the species referred to in the following notes. The data, with but two exceptions, was obtained from observations made on the western third of the island, that is, all west of a line drawn between Arecibo and Ponce.

Of the one-hundred and sixty odd bona fide species and subspecies recorded from Porto Rico, Mona and Desecheo, nearly one half migrate elsewhere for a part of the year. Certain resident species have a tendency to migrate locally, while on the other hand there are species that have not been recorded outside of a twenty-five mile radius.

The following notes do not cover all the species recorded for the region, but those which I have had the opportunity to observe. The data are presented with an idea of increasing the supply of knowledge already at hand concerning the dates of migration to and from the region together with some observations on breeding species.

Podilymbus podiceps antillarum (Bangs). ANTILLEAN GREBE.—Seen throughout the year, although more common from October to May. February 18, 1922, I photographed a nest containing six eggs. A male collected December 10, 1921, was still in summer plumage.

Colymbus dominicus dominicus (Linnaeus). WEST INDIAN GREBE.—Observed throughout the year on the large lagoons. Nests with from one to seven eggs were noted from November 5, 1920 to April 2, 1921.