

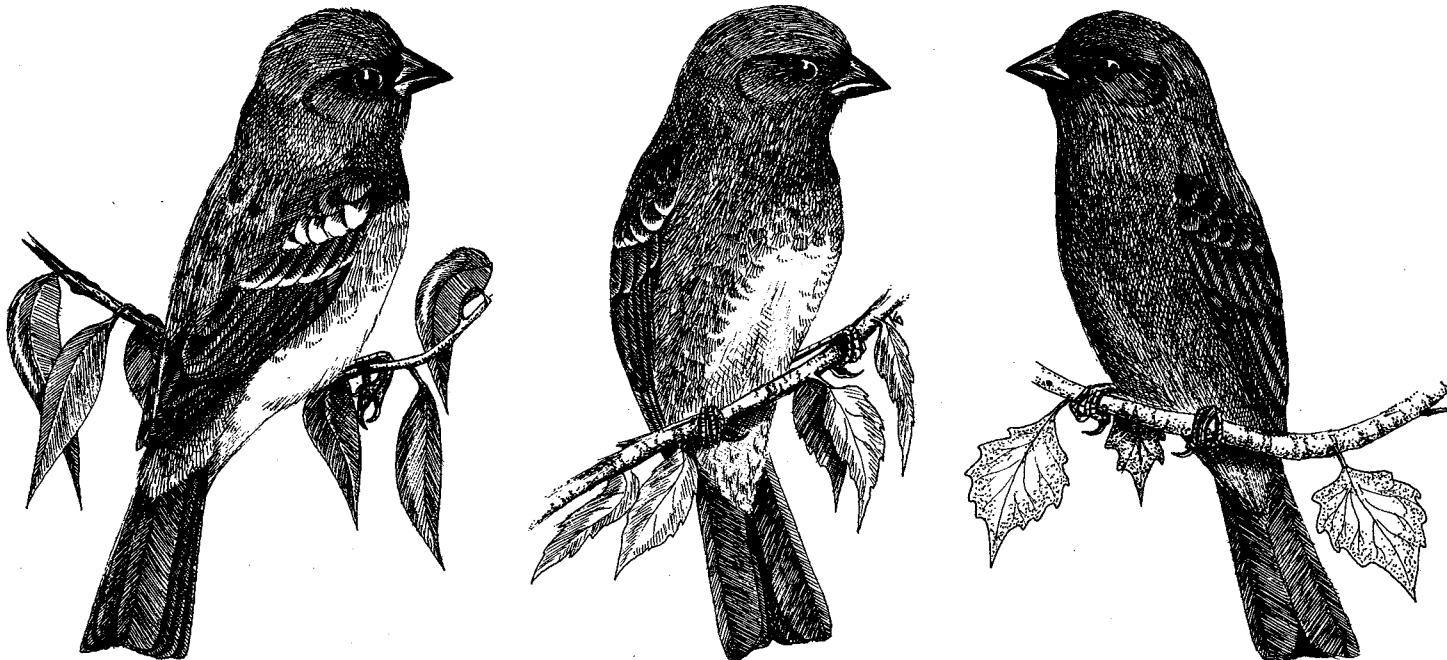
WESTERN TANAGER

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HYBRIDIZATION The Lump and Split Game Renewed

by Kimball Garrett



Lazuli Bunting

Lazuli X Indigo Bunting

Indigo Bunting

Illustration by Kimball Garrett

Scene: Springtime in the Great Lakes region. Fenceposts undulate toward a distant horizon, striking geometric patterns on the landscape. Scattered fragments of woodland dot the scene. Above the gentle breeze floats a lively, bubbling song—oration of this scenario's leading actor, a Western Meadowlark. Dubbed *Sturnella neglecta*, a legacy of decades of neglect from American ornithologists who failed to distinguish it from *Sturnella magna* the Eastern Meadowlark, this particular individual packs into his melody both a proclamation of territory and a seductive invitation to a potential mate. Around him ring the whistles of other meadowlarks, but the majority of these are distinctly different: higher, clearer, and sweeter.

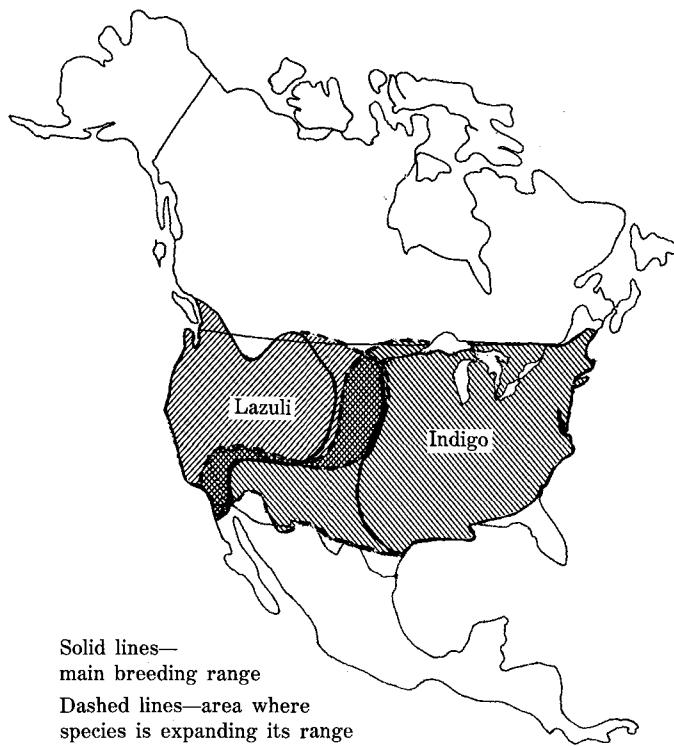
They belong to the common Eastern Meadowlark, originally the sole meadowlark inhabitant of these grasslands, but now sharing these haunts with its expanding Western cousin.

Enter our leading lady, shot full, in these lengthening spring days, of all the appropriate hormonal titres and looking to hitch up with a fine, territory-boasting male. She stops to assess the situation as Robert Red-lark, our main bird, pours his heart out in fluty, bubbling chords.

"Dzert," she offers tentatively, not so much in anticipation of delicious debauchery, but rather a mere enunciation of a species-specific call-note.

Another burst of musical bubbles from our western flautist.

"Dzert," replies our lady. The scene is repeated. Robert is



making his move.

I would not, under normal circumstances, bore the reader with the age-old climax to this story. But herein is a special twist. Having attracted a potential mate, male meadowlarks are given to emitting a special pre-copulatory call. Let's pick up the conversation again.

"Dzert!"

"CHUPP," responds Robert Red-lark, appending a quick chatter.

"Dzert?" Our lady is somewhat taken aback by Robert's pronouncement. As Robert "chupps" and chatters, her pangs of misgivings become more evident. One final "CHUPP"-chatter from Robert, and our lady is gone in a flash of white tail feathers.

Somewhat mystified by the whole affair, Robert returns to his fluting. So it goes; there will be others.

The key to this story is simple. Our female is an Eastern Meadowlark; she was attracted to a singing, territorial male meadowlark who happened to be of Western persuasion (the two species look almost identical). In the end, she rejected the male because his pre-copulatory call was not that of her species. The reproductive isolating mechanism, in this case a simple premating call, worked admirably: No hybridization!

Briefly, another scenario. We take you now to a river plain in North Dakota. Our leading gentleman is a Lazuli Bunting, and our lady a fair Indigo. Laslo Lazuli sings and calls, as his ancestors have always done a bit farther west; Laslo is part of a vanguard of Lazuli Buntings pushing eastward into the Great Plains in response to human modification of the landscape. Indigo Buntings, on the other hand, have invaded the Great Plains from the east; in recent decades the twain have met.

A female Indigo Bunting responds favorably to Laslo's vocalizations. To summarize simply, the two birds courted, paired, and raised young. In this case, barriers to hybridization have broken down. The plumage and song of the male Lazuli Bunting, rather different from those of the Indigo, did not serve as effective isolating mechanisms in this relatively recently intermixed population.

While the anthropomorphisms offered above may deservedly elicit groans from students of bird behavior, they demonstrate, in their modest borrowing from fantasy, a very real and important theme in biology.* Reproductive barriers between distinct populations may break down; they may do so only on freak occasions, or regularly (but at a low rate or in very limited geographical areas), or very commonly (so that random or near-random mating may eventually swamp out the integrity of one or both populations). These various situations pose keen, but fascinating problems for field observers, taxonomists, and evolutionary biologists. Below we will explore some of the salient features of hybridization among birds, put into a framework of natural situations arising in or near western North America.

The term hybrid, in its broadest sense, merely refers to the offspring produced by the mating of genetically unlike individuals. We will restrict its use here, and refer to hybridization as the production of offspring by parents of different species (or, at least, of well-differentiated forms). A species, most biologists will agree, is a group of interbreeding natural populations which is reproductively isolated from other such groups. This reproductive isolation need not be total, but must be within tolerable limits. This "biological species concept" should be kept in mind when we examine the following questions: Why can groups of populations be considered separate species if they hybridize? How can "species" in which the males are very distinct be lumped (e.g., Baltimore and Bullock's Orioles)? Why aren't species which look identical lumped together (e.g., Eastern and Western Wood-Pewees)? To understand these questions, we must, in essence, discover how the birds perceive and respond to each other, a task simplified by the circumstance that we, like birds, are primarily visual and aural animals.

There are certain sets of general conditions under which hybridization is most likely to occur. The first of these, which will quickly dismiss, is the artificial "sympatry" one finds in zoos and other collections. Here, the breakdown of normal behavioral patterns, combined with an unnatural assemblage of potential mates, makes for bizarre combinations such as the "Avostilt" at the San Francisco Zoo recently. These crosses tell us of the potential for genetic compatibility, but they reveal little about behavior under natural conditions.

In nature, hybridization is frequent among promiscuous species which have very brief pair bonds: Such groups include the pheasants, grouse, manakins, hummingbirds, and birds-of-paradise. In these groups the males and females show only a transitory attraction to one another, and there is a premium on the rapid evolution of distinctive male plumage and behavior

*For more scientific accounts of the meadowlark and bunting situations, see Lanyon (1966, 1979), Szijj (1966), Sibley and Short (1959), and Kroodsma (1975).

which will permit instant species recognition (and thus serving to keep species reproductively isolated from one another). Such distinctive features, evolved in geographical isolation, usually involve only very slight genetic change—the various species potentially remain quite reproductively compatible genetically, the plumage and behavioral traits being the only true barrier to successful interspecific matings. The waterfowl comprise another group in which genetic compatibility has remained high across broad taxonomic lines, but they, unlike the groups mentioned above, maintain strong pair bonds. As an index of relatedness, keep in mind how similar the females are to one another within these groups.

Of supreme interest to the taxonomist and the birder is the hybridization which occurs to varying degrees between closely related species which overlap geographically. Through the analysis of such hybridization, we tackle squarely the problem of what constitutes a species. Bear in mind that these species have evolved in allopatry—in other words, an ancestral species became fragmented geographically into separate groups of populations and each of these groups evolved in isolation from one another. With the disappearance of geographical barriers these groups may come to overlap (secondary contact) and behave as distinct species by virtue of unique characteristics evolved in isolation. The story is seldom so neat; interbreeding between the groups (= "species") may be so common that differences evolved in isolation are quickly swamped out over a broad zone (for example, as between "Oregon" and "Slate-colored" Juncos). At least some degree of hybridization is likely to occur in any case, and we will examine some of these below.

Much of the work on hybridization and the species problem in North America has dealt with east-west species pairs such as the Rose-breasted and Black-headed Grosbeaks, Indigo and Lazuli Buntings, and "Baltimore" and "Bullock's" Orioles. The overlap within each of these pairs has increased in the past century, in large part because of human modification of the landscape and habitats of the Great Plains, an area which formerly served as an effective geographical barrier to intermixing. In the case of the "Yellow-shafted" and "Red-shafted" Flickers, reproductive barriers have broken down so extensively that mating between the forms has become random over large areas. Intergradation has become so pervasive that even some southern California-nesting "Red-shafted" Flickers show some characteristics of the eastern "Yellow-shafted" form. Few taxonomists would now argue that these two forms represent distinct species. Other east-west pairs, like the meadowlarks discussed above, hybridize only very exceptionally and almost certainly represent "good" species. One may appreciate, however, the difficulty of recognizing hybrids in such similar species as Eastern and Western Meadowlarks, Eastern and Western Wood-Pewees, and Willow and Alder Flycatchers.

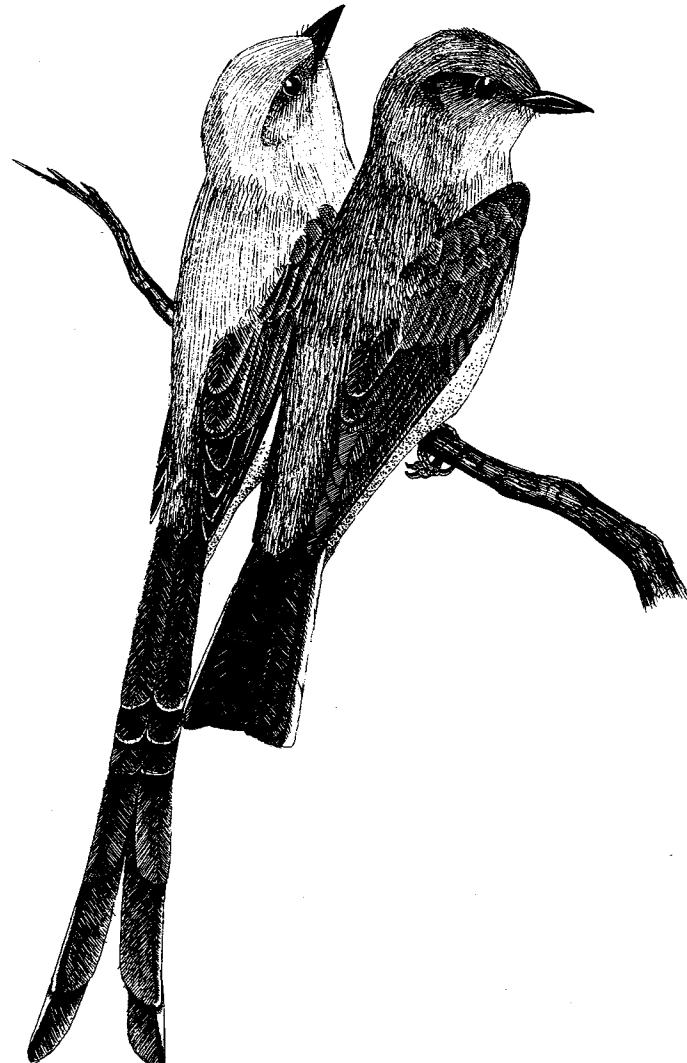
In the case of the buntings, orioles, and grosbeaks, hybrids are easily recognized and well-documented. In the Lazuli and Indigo Buntings, hybridization is known over a broad swath from North Dakota south through Colorado, and also in isolated areas through the Southwest where the Indigo has relatively recently expanded. Biologists differ in their assessment of how much hybridization is taking place within this zone of overlap, and the question of distinctiveness of these species has not been satisfactorily settled. We may certainly infer a close

relationship between these species.

The orioles have been a taxonomist's headache of late. Studies in the 1960's revealed a broad area from North Dakota through Texas in which the Baltimore and Bullock's forms appeared to treat each other as one species, hybridizing freely. A recent reassessment has shown that in some areas (e. Colorado, w. Nebraska), pure Baltimore and Bullock's Orioles are sympatric (i.e., breed in the same areas), suggesting reproductive inferiority of hybrids and maintenance of species integrity. The bottom line is that Baltimore Orioles now predominate in areas formerly occupied only by Bullock's, leaving a perhaps diminishing wake of hybridization behind the advancing front.

The Rose-breasted and Black-headed Grosbeaks constitute another example of limited breakdown of reproductive barriers in the Great Plains area; like the buntings and orioles, their status as distinct species is problematical.

Away from the Great Plains, zones of hybridization and overlap (this time among boreal species) are frequent in Alberta, eastern British Columbia, and south through the



Scissor-tailed Flycatcher and Western Kingbird. These two birds possibly paired at Needles, CA this summer. The Scissor-tail constructed a nest and laid 5 eggs.

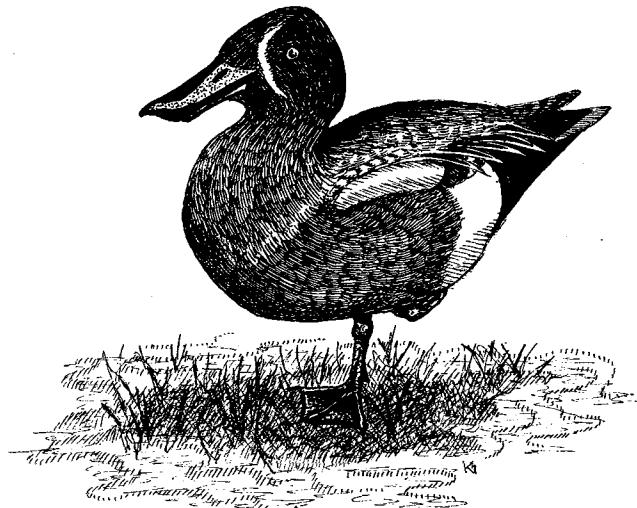
interior western mountains. The various forms of the Yellow-bellied Sapsucker exemplify this situation and are well-discussed in a previous article by Jon Dunn (*Western Tanager*: April, 1978).

A problem frequently confronting the taxonomist is that of allopatric (non-overlapping) forms that are closely related. Would these forms behave as distinct species if they were in contact, or would mating be more or less random? The Pygmy Nuthatch of western coniferous forests and the Brown-headed Nuthatch of the southeastern pine bottoms provide an example. Some authorities would lump these forms as one species, stressing their extreme similarity in appearance, while others would point to their differences in vocalizations as an indication that interbreeding would not occur if the opportunity presented itself. Taxonomists must generally operate on "best guesses" in determining whether such allopatric forms represent distinct species. If narrow zones of contact exist in essentially allopatric forms, behavioral studies in such areas can shed much light on relationships. The Nashville and Virginia's Warblers are considered conspecific by some ornithologists, but uncertainty exists because no area of sympatry has been discovered. Now there is evidence that these forms may be in very limited contact along the eastern border of California, south to the San Bernardino Mtns. An enlightening study could be made in these areas.

A circumstance commonly promoting hybridization in nature is the range expansion of a species. Pioneers of a species expanding its range may find themselves with a shortage of potential conspecific mates, and "settle" for a mate of a related species. The Cave Swallow, whose expansion in Texas parallels the proliferation of highway bridges and culverts, has hybridized with the Barn Swallow in that area. The Great-tailed Grackle, at the beginning of its "explosion" in the southwest fifty years ago, even produced a hybrid with the Red-winged Blackbird in Arizona! Vagrants, well out of range, occasionally even settle down to breed with one of the locals. California's first Blue-throated Hummingbird, a female, raised young which were thought to be the handiwork of a male Anna's or Costa's Hummingbird. This year's nesting Scissor-tailed Flycatcher in Needles on the Colorado River may have mated with a Western Kingbird.

An interesting picture has emerged in the study of frequent hybridization in hummingbirds, wood warblers, and other groups. Of the various hybrid combinations known (some 13 among North American wood warblers, and 15+ among North American hummingbirds) virtually all fall into one of two categories: (1) They are between very closely related species-pairs (e.g., Townsend's X Hermit Warblers, Golden-winged X Blue-winged Warblers, Anna's X Costa's Hummingbirds) within a genus; or (2) they are between members of different genera (e.g., such outlandish combinations as Cerulean X Black-and-white Warbler and Blue-winged X Kentucky Warbler). Only rarely have hybrids occurred within a genus involving any but the most closely related species in that genus. A "Myrtle" Warbler X Blackpoll Warbler hybrid is perhaps the only such case known among North American wood warblers and hummingbirds.

Why are intergeneric hybrids so predominant? Some taxonomists argue that this simply means that bird genera



Northern Shoveler X Cinnamon Teal. Big Bear Lake, San Bernardino Co., March 19, 1979.

have been generously over split; they have been based on male plumage characters which are, in evolution, extremely "plastic." Maybe the hummingbird genera *Archilochus*, *Calyppe*, *Stellula*, and *Selasphorus* should all be lumped. And perhaps the same for sparrow genera *Melospiza*, *Passerella*, *Zonotrichia*, and *Junco*. And so forth. Intergeneric hybrids would then, by semantics, be intrageneric. But the point remains that hybrid combinations very often involve distantly related species. This indicates that selection has "successfully" operated to strengthen reproductive isolating mechanisms between closely related, sympatric species, while it has not done so for more distantly related species where hybridization is a very rare event anyway.

Certain families of birds seem especially prone to hybridization. Wood warblers and hummingbirds have already been discussed. Two groups that are remarkably free of genetic and developmental barriers to hybridization are the gulls and the waterfowl. Most field observers are aware of the baffling array of gull plumages to be found at any estuary, beach, or dump in the winter. The additional complexity introduced by gull hybridization has probably caused many dedicated birders to throw in the binoculars and revert to all conclusive terms like "seagull." The large gulls form a very close-knit assemblage that has spawned numerous hybrid combinations. These combinations include Glaucous X Herring, Glaucous-winged X Herring, Herring X Lesser Black-backed, and the frequent Glaucous-winged X Western cross. One hybrid was even described as a new species, the Nelson's Gull. But the Nelson's riddle was solved: It is a Glaucous X Herring (*vegae*) hybrid.

In an ingenious set of experiments, N.G. Smith was able to induce hybridization between species of large gulls by artificially altering the color of the eyering. Female Glaucous Gulls would pair with male Thayer's Gulls if the purple eye-rings of the male Thayer's were painted yellow (as in a Glaucous Gull). Even though the pair bond would form, male Thayer's would not mate with female Glaucous unless the yellow eyering of the Glaucous was then painted purple. Similar experiments altering the color and pattern of the mantle and primary tips failed to fool the birds, indicating that, in these

gulls, eyering color is the major species-specific marking. This is not to say that frequent gull hybridization in nature is the handiwork of little elves with paint brushes. Gull hybridization more likely reflects both the rapid rate of evolution in this group, and the range adjustments of the various species involved.

Hybridization has been more rampant among waterfowl than in any other group of birds. Over 400 interspecies combinations are known! Of course, a majority of these come from captive collections, where waterfowl in general are quite abundant, but *in toto* they amply demonstrate the chromosomal compatibility and interspecies fertility in the waterfowl. To grasp the extent of waterfowl hybridization known, consider that your basic Mallard has hybridized (in captivity) with such divergent species as the Greylag Goose and the Common Merganser! The study of the occurrence of hybrids in waterfowl has contributed importantly to the understanding of evolutionary relationships in that group.

The causes of interspecies crosses in nature are varied, and the fates of the resulting hybrids are many. If the hybrids are at a selective advantage, there will be no premium on the evolution of efficient isolating mechanisms. If hybrids are sterile, at a competitive disadvantage, or are otherwise unfit, isolating mechanisms will be reinforced by natural selection. Take the classic case of the love birds: One species carries its nest material in its beak; another carries the material tucked into its rump feathers. Their hybrids don't quite know what to do, and invariably drop the nest material! All would agree that the inability to construct a nest would render the hybrid individual rather unfit!

Hybridization illustrates two fundamental concepts in evolutionary biology: First, that evolution is an ongoing process, full of meandering steps, and second (on a practical level) that taxonomic borders are not sharp and always in a state of flux.

Hybridization is not just a recurrent "mistake" of nature. Many biologists have pointed out its adaptive aspects--how the resulting genetic mixture is a source of variation which may adapt progeny to new or changing environments. Birders should keep a careful and critical eye open for the occurrence of hybrids, although measurements and careful in-hand comparison with series of specimens are generally necessary for the determination of parentage. Intermediate-looking birds (e.g., Indigo Buntings with white bellies and traces of wingbars) may actually fall within the range of variation of a species and not be caused by hybridization. But hybrids do occur, challenging the field observer to intensive scrutiny and documentation.

Be on the lookout the next time you're in the field and bored with "Common" Buntings, "Common" Grosbeaks, and Northern Orioles, for such delicacies as Flores's Hummingbird,¹ Sutton's Warbler,² and Townsend's Bunting,³ and other peculiarly-predigreed prizes.

Below is a partial list of hybrid combinations which have been detected (or suspected) in California; many of these combinations are based on sight records, and surely must only be considered hypothetical. Not all of the matings necessarily occurred in California.

Black-footed X Laysan Albatross: This cross is known from the breeding islands, but only suspected from California. Most may be old Black-foots which show much white.

Bewick's X Whistling Swan: These forms may be conspecific.
Snow X Ross's Goose

Mallard X American Black Duck

Green-winged Teal X American Wigeon

Cinnamon Teal X Northern Shoveler

Blue-winged X Cinnamon Teal: This is a close species-pair.

Tufted Duck X Ring-necked Duck or Greater Scaup: Known from Rodeo Lagoon in Marin Co.

California X Gambel's Quail: Another close species-pair.

American X Black Oystercatcher

Glaucous X Herring Gull

Glaucous-winged X Western Gull: Possibly conspecific.

Costa's X Anna's Hummingbird

Anna's X Allen's Hummingbird

Blue-throated X Anna's or Costa's Hummingbird: See text for explanation.

Red-breasted X Red-naped, and Red-naped X Yellow-bellied Sapsuckers: These may actually be conspecific.

Downy X Nuttall's Woodpecker: A species-pair.

Ladder-backed X Nuttall's Woodpecker: A species-pair.

Scissor-tailed Flycatcher X Western Kingbird: See text for explanation.

Golden-winged X Blue-winged Warbler: One was seen on 1 October 1973 in Humboldt Co.

Black-throated Gray X Townsend's Warbler

Hermit X Townsend's Warbler: Found regularly, and very similar in appearance to a Black-throated Green Warbler.

Baltimore X Bullock's Oriole: Mixed pair bred once on the Colorado River; possibly conspecific.

Rose-breasted X Black-headed Grosbeak: A species-pair.

Indigo X Lazuli Bunting: Another species pair.

Harris' X White-crowned Sparrow: Once photographed in Death Valley (fall, 1977).

Golden-crowned X White-crowned Sparrow

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1 Anna's X Allen's Hummingbird

2 Parula X Yellow-throated Warbler (probably)

3 Dickeissel X Blue Grosbeak (probably)

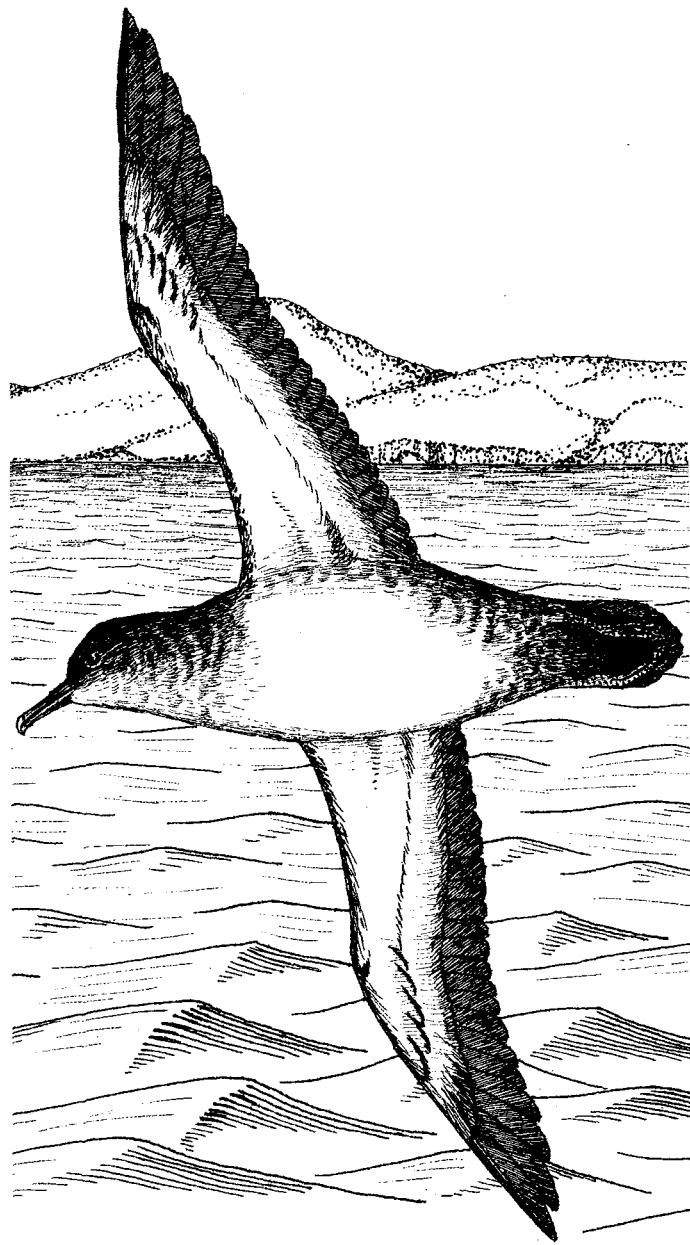
Jon Dunn

FIELD NOTES

The Manx Shearwater (*Puffinus puffinus*) is a regular winter visitant off the coast of southern California. It breeds off the west coast of Baja California north to the Islas San Benitos, and perhaps, in the Gulf of California. The species is especially numerous off the coast of San Diego Co. after the breeding season where occasional concentrations of up to 5000 have been recorded off La Jolla. North of San Diego Co. the species is less numerous and more irregular in occurrence, occasionally going unrecorded all winter. Off the coast of northern California this species is very irregular, being unrecorded in most winters north of Sonoma Co. The last two winters, however, have brought considerable numbers along most of our coastline, including northern California. Manx Shearwaters begin arriving in early September and steadily increase in numbers until late fall and early winter when the largest concentrations are recorded. In such years small numbers remain throughout the winter and even occur regularly into May off the coast of San Diego Co. (few May records farther north). This species is strictly of casual occurrence during the summer, the only reliable records being from off the coast of San Diego Co.

The subspecies of Manx Shearwater occurring off our coast, *P. p. opisthomelas*, popularly called the "Black-vented" Shearwater, and formerly regarded as a distinct species (some authorities still regard it as a distinct species), looks considerably different from the Manx Shearwater off the Atlantic coast, *P. p. puffinus*, the one depicted in most field guides. The nominate race of the Manx Shearwater mentioned above has blackish upperparts with sharply contrasting clean and uniform white underparts. Our race is somewhat smaller and is distinctly duller above, being more of a brownish-gray color above and much dirtier below with dark undertail coverts. It exhibits extensive dusky flecking on the lower sides and flanks and has a broad and somewhat diffuse grayish-brown breast band that sometimes meets across the middle of the breast. The species that our "Black-vented" Manx Shearwater is likely to be confused with is the Pink-footed Shearwater. Under normal flying conditions the Manx can easily be separated from the Pink-footed by its swift flight, typified by frequent and very rapid wing beats. The Pink-footed has a much slower flight with much more leisurely wing beats. In strong winds, however, the Pink-footed may fly with wing beats that approach the rate of a Manx Shearwater flying under normal wind conditions. Of course, the Manx is a much smaller bird with somewhat darker upperparts, a more extensive breast band, and a dark rather than largely pinkish bill, but size is often difficult to determine against a uniform ocean without direct comparison with some other species, and the other marks are not easy to discern at a distance. I firmly believe that some, perhaps most, of the mid-summer reports of Manx Shearwaters are merely Pink-footed Shearwaters seen in strong winds. Suspected Manx Shearwaters seen in mid-summer should be studied carefully, especially north of San Diego Co.

There are five other types of Manx Shearwaters in the Pacific, some of which are regarded by a few taxonomists as distinct species. A detailed discussion of these types is beyond



Manx (Black-vented) Shearwater

Illustration by Lee Jones

the scope of this article. Some of these have white vents and white undertail coverts. Interestingly, there are two reports of white-vented Manx-type Shearwaters off the coast of California—10 September 1975 off Santa Rosa Island, and 27 August 1977 in Monterey Bay. The latter bird was felt by some to be the nominate *P. p. puffinus* described earlier (there is only one previous record from the Pacific Ocean, it being from off Australia). I feel, however, that the circumstances of the observation were much too brief to adequately document this exceptional record. Hopefully, future observations of white-vented birds can be thoroughly documented in order to learn what type (or types) of Manx Shearwater these birds represent. □

Sandy Wohlgemuth

CONSERVATION

Los Angeles is big, and it's growing. We live in a semi-desert and 7 million of us need water. For drinking, bathing, swimming, putting out fires, flushing toilets, *ad infinitum*. Sixty percent of our water comes from Owens Valley pumps; 20% from creeks that used to flow into Mono Lake. This water comes down the Los Angeles Aqueduct, generating power as it flows.

Mono Lake. Why all the fuss? A spectacular 100 square-mile lake in the austere desert known as the Great Basin, it lies between the Sierra Nevada and the White Mountains, 300 miles north of Los Angeles. It is a saline, alkaline lake which supports no fish, but is the home of billions of brine shrimp and brine flies. For thousands of years this delectable free lunch has attracted millions of birds: sandpipers, avocets, ducks, phalaropes, grebes, plovers and gulls. The numbers are staggering: during migration 1,000,000 Eared Grebes—largest concentration in North America—and 100,000 Wilson's Phalaropes—30% of the world's population—stop over to rest and feed. Fifty thousand California Gulls nest there. This constitutes 95% of the entire California breeding population.

O.K. Water for Los Angeles has been lowering the level of the lake about two feet a year to the point where Negit Island, nesting place of the gulls, became a peninsula this year. Coyotes have crossed the land bridge for the first time and devastated this year's nesting birds. The land bridge has been blasted twice unsuccessfully in recent attempts to prevent this calamity. A July survey accepted by a biologist from the Department of Water and Power showed "...no adult breeding birds—only empty nests and partially-eaten chicks—left on Negit and a total of 10,800 gulls on the other islets, compared to 46,000 gulls on the lake in the years 1976-78" (*Los Angeles Times*, 7-12-79).

The Department of Water and Power has a mission—to ensure adequate water supplies for Los Angeles, now and in the future. The loss of 20% of our water supply (100,000 acre-feet or 326 trillion gallons a year) is viewed very seriously by the Department. It is also concerned about ensuring the perpetuation of hydroelectric power generated by this water as it flows toward L.A. General Manager Louis H. Winnard says the taxpayer would pay \$18 million to replace the water and \$15 million for the energy in 1990. He acknowledges the necessity for water conservation but says that "realistically, [conservation measures] cannot reduce L.A.'s water consumption by 20%." There is also the undeniable fact that around 1985 the Central Arizona Project will take half our allocation of Colorado River water, now 5% of our total water supply. He says that continued water diversions will not result in Mono Lake drying up and adds that in 80 to 100 years it will stabilize at half its present size. Winnard is optimistic that the brine shrimp will adapt to this greater salinity and remain a viable bird food.

Environmentalists take issue with the DWP on many levels. They are convinced that reducing the lake to half its size may not dry it up but will kill off the food supply and, thus, destroy the habitat for migratory birds and nesting gulls. They say that Mono Lake, already twice as salty and six times as alkaline as the ocean, will become a sterile, chemical cesspool. The

receding shoreline has already exposed 10,000 acres of lake bottom producing a Salton Sea-like goo that makes access to the lake for boating almost impossible. When the mud dries it is blown by the wind into horrendous dust-storms that obscure the view and create a decided hazard to health. The future of Mono can be easily read in the fate of dry Owens Lake where pine trees 5000 feet above it in the Inyo Mountains are dying because of alkali dust.

The disappearance of ecosystems is the principal environmental concern of this century. The destruction of Mono Lake would be comparable to the demise of the rain forests in Central America or the rape of the Amazon. Not only will scenic beauty be lost but its wildlife will be plowed under, dispersed, extinguished. The free spirit of mankind is diminished by every atom of wilderness that is lost. How is this measured in dollars? DWP hasn't told us.

Environmentalists have a program. They—we—are not asking that all Los Angeles' water from Mono Lake be turned off. If 75,000 acre-feet of the 100,000 acre-feet now diverted were returned to Mono Lake the level would rise so that Negit would again become an island and the gull colony could be restored. How do we make up the difference? Conservation. During the drought of 1977 Los Angeles had mandatory water conservation. Lawns could only be watered before 10:00 a.m. or after 4:00 p.m., sidewalks were not to be hosed down, there were penalties for failure to cut back at least 10% below the amount used the previous year. It worked! The people of Los Angeles saved 18%, Mr. Winnard, or *more* than the 75,000 acre-feet needed to stabilize Mono Lake. Dishes got washed, showers were taken, lawns were sprinkled; lifestyles were hardly altered. If the city had asked for a 15% cut we probably could have gone over 20% with ease. Unfortunately, as soon as the rains came, Mayor Bradley and the City Council rescinded controls and we were back to our wasteful habits.

What we are calling for is *state-wide* mandatory water conservation for both households and agriculture. This would not only rescue Mono Lake, it would also curtail the drain on this scarce commodity throughout California. As a first step let us call on Mayor Bradley and the Council to reinstate the controls that worked so well two years ago. Every gallon of water saved in Los Angeles means a saving in the energy required to transport it from the source and to heat it in our homes. This would compensate for much of the power lost if only one-fourth of the water from Mono Lake was now flowing through the aqueduct. Mono Lake-Owens Valley water is cheaper than Metropolitan Water District water which must be pumped from Northern California and the Colorado River. With conservation the increased cost of MWD water could be overcome in large measure. Any additional expense that did occur would be a legitimate trade-off for an irreplaceable wildlife resource and a scenic treasure.

The Department of Water and Power has been unmoved by the plight of Mono Lake and has made no effort to limit the diversion. The Los Angeles Audubon Society, together with National Audubon, the Mono Lake Committee and the Friends of the Earth, has brought suit against the DWP to halt this diversion. Morrison & Foerster, one of the most prestigious law firms in California is donating its time and expertise. It may be a long, hard fight and there will be considerable incidental expense. When the call goes out we hope that all of us will step forward with dedication and contributions to defend the birds and their magnificent habitat. □

Shum Suffel

BIRDS of the SEASON

September brings the height of fall migration. The shorebird migration is already in its second month, but will not reach its peak until later in the fall. The migrant passerines are beginning to appear and their numbers should increase as the month progresses. Actually there are more migrants now than there were in the spring, as the adults are supplemented by the young of the year; before the hazards of migration and winter take their toll. These young birds and their elders, now in winter plumage, are a dull lot which present identification problems for all but the most experienced birders. The shorebirds, many now in winter plumage, are easier than passerines, as we are more familiar with their "basic" (non-breeding) plumage than with the "alternate" (breeding or summer) plumage. Ducks can be troublesome as the drakes are in eclipse (female-like) plumage until later in the fall. Despite these problems, this is the month to be in the field, and familiarity with each identified species is the best way to improve one's expertise.

The most exciting avian event in July was the presence of two **Zone-tailed Hawks** in the Santa Rosa Mountains, Riverside County. A single Zone-tail was found in this area by Dr. Wilbur Mayhew of U.C. Riverside in 1978 and refound there earlier this summer. On 11 July two adults were present (Donna Dittmann, Larry Sansone and Terry Clark) which were obviously paired—flying together and displaying. They were later seen carrying nesting material and building a nest (Steve Cardiff, et al.). Zone-tails in Arizona and Baja California start nesting in April, and those at higher elevations, as the Santa Rosa birds are, withdraw to warmer climates in September (Bent 1937). It is hard to predict whether or not these late nesters will be successful. A pair of **Little Blue Herons** raised three young along the New River near Seeley (8 miles west of El Centro) for the first confirmed nesting record in California (the young were banded). The **Wood Ducks** at Lake Sherwood (reported last month) were later seen followed by their ducklings (Richard Webster). Wood Ducks are also apparently breeding on Lake Cachuma (Paul Lehman). These represent the only recent nesting records in Southern California. **Magnificent Frigatebirds** were reported in unprecedented numbers: first an immature which spent the afternoon of 30 June over the Marina del Rey channel (Jerry Johnson et al.), then one at nearby King Harbor all morning on 3 July (Shirley Bishop), another the same day 100 miles to the north at Morro Bay (Jerry Friedman), one at Huntington Beach (Marion and Russ Wilson) on 14 July and four at Pt. Mugu (Richard Webster). Further south there were six together at the north end of the Salton Sea plus a single bird at the south end on 14 July and seven at Goleta on the same day. On or after 19 July there were seven or more near San Diego including five in one day and an adult male (adults are seldom seen in California). A flock of twenty-two were seen flying toward Coachella Valley from the north end of the Sea on 29 July (Dennis Parker)!! On 31 July two were observed flying around Marina del Rey (Jerry Johnson, et al.) and another two were at Pt. Hueneme the same day (Richard Webster). A bird was seen inland at Castaic on 30 July (Arnold Small). These fifty-two sightings probably involve

a minimum of forty-seven birds—an exceptionally high count for our area. An adult **Little Blue Heron** was seen at Pt. Mugu on 8 July (Richard Webster). A **Louisiana Heron** was seen at the north end of the Salton Sea on 21 July, unusual both in locality and time of year. The two "Blue" Geese, one of which was banded, at the Arcadia Arboretum on 9 June (Barbara Cohen) were undoubtedly the same two which were seen in the San Fernando Valley last March (*Western Tanager*, May 1979). Other possible repeaters were a **Black Brant** and an **Oldsquaw** observed by Fred Heath at the sewage ponds in the Antelope Valley on 14 July. A similar Brant and Oldsquaw spent part of the winter and spring of 1978 on nearby Apollo Lake. Fred also found the fall's first **Baird's Sandpiper** the same day. Two Bairds were at McGrath on 1 August (Jon Dunn). A **Semipalmated Sandpiper** was found at the sewage ponds on 31 July (Jon Dunn and Kimball Garrett). Another Semi was seen on 31 July at McGrath (Richard Webster). One of the two **Black Scoters** present at Pt. Mugu until 1 June is spending the summer there (Richard Webster). Likewise the **Harlequin Duck** is still at Aqua Hedionda near Carlsbad as of this writing. Although **Ospreys** have not nested in our area for many years they are occasionally seen in summer; one at Lake Castaic on 22 June (Laura Lou Vance), one at Malibu Lagoon on 4 July (Lee Jones, Donna Dittmann), one at McGrath S.P. and Pt. Mugu from 8 June to 26 July (Richard Webster), and one at Marina del Rey on 25 July (Donna Dittmann).

Some thirty birders went to Pt. Mugu on Sunday 24 June to (hopefully) see California's fifth record of **Wilson's (Thick-billed) Plover** by arrangement with the Naval Air Station. An unsuccessful attempt to locate the bird a few weeks prior, and its absence the day before, discouraged several would be participants. Richard came through gloriously by finding and refinding the plover three times on the mudflats. This incidentally, was the last day it was ever seen. Thank you Richard! He also led the group to three species of scoters, and three species of loons, none of which are common in the summer. At McGrath S.P. one to two **Wandering Tattlers**, seldom seen away from the rocky shores, have been reported periodically all summer. On 13 July **Eared Grebes** were seen at the McGrath sewage ponds incubating eggs and young on their built up mud nests. Spring migrant **Dunlins** remained at McGrath until 6 June and Pt. Mugu until 17 June, exceptionally late dates for this species. Also exceptional are two summering **Mew Gulls** at Goleta (Paul Lehman). Although **Black Skimmers** are well established at the Salton Sea, they are still uncommon along the coast north of San Diego. A single skimmer was seen at the Pt. Mugu lagoon on 30 June and 1 July (Richard Webster, et al.). One was seen at McGrath S.P. on 11 July (Richard Webster) and two were seen on 22 and 23 July (Donna Dittmann, Doug Willick et al.).

For years we have thought that **Yellow-billed Cuckoos** had been extirpated from most of their original range in Southern California by loss of their required dense riparian habitat, but two years ago David Gaines found a few pairs along the Santa Ana River near Riverside and near Corona. Now, with better coverage, we have reports from Tecopa in Inyo Co. (Jan

Table), from the south fork of the Kern River (Bob Barnes); and from the Santa Clara River near Fillmore (Richard Webster). Amazingly, one was seen in pinyon pines in Quatal Canyon near Mt. Pinos on 4 July (Richard Webster, Jon Dunn). **Black Swifts** nested again in the Santa Anita Canyon above Arcadia, at Fallsville, in the San Bernardino Mountains and at least fourteen were at a location, new to me, in the north fork of the San Jacinto River just below Hwy #74 (Andy Sanders). This is not a free falling waterfall, as are the other two, but a steep cataract with large pockets suitable for nesting. Last summer forty **Chimney Swifts** entered a colonial roost in an airshaft of the Burbank Studios each evening, but although there were a dozen swifts in the area this July, Jon Dunn saw no evidence that they were roosting at the studio again. An additional Chimney Swift was seen at UCLA on 7 June (Lee Jones). At least one **Lewis Woodpecker** remained at Morongo Valley until 27 May (Jim Coatsworth) but there was no indication of nesting. Jim also had a **Bendire's Thrasher** at Windmill Wash, north of Yucca Valley, where they had previously nested. Two very late **Varied Thrushes** (26 May and 1-3 June) were mentioned in the July *Tanager*, but a singing male on Mt. Pinos on 20 July was unprecedented (Kimball Garrett). Thorough searches in the appropriate habitats has produced several new nesting localities for **Bell's Vireos** in Southern California in the last few years. Over 100 summering in the upper Santa Ynez River is very exciting!! Twelve others were found along the Santa Clara River east of Piru on 23 June (Richard Webster). **Nashville Warblers** were found singing in Quatal Canyon and at lower elevations of Mt. Pinos in June and July, an area outside their known breeding range. This trend is in keeping with their gradual expansion into the mountains south of the Sierras in recent years.

June reports of vagrant passersines emphasize the fact that vagrants, because they are lost, appear later than do regular migrants. The only **Red-eyed Vireo** along the coast was found below San Diego on 5 June (Elizabeth Copper). A female **Black-and-white Warbler** remained on the campus of Newport Bali High School from 28 May to 9 June (Sylvia Ranney). Add to the five **Yellow-throated Warblers** mentioned last month, a sixth in Santa Barbara from, 9 to 14 June (Brad Schram). Since there are only twelve previous records for the state these six do indeed constitute "a wave"! A male **Bay-breasted Warbler** on Pt. Loma, San Diego on 5-6 June (Elizabeth Copper) and a male **Blackpoll Warbler** at Oasis, Mono Co. on 2 June (Paul Lehman) wrapped up what was considered to be a good late spring for vagrants. An additional sighting of an immature male **Summer Tanager** along the Santa Clara River near Fillmore on 4 July (Jon Dunn, Richard Webster) is noteworthy because they are not expected on the coastal slope in summer. Whether it was of the *cooperi* race which nests east of the mountains, or more likely, a vagrant of the eastern race *rubra* cannot be determined except in the hand. The occurrence of mountain birds in the lowlands during June and July, while they are still nesting in the mountains, is difficult to explain. Four **Mountain Chickadees** were in Altadena on 22 June (John DeModena), and **Western Tanagers** were heard and seen in Pasadena in late July.

Birding in September assumes a frantic pace with too many inviting places to visit and too little time to cover them. Generally speaking, the coastal slope will provide the best and the closest areas. The dozen or more pelagic trips from Humboldt Bay to San Diego may produce unexpected surprises

in late September and early October—this was the time the Galapagos Storm-Petrel was seen on Monterey Bay in 1977. Streaked Shearwaters were there 3 October 1975, 9 October 1977, and 14 October 1978. Shorebirding is at its best in September; the coastal marshes from the Santa Maria River Mouth south to San Diego Bay produce the greatest number of birds. Grassy-edged ponds and flooded fields, however, provide better habitat for the less common shorebirds—Baird's Sandpipers, Solitary Sandpipers, Golden Plovers and possibly Ruffs or Buff-breasted Sandpipers.

Migrants will be found where there is vegetation and water, particularly on the coastal promontories—Pt. Dume, Pt. Fermin and Pt. Loma. The mouths of coastal canyons are also very good—Big Sycamore, Cabrillo and Zuma Beach. Eastern Kingbirds should be looked for early in September and Tropical Kingbirds toward the month's end. Warblers and vireos will become common this month. Some species, such as Yellow, Wilson's and the occasional Virginia's and Tennessee Warblers favor fennel patches such as those in lower Tuna Canyon, Malibu, and between the highway and the Marineland parking lot. Even for the stay-at-home birder this is a good time, for everyone's favorite yard bird, the White-crowned Sparrow will be singing its plaintive evening song in our gardens by the end of the month. Yes, September is a challenging month! □

Reports of interesting birds should be sent to Shum Suffel, 1105 No. Holliston Ave., Pasadena, CA 91104 or phoned to 797-2965 or to L.A. Audubon at 876-0202.

FLASH!

The August 9th *Los Angeles Times* carried a front page article outlining the recommendations of the Mono Lake Task Force. The multigovernment panel strongly urged that L.A. sacrifice 85% of the water it now diverts from Mono Lake and adopt more stringent water conservation measures to help offset the 17% loss in L.A.'s water supplies. The plan was approved by all representative agencies on the Task Force except one—D.W.P. Those agencies in support of the recommendations are the Bureau of Land Management, Fish and Wildlife Service, Forest Service, Dept. of Water Resources, Calif. Dept. of Fish and Game, and the Mono Co. Board of Supervisors. News of the task force's favorable report was a real boost to conservationists who have been fighting so hard for the preservation of Mono Lake.

There will be a public hearing on the Mono Lake Task Force recommendations Monday, September 24th, at 7:00 p.m. in the State Building, 107 So. Broadway in L.A. The task force's recommendations are favorable and deserve our wholehearted support. It is imperative that we be there to voice our support. If you cannot be there please submit your opinion in writing to:

Jack J. Coe
Department of Water & Power
Southern District
849 So. Broadway
Los Angeles, CA 90014

Jean Brandt

PRESIDENT'S PAGE

Audubon means life—today's life and tomorrow's life. Everything in nature is interrelated and our concern is not only with the birds, but with all of the inhabitants, as well as the water, land and air of our planet. The message rang loud and clear at this summer's National Audubon Convention in Colorado.

Dr. Russell Peterson, the new President of the Society, listed seven targets that National will address: (1) conservation of wildlife and the natural environment; (2) energy resources; (3) prevention of environmental pollution; (4) better planning for use of natural resources; (5) public interest in public lands; (6) concern for the biosphere beyond our boundaries and (7) stabilization of the human population. In addition, we will push for the establishment of a Great Plains National Park (similar to Serengeti) and a Tall Grass Prairie Preserve.

Goals, targets and methods were discussed, but only through local chapter action can anything be accomplished. As President of L.A. Audubon, I will do my utmost to help National, Western Regional, the Southern California Coordinating Council and our chapter work toward these goals. President Carter has indicated that if there is a choice between energy and the environment, he will not hesitate sacrificing the latter to achieve energy independence. Our job then is to be vigilant, vocal and rational. As Dr. Peterson said, "Audubon should be the Voice of Reason."

Los Angeles Audubon has a strong conservation commitment. Last month (*Western Tanager*: July-August, 1979) Sandy Wohlgemuth eloquently recited our past achievements and what we can expect in the near future. I'd like to tell you of some of our other plans for the coming year. Our Education Chairman Willabelle Maloney is developing a program to bring birding to the blind through the use of tape recordings, field trips and lectures. The department will continue going into elementary schools with lessons and materials on ecology and the environment.

The *Western Tanager*, under our new editor, Dr. Lee Jones, will be featuring a monthly column on conservation written by Sandy Wohlgemuth and, on the lighter side, *Squawk Talk*, written by that well known bird critic Rona Parrot.

L.A. Audubon will publish a book on the distribution of the birds of southern California this coming spring. We hope that this is only the first of such works that we will be able to publish.

Our well attended field trips and pelagic trips will continue and many of the trips will be oriented toward fields of interest other than birds. Special interest trips are planned: beginning birders, gull plumages, vocalizations of birds, etc. Several bus trips will be arranged and car-pooling will be encouraged. We are sponsoring a trip to Western Mexico in February 1980. Evening classes are being prepared, again dealing with many topics.

Fund-raising, unfortunately, will become a necessity. The Mono Lake suit will be expensive. Our headquarters, Audubon House, has termites and extensive work is required. Insurance costs have tripled in the past year. We have to re-evaluate our finances and some changes will be necessary, possibly in

services to non-members.

The best kept secret in the society is how much we volunteers *enjoy* working at Audubon House! We have 18 women and 3 men who come in regularly and it is they who are the backbone of LAAS. I, for one, wouldn't miss the opportunity, and will continue to be at the house every Thursday.

LAAS has invited all of the chapters in the Southern California Coordinating Council and the Western Regional Representatives to come to Audubon House on September 8th for a strategy meeting. Unity is strength and it is only through unity that we can hope to achieve Dr. Peterson's goals. Let's put behind us any past differences and work together—please. Let me know your ideas, suggestions and interests. I need your participation and input!

The Board of Directors and I are ready to work. I hope you will all join us to make 1979-1980 a great year for Los Angeles Audubon! □

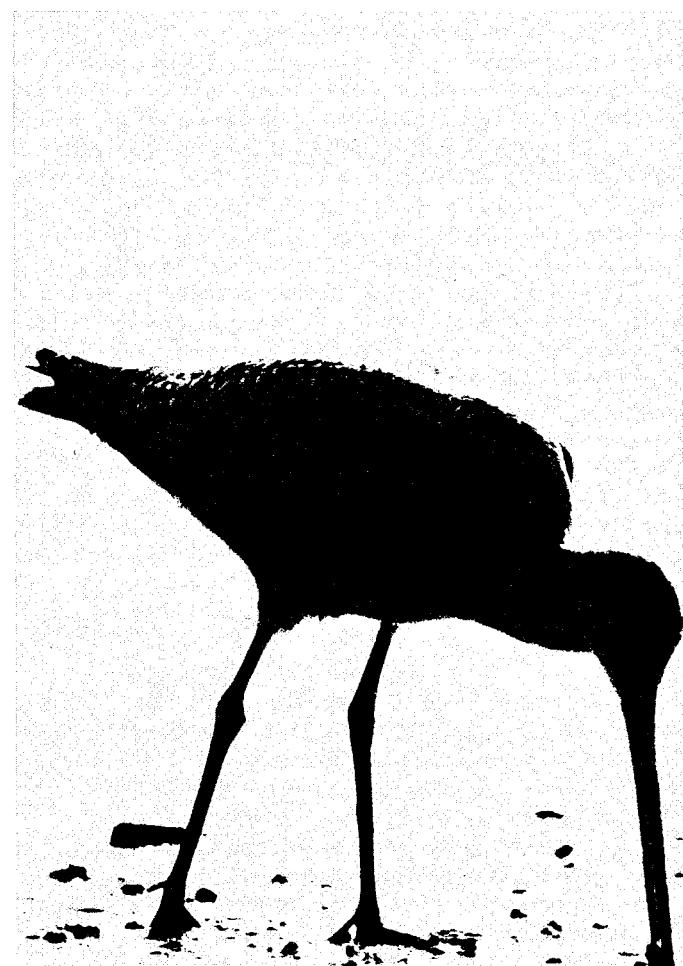


Photo by Lee Jones

Rona Parrot

SQUAWK TALK

Hello, fellow bird lovers! Rona Parrot here with the latest news from the world of birders. While most of you were away on summer vacation, your intrepid City-Scene reporter was busy following the latest happenings in L.A. and around the globe. Lest you have any doubts about my credentials, let me introduce myself. I am a self-taught, highly-skilled birder-watcher with a keen ear and a sharp eye. I keep an accurate and up-to-date life list on every birder I have observed, with detailed descriptions on all birders seen out of season, geographically displaced, or otherwise lost, disoriented, or confused. And, oh yes, all instances of unusual behavior are carefully noted. *Remember, the bird you are watching may be watching you!*

Perhaps the most interesting observation this summer was a rare Dickey bird, tentatively identified as a Brown Towhee. It was seen in full courtship display in Oakland on July 14th by many of California's top birders, and later rumored to be carrying nest material.

Fall migration began early this year with the first fall migrant reported on June 30. It was a Snowy Egret seen flying toward L.A. from the Bay area. Numerous observers later sighted it repeatedly in Beverly Hills and Hollywood where it is believed to have taken up permanent residence. There is an unconfirmed, but highly reliable, report that it was seen basking on the beach in Malibu on July 4th in true southern California tradition. Welcome to L.A., Ditt.

I have it from a most reliable source that Paul S. (life list 715) called Attu, Alaska *four* times from Florida to chat with Paul D. (713) and Arnold S. (710). That's mighty thoughtful of you, Paul—must get awfully boring out on that desolate island with nothing to do! Oh, by the way, did you get your Bristle-thighed Curlew, Paul D.?

We all know that birdwatchers are a dedicated lot. But *surely* the following observation is erroneous. I have on my desk a report that Richard Webster was seen at midnight digging with

his bare hands a channel to drain McGrath lagoon in order to give all those vagrant shorebirds a place to land. But what's this about the channel walls collapsing when only inches from completion? A note just in to me. Richard is planning a late night party on the beach at McGrath on Friday, August 17th—BYOBS. BS? Bucket and Shovel, no doubt!

Meanwhile the Skylark controversy rages on. The Pt. Reyes bird (alias Smith's Longspur), apparently oblivious to all the furor it caused, skipped town on or about February 15th. I understand that there is a warrant out for its capture (dead or alive?). Anyone knowing its whereabouts please contact your local: a) Audubon Society, b) museum, c) gun club, d) SPCA.

Surely I cannot part without a shot at your last editor. I last heard him mumbling something about an "ever-increasing workload..." REALLY! □



Barry and friend at recent business meeting.



WESTERN TANAGER

EDITOR Lee Jones
ASSISTANT EDITOR Donna Dittmann

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2ND VICE-PRESIDENT Fred Heath
EXECUTIVE SECRETARY Carol Friedman

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.

On May 16th this year the House of Representatives passed the Udall-Anderson bill by an unexpectedly decisive vote of 268 to 157. This measure (HR 39) would preserve about 129 million acres of precious land and wildlife in Alaska. It was a stunning victory for conservationists over the powerful lobby of oil, mining and timber interests. Last year a similar strong House bill was torpedoed in the Senate in the last-minute scramble for adjournment. To prevent a repetition of that defeat we are all asked to write to our senators urging them to support a strong Senate version of HR 39. A few minutes and a couple of postage stamps now may save the last American frontier.

S.I. Hayakawa
Alan Cranston
Senate Office Building
Washington, DC 20510

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 4 days 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.

SATURDAY, SEPTEMBER 22—Monterey Bay Pelagic Trip. Departure at 8:00 a.m. aboard the *Miss Monterey* from Sam's Fisherman's Wharf in Monterey, returning at 3:00 p.m. Price: \$16 per person. Leaders: Arnold Small and Kimball Garrett.

MONDAY, OCTOBER 1—Malibu to McGrath. Meet at 7:30 a.m. at the parking lot behind the market at Malibu Lagoon. The group will bird Malibu Lagoon, then work its way up the coast to Big Sycamore Canyon and Pt. Mugu, ending the day at McGrath State Beach. Lunch will be at Big Sycamore. Spend all or part of the day. For the eighth year on this popular trip, our leader will be Ed Navajosky, 938-9766.

THURSDAY, OCTOBER 4—Big Sycamore Canyon. An excellent time of the year for migrants and vagrants. Meet at 8:00 a.m. at the entrance to the canyon, off Highway 1. Leader: To be announced.

TUESDAY, OCTOBER 9—Evening Meeting, 8:00 p.m. Plummer Park. Mike Cunningham, curator of birds at the Los Angeles Zoo, will present a program on a zoo-related topic. The subject of his talk will be announced in next month's *Tanager*.

SATURDAY, OCTOBER 13—Monterey Bay Pelagic Trip. Departure at 8:00 a.m. aboard the *Miss Monterey* from Sam's Fisherman's Wharf in Monterey, returning at 3:00 p.m. Price: \$16 per person. Leaders: Bruce Broadbooks and Shum Suffel.

SUNDAY, OCTOBER 21—Natural History of the Oxnard-Ventura Coast. A moderate 5 mile hike around the Santa Clara estuary during which we will explore the ecology of coastal and estuarine environments. Bring your own lunch and be prepared for some shallow wading. Meet at 7:30 a.m. on the NW side of the Harbor Blvd. bridge over the river. Leaders: Nancy and Hal Spear. Carpool requests and offers should be telephoned to them—372-7653.

Bookstore—New Publications:

Birds of Northern California: An Annotated Field List, McCaskie, et. al. 2nd edition, 1979. Districts, habitats, bar graphs. \$6.50.

Insects of the Los Angeles Basin, Charles Hogue, 1974. Identification, anatomy, development, keeping, collecting. B/W photos & drawings, 2 color plates. \$6.95.

New Guide to Birds of New Zealand, Falla, 1979. Collins Publishers. Completely revised, extended, re-illustrated. 315 species in color. \$13.95.

Audubon Society Field Guide to North American Wildflowers, Western & Eastern Regions. Same format as Audubon bird guides. Color keyed. Each \$9.95.

SUNDAY, SEPTEMBER 9—Pelagic Trip to Osborne Bank and Catalina Channel. Departure at 6:00 a.m. aboard the *Vantuna*, from USC landing in San Pedro, with return at 6:00 p.m. Price \$18 per person. Leaders: Herb Clarke and Shum Suffel.

TUESDAY, SEPTEMBER 11—Corliss Christensen will be holding monthly **Conservation Meetings** in Plummer Park one hour preceding each month's evening program. Have an early dinner and come to Plummer Park at 7:00 p.m.—be a voice of support in our conservation effort.

TUESDAY, SEPTEMBER 11—Evening Meeting, 8:00 p.m., Plummer Park. **Lloyd Kiff** will present the acclaimed film on the Andean Condor prepared by Dr. Jerry McGahan of the University of Wisconsin. This film was sponsored by the National Geographic Society and has been shown by the BBC and other European TV networks.

SUNDAY SEPTEMBER 16—Malibu Lagoon. Meet at 7:30 a.m. in the parking area next to the market, just north of the bridge over the lagoon. We will study terns, shorebirds, and migrant landbirds. Leader: Kimball Garrett.

MONDAY, SEPTEMBER 17—Malibu Lagoon. Same trip as September 16, repeated for "odd" drivers. Meet at 7:30 a.m. Leader: Kimball Garrett.