afternoons of August, as well as at all other times, the song of the Hermit could be heard from his perch in the dead top of a tall beach or hemlock. Migrants were seen up to the time I left.

118. *Planesticus migratorius*. **Robin.**—Abundant during the summer, and migrating in large flocks in the latter half of September.

119. *Sialia sialis*. **Bluebird.**—Rather common in the burned over areas, where dead stumps give suitable breeding places. Large flocks were seen during September.

NOTES ON THE BIRDS OF PIMA COUNTY, ARIZONA.

BY STEPHEN SARGENT VISIONER.

In 'The Auk' for 1886-88, Mr. W. E. D. Scott published an account of the birds of Pinal, Pima, and Gila counties of south central Arizona. The list in the introduction to Bailey's 'Handbook of Birds of Western United States' is an abstract of Scott's. It mentions about 230 species as occurring in Pima County.

Mr. Herbert Brown, of Tucson, so frequently quoted by Scott, has, since 1888, published in 'The Auk' accounts of the occurrence of (1) Purple Gallinule ('88), (2) Scarlet Ibis ('99), (3) Water-turkey and Tree-duck (1906).

During the past dozen years Mr. Richard D. Lusk of Tucson has done much work, especially with the nesting birds of the mountains. The many records which he has been kind enough to permit me to announce are all based on the capture of specimens.

In August, 1907, and during the months March to September, 1909, I studied the valley in which Tucson lies, intensively, and, in 1909, the Santa Catalina mountain range extensively.

It is not impossible that the lapse of a quarter of a century has changed somewhat the avifauna of this changing region. At any rate a number of species (thirty) may be added to Scott's and Herbert Brown's lists; and the relative abundance, etc., of certain forms may with advantage be restated. However, the announcement of the occurrence of the several additional varieties is not so much the purpose of this article as the desire to add a mite to the
far too meagre knowledge of the habits and songs of many interesting birds.

The following list treats only those (127 species) about which I believe I can contribute something. Of the other hundred observed, Mr. Scott correctly gives their distribution, etc., and the Baileys and Chapman ('Color Key' and 'Camps and Cruises of an Ornithologist') have described their songs, etc., as well or better than I can.

A single asterisk follows twenty-one names and indicates that this species is here reported from an altitude quite different from that given by Scott. Many mountain forms were found migrating along the lowlands.

A double asterisk occurs twenty-eight times and indicates a new record for Pima County.

A triple asterisk marks nineteen species which were found nesting. Mr. Scott recorded them only as migrants or winter visitors.

The Red-eyed Cowbird and the White-headed Woodpecker are four times starred. The Hudsonian Godwit is also out of its prescribed range but unfortunately the record is not absolutely certain.

1. *Colymbus nigricollis californicus.* EARED GREBE.** — Rare Migrant. (Lusk.)
2. *Gavia immer.* LOON.** — Tolerably common migrant. (Lusk.)
3. *Larus sp.* Gull.— Occasionally a gull is seen migrating. (Lusk.)
4. *Hydrochelidon nigra surinamensis.* BLACK TERN.** — Common on the few ponds in August.
5. *Pelecanus erythrorhynchos.* WHITE PELICAN.** — Tolerably common migrant. (Lusk.)
7. *Grus mexicana.* SANDHILL CRANE.** — Common migrant. (Lusk.)
8. *Limosa haemastica.* HUDSONIAN GODWIT.** — A Godwit, very probably of this species, was examined at close range, with binoculars, on a pond near Tucson, September 18. The fact that Scott questions the identification (Marbled) of the godwit he saw is suggestive.
9. *Totanus melanoleucus.* GREATER YELLOW-LEGS.— Rare migrant in spring as well as fall.
11. *Catoptrophorus semipalmatus inornatus.* WESTERN WILLET.** — Occasional migrant in May about Tucson. Taken by Mr. Herbert Brown.
11. *Charadrius dominicus*. Golden Plover.** — Two seen at a pond in the valley August 16.

12. *Callipepla squamata*. Scaled Quail.* — A rare resident on the western as well as on the eastern slopes of the Catalina Mountains.

13. *Meleagris gallopavo merriami*. Merriam's Turkey.— Just about exterminated. A couple were killed in the Santa Catalinas in 1907 by hunters.

14. *Columba fasciata*. Band-tailed Pigeon.— Abundant in the mountains above 5000 feet, nesting mainly in the pine zone (7000 feet +) but descending to feed upon the fruit of the manzanita.

15. *Zenaidura macroura carolinensis*. Mourning Dove.— Exceedingly abundant in April and May. Flocks of several hundred were seen. Tolerably common in summer.

16. *Melopelia leucoptera*. White-winged Dove.— Abundant summer resident, arriving about April 7. Ranges up to 4000 feet altitude. About the pools in the canions, flocks of hundreds will gather in midday. Local “nimrods” consider it great sport to slaughter them there.

17. *Champepelia passerina pallescens*. Mexican Ground Dove.— Abundant summer resident near Tucson. The short square tail and reddish tint of its wings in flight makes it very easy to distinguish from the grayish Inca.


19. *Urubitinga anthracina*. Mexican Black Hawk.** — An occasional breeder in the wilder parts of the mountains at 5000-7000 feet. The Zone-tailed Hawk and this are called “Mexican Eagles” by the hunters.

20. *Asturina plagiata*. Mexican Goshawk.* — One pair found breeding at 6000 feet in the oak zone.


22. *Falco fusco-cœruleascens*. Aplomado Falcon.* — A specimen of this beauty was taken by Mr. Lusk in the valley.


25. *Otus flammeolus*. Flammulated Screech Owl.** — One taken at 8000 feet in the Catalinas by Lusk.


27. *Glaucidium phalaenoides*. Ferruginous Pygmy Owl.— These birds were very common in the oak zone in June. An imitation of the soft cooing call brought one to a dead twig which hung within arm’s length as I lay on my blankets.

28. *Micropallas whitneyi*. Elf Owl.— This, with the former, nests abundantly in the deserted holes of the Gila and Gilded Woodpeckers in the giant cacti, or suharo.
29. **Geococcyx californicus.** Road-runner.—Abundant below 4000 feet most of the year. They have been seen leaving the nest of Gambel's Quails carrying an egg in their beak.

30. **Coccyzus americanus occidentalis.** California Cuckoo.* — A common nester in the mesquite of the Santa Cruz bottoms near Tucson, arriving the second week of June and leaving early in September. Their call is feeble and resembles that of the Black-billed rather than that of the more closely related Yellow-billed Cuckoo. One was seen carrying a young lizard.

31. **Dryobates arizonae.** Arizona Woodpecker.*** — Breeds commonly in the oak zone. Nests found by Lusk.

32. **Xenopicus albolarvatus.** White-headed Woodpecker.**** — One seen at 7000 feet in the Catalinas May 26. I believe that this bird has not been hitherto recorded from Arizona. Although I did not secure it, identification could scarcely be doubtful.

33. **Sphyrapicus thyroideus.** Williamson's Sapsucker.—A nest with young found May 25 in the oak zone of the Catalinas.

34. **Antrostomus vociferus macromystax.** Stephens's Whip-poor-will. — A conspicuous summer resident in the pine zone of the mountains.

35. **Phaethontilus nuttalli nitidus.** Frosted Poor-will.**—While *nuttalli* breeds only in the mountains, this variety is abundant throughout the summer in the valley. Specimens of both have been taken by Lusk.

36. **Chordeiles acutipennis texensis.** Texan Nighthawk.*** — An abundant summer resident in the Lower Sonoran Zone — the valley. Flight is low, almost always within twenty feet of the ground. The only call, soft and bubbling, is heard at dusk only in the early summer.

37. **Aëronautes melanoleucus.** White-throated Swift.*** — Nests abundantly about the cliffs in the mountains. A few feed in the valley.

38. **Eugenes fulgens.** Rivoli Hummingbird.**—Tolerably common breeder above 6000 feet in the Catalina. (Lusk.)

39. **Archilochus alexandri.** Black-chinned Hummingbird.* — The only common hummer in March and April. Apparently winters in the lowlands.

40. **Calypte costae.** Costa's Hummingbird.* — The abundant summer hummer of the town of Tucson is Costa's.

41. **Selasphorus platycercus.** Broad-tailed Hummingbird.—Mr. Lusk says that this is the most numerous hummer breeding in the Catalinas.

42. **Selasphorus rufus.** Rufous Hummingbird.—Lusk believes this species does not nest in the Catalinas.

43. **Stellula calliope.** Calliope Hummingbird.—Common migrant at 7500 feet. (Lusk.)

44. **Cynanthus latirostris.** Broad-billed Hummingbird.**—This beauty was breeding abundantly at 3500 feet in Sabino Cañon, in the Catalinas, early in May. Mr. Lusk says they rear another brood in July and August above 7000 feet.

45. **Basilinna leucotis.** White-eared Hummingbird.—Mr. H. S.
Swarth shot one in the Santa Rita Mountains in 1903. He announced this in ‘The Condor’ for 1903. I saw one under very favorable conditions at 3000 feet in the Catalinas May 4.

46. **Tyrannus vociferans.** Cassin’s Kingbird.— Abundant breeder about Tucson, arriving the last of April.

47. **Myiodynastes luteiventris.** Sulphur-bellied Flycatcher.—One pair nested at 5000 feet in Pima Cañon, Catalina Mountains, in 1909. Lusk met a pair in Cañon de Ordo on the north side of the range in 1907.

48. **Myiarchus cinerascens.** Ash-throated Flycatcher.—Call starts out like that of the Crested but has a peculiar ring at its close.

49. **Myiarchus lawrencii olivascens.** Olivaceous Flycatcher.—Seen repeatedly at 3500–4500 feet in the canions of the Catalinas. Also noted near Tucson in the spring migration.

50. **Sayornis saya.** Say’s Phœbe.—A regular though not frequent breeder near Tucson as well as in the mountains. The fledglings have a puttering call suggesting that of the Bluebird.

51. **Contopus pertinax pallidiventris.** Coes’s Flycatcher.—Called by the Mexicans “the Joseph and Mary bird” because its wonderfully sweet song might be interpreted “Hosea-Maria.” Very abundant in the pine forests. Before light, and in the evening they are heard in every direction.

52. **Empidonax difficilis.** Western Flycatcher.—Common breeder throughout the mountains from 3000–8000 feet.

53. **Empidonax trailli.** Traill’s Flycatcher.—Locally an abundant summer resident in the mesquite along the Santa Cruz River.

54. **Empidonax wrighti.** Wright’s Flycatcher.—“Probably a rare breeder in the Pine Zone.” (Lusk.)

55. **Empidonax fulvifrons pygmeus.** Buff-breasted Flycatcher.—Three pairs bred in the pines of the Catalinas at 7500 feet in 1909. Nests found by Mr. Lusk.

[Ornithion ridgwayi. Ridgway’s Flycatcher.—Mr. H. S. Swarth in his list of summer birds of the Papago Indian Reservation (Condor, 1903) tells of the capture of a brood of these rare birds.]

56. **Otocoris alpestris adusta.** Scorched Horned Lark.—Locally a tolerably common resident on the mesa.

57. **Nucifraga columbiana.** Clarke’s Nutcracker.—Occasionally abundant in the pine and red fir forests of the Catalinas. (Lusk.)

58. **Molothrus ater obscurus.** Dwarf Cowbird.—A summer resident as high as 5000 feet in the oaks. Arrived May 5.

59. **Tangavius aeneus aeneus.** Western Red-eyed Cowbird.—At least three pairs spent the summer on the bottom just west of Tucson, and at least four young were matured. For the announcement of the capture see ‘The Auk’ for July, 1909. For further notes see ‘The Auk’ for April, 1910, p. 210.

60. **Xanthocephalus xanthocephalus.** Yellow-headed Blackbird.—Nests in the valley.
61. *Agelaius phoeniceus sonoriensis.* **Sonora Redwing.**—Lacking rushes in which to build their nests they place them in mock orange trees along the usually dry irrigation ditches.

62. *Sturnella magna hoopesi.* **Rio Grande Meadowlark.**—Abundant winter visitor. One pair spent the summer in one of the few large alfalfa fields. There is no noticeable difference in the songs of this and *S. neglecta*.

63. *Icterus parisorum.* **Scott's Oriole.**—Seen frequently migrating at Tucson. An abundant summer resident of the oak zone in the Catalinas. Their loud, ringing whistle, suggesting the "I-want-to-speak-to-you" call of the Western Meadowlark, was the most noticeable bird note there in June.

64. *Icterus cucullatus nelsoni.* **Arizona Hooded Oriole.**—Abundant breeder. They have two songs; the louder and more frequent resembles that of Yellow-headed Blackbird. The other is sung in an undertone and strongly suggests a distant Bobolink. The nest is almost as pendant as that of the Baltimore. I found several between and under the ribs of the leaves of the fan-leaved palm.

65. *Icterus bullockii.* **Bullock's Oriole.**—Common summer resident to 4000 feet, all leaving by the middle of July. Arrivals from the north noted September 12.


67. *Carpodacus cassini.* **Cassin's Purple Finch.**—Regular migrant in the mountains. (Lusk.)

68. *Passer domesticus.* **English Sparrow.***—Now fairly numerous about Tucson, and also Phoenix.

69. *Spinus pinus.* **Pine Siskin.**—A flock seen near Tucson in March. "Abundant in August and September, 1909, at 8000 feet." (Lusk.)

70. *Rhynchophanes mccowni.* **McCown's Longspur.***—One collected by Lusk at Old Fort Lowell October 1, 1900.

71. *Poecetes gramineus confinis.* **Western Vesper Sparrow.***—A common migrant, March to May, and September 15 to October at Tucson.

72. *Ammomanus bairdi.* **Baird's Sparrow.***—Fairly numerous for a few days late in April near Tucson.

73. *Zonotrichia leucophrys.* **White-crowned Sparrow.**—An abundant winter visitor. They remain several weeks longer than *Z. gambeli* feeding on the blackberry like fruits of the mulberry. Last seen June 8.


75. *Spizella passerina arizone.* **Western Chipping Sparrow.**—Abundant migrant in the basin.

76. *Spizella brevirostris.* **Brewer's Sparrow.***—Several noted in April near Tucson. Taken by Lusk.
77. **Junco phaeonotus palliatus. Arizona Junco.**—Abundant breeder in the pine and spruce zones of the mountains. This is the only common Junco of the five noted. Its jolly trill was frequently heard, especially in the aspen thickets above 8000 feet.

78. **Amphispiza bilineata deserticola. Desert Sparrow.**—This is doubtless about as truly a desert bird as any sparrow, and apparently it must go for long intervals without water, for there is no rain nor dew from March, and sometimes February, to the end of June or even the middle of July. However, this somber bird with a cheery trill knows how to drink. I have frequently watched them drink, in June, from a pan which I had placed out. One thirsty fellow took a score of sips before being sated.

Other typical desert birds I noted drinking are: Bendire's Thrasher, Cactus Wren, House Finch, and Gambel's Quail.

79. **Aimophila carpalis. Rufous-winged Sparrow.**—A brood seen at 5000 feet late in June in the Catalinas.

80. **Aimophila ruficeps scotti. Scott's Sparrow.**—A tolerably common migrant in April in the Santa Cruz valley.

81. **Melospiza melodia fallax. Desert Song Sparrow.**—Noted in March and April occasionally. Fairly frequent after the middle of September.

82. **Pipilo fuscus mesoleucus. Calon Towhee.**—The only abundant summer resident towhee below 5000 feet. Song, chib, chib, chib, chib, chib; instead of chib, chib, chib as given in Chapman and Reed.

83. **Oreospiza chlorura. Green-tailed Towhee.**—Very common in the bottoms in April and September. "Occasionally breeds at low altitudes." (Lusk.)

84. **Pyrrhuloxia sinuata. Arizona Pyrrhuloxia.**—Abundant resident about Tucson; frequent at the mouths of the canons. It has two quite distinct whistles. One is like that of the Calon Towhee. The other is sharp and very loud. The first song season closes early in May, and the second commences early in June.

85. **Zamelodia melanocephala. Black-headed Grosbeak.**—Breeds up to 8000 feet. In the valley sparingly, abundantly in the mountains where its sweet song was the dominant notes at midday in June.

86. **Guiraca caerulea lazuli. Western Blue Grosbeak.**—Common summer resident at Tucson. Arrived May 22 and departed September 28. Its cheery though unambitious song is uttered indifferently from telephone wires or from weeds and mesquite.

87. **Passerina amoena. Lazuli Bunting.**—Abundant April 13 to end of May in the valley, and in August and September.

88. **Cyanospiza versicolor. Varied Bunting.**—A flock of ten was seen near Tucson May 4. (Brewster, in Auk, 1885, records the capture of a specimen by Stephens south of Tucson.)

89. **Piranga ludoviciana. Western Tanager.**—Migrant, feeding on mulberries in spring, near Tucson. Abundant summer resident in the bull pine forest. Song is harsher than that of the following species.
90. **Piranga hepatica.** Hepatic Tanager.* — Common migrant about Tucson, and tolerably common summer resident above 6000 feet in the Catalinas. It has the song and sharp call of the Scarlet Tanager. April 29—September 18.

91. **Piranga rubra cooperi.** Cooper’s Tanager.— A common breeder along ditches in the Santa Cruz Valley. April 22—August 22. Its song is far sweeter than that of the other tanagers. It has a purity which suggests the Rose-breasted Grosbeak. The alarm note is also softer.

92. **Progne subis hesperia.** Western Martin.— Very abundant about Tucson in summer, nesting in holes made by the Gila Woodpeckers and the Flickers in the giant cacti. From August 1 to September 20 large flocks were seen daily.

93. **Petrochelidon lunifrons.** Cliff Swallow.** — A few seen at Tucson the last of March.

94. **Iridoprocne bicolor.** Tree Swallow.— Seen several times in March and April in the valley.

95. **Tachycineta thalassina lepida.** Violet-green Swallow.— Seen in large flocks in spring, March 25 to April 8, and in the fall, September 8 in valley; abundant nester in the pines.

96. **Stelgidopteryx seripennis.** Rough-winged Swallow.— By far the most abundant breeding swallow about Tucson in 1909. Left (July 2) after breeding.

97. **Lanivireo solitarius cassini.** Cassin’s Vireo.* — An uncommon migrant along the river as well as in the mountains.

98. **Lanivireo solitarius plumbeus.** Plumbeous Vireo.* — A frequent migrant near Tucson; first seen April 6. “Fairly common breeder in the mountains.” (Lusk.)

99. **Vireo huttoni stephensi.** Stephens’s Vireo.— “Nests twice at 5000 feet in the Catalinas. First brood is out by May 1 and second by July.” (Lusk.)

100. **Vireo bellii pusillus.** Least Vireo.— Common summer resident in valley. Song resembles that of the Yellow Warbler.

101. **Vermivora virginiae.** Virginia’s Warbler.— Nest found by Mr. Lusk at 7500 feet in the Catalinas.

102. **Vermivora celata lutescens.** Lutescent Warbler.— Common breeder throughout the region. I have found nests in the valley and Mr. Lusk in the forests of the mountains.

103. **Peucedramus olivaceus.** Olive Warbler.*** — Not a rare nester in the higher reaches of the Catalinas. Nests found by Mr. Lusk. He believes that the males do not attain the brightest coloration until at least the third year. Also that the young males sing only snatches of the flowing song of the bright colored adults.

104. **Dendroica auduboni nigrifrons.** Black-fronted Warbler.** — Although it is *auduboni* which is so abundant in the lowlands, this is the common resident of the tops of the mountains, where Mr. Lusk has taken nests. *Auduboni* was seen in the lowland as late as the end of May and doubtless nests not far distant.
105. **Dendroica gracilis.** Grace's Warbler.*** — Abundant nester above 7000 feet in the Catalinas. This is a ground loving bird, hopping sprightly about. A connected song which tapers off as does the House Wren's is often delivered from a low perch.

106. **Dendroica nigrescens.** Black-throated Gray Warbler.* — Frequent migrant in the valley (March 26–April 14, September). Common summer resident above 6000 feet.

107. **Dendroica townsendi.** Townsend's Warbler.* — Noted in March and May near Tucson, and at base of the Catalinas at middle of September.

108. **Dendroica occidentalis.** Hermit Warbler.— A pair were seen along the river April 22. "Common migrant in the Catalinas." (Lusk.)

109. **Oporornis tolmiei.** Macgillivray's Warbler.— Common in migrations. Seen early in June near the river, apparently near its nest.

110. **Icteria virens longicauda.** Long-tailed Chat.— The Chat arrived in great numbers late in May. At sunrise I have heard scores singing simultaneously. Departed first week of September.

111. **Wilsonia pusilla pileolata.** Pileolated Warbler.— Abundant migrant March 24–June 2, August 18. The song is very much like that of the Yellow Warbler.

112. **Setophaga picta.** Painted Redstart.— A common summer resident in the forests of the Catalinas. Nests found by Mr. Lusk at 7500 feet. From June 20 to September 18 the immature birds were abundant in the oak zone and along the canons.

113. **Cardellina rubrifrons.** Red-faced Warbler.*** — Common nester in the pine forest. Nest found by Mr. Lusk.

114. **Toxostoma curvirostre palmeri.** Palmer's Thrasher.— Common resident below 4000 feet. Mr. Couch was correct in saying that the song is "remarkably melodious and attractive," and because it is soft and not very frequent it is all the more pleasing.

115. **Toxostoma bendirei.** Bendire's Thrasher.— Abundant resident about Tucson. Song resembles that of the Brown Thrasher. The song season is over by mid-April, and the young then fledged. The birds of this region do not seem to adapt their nesting period to the rainy seasons. There is a small amount of rain in December and January; then everything slowly dries up until July and August when considerable rain falls. In these months the insect life and all other food is far more abundant than before. One would think that the birds of this region would therefore have their young hatched early in July instead of in May. Characteristic desert birds which bring out their broods early are:

- **Mid-April:** Bendire's Thrasher and Cactus Wren (the latter occasionally rears a second brood in August).
- **Early in May:** Plumbeous Gnat-catcher.
- **Mid-May:** Say's Phoebe, Vermilion Flycatcher, Desert Sparrow.
- **End of May:** Mourning Dove, Bullock's Oriole, House Finch, Lutescent Warbler.
Mid-June: Gambel's Quail, Palmer's Thrasher.

116. *Catherpes mexicanus conspersus*. CAÑON WREN.—A common resident about the lava hills in the valley as well as in the mountains, where it is abundant up to 6500 feet. Song very loud and ringing; che, repeated six times on an ascending scale and ending with a squeak.

117. *Thryomanes bewicki leucogaster*. BAIRD'S WREN.—Common migrant and rare breeder in the valley, abundant in the oak zone. Song distinctly suggests that of the eastern Towhee.

118. *Troglodytes aëdon parkmani*. WESTERN HOUSE WREN.*—Tolerably frequent in March, April and September in the valley; abundant summer resident above 7000 feet in the Catalinas.

119. *Certhia familiaris albescens*. MEXICAN CREEPER.***—Abundant at 7500 feet in the pines of the Catalinas in June; apparently nesting.

120. *Sitta pygmaea*. PYGMY NUTHATCH.***—One seen near Tucson April 10. “A fairly frequent nester in the pine forests.” (Lusk.)

121. *Penthestes sclateri*. MEXICAN CHICKADEE.** —“Common nester in the pines” (Lusk.) Seen in the oak zone in April.

122. *Regulus calendula*. RUBY-CROWNED KINGLET.***—Abundant until the end of April at low altitudes. “Breeds in the Catalinas above 8000 feet.” (Lusk.)

123. *Myioborus townsendi*. TOWNSEND’S SOLITAIRE.—Several seen at 6000 feet in the Catalinas early in April. Mr. Lusk says they occasionally breed at about that altitude.

124. *Hyllocichla guttata auduboni*. AUDUBON’S HERMIT THRUSH.***—Early in June their song was heard repeatedly, especially in the fir forested valleys above 8000 feet.

125. *Planesticus migratorius propinquus*. WESTERN ROBIN.***—Several pairs nest, quite after the fashion of the eastern bird, about the scattered cabins and clearings in the coniferous zone of the Catalinas. A Robin is occasionally seen on the lawns of Tucson.

126. *Sialia mexicana occidentalis*. WESTERN BLUEBIRD.—“Rare breeder in the spruces at 9000 feet in the Catalinas.” (Lusk.)

127. *Sialia mexicana bairdii*. CHESTNUT-BACKED BLUEBIRD.**—Abundant breeder in the pines. Taken by Lusk.