

part of which has proved itself adapted to these birds' nesting needs. There is no immediate dearth of space, even if already used surface be not so good for attachment of new nests. Barring human-caused catastrophe, what will be the course of events?

Thinking back through the years, depending upon memory to be sure, because of my failure to make written record of detailed observations in this particular matter, I cannot recall any relatively permanent cliff swallow colony, either on rock surfaces or on buildings. Colonies have come and gone. Two or three years of occupancy of any one exact site has seemed to be the limit. In each instance, favorableness of any given site was outlived and the "rancheria" transferred to some new site.

Is the factor for this periodic limitation of colony site something having to do with nest construction—like deterioration of surface? Or has it to do with accumulation of invertebrate parasites about the nests? Or has it to do with increasing predation upon the swallows, young and old, by other birds, past a point of racial endurance? Or has it to do with exhaustion of vitally necessary food elements within the cruising radius of the foraging swallows? Or, finally, may it not be an intrinsic factor, in that young of each succeeding generation are led inherently to establishment of new, separate nesting sites, with the result that each colony site is occupied only as long as the lifetime of a generation of swallows?

I am tempted here to think of other colonial animals. Are not all or most of such, limited in their length of tenure of any one spot of ground? Prairie dog towns wax and wane; but ever, new ones spring up on new sites. Exhaustion of resources, or contamination of habitation, causes progressive shifting. In human history, the phenomenon is common; cities rise and fall, their sites presently to be marked only by fragments of bricks. And maybe the fundamental ecologic factors are pretty much the same as in the "Republican Swallows," as they were called by Audubon in 1824, whose former village sites are to be ascertained only by looking for traces of the little mud "bricks".

If someone in temporal authority, stimulated by a zealous impulse to preserve formality and tidiness on the campus, be not led to drastic action unfavorable to the continuance of this present experiment in nature, we bird-watchers will have opportunity to see happen significant things for the understanding of cliff swallow natural history.

Museum of Vertebrate Zoology, Berkeley, California, March 17, 1937.

BIRD LIFE AT TWENTYNINE PALMS

WITH THREE ILLUSTRATIONS

By FRANCES CARTER

An oasis providing abundant water and shade in the midst of a vast arid region is an ideal place for observing bird life. Such is the oasis at Twentynine Palms, San Bernardino County, California. It is situated within the southern border of the Mohave Desert at an elevation of 2100 feet, about 50 miles northeast of Palm Springs, and 60 miles from Banning, Riverside County. The community, which takes its name from an historic group of *Washingtonia* palms, is widely scattered over a broad valley, surrounded by the Little San Bernardino, Pinto, Sheep Hole, and Bullion mountains. In recent years, its popularity as a resort has led to rapid development, and certain areas are now thickly settled.

The narrow strip of oasis, running along the southern side of the valley for about three-quarters of a mile, is interrupted near its center to form two distinct parts. The

eastern half, locally known as "the palms", is conspicuous for the group of tall palms, now reduced by fire and storm to 23. There are also large cottonwoods and a dense growth of the honey, or straight podded, mesquite. Several springs or waterholes provide excellent vantage points for the observer of birds.

The western half (see fig. 58), site of the 29 Palms Inn, contains many small palms, as well as much cottonwood, willow and mesquite. Here the water from numerous springs overflows to form nearly 5 acres of grassy swamp, at one time used for pasturing horses. In places there are beds of tules and of sedge. Two principal pools, where considerable water has collected, will be referred to in the accounts of species as the corral pool and the pasture pool (see fig. 59).

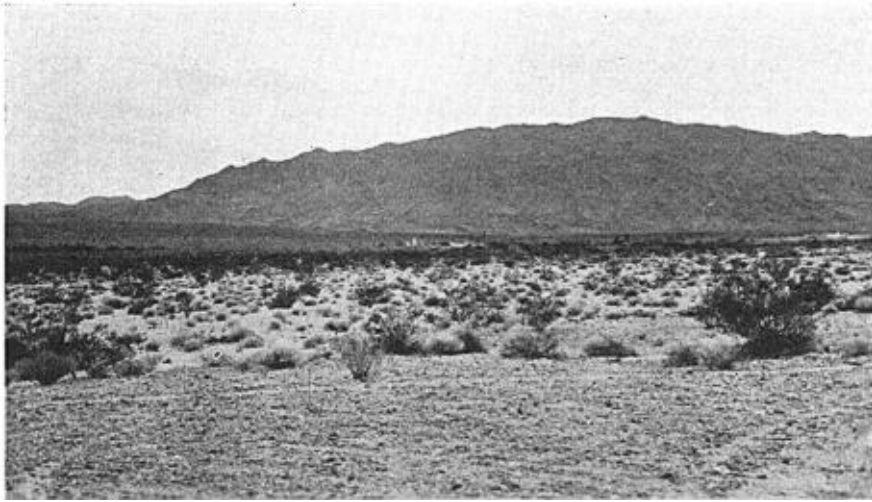


Fig. 58. The western branch of the oasis, location of the Twentynine Palms Inn; Little San Bernardino Mountains in the background.

The outlying region is a detrital plain, intersected by dry washes and covered with creosote bush, various species of salt bush, some cactus, mostly of the cholla group, and other desert growth of the low, scrubby type. It rises gradually on the south to the base of the mountains, tumbled rock piles with vegetation interspersed. There is probably a fairly distinct avifauna characteristic of each of the three habitats: mountain, open plain and oasis. My observations were confined almost exclusively to the oasis, and principally to the western part, adjoining the 29 Palms Inn.

The most striking feature of the bird population of the oasis, and an advantageous one from the observer's standpoint, was the large number of species representing several of the major families. Ten flycatchers, 6 Icteridae, 11 wood warblers, and 5 Turdidae facilitated comparison and contrast. Another example was the presence of 3 goldfinches and the Pine Siskin during the fall months. And the concentration of species in that favorable habitat is well shown by the identification of 95 species, with numerous others unidentified or doubtful.

The periods covered by my observations were from December 30, 1933, to May 17, 1934, and from October 17, 1934, to May 30, 1935. It may well be noted that these observations were largely of casual nature, the most outstanding occurrences of each species which came to my attention. Regular, careful survey of the whole area would

probably have disclosed far greater abundance of the more retiring species. These are, too, almost entirely field identifications and so less valuable than records of collected specimens. However, observations were made with the greatest possible care, and a number of doubtful records have been eliminated from this account. Some species, as noted below, were trapped for banding and so permitted of identification in the hand. There is no attempt to distinguish subspecies.

Common Loon. *Gavia immer*. On November 11, 1934, a loon in winter plumage was found exhausted by the roadside nearly 5 miles from water. It was brought to the oasis and placed in the pasture pool. On the following day it seemed quite revived, although still permitting close approach. It swam freely and dived, uttered a low chuckling sound and also a high quavering "laugh." Was not seen again.

Eared Grebe. *Colymbus nigricollis californicus*. An adult in full breeding plumage was seen in the pasture pool, April 16, 1935.

American Egret. *Casmerodius albus egretta*. This conspicuous snow-white bird, at the oasis April 23, 1935, aroused much interest among even the most casual observers, as it stood stiffly among the dry bushes, or flew with slow, graceful strokes of its huge wings above the green of the swamp. Seen also April 24.

Anthony Green Heron. *Butorides virescens anthonyi*. A single individual, seen in the pasture pool, May 9, 1934, was still present May 14. Reported in tules February 8, 1935. One recorded May 1, 5, 6, and 13.

Green-winged Teal. *Nettion carolinense*. A single individual, reported first by a reliable observer January 29, 1935, was seen February 10 and 17.

Cinnamon Teal. *Querquedula cyanoptera*. March 22, 1934, flock of 9 (5 males, 4 females) in corral pool. Seen March 23. Four seen in pasture pool March 24. For 1935, there are records only of a female, March 22 and 25, and of a male in the pasture pool, April 10 to 16.

Merganser. *Mergus*, species? April 22, 1934. Flock of about 30 mergansers alighted on corral pool at noon, apparently very tired. Had already left early the next morning.

Turkey Vulture. *Cathartes aura*. Seen intermittently during the whole period, either singly or in flocks. Flock of 29 counted April 3, 1935.

Sharp-shinned and Cooper hawks. *Accipiter velox* and *A. cooperii*. Both present; not always distinguished. Recorded April 21, 1934. On May 14, one, probably *A. velox*, took 3 newly hatched Say Phoebes from a nest under the eaves of the Inn porch. On November 4, 1934, a larger hawk, presumably the Cooper, swooped to the ground and caught a Fox Sparrow. A sharp-shinned was identified in flight, February 16, 1935.

Western Red-tailed Hawk. *Buteo borealis calurus*. Pair observed circling, January 12, 1935. Occasionally seen thereafter.

Sparrow Hawk. *Falco sparverius*. Clearly viewed on fence post, April 4, 1934. Subsequently heard from time to time.

Gambel Quail. *Lophortyx gambelii*. Heard at the palms, March 16, 1934. Flocks seen at water overflow behind the Inn pump house, in the early mornings around May 15, 1934. Had previously been reported from surrounding country. None observed at the oasis up to June 2 in 1935.

Killdeer. *Oxyechus vociferus*. Common about the swampy parts of the oasis; possibly resident. From early March on, Killdeers were heard frequently at night, especially around full moon, when they might be seen circling about, crying noisily. Present October 17, 1934; seen daily. During March, 1935, small groups were often seen circling over open desert, calling loudly and occasionally alighting. Courtship behavior was observed during March, 1934, and April, 1935. No search for nests was made.

Wilson Snipe. *Capella delicata*. A single snipe was seen probing among weeds at the edge of the swamp, October 30, 1934. One was seen March 18, and two March 23, 1935. One seen March 25 was followed and flushed from various parts of the swamp. Two were recovered March 27, and one April 2, 3, and 12.

Greater Yellow-legs. *Totanus melanoleucus*. One was seen in the swamp March 18 and April 10, 1935.

Least Sandpiper. *Pisobia minutilla*. Three were seen probing in the swamp, March 7, 1935. Occasionally they stopped to rest in the sun, sometimes even tucking the bill back between the wings. One recorded April 12.

Mourning Dove, *Zenaidura macroura*. The first record is of a single individual near the Inn, April 9, 1934. Mourning Doves were frequently seen and heard thereafter. They were particularly

numerous around May 9, and still present May 17. A Mourning Dove was heard at sunset, April 11, 1935. Two were seen May 1, 6 on May 5, about 12 May 6, and many more May 9. They were still quite numerous May 31.

White-winged Dove. *Melopelia asiatica mearnsi*. A White-winged Dove was trapped and banded on May 12, 1934. Several were seen thereafter; their calls often heard in contrast to the more familiar notes of the Mourning Dove. In 1935, their calls are recorded in the early morning, May 10, 17, and 27. A fuller account of this record has appeared in the Condor (vol. 39, 1937, p. 85).

Screech Owl. *Otus asio*, subsp. An individual was clearly viewed while perched on a wire under a cabin porch light, January 26, 1934, and another on February 27, 1935.

Horned Owl. *Bubo virginianus*, subsp. One was seen on a fence post near the corral, at dusk, November 6, 1934. The following day, it was found roosting in a large willow near one of the cabins. It was seen in a dead treetop on November 11.

Saw-whet Owl. *Cryptoglaux acadica*. One found dead, near cabins of the 29 Palms Inn, January 23, 1934. The carcass was deeply buried in leaves, completely desiccated, and partly eaten away. It is preserved as a skeleton, with part of plumage, in the Museum of Vertebrate Zoology.

Poor-will. *Phalaenoptilus nuttallii*, subsp. During April and May, 1934, the call of the Poor-will was frequently heard at night, seemingly from a great distance. In October, an individual was often seen after sundown, squatting in the dusty path near the cabins and darting up after insects. It was silent at this time.

Texas Nighthawk. *Chordeiles acutipennis texensis*. Identified April 17, 1934, swooping low over the croquet court, about sunset. Never more than one or two were seen. Also noted on May 26, 1935.

Costa Hummingbird. *Calypte costae*. A male was seen March 13, 1934, on blooming bladder-pod (*Isomeris*) in the desert, and another at the palms on March 16.

Belted Kingfisher. *Megaceryle alcyon*. A single individual flew with rattling cries from one to another of the tall trees of the oasis, April 9, 1934. Also recorded April 20 and 28. In 1935, the kingfisher was first heard March 31, subsequently April 2, 4, and May 9.

Red-shafted Flicker. *Colaptes cafer collaris*. Apparently a common winter visitant. Seen and heard daily from December 30, 1933, till around March 27, 1934. Present October 16, 1934; fairly numerous, often 2 or 3 together. Seen or heard until April 3, 1935.

Cactus Woodpecker. *Dryobates scalaris cactophilus*. One record, January 19, 1934; a single individual seen on the trunk of a large willow near the Inn.

Western Kingbird. *Tyrannus verticalis*. Identified March 23, 1934. The species was not always distinguishable in the field. *T. verticalis* was recorded April 18 and 20. Kingbirds were still present May 17. In 1935, records of *Tyrannus* (species?) occur throughout March, April, and May. The Western is definitely recorded: 2 individuals March 30, April 3, 4, and 5; one intermittently from May 6 to June 2.

Cassin Kingbird. *Tyrannus vociferans*. Definitely recorded April 2, 11, 12, and May 5, 1934. Nesting observed from May 21 to June 2, 1935.

Ash-throated Flycatcher. *Myiarchus cinerascens*. Identified May 10, 1934. Several individuals were seen daily until May 17. There are no positive records at the oasis during the spring of 1935. On June 2, 1935, a nest of the species was observed on the Wm. H. Campbell property, about 2 miles north of the oasis. The nest was built within a gate post pipe, 14 inches below the top. The pipe measured 6½ feet in height and 3½ inches inside diameter. The nest contained one bird, probably not less than a week old, and 3 unhatched eggs. Report came from W. E. Ketcham of 29 Palms that a second clutch of eggs was literally cooked by the summer heat.

Black Phoebe. *Sayornis nigricans*. First observed February 24, 1934. One individual was seen almost daily until April 4. For 1935 the first recorded date is February 23, although the bird was possibly heard previously. Records continue throughout February, 2 birds being observed on the 28th. These were quite vocal, uttering in addition to the characteristic single-syllabled call, a number of more elaborate notes similar to those of the Say Phoebe, but having a reedier quality. Records of one or two individuals appear daily until April 12.

Say Phoebe. *Sayornis saya*. A common resident of both the oasis and the surrounding desert. The breeding song was heard continually from early February on. Eaves of buildings were apparently a favorite nesting site. Residents of the valley reported that 2 broods are usually hatched, but that the second often perishes from the heat, in spite of their attempts to provide shelter.

Western Flycatcher. *Empidonax difficilis*. First seen in cottonwoods, April 22, 1934. Seen and heard April 27 and 28, May 1 and 6. Probably not more than two individuals. A single Western Flycatcher was seen May 30, 1935. Identified only by note April 2, 3, 4, and 9.

Western Wood Pewee. *Myiochanes virens richardsonii*. Identified May 7, 1934, heard several

days previously. Seen daily in considerable numbers, perhaps a dozen. Still present May 17. First recorded in 1935 on April 15; subsequently, May 5, 17, 21, and daily until May 31. Only 3 individuals, quite vocal.

Olive-sided Flycatcher. *Nuttallornis borealis*. One record, May 24, 1935.

Vermilion Flycatcher. *Pyrocephalus rubinus mexicanus*. The appearance of this gorgeous little flycatcher never failed to arouse great interest. A single one was observed in the mesquite bordering the swamp, March 22, 23, and 24, 1934. In 1935, 3 individuals, distinct in markings, were seen at different times. An especially brilliant bird appeared February 22 and was recorded daily through February 27. One less brilliant, with underparts tinged with gray, was seen March 24. On April 3, one was noted with grayish belly set off from vermilion breast in almost as distinct a pattern as that of the Black Phoebe. In contrast with the silence of the others, this one was very vocal, uttering a rhythmical song while fluttering in the air. Seen and heard April 4 and 5.



Fig. 59. The pasture pool, occasional resting place of migrating waterfowl. A Loon may be seen at the far edge of the pool.

Cliff Swallow. *Petrochelidon albifrons*. Single specimen found dead near Inn, May 8, 1935.

Raven. *Corvus corax sinuatus*. Two seen flying over desert area bordering oasis and alighting on fence, May 5, 1935. Low calls heard.

Verdin. *Auriparus flaviceps*. Apparently resident. Identified January 5, 1934. Old nests commonly found in smoke trees and mesquite. Pair seen building new nest in mesquite by west boundary fence of the Inn property, March 21, 1934. Verdins were seen and heard at both branches of the oasis during fall and winter, 1934. Their notes were recorded continually after January, 1935. New nest discovered nearly complete, March 25, 1935, about 3 feet from that of previous year.

Western House Wren. *Troglodytes aëdon parkmanii*. Single individual captured in W.B.B.A. sparrow trap and banded, April 26, 1934. Not seen outside of trap.

Marsh Wren. *Telmatodytes palustris*, subsp. Common in tules and sedge about the oasis; rarely seen clearly. Identified January 26, 1934. Song heard frequently around March 8; singer invariably hidden. Scolding note heard October 25, 1934, and thereafter throughout the winter. November 7, singer glimpsed long enough to verify identity. Apparently nesting in sedge around February 5, 1935. Used combings of dog's hair for lining. Partial nests of palm fiber found. During this time, singing of many individuals was almost continuous. Song recorded until April 5. No young birds seen, and no further evidences of nesting.

Rock Wren. *Salpinctes obsoletus*. Identified near engine house of Inn, November 6, 1934. Probably more common in surrounding desert.

Western Mockingbird. *Mimus polyglottos leucopterus*. Not so common as might be expected. Did not come close to buildings but remained in mesquite at far western end of the oasis. Song heard April 22 and 28, 1934. Observed closely November 18, 1934. Seen January 18, 1935. Recorded throughout February, sometimes 4 together. Song heard all during March. Still present May 24.

Leconte Thrasher. *Toxostoma lecontei*. Although not seen at the oasis, the Leconte Thrasher deserves mention as a bird typical of the surrounding desert. One nest with young just hatching was observed by Derald Martin in a cholla cactus, April 15, 1934, in the sand dunes of the northern side of the valley. Pairs were frequently reported near homes of residents, and the song might be heard in the dry mountain canyons.

Sage Thrasher. *Oreoscoptes montanus*. Identified January 29, 1934. Quite numerous. Frequented mesquite near boundary between oasis and desert. Recorded intermittently during February, and still present March 24. In contrast to the relative abundance of this species during the winter and spring of 1934 are the few scattered records of one or two individuals, seen at the palms December 11, 1934, and January 7, 1935. Repeated search failed to reveal any Sage Thrashers at the western branch of the oasis.

Western Robin. *Turdus migratorius propinquus*. Occasional migrant. Recorded January 26, 1934, near overflow from abandoned well. Large flock at well February 25. Fall migrants heard in early morning, October 29 and 30, and November 5, 6, 7 and 14. One seen December 8, flock of about 6 December 9. Reported January 30, 1935. Seen and heard intermittently, usually 2 or 3 together, throughout February and March. Last record April 12.

Hermit Thrush. *Hylocichla guttata*, subsp. Observed only by chance, in underbrush and near water. Single individuals recorded March 21 and 31, and April 2 and 3, 1934. Only records for 1935, April 16 and May 5.

Russet-backed Thrush. *Hylocichla ustulata*. Arrived May 14, 1934. Frequently heard. Still present in considerable numbers May 17. First definite record for 1935, May 7. Not very numerous; scattered records during May. Still present May 30.

Western Bluebird. *Sialia mexicana occidentalis*. Large flocks of bluebirds, feeding on the berries of a mistletoe (*Phoradendron californica*) in the mesquite, made a striking spectacle, January 18, 1934. Seen daily thereafter, numbers gradually decreasing. Last definite record, March 1. First fall record, November 10. Small flocks seen, notes heard, throughout November, December, and January. On January 22, 1935, a flock of perhaps 50, containing both Western and Mountain bluebirds, the latter more numerous, was observed near the palms, flying down from the cottonwoods to the desert floor. A flock of about 25 was seen at the palms January 27. Records of smaller flocks continue throughout February and March, dwindling to a solitary female seen from March 20 to 28. Two males and one female on March 29 were the last observed.

Mountain Bluebird. *Sialia currucoides*. A few brilliant individuals were conspicuous among the flocks of Western Bluebirds seen January 28, 1934. In pasture March 7. Single female seen March 24. A few were seen with the Western Bluebirds on November 16 and 18. The greatest numbers were seen in the mixed flocks, January 22, 1935, noted above. On January 25, about a dozen were seen at the Inn. February 9, several were seen with Western Bluebirds in the open desert, catching insects. Scattered records end with a single female March 7, 10 and 13.

Western Gnatcatcher. *Poliophtila caerulea*. Observed in mesquite at the palms, March 18, 1934. Probably more common than single record would indicate.

Ruby-crowned Kinglet. *Corthylio calendula*. Two individuals in willows near Inn, January 10, 1934. Seen a few times subsequently. One seen October 20, 26 and 27. Pair seen October 31; crown of male conspicuous. Records fairly regular throughout winter. Four seen together February 25, 1935. Last record, April 9.

Pipit. *Anthus spinoletta rubescens*. Flock seen near Inn, October 31, 1934. One seen November 11. Reported by Mr. Laidlaw Williams, January 18, 1935. One seen in pasture February 28.

Cedar Waxwing. *Bombycilla cedrorum*. Occasional. Flock at the palms May 7, 1934. Small flocks seen and heard about Inn. Still present May 17. Small flock present October 17 to 31. Six seen November 4. Flock of about a dozen seen March 1, 1935. March 3, 8 or more; March 8, at least 17. Recorded April 14 to 16, May 12, and May 24 to 27.

Phainopepla. *Phainopepla nitens*. A picture characteristic of the region is a group of these glossy birds, with their white wing patches, flying up from the tops of the mesquites to catch insects and uttering a muffled note which comes to be closely associated with the scene. They were seen almost daily during the early part of 1934. By May 7, only a few pairs remained, which suggests the possibility that some individuals migrate, while others remain to breed. They were not very plentiful October 17, but were seen often by November 7. Numerous at the palms December 11, and seen all during winter and spring. On May 23, 2 fully grown young were seen in the top of a cottonwood, still being fed by the parents.

Shrike. *Lanius ludovicianus*, subsp. Identified January 14, 1934. Seen in considerable numbers around April 20, often perched on vertical stems of tules. Present October 30. Records not kept thereafter.

Cassin Vireo. *Vireo solitarius cassinii*. Characteristic "Jimmy, c'm'ere" song heard March 24, 1934. Heard April 12, 13, 14 and 17; singer never seen. First heard on April 2, 1935. Heard April 3; seen and heard May 7, heard May 9, 12 and 17. Probably a casual spring migrant.

Western Warbling Vireo. *Vireo gilvus swainsonii*. Song heard April 12, 1934. Seen early in May; heard May 6. First seen April 4, 1935, song heard May 8. Glimpsed long enough for identification May 10, heard May 12 and 24.

Lutescent Warbler. *Vermivora celata*, subsp. Identified February 24, 1934. Frequently seen in willows all during spring; last dates April 22 and 26. Single doubtful record, March 28, 1935.

Yellow Warbler. *Dendroica aestiva*, subsp. Identified April 28, May 2, 3, and 4, 1934, and May 13, 1935.

Audubon Warbler. *Dendroica auduboni*. Very common winter visitant. Seen January 26, 1934. Present in considerable numbers during February, March, and April. On April 17, a male was observed to be in full breeding plumage. Last date, April 22. Present October 22. Two or 3 individuals often seen at once in fall and winter months. Recorded as present in flocks March 18, 1935. On that date, 4 Audubon Warblers were observed feeding in the swamp, in company with 8 Gambel Sparrows, one White-crowned Sparrow, one Lincoln Sparrow and 2 Savannah Sparrows. Last date, April 12.

Black-throated Gray Warbler. *Dendroica nigrescens*. Single male identified in willows beside the Inn, April 24, 1934.

Townsend Warbler. *Dendroica townsendi*. Identified April 30, 1934; recorded intermittently until May 17. Only one or two present, remarkably tame. One feeding on the lawn at the Inn could be approached within 2 or 3 feet. No records for 1935.

Hermit Warbler. *Dendroica occidentalis*. Several present in willows at the Inn, April 22, May 2 and 3, 1934.

Tolmie Warbler. *Oporornis tolmiei*. Seen only May 11, 12 and 14, 1934.

Yellow-throat. *Geothlypis trichas*, subsp. A shy inhabitant of the sedge beds; infrequently seen. Recorded April 24 and 26 and May 4, 1934. First seen in 1935 on March 25, and thereafter on March 31, April 3, 10, 15, 26, May 5, 13, and 21.

Long-tailed Chat. *Icteria virens longicauda*. On May 1, 1934, two appeared in the W.B.B.A. government sparrow trap under a willow thicket and were banded. Another, banded May 2, repeated daily until May 10. A fourth was banded May 6. These individuals were silent and were not once seen outside the trap. On May 1, 1935, loud bursts of song were heard, and on May 12 the singer was seen and identified as the Long-tailed Chat. Recorded May 13 and 17.

Pileolated Warbler. *Wilsonia pusilla*, subsp. First seen April 22, 1934. Large numbers present April 23. Recorded continuously until May 14. Often watched in mesquite outside cabin windows. The species was seen April 12, 1935, recorded as numerous April 16, and subsequently throughout May.

Redstart. *Setophaga ruticilla*. One record, May 28, 1935. A female or young male was seen, spreading its tail so that the areas of yellow at the base were displayed as it moved about the willow trunks.

English Sparrow. *Passer domesticus*. It is even necessary to mention the presence of the English Sparrow. During the spring of 1934 it made itself unpopular by appropriating or destroying nests of the Say Phoebe under the eaves of the Inn porch. Flycatching habits were observed, as a sparrow would sometimes rise from the ground to pursue a moth for some distance through the air and finally capture it.

Western Meadowlark. *Sturnella neglecta*. Seen January 5 and 12, 1934. Song heard February 21, April 18. Seen May 14. Reported as present also in dry parts of the valley. Present in considerable numbers October 17. Seen daily about the Inn; very tame. Recorded until November 27; next record March 7, 1935.

Yellow-headed Blackbird. *Xanthocephalus xanthocephalus*. A few were conspicuous among the flocks of Red-winged Blackbirds in the tules and mesquite near the Inn, May 2 and 4, 1934.

Red-winged Blackbird. *Agelaius phoeniceus*, subsp. In swamp March 23, 1934. Seen intermittently, song frequently heard. Flock of about 12 recorded April 18. Still present May 17. Present October 25, numerous November 7. No further records until a single male was seen March 7, 1935. Increased numbers present by May 6, still present May 31. While horses were being pastured in the swamp, red-wings were sometimes seen close behind a horse's muzzle, ready to snatch whatever might be uncovered as a tuft of grass was pulled up.

Arizona Hooded Oriole. *Icterus cucullatus nelsoni*. A male was captured for banding May 2, 1934, in a Potter trap baited with slices of orange, placed on a small platform in a mesquite near the Inn. Later the same day a female was trapped. The song of this species became a characteristic

sound of the early mornings in May. The first record for 1935 is of a pair seen April 15. On April 26, the song was heard, and several variations, seemingly uttered by the same bird, were often heard thereafter. A female was seen May 16, 21 and 23, and the song was still heard May 27. Although no evidences of nesting were observed during these two seasons, old nests, presumably of this species, were found in palms near the Inn. They were constructed entirely of palm fiber and each was enclosed within the curve of the under side of a dried frond which hung close to the trunk.

Scott Oriole. *Icterus parisorum*. Handsome pair seen near a waterhole at the palms, May 7, 1934. On May 10, a female was trapped and banded near the Inn.

Bullock Oriole. *Icterus bullockii*. Bullock Orioles were first seen in the cottonwoods at the Inn, April 1, 1934. They were frequently seen and their ludicrous songs heard daily after that date. Between April 27 and May 8, 3 males and 7 females were captured and banded in the trap described under the preceding species. Two of this species appeared March 14, 1935. The song was heard March 29, and thereafter records are practically continuous until May 31. Old nests of the Bullock Oriole, woven of palm fiber, were swung from dependent branches high in the cottonwoods. A pair might sometimes be seen inspecting these old nests or apparently selecting new sites but no new building was observed.

Western Tanager. *Piranga ludoviciana*. A male was seen April 28, 1934, and thereafter several individuals were seen daily. They were almost absurdly tame and might be approached within a few feet, on the paths among the Inn cabins. Four tanagers were trapped, and banded, in the Potter trap on May 12 to 14. These included 2 adult males, one female, and a young male lacking the red on the head. This last bird apparently acquired a passion for grapefruit and was removed from the trap 6 times on May 14. In 1935, tanagers appeared a few days previous to April 13. They seemed not quite so numerous or so tame as those of the year before but were observed almost daily throughout May.

Rose-breasted Grosbeak. *Hedymeles ludovicianus*. Derald Martin, Boy Scout and reliable observer, reported the occurrence of a Rose-breasted Grosbeak near a waterhole at the palms, May 13, 1934. This observation is interesting in view of the fact that there is a specimen from Palm Springs, in the Museum of Vertebrate Zoology.

Black-headed Grosbeak. *Hedymeles melanocephalus*. A female was seen April 24, 1934. Fifteen individuals, including 6 adult males with black heads, 5 younger males and 4 adult females, were banded between May 6 and 14. They bit viciously and had to be handled with great care, but some became inveterate "repeaters." Chicken feed, citrus fruit, and water were all accepted as bait. The species was still present May 17. There are few records for 1935, probably because no trapping was done, and most of the birds of the previous year were seen in the trap. Dates recorded are May 8, 12, and 30. An interesting return report was received. One of the young males, banded May 12, 1934, was found dead at Battle Mountain, Nevada, about 500 miles due north of 29 Palms, on May 18, 1935.

Blue Grosbeak. *Guiraca caerulea*. The gorgeous Blue Grosbeak was recorded almost daily from May 7 to 17, 1934. The birds were exceedingly wary, flying for cover at the slightest warning of the observer's presence. A few individuals were watched through a window early in the morning, as they cracked large grains of scratch feed scattered in the path the night before. No records for 1935.

Lazuli Bunting. *Passerina amoena*. First date, April 17, 1934. On May 2, several started up from the deep grass with a flock of Chipping Sparrows, and that association was regularly noted thereafter. Considerable numbers were observed May 6, and the species was still present May 17. There is but a single doubtful record for 1935, May 6, with a possible record of the song May 13. Whether the fact is of any significance in this connection, no Chipping Sparrows were seen in 1935.

California Purple Finch. *Carpodacus purpureus californicus*. From November 4 to 18, 1934, Purple Finches were seen in considerable numbers with the large flocks of goldfinches then present. The song was rarely heard, only a brief, warbled call note and the sharp "pit-pit" uttered in flight. On November 18, a female was seen perched on the top of a cage containing a young male canary, as it hung from the eaves of the Inn porch. The song of the California Purple Finch was heard in the early mornings April 2, 5, 9, and 13, 1935.

House Finch. *Carpodacus mexicanus frontalis*. Apparently resident; observed December 30, 1933, and daily thereafter. During May, 1934, they began nesting in the palm trees. They were present on October 17, 1934. By January 27, 1935, their singing was heard regularly in the early mornings, and during March and April it took a prominent place among the songs heard throughout the day. Fledglings were apparently being fed May 13.

Pine Siskin. *Spinus pinus*. On May 12, 1934, a few Pine Siskins were seen with the Green-backed Goldfinches on the beds of yellow composite. A single individual was seen with the Lawrence and Green-backed goldfinches October 30, 1934. Siskins were then recorded almost daily until November 21. Their notes were heard December 19. There is one record for 1935, May 7.

Willow Goldfinch. *Spinus tristis salicamans*. Identified November 23, 1934. A flock of about 12 was feeding on the ripe seeds of a plant rejoicing in the name of "jackass clover." These were present until December 3. On December 12 and 13, a smaller flock was noted, while for the following 3 days only 3 individuals were recorded.

Green-backed Goldfinch. *Spinus psaltria hesperophilus*. These goldfinches were present December 30, 1933. Around April 27, 1934, flocks of 2 or 3 dozen frequented beds of a small yellow composite in the swamp. When disturbed, they would fly up and arrange themselves in rows along the strands of a barbed wire fence, only to drop down again as soon as the observer was quiet. They were still present May 17. Small flocks were seen daily in the "jackass clover" from October 17 to November 15, 1934. On November 1, a female of this species was seen on the cage of a young male canary, and great mutual interest was exhibited. The next record is of the song, February 19, 1935, and March 23. On March 30, 11 were perched in a cottonwood in a strong gale, singing loudly. Records continue throughout April and May, but there were not the large flocks seen the previous spring.

Lawrence Goldfinch. *Spinus lawrencei*. Several identified among the Green-backed Goldfinches, October 17, 1934. They were seen daily until October 30 and heard frequently until November 14, after which they were apparently replaced by Willow Goldfinches. Their light, twittering note was recognized as that occasionally heard, but not identified, during the spring. Notes of this species were heard intermittently from March 23 to May 26, 1935.

Savannah Sparrow. *Passerculus sandwichensis*, subsp. Identified in the swamp March 24, 1934. Recorded April 18, and at the palms May 7. Savannah Sparrows are recorded intermittently from February 9 to April 5, 1935. On the latter date, they were seen bathing in tiny puddles of water in the swamp and flying up into the mesquite to dry.

Desert Sparrow. *Amphispiza bilineata deserticola*. Seen at the west end of the oasis March 21, 1934; at the palms May 7. A remarkably tame Desert Sparrow was seen about the Inn almost daily from March 12 to 24, 1935; also recorded April 1 and 4, and May 23.

Sage Sparrow. *Amphispiza nevadensis*, subsp. Tentatively identified January 29, 1934. Reported by Mr. Laidlaw Williams January 18, 1935. Probably more common than these records indicate.

Junco. *Junco oreganus*, subsp. A single junco was seen in the deep grass beside the Inn, March 2, 1934. Small flocks of juncos were occasionally surprised at Split Rock and Seven Pines, favorite picnic spots in the Little San Bernardino range, but never more than a fleeting glimpse was obtained.



Fig. 60. A corner of the lake at Barker's Dam.

Chipping Sparrow. *Spizella passerina*, subsp. First seen on the lawn at the Inn, March 24, 1934. Thereafter they were present in large numbers about the oasis, apparently filling the niche left vacant by the migrating Gambel Sparrows. From May 2 to 4, 5 were trapped and banded in the Potter trap. Still present May 17.

White-crowned Sparrow. *Zonotrichia leucophrys leucophrys*. A single one was trapped and banded, with several Gambel Sparrows, at the palms, March 16, 1934. On May 14, one was identi-

fied through field glasses at close range, near the Inn, long after the migration of the Gambels. On March 3, 1935, an immature bird with definitely dark lores was trapped near the Inn.

Gambel Sparrow. *Zonotrichia leucophrys gambelii*. A winter visitant, present in large flocks. Between February 2 and March 27, 1934, 54 individuals were trapped and banded in various parts of the oasis. Observations were then interrupted, and the date of emigration was not determined; but Gambel Sparrows were no longer present when trapping was resumed on April 24. Dates of arrival for the fall of 1934 were rather late. A single immature was seen October 23, and 2 or 3 individuals October 30. A small flock was reported at the palms November 17. By February 9, 1935, large flocks were present. In April the song was heard continuously, and the last record is of the song heard in the pasture May 6.

Fox Sparrow. *Passerella iliaca*, subsp. November 4, 1935, a Fox Sparrow, of the type with gray head and back, was seen feeding in the drifts of fine dust and leaves about the foundations of the cottages and at the bases of the mesquites. A few moments later it was captured by either a Sharp-shinned or a Cooper hawk.

Lincoln Sparrow. *Melospiza lincolni*, subsp. Was first identified February 25, 1934. From March 6 to April 26, 18 were banded, many repeating consistently. They were caught in a sparrow trap, placed on a tongue of dry ground beside a sedge-filled pool. There is one later record, a single individual trapped and banded May 6.

It may be of interest to add a list of birds seen at Barker's Dam, in the Little San Bernardino Mountains (fig. 60). This region is now included in the Joshua Tree National Monument. It is about 25 miles from Twentynine Palms and has an elevation of nearly 4000 feet. The dam, built by cattle men across the outlet of a natural basin, impounds a lake of considerable size after seasons of heavy rainfall. Granite boulders and high cliffs practically surround the lake. The characteristic plant associations are the pinyon or single-leaved pine, scrub oak, manzanita, catalpa or "desert willow," and *Yucca mohavensis*. *Nolina parryi*, a rare plant of the lily family resembling the yuccas, is found here in abundance. The principal cactus is the "beaver tail" or "deer's tongue", *Opuntia basilaris*.

At this place on May 21, 1935, at least nine species of birds were observed within a few hours, at mid-day. Mourning Doves were very numerous. One female hummingbird was unidentified. Several species of swallows, including the Tree Swallow and the Cliff Swallow, were in continual flight high in the air or skimming the surface of the lake. Songs of the Say Phoebe, Western Mockingbird and an oriole, probably the Arizona Hooded, were heard. Linnets abounded, and one goldfinch of undetermined species was glimpsed. Unforgettable in that magnificent setting was the song of the Canyon Wren. Further observation there should yield some interesting records.

Berkeley, California, May 16, 1937.

SKELETAL STUDIES OF THE TROPICAL HAWK *HARPAGUS*

By LOYE MILLER

While collecting in the densely forested lands along the Caribbean shores of Panama, I was so fortunate as to secure a specimen of the peculiar little tropical hawk, *Harpagus bidentatus fasciatus*. (The following week Mr. Frank Richardson obtained a second specimen in the same area.) The general appearance of the bird when I picked it up was that of an *Accipiter* with an abbreviated tail, but I was completely mystified on close scrutiny to find two corneous denticles on each side of the bill. These "teeth" are even better developed than the single tooth of typical falcons. I had never before met such a bird, and the only books available in the field contained no record of it. He had to appear in my field record under the pseudonym of "Double-toothed Hawk."