

# WESTERN TANAGER

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## THE PARADOXICAL SEA

by Mary Lawrence Test

photo by Lee Jones

*"...would the sea dwindle by evaporation, as it had done before? Or would the overflow maintain the paradoxical sea?"*

For many years after Cortez first sent an expedition up the Gulf of California in 1539, the Gulf was thought to be a long strait to the North Sea, and Baja and Alta California were thought to be an island. The Gulf was called the Vermillion Sea; some recognized it as the mythical Strait of Arrian separating the mainland from an island of gold and pearls. They called this island California after Queen Calafia of the Amazons, as she was described in an ancient 14th century Spanish romance.

On maps, California is shown as an island and the Gulf as a passage to a northern sea as late as 1721. And it is true that this valley was probably filled with seawater in prehistoric times—waves washed the slopes of Mount San Jacinto and the San Bernardino. Shell and fossil remains show that the whole area was gradually uplifted. A change took place from marine to freshwater conditions. The Colorado River once carried silt and distributed it far and wide over this vast inland sea. We know this because the Colorado delta does not end at the mouth of the Colorado River but continues as low, open country for 200 miles up to the San Geronimo Pass through what is now the Imperial, the Coachella (a deformation of the word "Conchilla," or little shell) and the Cahuilla Valleys.

One Col. A.R. Johnson, venturing west from the Alamo in 1864 on the lookout for renegade Mexicans (and water) was probably the first to recognize that these vast reaches of desert had once contained a sea. He noted the occurrence of shells, and he wrote in a report to Washington that "at no distant day, this place which is now desert, was once a permanent lake." He failed to note, however, that the desert lay like a vast basin 273 feet below sea level at its lowest point.

As soon as the southern railroad through the San Geronimo Pass gained popularity in the 1870's, emigrants attracted by land, gold and prosperity followed its route. A permanent ferry was established across the Colorado River near its junction with the Gila River. Seventy-four camels and dromedaries were imported from Africa for use in the sandy desert, then known by the unappealing name Salton Sink. In 1857, a bimonthly stage began running between San Diego and San Antonio. The following year the Butterfield Overland Mail started a semi-weekly line of coaches from St. Louis to San Francisco via El Paso and Yuma.

The desert was opening up. But the 90-mile journey across the sink was still a feared undertaking. The searing terrain was sterile and foreboding; it was a land of burning salt plains and

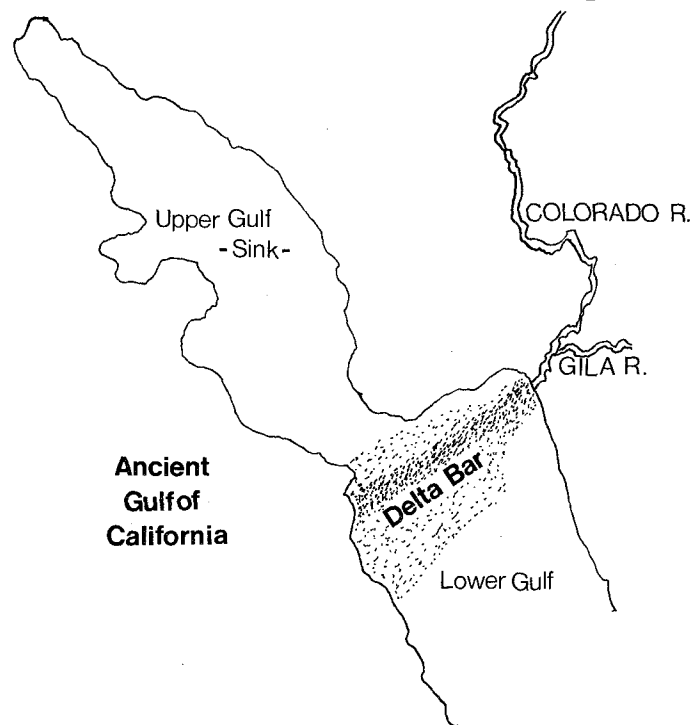
shifting sand dunes. People travelled through what is now the Imperial Valley with difficulty usually at night. Some died. As one poet wrote in a tribute to the Colorado Desert: "God must have made thee in his anger, and forgot."

Williams P. Blake, Professor of Geology at the University of Arizona and geologist with the Pacific Railway Survey, was the first to explain the origin of this desert sink. He traced its history and named the fresh-water lake which superseded the dry sink Lake Cahuilla after a local Indian tribe whose name means "master" or "ruling people." Lake Cahuilla covered an area of approximately 2100 miles: it was 110 miles long and 34 miles wide. Travertine deposits from this lake are still visible in the San Jacinto Mountains.

Blake was also the first to suggest that the area could be made arable through irrigation. He predicted that with water it would "yield crops of almost any kind." In fact, he called the Colorado River "the Nile of America." At that time, such a vision might have seemed a mirage. From what is now known of the delta deposits of the River, inflow to Lake Cahuilla was probably very variable and undependable. In fact, the whole volume of the River was probably diverted alternately to the Lake and to the Gulf, so that long intervals of drought accompanied by drying up of the Lake were common.

And this is precisely the variable which developers failed to take into consideration when they started the plan to dam the Colorado River and develop and irrigate what was to become the Imperial Valley.

**I**n the 1850's, Dr. Oliver M. Wozencraft, a San Francisco physician and Federal Indian Agent for Southern California, became interested in this area after reading reports of the fertility of the desert soil. He was intrigued by the thought of irrigating the area by means of canals from the Colorado River.



The ancient Delta and Gulf areas showing how the Colorado River was alternately diverted to the north and to the south by silt deposition.

On his initiative, the State Legislature asked Congress for a cession of three million acres of desert land for reclamation by irrigation in 1859. The application was favorably acted upon in 1862, but the bill failed to pass. Further attempts were made in the 1870's to obtain land for irrigation purposes; land schemes and canal development partnerships abounded. In 1891, a promoter named John C. Beatty formed the California Irrigation Company for the purpose of transporting water from the Colorado River to the Salton Sink.

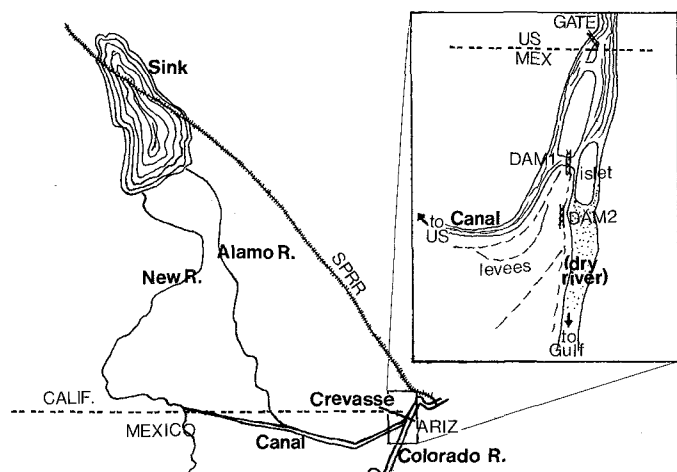
Beatty's engineer, Charles R. Rockwood, proposed following the river's ancient track and taking water from the Colorado near Yuma, carrying it south four miles into Mexico, then west, and then north into Southern California. This plan would necessitate building a canal 40 to 50 miles long curving through Mexican territory, but it would obviate cutting through hills and it would make use of an existing dry barranca (overflow channel) in Mexico.

Beatty, however, lost his money in the monetary panic of 1893. In 1896, Rockwood formed the California Development Company, a wholly-owned company operating under the Mexican charter! But eastern investors took a dim view of the reclamation on an arid desert where temperatures hit 125° F. in summer and the red irrigation water had to be strained before it could be drunk. And in any case, Rockwood's negotiations ceased on the eve of the Spanish-American War.

In 1900, A George Chaffey of Los Angeles, who had known Wozencraft and who had experience irrigating the hot interior of Australia, agreed to both finance and superintend the project. Evacuation of the 270-mile canal began May 14, 1901. A year later it was completed, entering the U.S. at sea-level, at the twin tent-city site Chaffey called Mexicali and Calexico.

As the California Development Company was only a water-selling company and held no proprietary interest in the land, another organization, the Imperial Land Company, was formed for promotion of land settlement. In Chaffey's great eastern ad campaign, the terms "desert" and "sink" were replaced with the ingenious name "the Imperial Valley." By 1902 water from the Alamo canal was available to irrigate 100 million acres of land. By 1904 the Southern Pacific Railroad ran through the Valley and a half-dozen town sites had been laid out. More than ten thousand people had already moved west to the Imperial Valley. They lived a rough frontier life in tent-like canvas houses called "ramadas." Investors were able to sell out for profit early unless they decided to stay with farming.

The most difficult problem faced by the irrigators was desiltation from the turbid Colorado River. A single day's supply of water for the Imperial Valley contained enough silt to construct a levee 20 feet high, 20 feet wide and 1 mile long! Thus there were difficulties keeping the waterways open and early on reduction in carrying capacity started to be injurious to agricultural interests in the Valley. By 1904 it became evident that measures would have to be taken to remove the silt. Since money and adequate equipment were lacking for quick dredging of the silted channels, and since the Reclamation Service in Washington questioned the legality of claiming Colorado River water rights and of land titles in the Valley, it was decided to cut a new intake from the River south of the Mexican border. Thus, the occluded part of the river was by-passed. One-half the water diverted would be used to irrigate Mexican crops along the way. However, cutting through the western bank of the River in this manner proved to be a disastrous mistake!



Salton Sink, 1906; inset shows the successive intakes to the River and the two sites where floods broke through the western bank.

Unbeknownst to anyone, this plan was drafted just as the River was about to make one of its semi-millennial changes in course—caused by silt deposition—and pour water into old Lake Cahuilla instead of the Gulf of Mexico. Although there was no recent history of flooding in the Valley, after torrential rains in 1905, heavy flooding did take place. By June the Colorado River was discharging 90,000 cubic feet of water a second into the Valley! The Imperial Valley slopes downward to the south 4 to 10 feet a mile, but developers had never understood the relationship of the sink to the delta. They watched with alarm as the River cut back. Water flowed as by gravity and the Salton Sea was fed by the New and the Alamo Rivers.

**A**t this point, A.E. Harriman, president of the Southern Pacific Railroad took financial control of the California Development Company. Harriman was faced with two problems: to keep supplying water to the farmers while engineering operations to control flooding were in progress, and to raise money to finance these control measures. Loans to the Southern Pacific in 1905 had been used up, and the river was still uncontrolled. The San Francisco earthquake diverted disaster efforts momentarily, but somehow in the midst of the smoldering ruins, Harriman raised \$25,000 for controlling the Colorado.

By now Calexico and Mexicali were partially destroyed. The newly formed Salton Sea was rising 7 inches a day. Farms were inundated, but paradoxically, 30,000 acres of cultivated land became suddenly dry, their water source cut off. Farms were destroyed. Five times the Southern Pacific track along a 67-mile course had to be removed to higher ground. The New Liverpool Salt Company was buried under 60 feet of water. It is estimated that the amount of solid matter scoured from the new channels and carried into the Salton Sea was nearly four times as much as what was evacuated in the building of the Panama Canal! Nothing in past hydraulic history could suggest a practical method of dealing with these conditions.

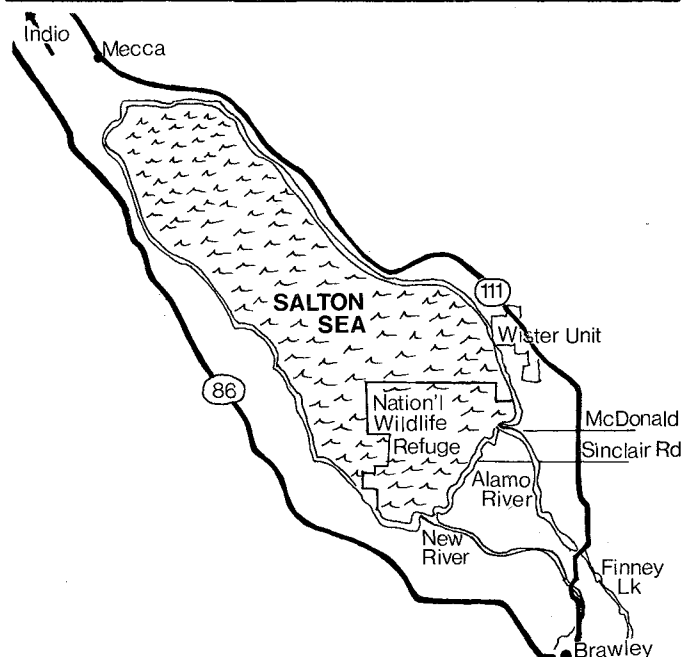
Harriman contracted to borrow 300 side-dump cars called "battleships" from the Union Pacific Railroad. All the rock quarries within 400 miles were called upon and a new one was opened. From Los Angeles, the railroad hauled 1100 90-foot piles, 19,000 feet of heavy timber for railroad trestles, and 40 miles of steel cable to weave brush-mattress foundations for the dam. The Southern Pacific furnished pile drivers, steam

shovels, repair parts, and as many workers as necessary. All the Indian tribes in the area were mobilized when Mexican labor was refused—the Pimas, the Papagoes, the Maricopas, the Yumas from Arizona, the Cocopahs, and the Diegenos from Mexico. Active work began on construction of a dam in August 1906, and in November, two years after the cutting of the Mexican intake, the crevasse was closed. The elevation of the River was raised 11 feet by the damming. Then, in December a flood again broke through in another area south of the original break.

The Southern Pacific began to consider whether to continue their rescue operations. They had already spent \$1,500,000 and future costs were estimated at another \$1,500,000. Appeals to Washington gained only a telegraphed reply from President Roosevelt: "Reclamation service cannot enter upon work without authorization from Congress and suitable convention with Mexico. Congress adjourns today for holidays. Impossible to secure action at present." Thus arose a controversy between proponents of government control and private enterprise in the domain of natural resources. In 1909, President Taft recommended reimbursing Harriman, but the latter never received restitution for his charitable efforts on behalf of the farmers of the Imperial Valley. And it was not until 1910 that Federal money became available for flood control.

There was no time to build brush-mattress foundations for the fill material to be poured into the river; Southern Pacific engineers built two railroad trestles across the break and then managed to dump 1,000 "battleships" of rock and sand into the river faster than they could be carried away. The crevasse was thus closed and the river was forced to return to its old bed. Work was quickly begun building reinforcement levees up and down the river.

In that same year, Professor Blake wrote, just before he died: "By the great and masterful exertions of the engineers in charge, seconded and supported by the Southern Pacific Railroad, the destroying deluge was stopped in the month of February 1907, and the gradual disappearance of the Salton



The Salton Sea today.

Sea, by evaporation, commenced and is now in progress." He approximated that the Salton Sea was going to dry up in 10 to 20 years, just as the ancient Lake Cahuilla had dried up periodically, little by little. In 1917, another author confirmed that: "The Salton Sea, which once threatened to submerge and destroy the artificially created oasis in the desert, ceased to rise in 1907 and is now slowly drying up."

In 1911, farmers formed the Imperial Valley Irrigation District, the largest irrigation district in the world. They wanted a steady flow of water from the Colorado they could depend on in drought and non-drought years. So they purchased the Imperial Canal by raising a bond issue; the old agreement with Mexico was going to create problems because in drought years it was impossible to supply water to both Mexican lands and the Imperial Valley. Thus, they began plans for an All-American Canal, built at the cost of some \$36 million in 1919.

Those who predicted that the Salton Sea would dry up and disappear were sadly mistaken. They failed to recall that in the olden days, when Lake Cahuilla dried up, there was no water draining into the Salton Sink, whereas since 1910, there had been constant drainage into the sink from irrigation. In fact, the same thing which makes the Valley easy to irrigate—the gentle northward sloping of 250 feet over 60 miles—has caused the Sea not to evaporate but to grow. In truth, the presence of the Salton Sea testifies to the waste and misuse of Colorado River water by the farmers of the Imperial Valley. In 1947 alone, it was estimated that 1,006,000 acre-feet of water drained into the Salton Sea.

The high water table creates farming problems, too. Rapid evaporation of the highly salty Colorado River water forces farmers to flush out salts, thus adding yearly more water to the Sea. Farmers asked President Coolidge to set the Sea aside as a repository for run-off, but recreational fisherman complained that the increasing salt content of the water would kill the fish, mainly mullet at that time. Presently, there are strict regulations on water conservation to minimize run-off. The salt content seems stabilized at 38 parts per million in the north part of the Sea and at 39.5 parts per million in the south.

The Salton Sea Recreation Area was opened in 1955. Fisherman had stocked the Sea with orange-mouth and shortfin corvina and sargo perch in 1950. A guide to the area in 1972 describes the Sea thus: "Today, its waters support boat regattas, fish derbies, water skiers and swimmers. Its shores are dotted with marinas, vacation houses and resorts." But whereas the early pioneers of the Valley made a real estate killing in farmland, the push for land sales for recreational purposes in the 1950's was doomed to failure.

Although fears that increasing salinity would create a dead sea by 1975 proved false, the whole area is nonetheless permeated with a powerful chemical odor. Unstable sea levels threaten real-estate. In 1952 the facilities of the Desert Beach Corporation itself were flooded. The landscape of the area is still void of any vertical features; soft dunes fade into mountains in the distance. Roads can be treacherous. The west coast of the Sea is scarred by subdivision sites. Few houses remain. In summer, humidity near the tepid waters is high, insects abound and shade is not to be found.

In 1928, the State voted to allocate one-third of the revenue from hunting licenses sold over the following ten years to acquire and maintain, develop and improve lands and water rights suitable for game refuges. The State purchased the 2000-acre Imperial Refuge near Calipatria on the Alamo River in 1931 and 1932. The California Department of Fish and Game in 1937 recommended highly that the area be developed for wildbirds: "The nature of the land and the climate, and the amount of bird life that would be affected would surely be justifications for the expense of more permanent and continuous improvements."

On November 25, 1930, 15,172 acres of public land were set aside by the President as a Federal refuge—the Salton Sea National Wildlife Refuge, which includes submerged and marginal lands at the southern end of the Sea, including the two principal freshwater inlets to the Sea. Some wildfowl hunting is permitted in accordance with State and Federal regulations. The present Federal Refuge has its headquarters near Calipatria, six miles south of Niland (Land of the Nile) and six miles west on Sinclair Road. The Wister Wildfowl Management Area north of Niland may be visited by permit only. No hunting is permitted here at all. In 1947, the Imperial Irrigation District made more lands available to the Refuge, but by 1970, most of it was underwater—only 2500 acres remained above the level of the rising waters.

Here, the intrepid birdwatcher has a unique opportunity to view not only species characteristic of low desert habitat, but also—in winter—many migratory shorebirds and waterfowl on the Pacific Flyway. A checklist of birds of the area includes 258 species. Agricultural interests on the north side of the Sea are not enchanted with the birds, always hungry for their crops. To the south, 1500 acres of farmed crops and habitat have been provided for wintering fowl such as Canada and Snow geese to prevent them from pirating crops.

This then is the story of why the State of California, which contributes nothing to the Colorado River, was the first to make major demands on its water—water drawn from the mountains of six western states. And of how the Salton Sea was formed. The creation of the Imperial Valley and the paradoxical creation of the Salton Sea—a sea that is really a lake, a lake in the midst of a desert. Thousands of people searching for a better life were inspired to move into this desert and thus experienced this real-life drama of flood. Many stories of this colorful and exciting period remain; most of them seem entirely based in fact. According to a Cahuilla legend, ships of a rival tribe laden with Cahuilla gold were sunk by the gods, enraged at the theft. These ships are said to be buried under the Salton Sea. Perhaps this story is true, as well.

#### Selected References

Cory, H.T. (with Introductory Monograph by W.P. Blake; *The Imperial Valley and the Salton Sink* (J.J. Newbegin, San Francisco, 1915).

Edwards, E.I. *Lost Oases Along the Carrizo* (Westernlore Press, Los Angeles, 1961).

Kennan, George. *The Salton Sea: An Account of Harriman's Fight with the Colorado River* (McMillan, NY 1917).

Woodbury, David O. *The Colorado Conquest* (Dodd, Mead & Co., NY, 1941). □

# THE AVIAN MISFITS

## Three Astonishing Accounts of Misdeeds Among Our Feathered Friends

*The following three accounts are examples of Mother Nature gone awry. These are factual accounts presented as accurately as possible from notes taken at the time. Some circumstantial evidence is included also, with tentative interpretations. It is difficult to resist the urge to "read between the lines" or to interpret these avian acts in terms of human emotion. Can we really use such terms as "psychopaths," "rape," "muder," or "kidnap" to describe antisocial behavior within the bird world? Or is it really "antisocial" as we humans like to call our own maladjusted. In any event I think you'll agree that these are not examples of commonplace, everyday backyard bird behavior. Perhaps you have a similar observation from your own experience to relate. If so send your story to the editor.*

### Ms. Anna Sings the Blues

*by Gerry Haigh*

**A**t 8 a.m. September 29, 1978, I saw a male Anna's Hummingbird viciously attacking a female of the same species. I first saw the male attacking the female at a feeder on our back deck, driving it away and down to the floor of the deck. It perched on her back as if copulating and kept hitting her with the side of its bill. After a couple of minutes it flew up and perched nearby. The female lay pressed against the deck for a minute then rose and flew weakly to the feeder. Before she could feed, the male attacked again, knocking the female backwards from the perch, but she hung on with her feet. The male seized the female by the tarsus with its own feet and flew off with it to a nearby bush. They both lit in the center of the bush and the male began battering the female with its wings and with its beak. The female fell over backwards again and was hanging onto a branch upside down. The male flew away. I tried to catch the female but she flew away before my hand touched her. She flew toward the feeder with a feeble fluttering flight. The male attacked again in midair. She lit on a

cloth bag and clung there while the male clung to her back, again battering away at her. I ran up to the second floor of my house, got my camera, loaded it and ran back. When I returned, he still had her pinned down to the deck. As I came out the door, he picked her up in his feet and flew off with her, disappearing through some trees about one hundred feet away. The female was about 1/5 - 1/4 smaller than the male. It was not flapping its wings but was simply a dead weight while being carried off.

Less than half an hour before I observed this assault, I had released a female hummingbird which was trapped in our living room overnight. At eight o'clock in the morning the bird was weakly flying between the rafters near the ceiling of our two storey living room. I worked it down with a long bamboo frond, caught it at a window and released it in our backyard. It flew off into the same trees where the male was last seen carrying its victim but it is quite possible that it returned and was the same bird. □

### Prairie Country

*by Lee Jones*

**O**n 2 June 1978 Elizabeth Copper, Louis Bevier and I observed a singing male Prairie Warbler at Tollhouse Spring, a small oasis 10 km east of Big Pine, California. It had been found a half-hour earlier by Jerry Mogle. The record is significant in its own right, since it is only the second spring record of a species that is considered a rare fall vagrant to coastal California. The significance of the record aside, the following account describes a most unusual behavior pattern that certainly overshadows the bird's mere occurrence far out of range. The three of us returned to Tollhouse Spring on 11 June after learning that the bird was still being seen there. We searched in vain and, assuming it had departed, were about to leave when I noticed a skirmish in the grass beneath an elm. Curious, I walked over to the spot where the commotion was taking place, expecting to see a struggle between snake and mouse or the like. A brief flash of bright yellow in the dense grass piqued my curiosity. What could it be? As I was about to lean over and part the grass for a better look, up popped the Prairie Warbler! It perched, temporarily dazed, on an exposed branch just a few feet away. Then, as suddenly as it appeared,

it flew off to a nearby tree and began singing vigorously. I stepped up to investigate the spot where the Prairie Warbler had been skirmishing in the grass, still fully expecting to see a snake slithering into the brush. No snake. Instead, a female Black-throated Gray Warbler. It flew weakly to a low branch where it sat motionless for several minutes while I retrieved my camera. Its head was bloody and its feathers were thoroughly disheveled. I took several pictures with my macro-lens from just inches away.

Meanwhile, the Prairie Warbler was singing even more vigorously, rapidly moving from tree to tree between songs. It was changing perches so frequently that we thought there might be *two* Prairie Warblers engaged in a sing-off!

It occurred to me that this female Black-throated Gray Warbler was the only other warbler of any sort in the area. Black-throated Grays breed just upslope in the Pinyon Pine zone. No other warblers breed in the area. The chance of the male Prairie Warbler encountering a female of its kind so far out of range is, of course, infinitesimally small. Most spring vagrants quickly get discouraged and move on. But not this

bird. It had already been here ten days and was clearly in full breeding vigor. Evidently, the unsuspecting female Black-throated Gray had been a convenient substitute in the absence of any better choice of mate.

The Prairie Warbler was still present two days later when we returned. Though we have no evidence implicating our Prairie Warbler this time, we met with another strange, if depressing, scene. Just below the Prairie Warbler's singing perch we found a female House Finch, most of its head feathers missing and both eyes poked out, stumbling around helplessly!

## Bitter Neighbors?

In Inyo County the morning of January 3rd, I observed a remarkable thing as I 'scoped Tecopa Marsh from the overlook. From about 400 yards, at 40 power, all I could make out at first were two brown blobs in the salt grass, out in the open near a rivulet that could be the Amargosa, perhaps 50 yards from the highway. Then I realized that one form was a female Marsh Hawk intently watching the other, which was still as death. Suddenly the second form materialized into an American Bittern, jumped up and down three times on something it had been standing on or crouched over, stabbed twice with its beak, and walked slowly away, posturing and doing its bittern thing, plumage all fluffed up and the whisker mark quite apparent. When the harrier judged it safe, it walked over to whatever it was the bittern had left in the grass and began eating it. When I saw feathers fly, I judged I had better investigate.

As I drove up the hawk was still at work but the bittern was nowhere to be seen. I was fortunate to be able to walk into the marsh at that point and flabbergasted to discover that what the bittern had stood over, stomped on, and stabbed was another of its own kind, now quite dead but still limp and warm. Although I was unable to sex it, the corpse was that of an adult American Bittern. The head was bloody and there was a wound on the flank, but how much of this was due to the harrier's opportunism I cannot say. Feeling ghoulish, I took a wing for a fly-tying friend and left the rest in the food chain where I found it.

The temptation to finger our feisty friend for this bird's misfortune was compelling, if a bit premature.

On 1 July Mitch and Tom Heindel visited Tollhouse Spring. Much to their amazement they found the Prairie Warbler carrying food! Could it be possible? Had a lost female Prairie Warbler defied all odds and appeared at the same oasis (remember, the male was only the second Prairie Warbler ever to be recorded in California in spring). No, alas, there was no female. But imagine their surprise when they watched it fly into a tree and feed two nestling Lesser Goldfinches!! □

*by Jan Tarble*

Earlier, driving through the county park to the overlook I had noticed a bittern overhead, flying with its typical rapid wingbeat toward the marsh. I've yet to become blasé about these birds, but this is not as uncommon a sight as one might think. Little did I realize, that the creature was hurrying to keep a fateful appointment. Infanticide, patricide, regicide, perhaps just a transient mugging, who can say? Evidently the marsh wasn't big enough for both of them.

This isn't the first time I've observed murderous bird behavior in Tecopa Marsh, but the other incidents have been between species, not intraspecific, and the natural result was a square meal for one of them. The bittern's bill is certainly murderous and the killing may have been accidental, but how to explain the survivor standing over its victim and pummeling the remains? Did I find an aberrant bittern? Did it become one that morning? Is this normal behavior, God help us, among the Ardeidae, or a reaction, normal or otherwise, to a stressful, restricted habitat?

The only reference I've found to aggressive behavior in the American Bittern is in Palmer's *Handbook of North American Birds* (Yale U Press 1962, Volume I, page 504, "Brewster described what appears to be a threat display and fight between 2 (males)..." Goldfrey in *The Birds of Canada* (National Museum of Canada 1966, page 43), remarks "...beak also is a vicious weapon, capable of destroying a human eye." He doesn't tell us how he knows this. □



photo by Lee Jones

## Sandy Wohlgemuth

# CONSERVATION

In 1949, a slim little book appeared unobtrusively on the scene and sat quietly on bookstore shelves for a long time. The author recorded his observations of nature and the changing seasons as viewed from his small Wisconsin farm. He spoke eloquently of geese and meadow mice, of skunks and oaks, of woodcocks and upland plovers. Eloquently, not sentimentally. The book was "Sand County Almanac—And Sketches From Here and There" by Aldo Leopold. More than a poetic evocation of rural life, the book offers a philosophic exploration of man's unity with nature, speculation on the passenger pigeon, the confrontation of "progress" and wilderness. Sample the flavor of these few excerpts:

"The real jewel of my disease-ridden woodlot is the prothonotary warbler. He nests in an old woodpecker hole...in a dead snag overhanging water. The flash of his gold-and-blue plumage amid the dank decay of the June woods is in itself proof that dead trees are transmuted into living animals, and vice versa."

"The physics of beauty is one department of natural science still in the Dark Ages....Everybody knows, for example, that the autumn landscape in the north woods is the land, a red maple, plus a ruffed grouse. In terms of conventional physics, the grouse represents only a millionth of either the mass or the energy of an acre. Yet subtract the grouse and the whole thing is dead. An enormous amount of some kind of motive power has been lost."

"When we hear the call of the sandhill crane...we hear the trumpet in the orchestra of evolution."

It is in the last few pages that we get the crystallization of what he calls the "land ethic." Ethics requires understanding of the difference between right and wrong. In our relationships with other people we learn it is wrong to kill and steal and bear false witness. In relations between the individual and society, ethics assumes each of us to be a member of an interdependent community and asks for our cooperation. The third step, he says, is the land ethic that "simply enlarges the boundaries of the community to include soils, waters, plants, and animals, or collectively: the land." Leopold says, "There is as yet no ethic dealing with man's relation to land...Land is still property. The land-relation is still strictly economic, entailing privileges but not obligations...Individual thinkers since the days of Ezekiel and Isaiah have asserted that the despoliation of land is not only inexpedient but wrong. Society has not yet affirmed their belief."

Thirty years later, Leopold's seminal ideas have flowered in many visible manifestations. The concern of millions of Americans for the fate of the Alaska wilderness—the virgin forests, the free-flowing rivers, the myriad wildlife—is evidence of the impact of the land ethic. The House of Representatives—traditionally more responsive than the Senate to the electorate—passed the Alaska lands bill overwhelmingly last May. It was the rising environmental awareness of the 1970s that produced endangered species legislation, environmental impact statements, air and water quality laws and a wilderness preservation system that is nationwide. "Sand County

Almanac" moved off the bookstore shelves and became a classic.

We would be foolish to conclude that society has now received the message and all our troubles are over. The Alaska bill has been postponed in the Senate until July and there is a strong possibility that its opponents will delay it to death. The energy crisis has generated the threat of oil-shale and coal strip-mining that hangs like an evil cloud over the western states. Millions of acres of land and millions of acre-feet of precious water are threatened by the synthetic fuel proposal. The so-called "Sagebrush Rebellion" would hand over federal lands to the states which are more susceptible to the power of economic greed. Closer to home, we watch with apprehension the scramble to build in the Santa Monica Mountains before the National Recreation Area can be created.

As I write this at dusk, a faint babble, like a dozen puppy dogs, reaches my ears and, as it grows louder and deeper, I dash into the backyard to see two wavering Vs of Canada Geese fly overhead. After a day of browsing in the cow pastures of Pierce College they are heading for the sanctuary of Encino Reservoir. A thrilling moment in suburbia. And a reminder that, here too, we must oppose a condominium development that might destroy this unique agricultural land.

**S**o we have a long way to go. It seems essential that we truly absorb the idea of the land ethic ourselves and pass it on to others. If enough people understand the principles of wise and healthy use of the land we will be able to preserve our natural heritage.

Aldo Leopold said, "We can be ethical only in relation to something we can see, feel, understand, love, or otherwise have faith in...We abuse the land because we see it as a commodity belonging to us. When we see land as a community to which we belong, we may begin to use it with love and respect." □

### Ecuador Natural History Tour

A trip to Ecuador and the Galapagos Islands is being offered in April by Aventura Natural History Tours of Santa Monica in conjunction with El Dorado Audubon. The dates are April 18-May 2, with the first seven days on mainland Ecuador. Highlights include the Otavalo Valley, Lake Cuicocha, Cotopaxi and free time in Quito for browsing and shopping. The yacht *Isabella* has been chartered to cruise the islands—the group will fly out from Quito and back, so that all sea time will be around the islands themselves. There will be eight full days on the islands. Tower, not often visited, will be included on this trip. The *Isabella* accommodates only 16 passengers, so the group will be small. For those interested, early sign up is advised. The cost will be approximately \$1995. There will be an optional three to four day Amazon River trip at the end. Leader: Barbara Massey of El Dorado Audubon. Part of the proceeds from this tour will be donated to the Shirley Wells Conservation Fund of El Dorado Audubon. For further information, call Barbara Massey at 431-9635.



## Shum Suffel

# BIRDS of the SEASON

**T**he pace of spring migration should accelerate in April to a climax in early May, and this spring the countryside will be particularly lush with grass, weeds, and flowers after our more than sufficient rains. Add a touch of warm weather to bring out the insects, and a proper reception will be awaiting the hordes of small migrants. While the rains are good for the birds, they are not necessarily good for the birders. Water and food will be widely available with no need for birds to concentrate at favored spots. Further, washed out roads and expensive, scarce gasoline will restrict our activities.

The L.A.A.S. Monterey Bay pelagic trip on 16 February was blessed with good fortune. Despite the promise by a TV weatherman of a "monster storm, possibly the worst in a hundred years," with winds exceeding 50 mph along the coast, we cruised Monterey Bay in relative comfort and were even able to survey (unsuccessfully) the open ocean six miles off Pt. Pinos, where a **Laysan Albatross** had been seen a week or two before. We did find the expected species: **Short-tailed**, **Sooty**, and **Manx Shearwaters**, four species of alcids, and an adult **Thayer's Gull** behind the boat, but no albatrosses or storm-petrels. Surprisingly, the last fifteen minutes, from Pt. Pinos to the harbor, produced the best birds: Two **Red-necked Grebes**, a **Peregrine Falcon**, a **Harlequin Duck**, and (in the harbor itself) a white immature **Glaucous Gull**. A few participants, who were able to leave on Friday or return on Monday, visited the Stockton Sewage Plant (closed weekends) to look for the **Black-headed Gull** and the **Little Gull** which are there for the second consecutive winter.

The L.A.A.S. morning at the Naval Air Station at Pt. Mugu, originally planned for 9 December was postponed until 9 February. Richard Webster had done his scouting well, and led us to the golf course where a **Lapland Longspur** in a flock of **Horned Larks** was studied through the scopes. Farther on a lone **Ross Goose** was in a small flock of **Canada Geese**, but the **Tropical Kingbird** and **Eastern Phoebe** just beyond the boundary fence disappointed us (they were refound later). While studying two **Thayer's Gulls** near the road, we found an **American Bittern** and two more **Ross' Geese**, as well as nine more **White-faced Ibis** (making a total of twelve). The best find of the day was two **Ruffs** in a remote corner of the **Salicornia** marsh. As we lunched near the lagoon, waterbirds were everywhere: Pelicans, gulls, terns, and ducks, with special attention given two female **Black Scoters**, and a small number of **Royal Terns**. In the afternoon the **Red-necked Grebe** in the Ventura Marina was seen, but the **Peregrine** at the nearby Santa Clara River Estuary could not be located. The **Little Blue Heron**, which had been over-nighting at McGrath, may have stopped at Goleta, as one was found there briefly about the time that the McGrath bird disappeared. An immature **Little Gull** was found at McGrath by Jim Morris on 1 March.

The Norman Mellors of Corona joined the "freeway birdwatchers," as they were surprised by a **Wood Stork** soaring overhead at the junction of the Pomona and the San Gabriel River Freeways. It was, of course, our old friend at the nearby Whittier Narrows New Lakes.

A dark-phase **Least Bittern**, a form little known here (but more common in the east where it is sometimes called "Cory's Bittern"), was found at Finney Lake at the south end of the Salton Sea (Mitch Heindel, 26 January). The previously mentioned field at the northwest corner of Euclid Ave. and Kimball in Chino hosted 24 **Buteos** on 12 February, mostly **Red-tailed Hawks**, with about six **Ferruginous Hawks** and a possible **Rough-legged**. The reason for this concentration was not hard to deduce, as the whole field was crawling with ground squirrels. The **Merlin** continued to roost at the Arcadia Arboretum, but was seldom seen during the day. Other Merlins were in Altadena (John DeModena), Whittier Narrows (Mickey Long) and near Palmdale (Diane Petrula, 23 February). Two **Ospreys** were also at Whittier Narrows on 17 February. **Laughing Gulls**, very rare on the coast (especially in winter) were found in San Diego, Oceanside, off Newport Beach, and at Malibu Lagoon. The last bird, possibly a first for Los Angeles Co., was a second-winter bird found by Terry Clark and James Wolstencroft on 3 February. Two **Ancient Murrelets** at Pt. Mugu on 24 February (Richard Webster) were the first reported for several weeks since the late fall "invasion."

**A** wintering or unusually early spring migrant **Ash-throated Flycatcher** was at Whittier Narrows on 4 February (Mickey Long). At the Arcadia Arboretum, the **Willow Flycatcher**, at least one **Gray Flycatcher**, and the **Western Flycatcher** all stayed through February, but an unidentified **Empidonax** and the **Sage Thrasher** were not seen after 6 February. The **Clay-colored Sparrow** stayed on. At Harbor Lake the wintering **Lucy's Warbler**, two **Yellow Warblers**, and a **Palm Warbler** were last seen in late February, and not far away another **Palm Warbler** was at Cabrillo Beach. A **Yellow-billed Magpie** at the Holy Cross Cemetery near Fox Hills (Jerry Johnson, 29 February) could not be found the next day; this species has declined in the southeastern corner of its range (i.e. se. Santa Barbara Co. and Ventura Co.), and this individual is more likely an escapee. Starr Saphir found a **Bohemian Waxwing** and a male **Hepatic Tanager** in Oceanside on 24 February. The **Bohemian Waxwing** is one of very few records for San Diego County.

The saturation coverage which Santa Barbara and Ventura Counties receive was demonstrated to participants in the Western Field Ornithologists convention. The field trips, on the mornings of 16 and 17 February, produced both **White-fronted** and **Ross' Geese**, a **Broad-billed Hummingbird**, a **Brown Thrasher**, a variety of warblers (including **Black-and-white**, **Tennessee**, **Cape May**, **Grace's**, and **Palm**), **Orchard** and **Northern Orioles**, two **Harris' Sparrows**, and two **White-throated Sparrows**. The **Brown Thrasher**, a **Harris' Sparrow**, and the two **White-throated Sparrows** were all at a backyard feeder in Goleta. The second **Harris' Sparrow**, at the Andree Clark Bird Refuge, was found by Arnold Small's UCLA bird group on 19 January. The previously-mentioned **Grace's Warbler** in Montecito was a first winter record for California, but, amazingly, Paul Lehman found a second **Grace's** a few miles away in Carpinteria.



Spring gives us the opportunity to find some of the more difficult birds. **Sage Grouse** are displaying on their leks (strutting grounds) in the northern Owens Valley. Turn right at the little church, 35 miles north of Bishop, and follow the signs. **Swainson's Hawks** are migrating through the valleys (recently in very small numbers, but formerly by the hundreds). Owls are nesting in the mountains now and, of course, are territorial; use the tape-recorder sparingly, however. The rarer shorebirds, particularly **Solitary Sandpipers**, can be found in grassy ponds which should abound after the heavy rains. **Bell's Vireos** are now a rare bird locally,

probably due to brood parasitism by cowbirds, but can be heard (and seen with effort) below the park at Morongo Valley and downstream at the Old Mission Dam east of San Diego. **Grasshopper Sparrows** are normally quite secretive, but in spring they sing from a fence, a weedstem, or a low bush in ungrazed grassy areas. Try the Simi Hills, Diamond Bar, or across the stream at Old Mission Dam.

There will be birds everywhere in April—waterbirds, shorebirds along the coast, small landbirds in every bush and tree, and hawks, swallows, and swifts overhead. How can birders resist such temptations? □

## What is a BBS?

Since 1966 the U.S. Fish and Wildlife Service has been conducting breeding bird surveys (BBS), first in states east of the Mississippi, then across the entire U.S. These surveys are 25 mile transects which are run along existing roadways employing standardized censusing methodology. In the first two years only the eastern U.S. was included, but in 1968, routes were expanded to include the entire U.S. After only five years California led the nation in numbers of BBS's run with 129 in 1972—a testament to the number of active birdwatchers in the state.

How does one conduct a BBS? First, a prospective BBS'er is assigned a route in a convenient area (some do two or more routes). All routes have been pre-selected at random from a large grid of the U.S., utilizing latitude and longitude as coordinates. On the morning the survey is to be conducted (usually sometime in June) the BBS'er arrives in plenty of time to begin the survey precisely one-half hour before local sunrise. Once the survey is begun stops are made every half-mile for a total of 50 stops. Three minutes are spent recording all birds heard or seen at each stop. Only those birds detected in this three minute period are recorded—those encountered while driving or before or after the three minute block are *not* counted.

A half-hour before sunrise, you say! Well, that just happens to be the time the birds become most vocal. And, just think, you're all through by about 9:00 a.m.! Time for nearly a full day of birdwatching, or (ugh) work at the office. But don't volunteer unless you have a good knowledge of your local birds—especially their songs and calls, since you'll never see most of the birds you encounter on a BBS. There just isn't time to chase down every mysterious songster in the brush in just three minutes. And don't volunteer if you only plan to do this route once. Without comparative information from the same route in many successive years, one can never know local population trends and the primary purpose of the whole BBS program is defeated.

All this may sound like a lot of work. Not exactly the laid-back, casual birdwatching you're familiar with, you say? But look at the benefits. The first year may seem routine, except in the unlikely event that you find some unexpected species. But in subsequent years you begin to see interesting trends develop before your very eyes (and ears!). Some species will increase dramatically in numbers while others will decline or even disappear locally, with noticeable differences often apparent from one year to the next. Taken together several

BBS's from one geographical area can detect and monitor population trends, often serving as an early warning system for troubled species with steadily declining populations (e.g., Bell's Vireo).

BBS's are an excellent way to map present breeding ranges of species across the 48 contiguous states, and ultimately, to show range expansions and contractions, increasing and decreasing densities throughout a species range, and range of habitats and altitudes occupied during the breeding season.

If you would like to find out more about the BBS program, or be included among the BBS'ers for 1980, contact:

Lee Jones  
BBS Coordinator for  
Southern California  
P.O. Box 1284  
Topanga, CA 90290

Danny Bystrak  
Wildlife Biologist  
Migratory Bird & Habitat  
Research Laboratory  
U.S. Fish & Wildlife Service  
Laurel, MD 20811



photo by Lee Jones

## Kimball Garrett

# A CLOSER LOOK

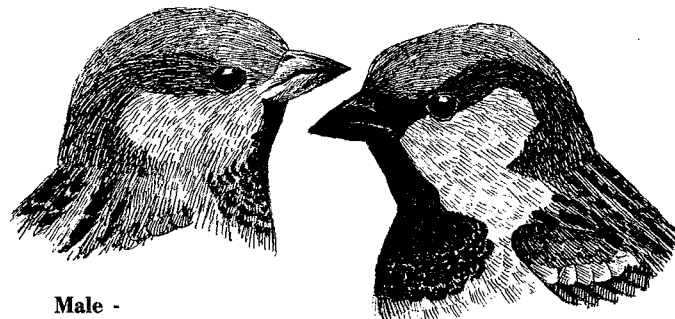
**B**eckoning the average birdwatcher to take a closer look at the **House Sparrow** may initially seem about as reasonable as inviting a student of fine cuisine out for a Hostess Twinkie. After all, this most basic "trash bird" is a highly-disdained form of low-life which one must kick from underfoot on a stroll through the city, sensorially censor while searching for rare tidbits at desert ranchyards and oases, and shoo away from one's breakfast at any outdoor eatery. But, whereas some may argue that birdwatchers routinely see beauty in birds which ornithologists study with cold, scientific detachment, the House Sparrow has probably been looked-upon with more wonderment and fondness by ornithologists than by the ranks of birders. In its variation are demonstrated important ideas about molt, the hormonal bases for seasonal change in appearance, and the evolution of geographical variation.

The House (or English) Sparrow was introduced into northeastern North America in the middle of the nineteenth century, and colonized the remainder of the continent rapidly thereafter. Similar introductions on other continents have made this one of the world's most widespread and successful passerines. In southern California it occurs at virtually any outpost of human habitation, even within the higher mountains and arid deserts. Seasonal movement is poorly understood and probably not major, but there are scattered records of transients or vagrants away from known breeding localities (e.g. Santa Barbara Island).

Identifying the House Sparrow at the species level should present no problems; we've all had sufficient experience at this. In shape, plumage, voice, and behavior, it is quite distinct from our native sparrows. In fact the House "Sparrow" is not a true sparrow at all, but an Old World Ploceid or "weaver-finch." (One could similarly argue that our native sparrows are the ones that are not real sparrows but rather Emberizid "buntings," but we won't dwell on this.) Distinguishing the sexes of adult birds is also simple: The males are more richly colored and possess (to at least some degree) a black "bib." In the following paragraphs, then, I will touch on two subjects: The variation in plumage and bill color through the annual cycle in the male, and geographical variation in North America.

**S**ome species of birds molt into an alternate (or "breeding") plumage prior to the nesting season. The House Sparrow exemplifies another common process. The black throat which is so prominent in the breeding season is not the result of a complete molt of throat feathers; instead, pale-tipped throat feathers which were renewed during the annual fall molt merely become worn over the winter, exposing the solid black feather bases (see figure). The shiny nuptial plumage of the starling is obtained in the same manner: The pale feather-tips (which cause the spangled winter appearance) wear down over the course of the winter. Breeding condition male House Sparrows are also recognizable by their jet-black bills; the change from the horn-colored bills of non-breeding birds is influenced by a seasonal increase in testosterone levels.

Are there different races of House Sparrows in California?



Male -  
breeding season

Male -  
non-breeding season

illustration by Kimball Garrett

(Or in North America in general?) For a bird that was introduced to the continent only a century and a quarter ago (from a rather homogeneous stock) the answer would seem to be an obvious no. But scientists who have studied the problem of House Sparrow variation in North America intensively for over two decades argue that within the relatively short time span since the 1850s, differentiation has matched that of *recognized races of other species*. Put simply, the House Sparrow has undergone evolution since its introduction into North America, to the point that populations from some areas are visibly distinguishable from those of other areas. But don't go rushing out to look for these differences. So far they have been arrived at by comparison of extensive series of collected specimens, by fine measurements of skeletal elements, and by sophisticated principal component analyses of such measurements. The differences (greatly oversimplified) include paler coloration in arid desert regions (e.g. Death Valley and Phoenix), larger size in cooler northern localities, and larger limb size in warmer regions. I have taken the liberty to dream up futuristic House Sparrows from Death Valley and Vancouver, in order to aid in visualizing these evolutionary trends (see figures). Please keep in mind that I stand on very shaky ground when trying to predict "outcomes" of evolution; I am simply assuming (for fun) that present evolutionary trends in House Sparrow variation in North America will continue, and spawn the creatures I have drawn. (In reality, a variety of ecological constraints would be likely to check these trends). The time scale involved cannot be predicted, but it should be noted that changes detected in the century since the introduction of this species to North America have been of a sufficient magnitude to cause some re-thinking of the rates of evolution of higher vertebrates under "natural" conditions.

The evolutionary trends shown by North American House Sparrows roughly conform to three often-cited "Ecogeographic Rules." One, Bergmann's Rule, holds that body size tends to be larger in colder climates. Another, Allen's Rule, predicts larger extremities in warmer climates. Both of these "rules" presumably describe thermoregulatory adaptations (e.g. longer extremities, such as jackrabbit ears, more efficiently dump heat and therefore tend to be more common in warmer climates).

Finally, Gloger's Rule predicts darker color in humid regions and paler color in hot, arid regions. Variation in many North American vertebrates corresponds to these predictions.

There may be more alluring species to watch than House Sparrows; but wherever birdwatchers roam, these birds can't be far away. And there is, therefore, a constant reminder of the power and (perhaps surprisingly) rapidity of natural selection in shaping the adaptations of this most successful trash bird.

#### Selected References

Johnston, R.F. and R.K. Selander. *Science* 144:548-550, 1964.

. *Evolution* 25:1-18, 1971.

Selander, R.K. and R.F. Johnston. *Condor* 69:216-258, 1967.

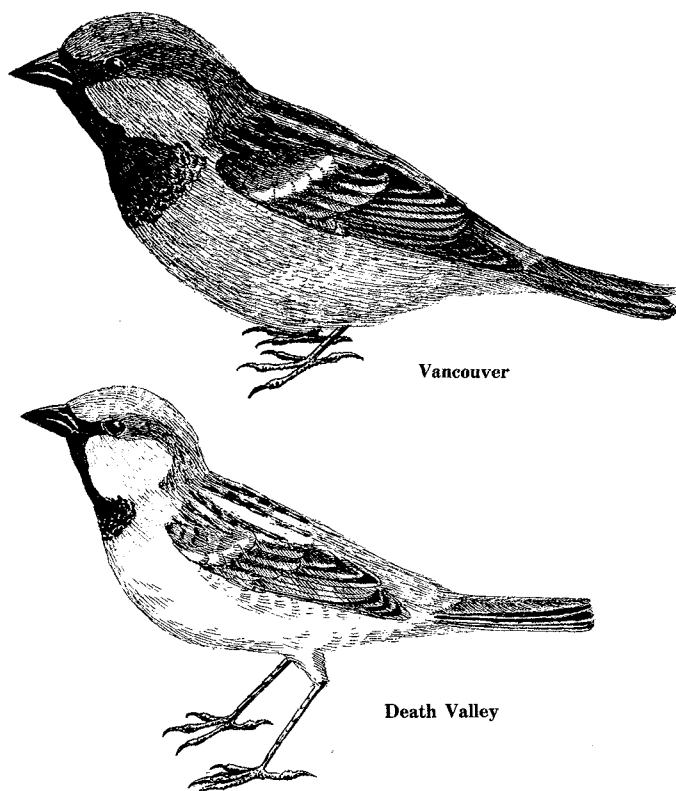


illustration by Kimball Garrett

#### TWO FUTURISTIC HOUSE SPARROWS



### WESTERN Tanager

EDITOR Lee Jones

ASSISTANT EDITOR Teri Eichholz

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Audubon membership (local and national) is \$18 per year (individual), \$21 (family), or \$13.50 (student or senior citizen), including AUDUBON Magazine, and THE WESTERN Tanager. To join, make checks payable to the National Audubon Society, and send them to Audubon House. Subscriptions to THE WESTERN Tanager separately are \$6.00 per year (Third Class), or \$9.00 (First Class, mailed in an envelope). To subscribe, make checks payable to Los Angeles Audubon Society.

#### Mono Lake Update

One year ago last January representatives from the 49 California Audubon Chapters selected Mono Lake as the top priority statewide conservation issue. Since then the National Audubon Society, LAAS and many other chapters have been striving for legal protection of Mono Lake and an increased public awareness of the lake's present plight. Birdathon, law suits, public education on water conservation, public demonstration of support for the Interagency Task Force plan to save the lake, letters, phone calls and visits to legislators are some of the things that are being done. More work is needed to win greater legislative support for Mono Lake's protection.

The National Audubon Society has just opened an office in Los Angeles totally devoted to the Mono Lake issue. The Mono Lake coordinator will work with LAAS chapter members to let Los Angeles know that Mono Lake is worth saving and how it can be done. Members and non-members alike are invited to visit and use the new center for information. Volunteer help is needed. For further information and weekly updates call (213) 477-8229 or 477-8220. Or contact NAS Mono Lake coordinator Corliss Kristensen or Mono Lake Committee vice-chairperson Tom Cassidy. Pay us a visit at 1355 Westwood Blvd., Suite 212, Los Angeles, CA 90024.

Two opposing bills are currently being discussed in the State Assembly. Norm Waters' bill AB 2235 implements the Task Force recommendations of a modest water conservation and waste water reclamation plan to protect the lake. The opposing bill, Michael Roos' bill AB 2182, prevents the protective measures from being implemented until a five-year study of the lake has been completed. However, after five more years of unchecked water diversion, it may then be too late to save the lake. Letters of support for the Waters' bill and opposition to Roos's bill are urgently needed. Please write your assemblyman at the following address:

Your Assemblyman  
State Capitol  
Sacramento, CA 95814

The Mono Lake office will be glad to help anyone interested in finding out who their legislators are. Call (213) 477-8229.

#### Environmental Bill of Rights

Are the rights to clean air, unpolluted waters, protection of wildlife and control of toxic wastes inalienable? The former Senator Peter Behr has proposed an Environmental Bill of Rights which would, if passed this spring, add the inalienable rights to a "healthful and productive environment" to the California Constitution. The bill discusses wise management of natural resources and wilderness, as well as such urban issues as land use planning and control of toxic waste. As a part of the state constitution, rights defined by the initiative can no longer be ignored by politicians or undermined by the influence of lobbyists.

Ex-Senator Behr does not expect the bill to make any immediate radical changes in environmental law. The Environmental Bill of Rights would prohibit new laws which oppose these rights and would encourage protective laws. If supporters can gather enough signatures by April 15 the initiative will appear on the June election ballot. Many supporters of the bill believe that environmental rights should be regarded as inalienable as the universally upheld law, "Thou shalt not kill." □

# CALENDAR

Los Angeles Audubon Headquarters, Library, Bookstore, and Nature Museum are located at Audubon House, Plummer Park, 7377 Santa Monica Blvd., Los Angeles 90046. Telephone: 876-0202. Hours: 10-3, Tuesday through Saturday.

## Audubon Bird Reports:

Los Angeles 213-874-1318  
Santa Barbara 805-964-8240

## Pelagic Trip Reservations

To make reservations for pelagic trips, send a check payable to LAAS plus a self-addressed, stamped envelope, your phone number, and the names of all those in your party to the Reservations Chairman, Audubon House. No reservations will be accepted or refunds made within 2 weeks of departure. To guarantee your space, make reservations as early as possible. Trips will be cancelled 30 days prior to departure if there is insufficient response. If you wish to carpool, please so indicate, and you will be contacted two weeks prior to the trip. There should be a separate check for each trip.

**TUESDAY, APRIL 8—Evening Meeting, 8:00 p.m.** Plummer Park. LAAS will hold its first ever membership participation meeting. Come and let your voice be heard. We need your input, your ideas. What can you do for us? What can we do for you? What directions would you like to see LAAS take in the future. Would you like to see more beginner's field trips? More local field trips? Weekday field trips? Find out about LAAS services that you may not have been aware of. You know about the bookstore—one of the finest natural history bookstores anywhere. But did you know about the LAAS library available to all members? Refreshments will be served.

**SATURDAY, APRIL 12—Antelope Valley.** Spring migrant landbirds and shorebirds with Scott's Oriole, Le Conte's Thrasher, Verdin, Swainson's Hawk and spectacular wildflowers all possible. Meet at 7:30 a.m. at the Lamont-Odetta Vista Point along Highway 14 a few miles south of Palmdale. Leaders: Tom Frillman (456-8779) and Fred Heath.

**SUNDAY, APRIL 13—Pt. Dume Seabird Watch.** An afternoon focusing on observing and identifying spring migrant loons, brant, scoters, gulls, California Gray Whales, etc., from one of the most productive coastal promontories in southern California. Meet at 2:00 p.m. along Westward Beach Rd., just south of the Pacific Coast Highway at the south end of Zuma Beach. Leader: Kimball Garrett 477-5769.

**SATURDAY, APRIL 19—Santa Anita Canyon.** Dippers along one of our few major permanent mountain streams; migrants should abound as well. Meet at 8:30 a.m. at the Chantry Flat Picnic Area. From the Foothill or San Bernardino Freeways, take Santa Anita Ave. north to its end in the hills above Sierra Madre. Leader: Hal Baxter 355-6300.

**THURSDAY, APRIL 24—Pt. Dume Seabird Watch.** Details of time and place the same as for the April 13 trip. Should produce even larger numbers of migrants because of the later date. Leader: Jon Dunn 981-1841.

**SUNDAY, MAY 4—San Pedro to Osborne Bank Pelagic Trip.** Departure at 6:00 a.m. aboard the *Vantuna* from USC Dock at San Pedro, returning at 6:00 p.m. Price: \$18 per person. Leaders: Fred Heath and Ed Navojosky.

**MONDAY, MAY 5—Franklin Canyon.** A half-day trip to search for spring migrants and study our local nesting species. Meet at 8:00 a.m. at the entrance to the upper reservoir. Take Beverly Drive north from Sunset Blvd.; continue on Beverly Drive to Franklin Canyon Dr., and follow Franklin Canyon Dr. over the hill to the upper reservoir. Leader: Jean Brandt, 788-5188.

**SATURDAY, MAY 11—San Francisquito Canyon.** One of the finest remaining stretches of riparian woodland in Los Angeles Co., with breeding Bell's Vireos, Yellow Warblers, Lawrence's Goldfinches, etc. Sage Sparrows, Mountain Quail, and many other species occur on the slopes. Meet at 7:30 a.m. at the intersection of Seco Canyon Rd. and San Francisquito Canyon Rd. north of Saugus. Take Interstate 5 north to Hwy. 126 (Magic Mountain); follow Hwy. 126 east to Bouquet Canyon Rd., and take Bouquet Canyon Rd. north to Seco Canyon Rd. (Sign will say "San Francisquito Canyon"). Follow Seco Canyon Rd. north for 1.8 miles to the meeting place. Leader: Kimball Garrett, 477-5769.

**TUESDAY, MAY 13—Evening Meeting, 8:00 p.m.;** Plummer Park. Larry Norris will give a slide presentation entitled, "*Showy wildflowers of the Sierra Nevada from the foothills to the alpine high country.*"

**PLEASE NOTE:** All field trips are subject to cancellation due to hazardous road or weather conditions; such cancellations will be announced, when possible, on the Audubon Bird Report tape the preceding Thursday. Please contact the scheduled leader or Audubon House for late questions about trip cancellations.