

## BIRDS OF THE KETTLEMAN HILLS AREA, CALIFORNIA

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It is always interesting to find out what sort of wild creatures manage to live in unfavorable regions which have little water or vegetation to make them habitable. Such a region is the southwestern part of the San Joaquin Valley in California. Here, at about the half-way point on a straight line between Los Angeles and San Francisco, the Kettleman Hills rise out of the dry, barren-looking flats. They extend northwestward from Kern County, through Kings County, into Fresno County, on the eastern edge of the Coast Range. The Kreyenhagen Hills and the Diablo Range, less than five miles away to the west across the Kettleman Plain, support more vegetation than the Kettleman Hills and provide suitable habitats for more kinds of animals. So also does the Coalinga area to the northwest (Arnold, Condor, 39, 1937:31-35), about seventeen miles from the town of Avenal, which is situated on the Kettleman Plain just west of the north dome of the Kettleman Hills. The canals and low farm lands around Tulare Lake, about five miles east of the Hills, attract a wide variety of ducks, herons, and shore birds, but few of these stray to the Kettleman Hills.

The highest point in the Kettleman Hills rises about 900 feet above the edge of the San Joaquin Valley and about 600 feet above the Kettleman Plain. It has an altitude of 1366 feet (Woodring, Stewart, and Richards, U. S. Dept. Int., Geol. Surv. Prof. Paper 195, 1940:1-170), and Avenal is about 800 feet above sea level.

In this area the summers are very dry and hot, with maximum temperatures averaging around 100 degrees in July and August. The winters are mild, with light rainfall. Occasionally in winter the Hills are blanketed by the ground fogs of the San Joaquin Valley. For seven months of the year they are parched and brown, covered mainly by brome grasses, filaree, wild oats, bur clover, and scattered clumps of sagebrush which grows best in the arroyos and on the north-facing slopes. After the winter rains begin, the short annuals mature rapidly, covering the Hills and the flats with green. Thousands of wildflowers lend color to the landscape in March and April, but they soon produce their seeds and die. There are no native trees in the Kettleman Hills, but a few kinds such as cottonwoods and tamarisks have been planted around the houses and gasoline plants. These now provide suitable habitats for many birds which otherwise would not stay here at all.

Several years ago a game refuge was established in the north dome of the Kettleman Hills to provide a natural area where quail and other game birds might be raised. Incidentally it also serves to protect the property and employees of the oil companies. The mammals most often seen in the refuge are ground squirrels, cottontails, and jack rabbits. We have also seen badgers, kit foxes, coyotes, bobcats, antelope ground squirrels, pocket gophers, white-footed mice, and kangaroo rats. No deer are found here, although they live in the Kreyenhagen Hills just across the Kettleman Plain.

Since the summer of 1942 I have recorded in my field notes occasional observations on the birds of the Kettleman Hills area, and throughout the year 1944 these were kept as a daily census. In this work Mr. George A. Wilson has been a constant source of help and encouragement.

The area covered by this survey includes the north and middle domes of the Kettleman Hills, the town of Avenal and adjacent parts of Kettleman Plain, the Polvadero Gap, the eastern side of the Guajarral Hills, and the flats along the road between Avenal

and Huron and from there westward along the Coalinga-Hanford Road to the eastern side of Anticline Ridge (see Woodring, Stewart, and Richards, *loc. cit.*).

*Cathartes aura*. Turkey Vulture. Common summer visitant. Earliest record, March 28, 1944; latest, September 15, 1944. This is one of the few birds which is seen here more often in the summer than in any other season.

*Accipiter cooperii*. Cooper Hawk. Seen here occasionally in November, December, and January in 1943 and 1944. Also recorded on April 4 and on August 16, 1944.

*Buteo jamaicensis*. Red-tailed Hawk. Common winter visitant. Earliest record, September 9, 1944; latest, April 10, 1944.

*Buteo lineatus*. Red-shouldered Hawk. Seen on December 3, 1943, January 13, 1944, and April 14, 1944, over the Kettleman Hills.

*Buteo regalis*. Ferruginous Rough-legged Hawk. Two seen on the Kettleman Plain south of Avenal on November 8, 1942, and one there on January 1, 1945. On the flats along the Coalinga-Hanford Road we saw one on April 18, 1944, and several more during December, January, and February in 1944 and 1945.

*Aquila chrysaetos*. Golden Eagle. One seen on the flats near Huron on May 17, and two near the Gujarral Hills on December 7, 1944. On December 12, 1944, one was soaring over the Kettleman Hills, and on February 19, 1945, we saw a large one feeding on the carcass of a sheep near the north end of the Kettleman Hills. There were Golden Eagles in Tar Canyon (in the Kreyenhagen Hills) on April 23 and December 17, 1944.

*Circus cyaneus*. Marsh Hawk. Fairly common resident. Seen occasionally throughout the year, least often during the summer. More common near Tulare Lake.

*Falco mexicanus*. Prairie Falcon. Recorded in this area during November, December, and January in 1942, 1943, 1944, and 1945. Earliest record, November 7, 1943; latest, January 6, 1944.

*Falco peregrinus*. Duck Hawk. On January 5, 1944, there was one near Huron, and on November 16, 1944, we saw another falcon, probably of this species, on section 11P.

*Falco sparverius*. Sparrow Hawk. Fairly common resident. Recorded occasionally during the spring and summer, and fairly frequently during the fall and winter.

*Alectoris graeca*. Chukar Partridge. This is one of the two species of game birds which the local sportsmen's clubs have been trying to establish in the Kettleman Hills Game Refuge. They were raised in pens for two years, then released a few at a time, starting about 1940. In the spring of 1943 the first wild broods were seen. We recorded Chukars here in 1944 between April 10 and May 5, and on July 20 (an adult with six young), August 28, and October 31. A few more were reported in February, 1945.

*Lophortyx californica*. California Quail. Common resident. On August 21, 1944, we saw a pair with about ten young on section 11P. We also saw a female with young in Tar Canyon (in the Kreyenhagen Hills) on June 28, 1943.

*Phasianus colchicus*. Ring-necked Pheasant. This is the other game bird which the local sportsmen's clubs have been trying to establish here, but it does not seem to be doing very well. We saw pheasants in the Hills in 1944 on May 30 and occasionally between August 29 and September 21.

*Oxyechus vociferus*. Killdeer. Seen in the Kettleman Hills on May 22, May 29, June 6, and October 28, 1944, and in Avenal on February 11, 1945. They may be seen more often on the marshy lowlands near Tulare Lake.

*Zenaidura macroura*. Mourning Dove. Common resident. Doves are seen least often during the winter, when they gather in large flocks.

*Geococcyx californianus*. California Road-runner. Fairly common resident. Seen occasionally all the year around. In the spring of 1944 we watched a pair nesting and rearing their young in a clump of bushes on section 33J. Nest-building was first noticed on March 24 and continued until March 30. A bird was seen on the nest several times between April 3 and 30. On May 2 we saw four young in the nest, fully feathered but with short tails. They left the nest on May 7, 1944.

*Tyto alba*. Barn Owl. Recorded on January 20, July 4, and July 5, 1944, in the hills of the north dome. These owls probably live in the Kreyenhagen Hills and come across the Kettleman Plain to hunt here at night.

*Speotyto cunicularia*. Burrowing Owl. Fairly common resident. Seen occasionally during the year in the Kettleman Hills or on the flats. On June 7, 1944, there were four half-grown owls standing in a row by a burrow near Huron.

*Chordeiles acutipennis*. Trilling Nighthawk. On the evenings of April 29 and June 29, 1944, we saw one flying between Avenal and the western edge of the Hills.

*Aëronautes saxatalis*. White-throated Swift. One record, on April 8, 1944, of two swifts flying north against the wind over section 3P.

*Calypte anna*. Anna Hummingbird. The hummingbirds recorded between August 19 and October 28, 1944, and on January 20, 1945, were evidently of this species.

*Colaptes cafer*. Red-shafted Flicker. Earliest record, September 30, 1944. Seen occasionally during October, November, and December, 1944. Latest record in this area, January 6, 1945. In Tar Canyon we saw flickers on January 2 and on December 17, 1944.

*Tyrannus verticalis*. Western Kingbird. Common summer resident. First recorded in the spring on March 30, 1944; seen almost every day thereafter in this area until July 21, 1944 (latest record). We watched a pair building a nest on a valve wheel in the gasoline plant on section 33J on May 8, 1944. There was one egg in the nest on May 16 and three eggs on May 18. On June 7 the parent birds were feeding the young in the nest, and on June 20 the deserted nest contained two dead fledglings. Another pair of kingbirds appeared to be nesting in some trees near a house on section 4P. In previous years kingbirds have nested in the gasoline plant on section 11P.

*Myiarchus cinerascens*. Ash-throated Flycatcher. Seen during the summer of 1943, and occasionally in 1944 between May 9 and November 2, on the Hills or in Avenal.

*Sayornis nigricans*. Black Phoebe. One seen on March 29, 1944, on section 11P and one on July 16, 1944, in our yard in Avenal. One was seen in Tar Canyon on December 3, 1944, and several were seen near Tulare Lake on March 4, 1945.

*Sayornis saya*. Say Phoebe. Unlike most of the flycatchers, these birds were not seen during the hottest part of the summer, but remained here the rest of the year. The first record in the fall was on September 25, 1944, and the last in early summer was on June 29, 1944. They were seen most often in the fall.

*Myiochanes richardsonii*. Wood Pewee. Seen early in the summer of 1943. In 1944 recorded between May 20 and June 15, on July 24, and occasionally between September 19 and October 8.

*Otocoris alpestris*. Horned Lark. Seen in large numbers on the flats except during the summer. Apparently only a few stay here then. Occasionally seen in the Hills.

*Hirundo rustica*. Barn Swallow. We saw a few in this area on April 17 and May 9, 1944. Large numbers were seen along the canals north of Tulare Lake on April 4 and June 6, 1943.

*Petrochelidon albifrons*. Cliff Swallow. Seen on March 27, April 29, May 17, August 15, August 27, and November 16, 1944, in the Kettleman Hills or in the trees in our yard. They were seen in very large numbers on April 4 and June 6, 1943, and in small numbers on March 4, 1945, along the canals north of Tulare Lake. There were three in Tar Canyon on April 23, 1944.

*Corvus corax*. Holarctic Raven. Abundant resident. Seen almost every day throughout the year. They are especially numerous on the flats in the fall and early winter. We have found deserted ravens' nests in oil derricks and in a hollow on the side of a cliff, but we have not yet seen them nesting.

*Sitta canadensis*. Red-breasted Nuthatch. On October 26, 1942, one was working around the trunk of a cottonwood tree near a building on section 11P. Our next record was on October 13, 1944, when there was one in an umbrella tree in our yard, searching over the bark.

*Troglodytes aëdon*. House Wren. Late in the summer of 1943 we saw a House Wren on several occasions in a gasoline plant on section 3P. It seemed quite at home among the pipe lines, pumps, and other equipment.

*Troglodytes troglodytes*. Winter Wren. On October 5, 1944, one of these wrens alighted on a vertical pipe outside the window of a building on section 11P. It looked in for a moment, then flew away.

*Salpinctes obsoletus*. Rock Wren. Seen during 1944 on March 17 and several times between May 15 and July 13 near holes in cut banks beside the road on sections 3P and 35J. On May 30 there were two on section 35J, one of which could not fly very well and seemed to be immature. The other was herding it across the road. On December 6, 1944, we watched one for several minutes while it explored the holes in a sandstone outcrop on section 11P. Rock Wrens were seen again on section 3P on January 12, February 16, and March 7, 1945. We also saw one in Tar Canyon on December 12, 1943, digging in the ground with its bill.

*Mimus polyglottos*. Mockingbird. Fairly common resident. Seen in small numbers throughout the year. They are most abundant in the spring and fall.

*Turdus migratorius*. Robin. Earliest record, December 5, 1943, when there was a storm in the mountains. In 1944 Robins were seen occasionally between February 22 and March 30 on the lawns in Avenal. Next recorded on March 6, 1945, when two were seen near some houses on section 3P.

*Hylocichla guttata*. Hermit Thrush. Seen on section 11P on December 13, and in Avenal on December 14 and 20, 1944. Seen again in our yard on February 13, 1945.

*Hylocichla ustulata*. Swainson Thrush. Seen occasionally in our yard or in the Hills between May 22 and 27, October 8 and 16, and November 4 and 6, 1944. On the morning of October 16 we found a dead Swainson Thrush on the steps of a building on section 11P.

*Sialia currucoides*. Mountain Bluebird. First seen on the flats northwest of Avenal on November 7, 1943. Also recorded in this area in December, January, and February, 1944-45. Latest record, March 1, 1945. Large flocks were seen in Tar Canyon in December and January, 1944.

*Poliophtila caerulea*. Blue-gray Gnatcatcher. Seen in Avenal or in the Hills during 1944 between January 13 and 27, and on March 20, May 10, October 4, and December 13. We also saw one in Tar Canyon on April 23, 1944.

*Regulus satrapa*. Golden-crowned Kinglet. In the afternoon of November 3 and the morning of November 4, 1944, there was a female Golden-crowned Kinglet in our yard in Avenal. We watched for some time while it foraged in the trees and shrubs and on the lawn.

*Regulus calendula*. Ruby-crowned Kinglet. Fairly common winter visitant. Comes here at the end of October or early in November. First seen in 1942 on November 5, in 1943 during the first week in November, and in 1944 on October 28. Seen fairly often in the fall, but only occasionally in winter. Latest record, March 31, 1944.

*Anthus spinoletta*. Water Pipit. Only one record, on December 5, 1943, when there were storms in the mountains. At about ten o'clock in the morning we watched one walking about on our neighbor's lawn, bobbing its tail up and down as it looked for food in the grass.

*Bombycilla cedrorum*. Cedar Waxwing. Flocks seen occasionally in the trees in Avenal between January 23 and April 16, 1944.

*Lanius ludovicianus*. Loggerhead Shrike. Abundant resident. Seen almost every day throughout the year in this area. During June, 1944, a pair of shrikes came into our yard quite often. They seemed to have a nest in a eucalyptus tree near by, and on June 28, 1944, there was a young one with them on a power line near our house.

*Dendroica aestiva*. Yellow Warbler. Seen on April 30, September 28, and October 1, 1944, in our yard. In Tar Canyon we saw one on April 23, 1944.

*Dendroica auduboni*. Audubon Warbler. Common winter visitant. First recorded in the fall on September 24, 1944. Seen almost every day during the fall, but less often during the winter. Latest record, March 30, 1944.

*Oporornis tolmiei*. Tolmie Warbler. On May 23, 1944, there was one female in the cottonwood tree near a building on section 11P. Early in the summer of 1943 we saw a warbler, probably of this species, in the pepper tree in our yard.

*Wilsonia pusilla*. Pileolated Warbler. Early in the summer of 1943 there was one in our pepper tree. During 1944 we saw Pileolated Warblers on May 6, May 20, August 16, August 26, September 18, and October 27 in our yard or in the Hills.

*Passer domesticus*. House Sparrow. Abundant resident. Seen almost every day in spring and fall, and fairly often in winter and summer. On March 16, 1944, a pair of them was building a nest in the gasoline plant on section 3P. On March 20, 1944, a pair was looking for a nesting site in our back yard, where they had nested in 1943.

*Sturnella neglecta*. Western Meadowlark. Common resident. Seen almost every day except during the summer, when only a few remain here. Most abundant in the spring and fall.

*Agelaius phoeniceus*. Red-winged Blackbird. Seen between April 5 and June 5, 1944, in the irrigated grain fields near Huron. Large numbers of these blackbirds are found along the canals at the north end of Tulare Lake.

*Agelaius tricolor*. Tricolored Blackbird. On March 4, 1945, we saw a large flock of these blackbirds on some power lines where Skyline Road leaves Avenal and enters the Kettleman Hills. There were several flocks of them along the canals at the north end of Tulare Lake on the same day.

*Icterus bullockii*. Bullock Oriole. First seen in our yard on April 8, 1944, when there were storms in the mountains. In the group were five males and one bird that might have been a female or a first-year male. Early in the summer of 1943, and between April 29 and July 14, 1944, these orioles were seen and heard occasionally in Avenal or in the Hills. A pair was seen in Tar Canyon on April 23, 1944.

*Euphagus cyanocephalus*. Brewer Blackbird. Flocks seen occasionally during fall, winter, and spring, but not between July 10 and September 27, 1944, in this area.

*Hedymeles melanocephalus*. Black-headed Grosbeak. When the figs were ripe in the summer of 1943, we saw a female grosbeak fly down into the fig tree in our back yard. On December 12, 1943, a male was seen in the Kreyenhagen Hills.

*Carpodacus purpureus*. Purple Finch. On January 5, 1944, there was a flock on the flats near Huron. On January 30, 1944, we saw quite a number in the bushes on the middle dome of the Kettleman Hills.

*Carpodacus mexicanus*. House Finch. Abundant resident. Seen almost every day during the year, perhaps least often in the summer. On March 20 a pair was looking for a nesting site on section 3P, and on March 21, 1944, others were looking under the eaves of a building on section 11P, where they had nested in previous years. On March 24, 1944, we found a nest in one of the garages on section 11P.

On April 3 the female was on the nest; by April 11 the eggs had hatched; and by April 24 the young had left the nest, but there was still one egg in it. Another pair was seen building a nest on April 5, 1944, on section 33J.

*Spinus psaltria*. Arkansas Goldfinch. Common winter visitant. Seen almost every day from September to April. Earliest record, August 29, 1944; latest, May 22, 1944.

*Passerculus sandwichensis*. Savannah Sparrow. On October 2, 1944, we saw one with an injured wing hop into the weeds on a hillside on section 11P.

*Ammodramas savannarum*. Grasshopper Sparrow. On June 22, 1944, one was singing on a power line on section 11P.

*Chondestes grammacus*. Lark Sparrow. Seen occasionally during fall, winter, and spring, but not between June 16 and September 28, 1944. Several were heard singing in our trees during February, 1945.

*Junco oreganus*. Oregon Junco. Seen in our yard on November 14, 1943, and occasionally between December 2 and 31, 1943. Next recorded in Avenal on October 13, 1944, and on section 11P on October 24, 1944. We also saw them in Tar Canyon on January 2 and December 17, 1944.

*Zonotrichia leucophrys*. White-crowned Sparrow. Abundant winter visitant. Earliest record, October 11, 1944, on section 11P. Seen almost every day during the fall, winter, and spring. Last recorded in Avenal on April 24, 1944, but one was seen in the Polvadero Gap on May 17, 1944.

*Melospiza melodia*. Song Sparrow. One seen on October 28, 1944, in the weeds and cattails below the water tank behind the Avenal High School. Some of the small sparrows frequently seen along the irrigation ditches beside the road to Huron may have been of this species.

#### SUMMARY

Uninviting as the Kettleman Hills may seem at first, they are not devoid of birds which live there the year around. Almost any day one may expect to see a few Ravens, Loggerhead Shrikes, California Quail, Mourning Doves, House Sparrows, Western Meadowlarks, and House Finches. Occasionally one may note Sparrow Hawks, Marsh Hawks, California Road-runners, Burrowing Owls, and Mockingbirds. Near the Hills large flocks of Horned Larks may be seen almost any time except during the summer, when just a few remain there. Only the hardest of the residents stay in this area in undiminished numbers during July and August. Fall brings the return of the Ruby-crowned Kinglets, Audubon Warblers, Arkansas Goldfinches, and White-crowned Sparrows. In the spring when these birds are leaving, the Western Kingbirds come here to nest and raise their young before they too leave for the summer. Spring and fall are the best seasons for bird-watching, because both summer and winter visitants and some migrants may be seen then in addition to the residents.

Of the 66 species recorded with certainty, 18 may be classed as residents the year around; besides these 26 were seen in spring, 14 in summer, 30 in fall, and 24 in winter.

*Avenal, California, March 8, 1945.*