Edward A. Goldman and the Birds of Tulare Lake in the Early 1900s

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In the summer of 1907, U. S. Bureau of Biological Survey biologist Edward A. Goldman visited Tulare Lake and nearby lakes and wetlands in the southern San Joaquin Valley (Goldman 1908). Though greatly reduced from its former extent, the lake still hosted considerable numbers of waterbirds, and the associated marsh and riparian vegetation supported a diverse array of land birds. Goldman's visit provides a window into the avifauna of the Tulare Lake basin, the southernmost drainage basin of the Central Valley, early in the 20th century, and contributes to our knowledge of the historic status and distribution of a number of species that are now rare in the Central Valley of California.

GEOGRAPHIC SETTING OF TULARE LAKE

Historically, Tulare Lake was the largest freshwater lake west of the Mississippi River (Preston 1981, Garone 2011). It was a permanent lake until the time of American settlement, when diversion of tributaries began. Water flowed to Tulare Lake and the other connected lakes within its basin from the Kings, Kaweah, Tule, and Kern rivers as well as several smaller streams. Although Tulare Lake was the largest of the lakes in the basin, Summit, Ton Tache, Goose, Kern, and Buena Vista lakes were also substantial bodies of water at times, and the combination of these lakes and associated wetlands formed an enormous expanse of habitat supporting birds and other wildlife (Figure 1).

The alluvial fans of the Kings River and Los Gatos Creek (flowing out of the inner Coast Ranges) formed a barrier, the Tulare Lake fan dam, that prevented water from reaching the San Joaquin River in many years (Atwater et al. 1986). Thus, the Tulare Lake Basin had internal drainage and the lake was a terminal lake during dry years. In high water years, Tulare Lake spilled into the San Joaquin River, ultimately draining to San Francisco Bay. This overflow occurred when the lake level reached roughly 30 m (210 ft) elevation, at which point the surface area of the lake would have been approximately 2,700 km^2 (800 mi^2). From 1850 until 1878, the last year of overflow, the lake overflowed into the San Joaquin River 19 out of 29 years (Austin 2015).

Diversion of water entering Tulare Lake began in the mid-1800's, when settlers began to construct canals to irrigate crops. Kings County was formed from Tulare County in 1893, by which time much of the lakebed was being

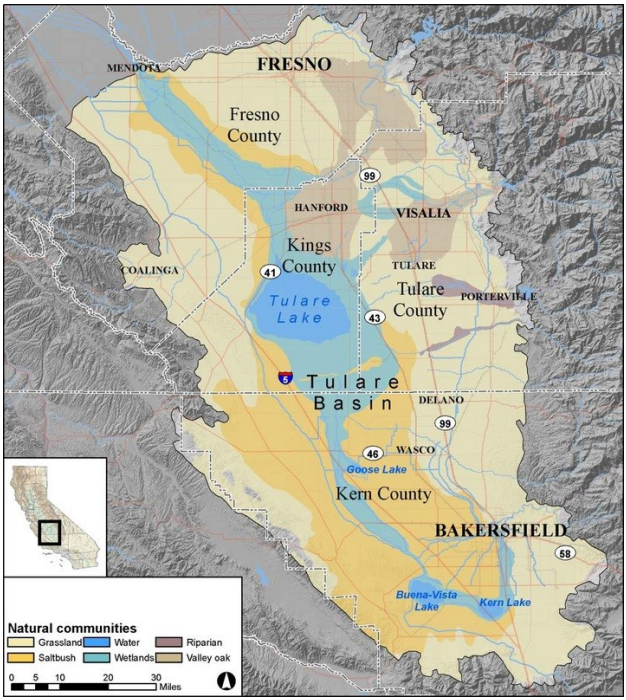

Figure 1. Natural vegetation of the Tulare Lake basin.

(Figures 1-3 Courtesy of Tulare Basin Watershed Partnership.)

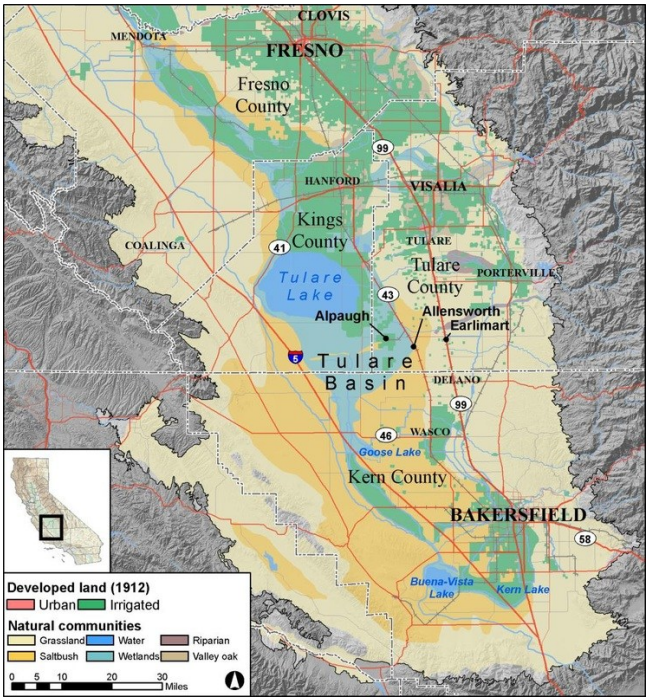

Figure 2. The Tulare Lake basin in 1912.

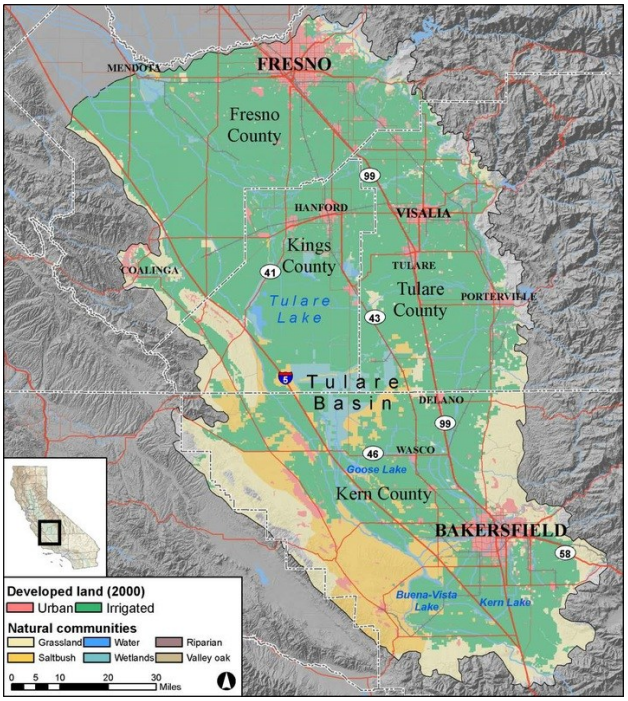

Figure 3. Land use in the Tulare Lake basin in 2000.

farmed (Preston 1981). The historical footprint of the lake occupies much of today's Kings County and portions of Tulare County. By 1899, Tulare Lake had become dry for the first time in its recorded history. As the area of Tulare Lake shrank, land was claimed for farming, leading to more construction of diversion structures and the formation of irrigation districts.

EARLY ACCOUNTS OF AVIAN LIFE IN THE TULARE LAKE BASIN

The Tulare Lake basin was visited by several early naturalists, some of whom left tantalizing accounts of the abundance of waterbirds in the region. The difficulty of maneuvering through the extensive tule marshes, however, made exploration difficult. Jedediah Smith's party passed by Tulare Lake in 1827 (Morgan 1953). Smith had hoped to trap in the area, having heard of the presence of American beaver (*Castor canadensis*) from Spanish authorities, but found it too difficult to operate in the dense tule marshes. The naturalist and bird artist Andrew Jackson Grayson accompanied a survey party to the Tulare Basin in 1853 (Grayson 1920). Upon reaching the shores of Tulare Lake on October 16, Grayson wrote "We reached this lake early in the evening, in time to kill quantities of ducks, snipe, geese and black curlew (i.e., White-faced Ibis) before dark……We found all kinds of waterfowl, antelope and hare in abundance around Tulare Lake". The party journeyed on to Buena Vista Lake at the end of October, where Grayson observed "great quantities of white geese and other waterfowl of every description".

James Capen "Grizzly" Adams visited Tulare Lake in 1855 (Hittell 1911). Adams wrote that tules were so extensive around the lake that the lake itself could not be seen. In order to see the lake, Adams waded through almost a mile of marsh with several Yokuts people in order to reach a canoe, with which the party paddled to an island. Adams writes "…. we crossed an arm of the lake, and landed on a small wooded island, which was a place of birds indeed. There were birds in almost incredible numbers, ducks, geese, swans, cranes, curlews, snipes, and various other kinds, in all stages of growth, and eggs by thousands among the grass and tules". Adams accounts are generally lacking in zoological detail, so it is perhaps wise not to draw many conclusions about particular species from his remarks, though they suggest that waterbirds were abundant.

The abundance of waterbirds and other wildlife provided an opportunity for professional hunters to exploit, shipping vast quantities of fish, western pond turtles (*Actinemys marmorata*), bird eggs, and birds to markets in San Francisco. Huge populations of waterbirds were noted by market hunters (Brown 1940, Preston 1981, Garone 2011). The Central Pacific Railroad extended its San Joaquin Valley line to Tulare County in 1872, and to Bakersfield by 1874, providing even easier access to San Francisco markets for hunters exploiting Tulare Lake's birds. Although market hunting must have declined substantially by the time of Goldman's visit to the area, Linton (1908) noted the presence of plume hunters and market hunters at Buena Vista Lake in the same year. Linton reported that plume hunters took "Western Grebes" (i.e., Western and/or Clark's Grebes) whenever they could, and that this might have accounted for the lack of breeding of that species. Local residents also took advantage of the abundance of waterfowl. Brown (1940) noted: "residents of Lemoore used to walk out to the lake-shore on an afternoon, shoot all the birds they wanted, and then walk back home in time for the evening meal". Though scenes such as this were likely rare by the time of Edward Goldman's visit to the region, there still could be large numbers of waterbirds during high water years.

EDWARD GOLDMAN

Edward Alphonso Goldman was born in 1873 in Mt. Carroll, Illinois. The Goldman family resided in the Midwest until 1888, when they moved to Tulare County. By 1891, the young Edward was a foreman at a vineyard near Fresno. In that year, events intervened to lead the young Goldman in an unanticipated direction.

The Bureau of Biological Survey (predecessor to today's U.S. Fish and Wildlife Service) had conducted surveys in Death Valley in 1891. The survey party dispersed in the southern San Joaquin Valley, and one of the survey's party, Edward William Nelson, proceeded northward with his horse-drawn buckboard. The buckboard's singletree (the horizontal beam between the

animals and the wagon) broke, and Nelson found himself looking for help at the Goldman ranch. The elder Goldman had an interest in natural history, and during the ensuing conversation, Nelson remarked that he was looking for an assistant; Goldman suggested his son Edward. So began the career of one of America's most prominent biologists of the early 20th century.

Beginning as a personal assistant to Nelson (paid from Nelson's Bureau of Biological Survey salary), Goldman would go on to describe over 300 forms of mammals, as well as a number of birds, reptiles, and plants. Goldman and Nelson were lifelong friends and jointly performed many years of field work in Mexico and Central America. Goldman's first major field expedition was a four-year journey in Mexico with Nelson, a trip that was initially planned to last for three months. Goldman's career with the Bureau of Biological Survey was briefly interrupted by U.S. Army service in France during World War I, where he was a Major in the Sanitary Service, working on rodent control. Goldman retired from the Bureau in 1944, at which time he was appointed an Associate Zoologist at the Smithsonian Institution.

Edward Goldman was primarily known as a mammologist, and the majority of his 206 publications pertain to the taxonomy of mammals. He collaborated with Stanley P. Young on two classics of North American natural history: *The Wolves of North America* (Young and Goldman 1944), and *The Puma: Mysterious American Cat* (Young and Goldman 1946). Over 50 forms of animals, including 11 bird taxa, have been named for Goldman, including Goldman's Warbler (*Setophaga coronata goldmani*), the endemic subspecies of Yellow-rumped Warbler found in the mountains of Chiapas. He continued his work on mammals of Mexico and Central America up until the time of his death in 1946. He is buried at Arlington National Cemetery.

GOLDMAN'S EXPEDITION TO TULARE LAKE

Goldman visited Tulare Lake in the summer of 1907, remaining in the region from 18 June to 12 July. He collected birds from Summit Lake at the delta of the Kings River and along the northern and western shores of Tulare Lake, as well as at Buena Vista Lake. He also collected specimens at Alila, now known as Earlimart. Goldman's specimens were deposited at the Smithsonian Institution. He also made notes about abundance and breeding of other species that were not collected. Although the lake was often dry by the early 1900s, the summer of 1907 had been preceded by two very wet winters, and Goldman commented that the lake was higher than it had been in "many years". Goldman noted that spreading lake water had flooded thousands of acres of recently dry land (which must have been more regularly flooded before diversion) and that much of the area had new growth of tules and "coarse grasses". Figure 2 shows the extent of lake and marsh habitat in 1912, a rough approximation of the conditions at the time of Goldman's visit. The fact that recent flooding of much of the area had been preceded by several

drought years, may have accounted for his observation that many of the breeding waterbirds were present in small numbers.

Although Goldman focused on the breeding waterbirds of the region, he also collected and recorded information on a number of land birds, providing a different perspective on the avifauna of the region than that afforded by early explorers or market hunters. Although Goldman did not conduct surveys or quantify the numbers of individuals observed for each species, he commented on the relative abundance of some of the species he observed. (see Table 1 for species' scientific names seen by Goldman).

Waterbirds

Goldman noted large numbers of waterfowl in 1907. The Northern Pintail was the most abundant breeding duck species, followed by Cinnamon Teal; Goldman observed many groups of adult females with young of these two species. Other duck species providing evidence of breeding included Mallard, Green-winged Teal, Northern Shoveler, and Ruddy Duck. Oddly, Goldman did not list Gadwall (*Mareca stepera*), an abundant breeder in the region today (John Sterling, pers. comm.) Linton (1908), who made a much shorter visit to Buena Vista Lake, also does not list the species. Grinnell and Miller (1944), noting the declines in many duck species earlier in the century, stated that there had been no recent records of breeding for Gadwall south of Los Banos. Later, Cogswell (1977) noted that the species had increased in recent years as a winter resident and as a breeder. Thus, it appears that this is a species that has increased in number since the early 20th century.

Goldman collected a male Fulvous Whistling-Duck that was in breeding condition but did not observe other evidence of breeding. In 1911, Chase Littlejohn (who would become Curator of Birds at the California Academy of Sciences) collected a set of Fulvous Whistling-Duck eggs at Tulare Lake, which were incubated and raised in captivity. The California Academy of Sciences has a specimen (CAS specimen number 72952) of one of these birds. At Buena Vista Lake in 1921, 50 Fulvous Whistling-duck nests were found on an area about one half mile long by 200 yards wide (Dickey and Van Rossem 1923). Although the species has declined considerably since the early 20th century, it has been reported irregularly in the region since then (Robert Hansen, pers. comm. 2020, Shuford and Gardali 2008).

One specimen collected by Goldman was a female Green-winged Teal that had been brooding seven eggs. Several other females were seen with young. This was the first breeding record of the species for California (Goldman 1907). The species is now known to be a more widespread breeder in small numbers in coastal California, northeastern California, and the Central Valley (Cogswell 1977).

The colonial waterbirds that figured so prominently in early accounts of Tulare Lake's avifauna were also present in Goldman's time, although in reduced numbers. Goldman observed a large colony of Double-crested Cormorants near the mouth of the Kings River, noting that the hundreds of nests contained young that appeared to be half to two-thirds grown. Large flocks of American White Pelicans were observed, although no nesting colonies were visited. Earlier in the same year, two colonies of this species were visited by C.B. Linton at Buena Vista Lake, where he found approximately 250 and 500 nests (Linton 1908). Ward Minturn, an amateur Fresno field ornithologist, birded Tulare Lake on 43 visits between October 1937 and September 1954 (Robert Hansen, pers. comm). His field notes documented colonies of nesting American White Pelicans in the southern portion of Tulare Lake (in Kings County) on 20 May 1939 and 1 June 1942. Large colonies of American White Pelican still formed occasionally at Buena Vista and Tulare lakes up to the 1950s (Cogswell 1977). Goldman observed several Black Terns and collected one individual in breeding condition, but he did not note any breeding colonies. Later in the same year, Linton (1908) observed a large colony at Buena Vista Lake.

Goldman observed several species of waders during his visit, the most abundant being the Black-crowned Night-Heron. This species was "abundant everywhere in the marshes from Summit Lake to Buena Vista Lake". Large numbers of nests were found near the mouth of the Kings River. Great Blue Herons were frequently seen, and Goldman received reports of nesting southeast of Summit Lake, but did not visit a rookery. White-faced Ibis were seen "in pairs or small flocks", but no nesting colonies were observed. Green Herons were regularly seen, and Great Egrets and American Bitterns were noted occasionally. Goldman also reported seeing three Sandhill Cranes in marshy habitat on the south end of Tulare Lake on 8 July.

Landbirds

Goldman observed a wide variety of landbirds during his visit, collecting specimens of a number of species (Table 1). Most of these species escaped the notice of early explorers and market hunters. Some are still regularly encountered in the region, but a number are rare today. Goldman's visit to the region did not include much if any time spent in oak savannah or foothill habitats, perhaps accounting for the absence of some typical species of these habitats, such as Acorn Woodpecker (*Melanerpes formicivorus*), Oak Titmouse (*Baeolophus inornatus*), and White-breasted Nuthatch (*Sitta carolinensis*). Another species that was notably not observed by Goldman is the Tricolored Blackbird (*Agelaius tricolor*). Interestingly, that species was noted to be present in "hordes" at Buena Vista Lake on 7 June 1912 by Chester Lamb and A. Brazier Howell (Lamb and Howell 1913). Among the landbirds Goldman noted were two for which his observations provided range extensions: LeConte's Thrasher and Bell's Sparrow.

Goldman encountered a number of LeConte's Thrashers northwest of Tulare Lake, from the vicinity of Huron westward to the Arroyo Los Gatos in Fresno County. Previously, the species had not been reported in the San Joaquin Valley north of Buena Vista Lake. Thus, Goldman's observations extended the species' range by about 135 km. Later, the LeConte's Thrasher was shown to occur as far north as northwestern Fresno County (Grinnell and Miller 1944), but it appears to have been extirpated from its former range in Fresno and Kings County (Sheppard 2018).

Goldman collected a young Bell's Sparrow of the subspecies *Artemisiospiza belli canescens* and saw several others in saltbush scrub on the west side of Tulare Lake, providing the first documentation of the subspecies for the San Joaquin Valley. That subspecies had been recently described by Joseph Grinnell (1905) as one of the subspecies of Sage Sparrow and would later be shown to occur as far north as southeastern San Benito County (Grinnell and Miller 1944). With the split of Sage Sparrow (Chesser et al. 2013) the subspecies *canescens* was grouped with the coastal subspecies *belli* as the Bell's Sparrow (*A. belli*).

Among the birds that Goldman observed in riparian habitats were several that are rare or absent today as breeders in the San Joaquin Valley. The Yellow-billed Cuckoo, Willow Flycatcher, Least Bell's Vireo, and Yellow Warbler were described as common throughout the region, occurring in willow thickets from Summit to Buena Vista lakes. The Yellow-billed Cuckoo, Willow Flycatcher, and Least Bell's Vireo are currently listed as Threatened and/or Endangered on the state or federal level, and the Yellow Warbler is a California Species of Special Concern. All four of these species are extirpated or nearly so as breeders in the San Joaquin Valley (Gaines and Laymon 1984, Harris et al. 1987, Howell et al. 2010). Goldman described Yellow-billed Cuckoo as "rather common in willow thickets" but did not provide evidence of breeding. He found Least Bell's Vireo to be "very common and in full song" among willows bordering marshes and streams, and Yellow Warbler to be a "common breeding species" among willows. Of these species, Least Bell's Vireo appears to show some sign of increase, as there are at least 21 records of Least Bell's Vireo between 1989-2013 in Tulare Lake Basin portions of Kern, Tulare, and Kings Counties (Robert Hansen, pers. comm.). Most of these involve singing male birds but adults with juveniles were recorded at Weldon, Kern County and San Emigdio Creek, Kern County.

Goldman did not list Willow Flycatcher as a breeding species, noting only that it was "rather common" in willow thickets and marshes. Given the dates of Goldman's visit (18 June—12July) it is conceivable that he detected migrants, as this species is known to arrive on breeding sites in California as late as early July, and Goldman did not state whether the species was uniformly common throughout his visit. Furthermore, the species sings in

migration, creating possible confusion as to its breeding status. Goldman collected one specimen on 20 June. Thus, while intriguing, it cannot be proven that Willow Flycatchers were breeding during Goldman's visit to the region. The subspecific identity of the lone specimen collected by Goldman is questionable (Unitt 1987), leaving open the question as to whether the Federal Endangered subspecies *Empidonax traillii extimus*, which occurs along the south fork of the Kern River near Lake Isabella, may have been present in the Tulare Lake basin.

Gaines and Laymon (1984) reviewed the decline and status of Yellow-billed Cuckoo in California, concluding that there was little remaining suitable bottomland riparian forest habitat in much of the San Joaquin Valley. There is no doubt that habitat loss has played a role in the decline of this group of nesting riparian species in the Tulare Lake Basin, given the dramatic changes in land cover of the region. However, other factors may have contributed and acted to prevent recovery of these species. In a review of the breeding riparian avifauna of the Sacramento Valley, Gaines (1974) noted that several of the declining species in that region were highly susceptible to brood parasitism by the Brown-headed Cowbird, including the Willow Flycatcher, Least Bell's Vireo, and Yellow Warbler. Subsequent studies have confirmed high rates of cowbird parasitism for these species (Kus 1999, Whitfield and Sogge 1999).

In the years following the visit of Edward Goldman to the Tulare Lake basin, changes to the environment of the region continued. Construction of additional levees, canals, flood control basins, dams and other structures further altered the natural hydrology of the region and reduced flooding of the lakebed. Dams were constructed on rivers of the basin, including the Kern River (Isabella Dam, 1953), Kings River (Pine Flat Dam, 1954), Tule River (Success Dam, 1961), and Kaweah River (Terminus Dam, 1962). In addition to the expansion of agriculture and the alteration of regional hydrology, urbanization and the construction of major highways have also greatly affected the basin's environment (Figure 3). Only small remnants of wetlands and riparian habitat remain. It is easy to forget, while driving on Highway 41 between Lemoore and Kettleman City, that one is transiting the former western shoreline of what was once an enormous freshwater lake and associated wetlands set amidst the San Joaquin Desert (Germano et al. 2011).

Edward Goldman's visit to the Tulare Lake Basin in 1907 provided a record of the avifauna of the region based on specimens and observations. These observations documented a considerable diversity of waterbirds despite decades of water diversion and market hunting. In addition, Goldman documented a variety of species typically ignored by early naturalists and market hunters. Among the significant records obtained by Goldman were the first breeding record of Green-winged Teal for California and range extensions

in the Central Valley for LeConte's Thrasher and Bell's Sparrow. Finally, Goldman's notes and specimens document the historic status of several riparian species now rare or extirpated as breeders in the Central Valley.

Given the early period at which substantial changes in habitat and avian populations occurred, there may be a tendency for us to forget these conditions and accept current highly degraded conditions as normal. Pauly (1995) coined the term "shifting baseline syndrome" to describe this phenomenon, pointing out that expectations for management and restoration of populations should be based on a more complete analysis that includes historical data. Reminding ourselves of the former abundance of wildlife that Goldman observed, even after a period of substantial disturbance, suggests the potential for restoration of wildlife populations and conditions if our society's values change.

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Table 1. Bird species noted by E.A. Goldman (1908) in the vicinity of Tulare Lake, California, 18 June–4 July 1907. Common names, and the sequence of species, are those of the A.O.U. checklist (American Ornithologists' Union 1998) and supplements, through the 58th Supplement (American Ornithologists' Union 2017). The number of specimens collected by Goldman and currently in the collection of the United States National Museum of Natural History (USNM) collection is shown. Species that Goldman noted as collected, but for which there are no specimens in the collection of USNM are indicated with an X. Species currently listed as Threatened or Endangered under Federal (FT, FE) or State (ST, SE) Endangered Species Acts, and those that are considered Species of Special Concern by the California Department of Fish and Wildlife (CSSC; Shuford and Gardali 2008) are indicated. Breeding evidence is noted as SB (specimen in breeding condition), ON (occupied nest), NE (nest with eggs), NY (nest with young), FL (fledglings or precocial young), NR (nesting reported by local residents) or BR (breeding noted, but no further details provided).

Species				
Common Name	***Scientific Name***	**Breeding Evidence**	**Number of Specimens**	**Conservation Status**
Fulvous Whistling-Duck	*Dendrocygna bicolor*	SB	1	CSSC
Cinnamon Teal	*Spatula cyanoptera*	FL	3	
Northern Shoveler	*Spatula clypeata*	FL	2	
Mallard	*Anas platyrhynchos*	FL	2	
Northern Pintail	*Anas acuta*	FL	3	
Green-winged Teal	*Anas crecca*	NE, FL	3	
Redhead	*Aythya americana*			CSSC
Ruddy Duck	*Oxyura jamaicensis*	FL	2	
California Quail	*Callipepla californica*			
Pied-billed Grebe	*Podilymbus podiceps*	NE	2	
Western/Clark's Grebe[1]	*Aechmophorus sp.*			
Mourning Dove	*Zenaida macroura*	BR		
Greater Roadrunner	*Geococcyx californianus*			
Yellow-billed Cuckoo	*Coccyzus americanus*		1	FT, SE

Table 1.(continued) Bird species noted by E.A. Goldman (1908) in the vicinity of Tulare Lake, California, 18 June–4 July 1907.

Species				
Common Name	*Scientific Name*	Breeding Evidence	Number of Specimens	Conservation Status
Lesser Nighthawk	*Chordeiles acutipennis*	BR		
Virginia Rail	*Rallus limicola*		X	
American Coot	*Fulica americana*	NE, FL	1	
Sandhill Crane	*Antigone canadensis*			
Black-necked Stilt	*Himantopus mexicanus*	ON	3	
American Avocet	*Recurvirostra Americana*	SB	X	
Killdeer	*Charadrius vociferous*			
Long-billed Curlew	*Numenius americanus*			
Western Sandpiper	*Calidris mauri*		1	
Long-billed Dowitcher	*Limnodromus scolopaceus*		X	
Wilson's Phalarope	*Phalaropus tricolor*		1	
Black Tern	*Chlidonias niger*	SB	1	CSSC
Forster's Tern	*Sterna forsteri*		2	
Double-crested Cormorant	*Phalacrocorax auritus*	NY	1	
American White Pelican	*Pelecanus erythrorhynchos*	NR		CSSC
American Bittern	*Botaurus lentiginosus*			
Great Blue Heron	*Ardea herodias*	NR		
Great Egret	*Ardea alba*			
Green Heron	*Butorides virescens*	NY	2	
Black-crowned Night-Heron	*Nycticorax nycticorax*	NY	1	
White-faced Ibis	*Plegadis chihi*		X	
Turkey Vulture	*Cathartes aura*			

Table 1 (continued) .Bird species noted by E.A. Goldman (1908) in the vicinity of Tulare Lake, California, 18 June–4 July 1907.

Species				
Common Name	*Scientific Name*	Breeding Evidence	Number of Specimens	Conservation Status
Red-tailed Hawk	*Buteo jamaicensis*		1	
Barn Owl	*Tyto alba*			
Western Screech-Owl	*Megascops kennicottii*		2	
Great Horned Owl	*Bubo virginianus*	FL	X	
Burrowing Owl	*Athene cunicularia*			CSSC
Long-eared Owl	*Asio otus*		1	CSSC
Downy Woodpecker	*Dryobates pubescens*	BR	1	
Nuttall's Woodpecker	*Dryobates nuttallii*		1	
Northern Flicker	*Colaptes auratus*			
American Kestrel	*Falco sparverius*			
Ash-throated Flycatcher	*Myiarchus cinerascens*	ON	1	
Western Kingbird	*Tyrannus verticalis*	BR	1	
Willow Flycatcher[2]	*Empidonax traillii*		1	SE
Black Phoebe	*Sayornis nigricans*			
Loggerhead Shrike	*Lanius ludovicianus*			CSSC
Bell's Vireo[3]	*Vireo bellii*		1	FE, SE
California Scrub-Jay	*Aphelocoma californica*			
Yellow-billed Magpie	*Pica nuttalli*	ON	1	
American Crow	*Corvus brachyrhynchos*	BR	1	
Common Raven	*Corvus corax*			
Horned Lark	*Eremophila alpestris*	BR		

Table 1 (continued) .Bird species noted by E.A. Goldman (1908) in the vicinity of Tulare Lake, California, 18 June–4 July 1907.

Species				
Common Name	*Scientific Name*	Breeding Evidence	Number of Specimens	Conservation Status
Tree Swallow	*Tachycineta bicolor*	ON	1	
Barn Swallow	*Hirundo rustica*			
Bushtit	*Psaltriparus minimus*			
House Wren	*Troglodytes aedon*		X	
Bewick's Wren	*Thryomanes bewickii*		1	
Marsh Wren	*Cistothorus palustris*	BR	1	
Blue-gray Gnatcatcher	*Polioptila caerulea*		1	
Western Bluebird	*Sialia mexicana*	ON	1	
California Thrasher	*Toxostoma redivivum*	FL	4	
LeConte's Thrasher	*Toxostoma lecontei*	FL	4	
Northern Mockingbird	*Mimus polyglottos*			
House Finch	*Haemorhous mexicanus*	BR	1	
American Goldfinch	*Spinus tristis*		1	
Lark Sparrow	*Chondestes grammacus*			
Bell's Sparrow[4]	*Artemisiospiza belli*	FL	X	
Song Sparrow	*Melospiza melodia*	ON	4	
Spotted Towhee	*Pipilo maculatus*	BR	1	
Yellow-breasted Chat	*Icteria virens*			CSSC
Yellow-headed Blackbird	*Xanthocephalus xanthocephalus*	SB	1	
Western Meadowlark	*Sturnella neglecta*			
Bullock's Oriole	*Icterus bullockii*			
Red-winged Blackbird[5]	*Agelaius phoeniceus*	FL	8	

Table 1 (continued) .Bird species noted by E.A. Goldman (1908) in the vicinity of Tulare Lake, California1, 8 June–4 July 1907.

Species				
Common Name	*Scientific Name*	Breeding Evidence	Number of Specimens	Conservation Status
Yellow Warbler	*Setophaga petechial*	BR	1	CSSC
Common Yellowthroat	*Geothlypis trichas*	SB	1	
Blue Grosbeak	*Passerina caerulea*		1	

[1].Goldman reported the presence of Western Grebe, but Western and Clark's Grebes were not considered distinct species until 1985 (Monroe, et. al. 1985)

[2] Subspecies unknown, see text.

[3] Subspecies *V. b. pusillus*

[4] Subspecies *A. b. canescens*

[5]Goldman reported two subspecies: Bicolored (*A. p.californicus*) and San Diego (*A. p. neutralis*)