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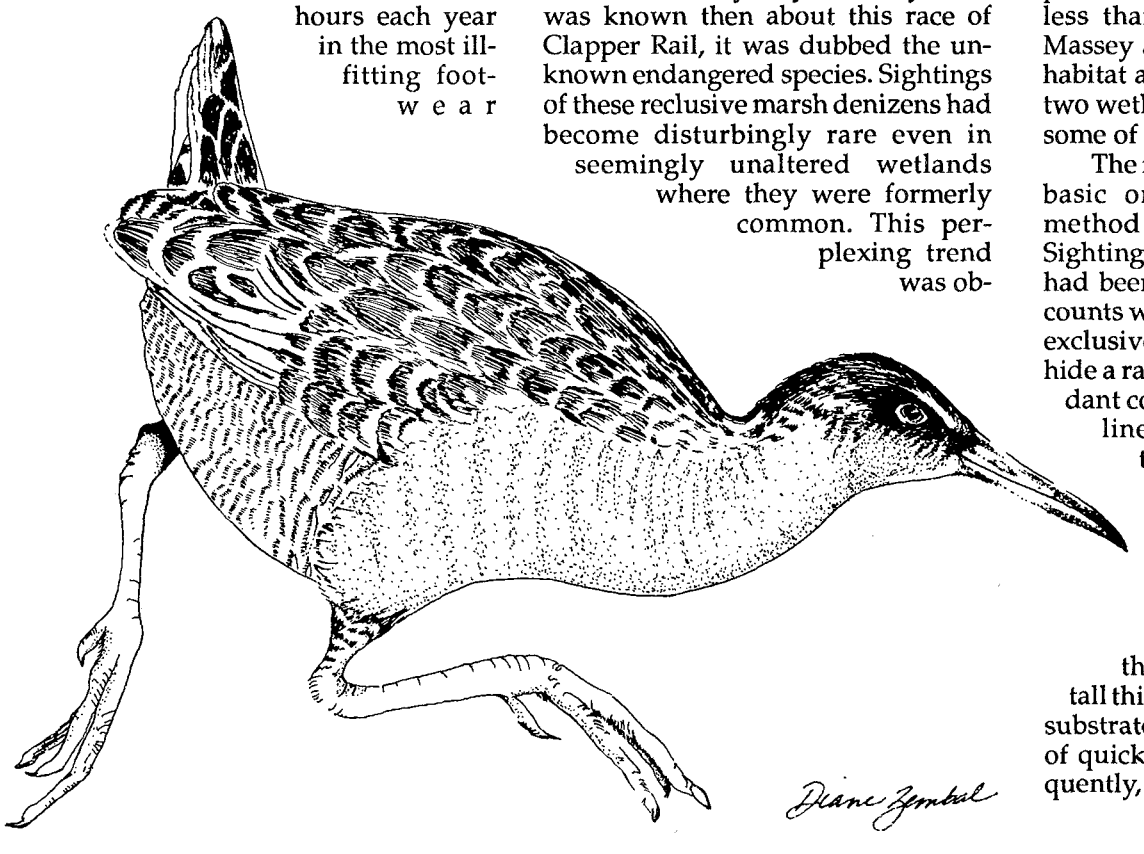
The Light-Footed Clapper Rail

Secretive Denizen of the Lower Marsh Shadows

by Richard Zembal

In my early enthusiasm for field biology, I had high notions of solving ecological mysteries with significant implications on evolutionary theory, deep in exotic lands. Instead, fate and a friend led me to studies of a ridiculously secretive bird called the Light-footed Clapper Rail in the coastal marshes of southern California amongst millions of people. I spent the 1980s trudging through marsh and mud for several hundred hours each year in the most ill-fitting footwear ever devised — rubber boots. I've also grown disturbingly accustomed to donning and shedding mud-caked clothes and wearing a splattered veneer of marsh productivity. Dreams of exotic field biology come true.

Light-footed Clapper Rails declined as their habitat was converted to such things as marinas, and they were declared endangered under both state and federal standards by 1973. Their disappearance was partly shrouded in mystery; so very little was known then about this race of Clapper Rail, it was dubbed the unknown endangered species. Sightings of these reclusive marsh denizens had become disturbingly rare even in seemingly unaltered wetlands where they were formerly common. This perplexing trend was observed, for example, on the Seal Beach National Wildlife Refuge. With no apparent changes in this protected and obviously still productive habitat, as evidenced by the thousands of other wetland birds, a population of Clapper Rails once estimated at 200 individuals was thought to be nearly gone. Furthermore, just 13 miles downcoast in Upper Newport Bay, an ecological reserve of the California Department of Fish and Game, Clapper Rails appeared to be much more abundant in less than half the habitat. Barbara Massey and I set out to compare the habitat and Clapper Rail use of these two wetlands in 1979, hoping to solve some of the mystery.



The first necessary task was a very basic one, to devise an accurate method of counting the rails. Sightings during extreme high tides had been used in the past, but these counts were too variable to depend on exclusively. It takes very little cover to hide a rail, and at most marshes abundant cover remains above the water line even during the highest tides. We compared nest counts and call counts and got good results with both techniques. The nests are concealed in the lowermost part of the vegetated marsh in the densest cover available, in tall thick cordgrass if it's present; the substrate approaches the consistency of quicksand but it's muddy. Consequently, nests are difficult to find and

accurate nest counts require many visits to the same piece of marsh throughout the nesting season, from about March through July. Call counts turned out to be just as accurate without repeat visits or disturbance of the marsh or rails.

The nests, particularly at Upper Newport Bay, were built mostly in and of cordgrass. They are fashioned to contend with tidal wash that ebbs and flows twice daily. The nest platforms are about 14 inches across and are interwoven on their edges, on the tall, living grass stems. Cordgrass grows to over 3 feet tall and can get very thick. The blades are interwoven by the rails to form a canopy over the nest that conceals it from above and holds the eggs during higher tides. The nests float up and down in place, on the living stems. When an unusual tide overtops the cordgrass, the eggs are nestled safely between the canopy and nest.

The incubation nests are also equipped with a ramp of dried grass which provides easier access for the tiny black, downy, fluffballs that are Clapper Rail chicks. A few hours after the chicks hatch, all 5 - 10 of them, they are ready to wander off with their parents if the need arises. If an adult sounds the alarm, the chicks scatter and are invisible due to their tiny stature, color, and immobility in the deep shadow of the dense plant cover. Left undisturbed, one adult brings in food for the chicks and the brooding bird. The parents take turns hunting.

Clapper Rails are generalist feeders that hunt mostly by sight. They consume small animals and very little plant food. Larger organisms like crabs are broken into bits for the chicks; older birds swallow most of their food whole. Foraging rails execute repeated bill thrusts and shallow probings and eat hundreds of tiny invertebrate morsels in just an hour or two. With their heads down, searching intently, their tails are held high and flicking, offering an enticing but easily replaced target to a predator. Their feeding techniques are as varied as the foods available to them. They relish crabs which are stalked and nabbed from the honeycomb of holes along small tidal creek embankments. They hunt small fish and tadpoles in shallow pools, mostly like an impatient heron might, but even dive for them successfully. They are not above scavenging upon occasion, and one gets the sense that anything small enough and recognizable as food is vulnerable. I have even seen them carrying mice around during high tides; these mammals are pitifully ill-equipped for travel by water and look half drowned and about to sink moments after being forced from cover by a rising tide.

The youngsters are fed and brooded on the old incubation nest and on auxiliary nests built after hatching. These 1-3 brood nests are built in the open, lacking canopy and ramp, and probably serve as regrouping spots, as well as alternative night lodgings. The young rails get increasingly independent with age but are still being fed to a limited degree up to at least 6 weeks of age.

As they mature, rails of the year get increasingly interactive and aggressive with neighbors, siblings, and even their parents. Once they near full adult size, their plumage is a mirror of their parents', but with a dark gray tint. When this wears off they resemble adults, with less contrast in their markings, particularly the flank striping. They are eventually kicked out of their natal territories, treated as rivals by all others. Such rails then roam the marsh, looking for vacant territories to occupy or inattentive adults to subsist near for a time. As they move through unfamiliar areas and are chased repeatedly into the open, the chances of predation are greatly increased. Most of these rails won't make it through the winter, but those that do at Upper Newport Bay will be paired and have breeding territories by the spring.

Clapper Rails evolved with a full complement of predators and are at least an occasional meal for several of them. Red-tailed Hawks (*Buteo jamaicensis*) and Great-horned Owls (*Bubo virginianus*) take adults, Northern Harriers (*Circus cyaneus*) may do so rarely but are better equipped to take young, and gopher snakes (*Pituophis melanoleucus*) probably eat eggs and young alike, particularly from nests that are nearest upland edges. Predation pressure can actually help maintain the viability of prey populations except when a balance has been upset. Introduced predators and imbalanced predator populations, for example, have been problems for Clapper Rails. Non-native red foxes almost finished the Clapper Rail subpopulation on the Seal Beach National Wildlife Refuge recently and threaten the California Clapper Rail in the San Francisco Bay wetlands. Domestic cats lie in wait on the edges of each of our suburban wetlands and have killed rails forced from cover during the higher tides. The rails have nowhere else to go during high water and have no knowledge ingrained over evolutionary time for contending with these new predators, particularly in such great numbers. Where natural food chains still include native top carnivores, particularly the coyote (*Canis latrans*), the numbers of smaller predators, those that prey heavily upon birds and eggs, seem to be kept in check.

Clapper Rails contend with predators, in part, by spending most of their time in dense vegetation. Since they are more often heard than seen, learning the contextual uses of their calls was essential to understanding their behavior and activity patterns. The "clappering" call, for which the species is named, is used in greeting between mates and in territorial pronouncement in the spring. A rail gives a low volume "purring" call when approaching its mate on the nest. Incessant *"keking"* in the spring is the advertising of an unmated male. When tragedy struck a pair being followed through radio telemetry, the use of a call debated for decades was finally deciphered. A Red-tailed Hawk killed a male Clapper Rail and left his mate to incubate their 6 eggs alone. The day following his death, she began to *"kek-burr."* Such enticement lured the adjacent male from his mate to duet and copulate with the widowed rail. Shortly thereafter, the abandoned female began her solicitations and her wandering mate went charging home. This looked like it could go on indefinitely, but then an unpaired male moved in with the widow and balance was restored. The widow had abandoned her eggs, which were lost, but she and her new mate did nest successfully that spring.

This particular female was widowed twice and maintained a home range of about 1.2 acres with three different mates. Out-surviving their mates may be typical for females; they

spend a lot less time away from cover and are generally warier than males. Pair members share home ranges, covering an average of only 2 acres of vegetated marsh at Upper Newport Bay.

Most of what a Light-footed Clapper Rail does in these small territories on a daily basis is hunt and defend its home. By first light, the rails are searching for food and will continue hunting for 2 to 3 hours or more. Foraging is again heavy in the late afternoon. Midday hours are spent loafing, preening, and perhaps sunning. Vocalizing is most common during peak activity, typically in the early morning and late evening. Feeding sometimes goes on all day during the breeding season. The late breeding season is perhaps the easiest time to see these rails, with whole family groups even venturing out a short distance onto the mudflats. Growing youngsters require plenty of food, as do the adults, in replacing the energetic output of reproductive activity.

Bahia de San Quintin

We are lucky to have come to the understanding that we have of these birds; there are very few of them left and they are exceedingly secretive. Our observations resulted from thousands of hours of investigation and vigilance, particularly at Upper Newport Bay. The 275-acre marsh in Newport is home to the only viable subpopulation left in the United States. Annual call counts throughout the 1980s revealed a population high of 277 pairs in 19 marshes in California in 1984 from Carpinteria Marsh in Santa Barbara County to Tijuana Marsh on the Mexican border. This is the entire historic range in the United States. In 1989, there were only 163 pairs in 8 marshes and 116 of those, or 71.2%, were at Upper Newport Bay. These rails also occur in two marshes in Baja California, Mexico but meaningful long-term protection of the habitat and birds there has yet to be achieved and may be difficult.

With so few marshes occupied by such a small number of rails, the Light-footed Clapper Rail is in imminent danger of extinction. We do not know all of the specific reasons for its decline at each marsh, but we know enough to have begun meaningful recovery actions. The habitat has been fragmented, reduced, isolated, filled, subjected to heavy predation by introduced species, trespassed upon by people, their pets, and chemicals, cut off from the ocean, and even sank. These problems are not insurmountable, just complicated, time-consuming, and expensive to deal with effectively. For example, the problems we identified on the Seal Beach National Wildlife Refuge include introduced predators and subsidence. We have provided alternative nesting sites that aren't overwashed to compensate for subsidence; we can probably also restore a balance in the food chain, but that will take study and time. The Light-footed Clapper Rail doesn't have a lot more time.

In the short term, every effort must be made to secure at least one more viable subpopulation of this endangered species. Adding significantly and quickly to the habitat base at one marsh is the first step. Los Penasquitos Lagoon in San Diego County is one of the few marshes where this might be possible. Over 400 acres of salt marsh there once provided habitat for an estimated 100 Clapper Rails. The ocean inlet to the lagoon closes regularly now, creating lake-like conditions unsuited to Clapper Rails; they are all gone. The problem is a bend and constriction in the outlet channel caused by a narrow railroad trestle and the Pacific Coast Highway bridge. A new trestle and bridge with much larger spans and active management of the situation might remedy this but at a cost of at least several million dollars.

The long-term work of Clapper Rail recovery is to secure, restore, create, and manage suitable wetlands throughout the rail's range. The marshes recently occupied by Light-footed Clapper Rails total only about 3,000 acres and the birds occur mostly in very low densities. In contrast, the recovery plan for this subspecies sets a goal of 800 pairs in 20 secure marshes, totaling 10,000 acres, just to recover the race to threatened status. This goal can be met only if wetland recovery is maintained as an extremely high priority by the multitude of agencies, organizations, and individuals in positions to fund and implement the necessary actions.

The Light-footed Clapper Rail is an indicator of our most productive coastal marshes. Providing complete, self-sustaining habitat for this endangered bird will accommodate a great abundance and diversity of other wetland-associated species, as well. Reciprocally, the problems it now faces are shared with those other organisms including thousands of wetland birds and us. Given the best of circumstances, meeting long-term goals will take a while, but it's worth the time and effort. There's inestimable wealth for all of us inherent in such a quantity and quality of functional wetland.

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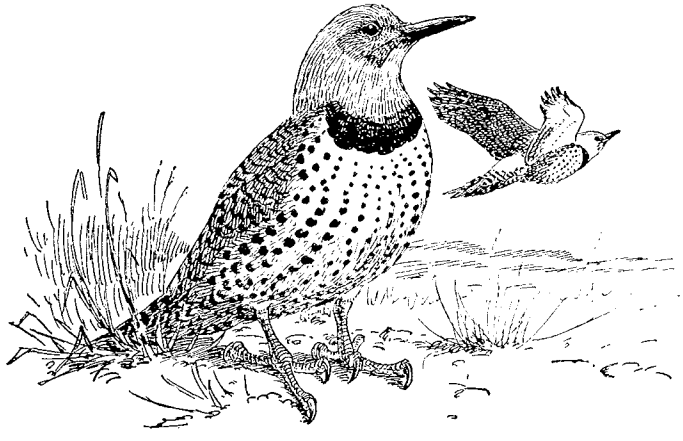
Reviewed...

DISTRIBUTION AND TAXONOMY OF BIRDS OF THE WORLD by Charles G. Sibley and Burt L. Monroe, Jr. 1990. New Haven, Yale University Press. *xxiv* + 1,111 pp., 24 maps, 9 X 11½ inches. $125.

Sibley and Monroe's book (henceforth S&M) is one of the more extraordinary bird books ever published, and could change our thinking about birds forever, because it holds the promise of revealing to us, in stark detail, the complete avian family tree. It is based on a fascinating and revolutionary technique that could show us how birds (and other organisms) are related to one another by reading their very genes.

S&M lists every bird species in the world, gives English and scientific names, habitat, and distribution, and arranges them according to a brand new classification system based on the genetic similarity of their DNA.

When our great-grandparents studied birds, it was with shotgun and magnifying glass. They thought that birds that looked similar were closely related, probably because the Creator made them that way. This was the great morphological school of taxonomy. Victorian birders might have thought (and often did) that because swallows and swifts looked alike, they must be cousins.



A lamented "lump"

Later, after Darwin, we discovered the concept of convergent evolution. This says that animals might evolve to look alike simply because they face similar problems. Swallows and swifts are actually two separate lines of aerial insect eaters.

Discerning just how closely species are related is a real problem. Our major tools have been detailed examinations of anatomy, ecology and behavior, even studying the parasites and diseases that infect birds, which are similar in related species.

Now come molecular biology, biochemistry, and genetics.

S&M is the most ambitious application yet of these disciplines to study evolutionary relationships. The authors have compared about 1,700 pairs of species using their own "DNA-DNA hybridization" technique, developed with Jon Ahlquist. Samples of DNA from two species are mixed in a test tube. The more similar they are, the more closely they hybridize, or bond together. Pairs of species whose DNAs bond very closely probably evolved apart very recently, and are closely related. Pairs whose DNAs bond more loosely are more distantly related. Using this method, we can actually peer into the evolutionary process.

The most controversial conclusions drawn by S&M are at the family and order levels, where they tell us how the great groupings of birds, like ducks or hummingbirds, are related. The authors draw conclusions at the species level, too. With this book, they have pushed the number of recognized species in the world to 9,672, much higher than the 8,600 species Ernst Mayr counted in 1946. This is not because S&M found lots of unknown species (although we are still discovering new species every year), but because all ornithologists are rethinking the way species are counted. The splitters are prevailing over the lumpers. For example, in 1973, ornithologists lumped the Red-shafted, Yellow-shafted, and Gilded Flickers into a single species, the Northern Flicker. S&M splits off the Gilded Flicker again (but stops short of splitting the Red-shafted and Yellow-shafted). But it is at the species level that S&M offers the least original information.

To support species-level decisions, S&M must cite the research of others, or even personal comments made by noted ornithologists. Furthermore, many of the species-level conclusions drawn by S&M seem arbitrary. For example, they split off "Ridgway's" Rough-winged Swallow of the Yucatan area by quoting Phillips who "recognized it as a species without explanation." Later, they cite published research showing that the coastal and Great Basin populations of Plain Titmouse are genetically distinct at a level equivalent to other species-pairs," but then leave the forms lumped together.

At the family and order level, S&M presents some startling results. According to S&M, storks and vultures (including the California Condor) are so closely related that they are put in the same family. On the other hand, the Olive Warbler, an uncommon bird of southwestern mountains, is found to be closer to canaries and goldfinches than it is to other warblers. Penguins and loons seem to be kissing cousins, as any beginning birder could have told you, but auks and puffins are put elsewhere, in the gull and tern family. Stephen Jay Gould and others who thought of flamingoes as highly specialized geese were probably wrong, as S&M links them with ibises and herons. The Shoebill, that bizarre resident of African marshes, is probably a pelican!

Chances are, you won't want to run out and buy S&M. It is as thick as the Pasadena phone book, and lists for $125. Furthermore, many of the conclusions drawn by S&M are sure to be disputed as the techniques are tested and refined. As a matter of fact, the American Ornithologists' Union, which ultimately judges the taxonomic placement of birds, will almost certainly ignore the many of the conclusions from S&M until they are corroborated by independent researchers. But if you want to be right at the radical leading edge of biochemical genetics, or if you'd like to give your life list an early inflated boost, make a big space on your bookshelf and fly on down to the LAAS bookstore.

– Bill Principe

The Little Canyon That Could

Scenic Franklin Canyon Offers More Than Just Scenery

by Steven Saffier

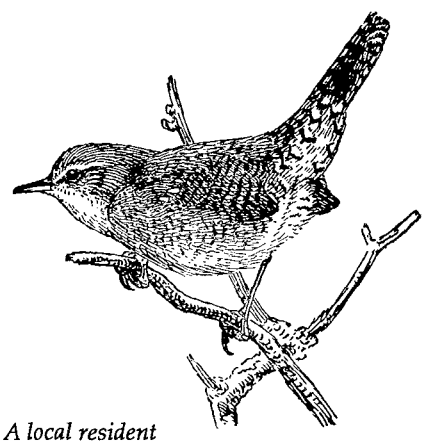
Located between Beverly Hills and Sherman Oaks, between the concrete buildings and the exhaust fumes of traffic, is an isolated patch of the Santa Monica Mountains known as Franklin Canyon. This 600-acre canyon contains a variety of habitats: oak, conifer, sycamore and eucalyptus woodland clusters all occur here. Chaparral, with its low, dense plants is most abundant. A lake (formally a reservoir) highlights this canyon which is just seven miles from Plummer Park. The area is home for a wonderful variety of mammals and birds, including waterfowl and raptors.

I found this place like many people do... by accident. While biking in Beverly Hills above Sunset Boulevard, I noticed a small sign which read "Nature Center." An arrow pointed me in the direction of an extremely steep uphill grade. Though my legs were tired, the words "nature center" sparked my interest and I scaled the hill with surprising ease. It was a long, steep drop from the winding road that leads into the canyon but it was the kind of geology that creates hawk-carrying currents. A Red-tailed Hawk soared level with the street and I stopped to enjoy the silence of the flight, then continued on in search of the nature center.

My experience with nature centers has always been a positive one. If it is possible to fortify the innate passion for the "wild," then my frequent visits as a child to nature centers in Eastern Pennsylvania did just that. I spent countless hours looking at exhibits and walking wooded trails.

My adrenalin went into fifth gear after I passed through the front gates of upper Franklin Canyon. The large trees formed a canopy above the road, reminiscent of my suburban Pennsylvania blacktops. My thought was that I had discovered the one thing that was missing for me as a city dweller: a peaceful and isolated spot of wilderness where I could walk on trails and spend long, quiet moments exploring nature. My childhood experiences of spending whole days sifting through the woods remain to be some of my favorite recollections.

At first, I seemed to be the only human occupant in the canyon. When I got to the top of another hill, I was astounded by the sight of a lake. I thought I had landed on another planet — I was looking at a beautiful body of water, complete with ducks, herons and cattails, surrounded by huge evergreens... just five miles from my home! It seemed strange and impossible, but it was real.



A local resident

I made my way around the lake to the Sooky Goldman Nature Center. "A funny name for a nature center," I thought as most nature centers are named for the area in which they are situated (Placerita Canyon for example). The building, like the name, was odd – large, angular and ultra- modern – not at all like the homespun, lodge-like centers I had known. As the sign denoted "Little Canyon - 2" however, it *was* a nature center, so I entered the office. It was there that I learned that the canyon I rode through is divided into two halves.

The lower canyon, off Lake Drive is actually a National Park, ranger and all, known as Franklin Canyon Ranch. Once owned by the Dohenys, it now has picnic facilities and several decent trails. The park seems to be a well-kept secret of nature lovers and local residents. The front lawn is rarely crowded and the trails are far from overused (unlike so many other parks in L.A.).

The upper canyon is owned by the Department of Water and Power which hopes to transfer the land to the National Park Service soon. The reservoir has been inactive since 1972, at least for human consumption. Aquatic plants such as cattail reeds flourish and create a strong base for a healthy ecosystem, albeit introduced. Though current signs discourage entry into the area, nature hikes are conducted regularly and law-abiding visitors (like us birders) are usually not confronted.

And the birding is excellent. Experienced birders may not get any lifers but will be busy trying to. During peak hours, the canyon is alive with a feathered frenzy. Around the lake expect to find a variety of ducks, Red-winged Blackbirds, Common Yellowthroats, Soras, Song Sparrows and more. Thanks to the proliferating Bluegills and Bull Frogs, look for Great Blue and Green-backed Herons as well.

On my first visit to the nature center, I also learned of an employment opportunity and as good (or bad) luck would have it, I was in need of steady work. Within three weeks, I was hired by the nature center and what started out as a blind turn in Beverly Hills resulted in a sweet escape from the city with a job to boot. My interest in birds now seems more than just a hobby, it turns out to be a useful source for the volunteer nature guides and visitors. I thoroughly enjoy fielding questions about the "duck with the blue bill" or "the little brown bird kicking the ground." It's a continual challenge that enriches my own birding experiences.

But enough about me! What other birds might you expect to see in Franklin Canyon? There are several pair of Great Horned Owls which even after a thousand sightings could never be considered a "trash bird." There also are Common Flickers, Belted Kingfishers, Phainopeplas, Double-crested Cormorants and 120 other species of birds named in a new checklist now available for the canyon.

Though the nature center is not completed, the canyon itself is picking up speed with the coming of spring migration. I encourage everyone to bird this backyard oasis!

Conservation Conversation

by Sandy Wohlgemuth

Campers, we've been had! At the very moment when we were defending our way of life in the Persian Gulf and saving our lifeline of oil, the Administration handed us a recipe for disaster.

We have gone ten years without an energy policy that fits the reality of the times. What is that reality?

1. America is rushing with blind abandon toward depletion of its main non-renewable energy resource – oil. We consume billions of gallons of oil a year, 25% of that used by the entire world. We have 150 million cars that convert gasoline into horrendous amounts of smog and greenhouse gases. Over 50% of our oil is imported.

2. We have huge domestic supplies of coal that in the past fired our factories, our power plants, our locomotives, our home heating furnaces. But though it is still in substantial use, coal is dirty and smelly and generates far more air pollution than any other energy source.

3. Nuclear power is clean, quiet and dreadfully expensive. It is also very unpopular with the consumer, regardless of the happy cries of the cheerleaders of the nuclear business and the regulating agencies. People are afraid of radioactivity, and every effort to start or re-start a nuclear plant is met with demonstrations and lawsuits. It is significant that no new nuclear facility has been built in this country since 1978 and 111 of those planned have been canceled. Decades after the first generator went on line, our vaunted technology seems unable to solve the problem of nuclear wastes that have a half-life of thousands of years. Nevada is suing the federal government to prevent the untested burial of hot wastes in its deep, abandoned mines.

So what is the long-awaited answer to our energy problems by our GOP Administration? It has labored for two years (the gestation period of an elephant) to produce – a monstrosity. No serious mandate for conservation is offered. We are asked to produce more oil. Drill everywhere: in the Rocky Mountains, offshore on the continental shelf, and especially in the Arctic National Wildlife Refuge. Chevron, the self-advertised protector of Great Gray Owls, is the sole leaseholder and is ecstatic over Mr. Bush's recommendation. The usual promise that oil can be deftly extracted without damage to an unspoiled ecosystem is belied by the unbroken record of abuse that accompanies the drilling process. The most optimistic guess is that, if indeed there *is* oil in the refuge, it will provide no more than a 200-day supply.

The nuclear industry has been given a much-needed shot in the arm by Dr. Bush: looser regulations of plant construction and disposal of radioactive waste. "It would go a long way toward removing the uncertainty that has surrounded the construction of nuclear plants," said a spokesman for commercial nuclear energy. (*LA Times*, Business section, 21 February 1991). The *Times* adds, "Runaway costs, overcapacity, high interest rates, strong public opposition and concerns about safety and the environment have all but buried the nuclear industry." No new technology is on the horizon that will revive this turkey, but the attitude is: what the hell, let's go anyway.

The auto industry welcomed the new energy program with heartfelt gratitude. There was no demand for new taxes on flagrant gas guzzlers and no requirement for increased fuel efficiency. Getting more miles to a gallon is considered "the single most effective step that could reduce oil dependence." (*World-Watch*, January/February 1991). If the Japanese can achieve 40 mpg today in cars Americans are cheerfully buying, why is our average mileage in the mid-'20s? The sad story is that George Bush apparently is no more interested than Ronald Reagan was in a genuine program to reduce our appetite for oil. Jimmy Carter had actively pushed auto fuel efficiency, tax credits for solar energy generation, weatherization of homes and federal funding for research and development of renewable energy technologies. Reagan wiped out most of these promising beginnings and even tried to abolish the Department of Energy. Today, 70% of that department's funds go to nuclear weapons. Bush moves his lips about alternate fuels but provides no incentives to stimulate their development.

To sum up, friends, this energy policy could not be worse. The invasion of the Arctic National Wildlife Refuge, coming on the heels of the monumental Exxon Valdez disaster, is inviting destruction of our last unspoiled wilderness. The absence of a program to reduce oil consumption guarantees the advance of global warming, uglification of our cities and increased erosion of our health. Renewal of the fading nuclear industry brings nightmares of Three Mile Island and Chernobyl. Dubious new techniques to further utilize coal as a fuel promise more acid rain and dirty air.

Representative George Miller (D, California), acting chairman of the House Interior and Insular Affairs Committee, said on 21 February, "The proposal announced today by President Bush is not a national energy policy. It is the tired wish list of the energy companies. The President's proposal does not promise energy independence; it assures energy addiction. It will not work, and it must not be approved." — Amen.

People dump as much automobile oil into ditches and down storm drains each year as what poured from the Exxon Valdez into Prince William Sound.

Lakes of Fire, Seas of Oil

by David White

Saddam Hussein promised the mother of all battles. The Coalition delivered the mother of all surrenders. American soldiers looking forward to leaving a place too dry for them, in more ways than one, anticipated the mother of all parties. Not that I fault anyone for wanting to come home, but I still wish our troops could first have undertaken the mother of all cleanups, on the mother of all oil spills.

I'm glad the war was short, and our casualties were few, but beyond that, it's difficult to find much cheer. Did we really win? Or did we all lose more than we yet realize? Perhaps the final result will be a lasting peace in the Middle East; if so, history will judge the war worthwhile. But there's one thing I know will last: the environmental devastation wrought in the process.

How big was the oil spill? There are no reliable answers. We aren't sure how many there were; at least three, probably more. We don't really know who started them; as with fires, it's easy to call Saddam an environmental terrorist, but our own artillery may have been partly to blame. Early estimates on the biggest spill put it at 10 to 15 million barrels of oil, or 40 to 60 times larger than the Exxon Valdez spill in Prince William Sound; now we hear it was "only" one million barrels, about four times the size of Exxon's mess. Whatever the volume, satellite photos showed a slick 70 miles long and 30 miles wide. Of course, we had experts on the scene, promptly; the EPA, NOAA, and the Coast Guard came, among others, and they quickly concluded that it was too big and the location too dangerous to try cleaning it up. We could only try to keep it out of the desalination plants.

The Persian Gulf was far from pristine to begin with. There were, expectably, big spills during the Iran-Iraq War; one source reports 125 "major" spills since 1978. An environmental impact survey is being conducted by the U.N. Global Environment Monitoring System, but there are no recommendations forthcoming. Cleaning seabirds has only symbolic value, they say, as the birds have been poisoned by ingesting oil; trying to dredge oil off the bottom or scrape it off beaches would do more damage than good.

Eventually, evaporation and photooxidation and biodegradation will break the oil down; water flushes through the Persian Gulf in three to five years; the most resilient species will survive. But fisheries may collapse, and sensitive habitats like coastal marshes and mudflats, mangroves, sea-grass beds, and coral reefs are imperiled. Some fifty species were already threatened with extinction, ranging from Tuna and King Mackerel, to Green Turtles, Socotra Cormorants, Black-necked Grebes, Black-winged Stilts, Mugger Crocodiles, Dugongs, Bottlenose Dolphins, and Sperm Whales.

Slicks of oil on the water, plumes of smoke in the sky. Oil comes out of most Kuwaiti wells under natural high pressure, so some are disgorging lakes of burning oil. There was talk early on about climatic cooling, as well as mention of global warming; this actually isn't contradictory. Particulate matter in the upper atmosphere reflects solar heat away from earth and temperatures plummet, while gases like carbon dioxide and methane trap heat. Big volcanic eruptions cause cooling, but apparently there is no danger of this because oilfield fires aren't hot enough to send soot into orbit. The only immediate problem will be oily acid rain (severe enough to threaten human lives) as far away as Turkey and India. Then, there is whatever the gases do long term. Six million barrels of oil per day are burning in fires that may not all be doused by the end of 1991.

One thing that hasn't gotten much news coverage is vehicular damage to the Kuwaiti-Iraqi desert. It isn't surprising, because so many people think there's "nothing" in the desert, but we know this isn't true. The Arabian desert has a lot of inconspicuous life. Looking closely, one could see fragile vegetation being ground up by tanks, and the worst damage was beyond camera range.

This brings me back to the home front. Out east of Desert Center you can see tracks from Patton's tanks, nearly fifty years old and looking like something done day before yesterday. The desert is easily hurt, and it takes ages to heal.

Watch for news about Fort Irwin; that's where tank warfare is practiced now, and they are trying to talk the Bureau of Land Management into giving them a broad corridor from Daggett (near Barstow) up to the reserve, about a quarter of a million acres in all, so they won't have to stay on the roads when they pick up new tanks from the depot. The Army Corps of Engineers is consulting with the U.S. Fish and Wildlife Service right now about effects on Desert Tortoises before completing an Environmental Impact Report. This fall, the BLM refused to allow motorcyclists to resume the Vegas-to-Barstow race because of impacts on the Desert Tortoise; I was very pleased, but I hope they will remember, now, that tanks do at least as much damage as motorcycles.

A couple of other thoughts: when are we really going to prepare ourselves to handle oil spills locally? Or in the Arctic National Wildlife Refuge, where the President says we are going to drill? If we're serious about protecting the marine environment, this should be a major priority. Another priority should be doing something about toxic storm water runoff — and this starts right at home, where all too many people dump motor oil and paint in storm drains or saturate their yards with pesticides and fertilizers. Early in the war, when it was only the Al Wafra oil fields burning, one commentator scoffed at an expression of environmental concern and said, "Look, it's no worse than the pollution coming from Los Angeles." What a happy thought. He was probably right.

Malibu Creek State Park Needs Input

The Malibu Creek State Park Docents are in the process of compiling a bird checklist for park visitors. Records of bird species sighted within the park are being solicited. If anyone has such information, please send your sightings to Scott Harris at 4442 Kingswell Ave., Apt. 4, Los Angeles, CA 90027. Your assistance will be greatly appreciated.

Activists Encouraged

All across the country, and indeed the world, people are taking action. They are getting involved in the protection of their environment.

Audubon, with more than 500 chapters and 600,000 members, has been working closely with the grassroots since the beginning of the environmental movement. This fall we are launching a new program for activists that we believe will give people the tools they need to make a difference.

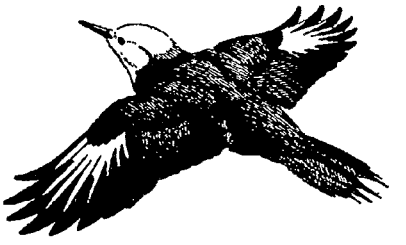
All Audubon members who pledge to take action for Audubon — writing letters or making phone calls to their elected officials — will receive the *Audubon Activist,* a monthly newsjournal that provides up-to-date information on key environmental issues and how readers can get involved. It is written in a lively style by grassroots activists, lobbyists, scientists, and environmental journalists, and includes articles on "green living," international issues, legislative updates, and in-depth articles on Audubon priorities such as the protection of ancient forests and wetlands.

To join the network send a note to: Audubon Activist, 950 Third Ave., New York, NY 10022; stating:

"I'd like to be an Audubon Activist! For my part, I pledge to take action by writing at least two letters and making at least two phone calls for Audubon each year." Print your name, address and phone number and sign your name.

Los Angeles Audubon Society Picnic

You're invited – and please bring the whole family!



Where: Charlton Flats Picnic Area
When: Sunday, June 23, 1991
Nature walks begin at 7:30 a.m.
Picnic from 10:00 a.m. to 2:00 p.m.

Directions: Take Highway 2, the Angeles Crest Highway, north from the 210 Freeway in La Cañada. It is about a 30-minute drive up into the mountains to Charlton Flats, which is a well-marked picnic area on the left side of the road.

For more info and to RSVP, call Audubon House at (213) 876-0202.

Environmental Federation of California

Using the United Way concept of fundraising, the Environmental Federation of California will conduct campaigns in 85 U.S. companies and organizations this year. Working on behalf of 33 local, regional and national environmental organizations, including LAAS, EFC hopes to raise $1 million this year. Proceeds to LAAS in 1989, the first year of the campaign, were over $1,000.

Donors can earmark amounts to be given through a simple payroll checkoff, a one-time employee donation, a direct corporate gift, or a company match of employee gifts.

With major U.S. employers like **Apple, Esprit, Kaiser Permanente, NCR, The City of Los Angeles, Bay Area Rapid Transit and Safeway** participating, the idea is clearly taking hold.

For further information call Jim Hardie, Marketing Director, Environmental Federation of California at (213) 452-3502.

We offer our condolences to Jon Dunn on the loss of his father, Lloyd W. Dunn, on March 8. Lloyd was a remarkable man, taking time from his executive position with Capitol Records to chauffeur his precocious son in his pursuit of life birds. Jon's parents may have been dubious about his unconventional choice of vocation, but they gave him generous support as he became one of the nation's leading field ornithologists.

Many of us have fond memories of a 1978 LAAS dinner at the California Yacht Club which featured dancing to Lloyd's Dixieland band, where he played a mean banjo.

At the memorial service, with some 200 nostalgic friends listening to lively anecdotes about him and hearing a few of his favorite songs, his old band buddies marched down the aisle playing "When The Saints Go Marching In." It was a fitting tribute to a nice guy.

Lens View

by Herb Clarke

One of the most difficult problems for beginning photographers is learning to compose a photograph. A common complaint is that the picture did not turn out the way a scene was remembered. The human mind and eye is a marvelous combination which can automatically compensate for poor lighting conditions, eliminate extraneous items and enlarge small subjects, all without a moment's thought. It's impossible for a mechanical device such as a camera, even the most advanced model, to equal a person's built-in computer. To solve the problem, one must learn to see like a camera. This is called composition and takes talent, practice, experience and discipline.

The first requirement is to acquire a good single-lens reflex (SLR) camera capable of interchangeable lenses. Any of the major brands now on the market should be acceptable. This type camera has an accurate viewing system as well as availability of an extensive system of accessories. Auto-exposure and auto-focusing are desirable but be sure that both features can be overridden manually for special situations.

Composition can be defined as the way elements of a picture are arranged to convey the photographer's intent. To me, a great joy of photography is when a picture I am happy with also brings pleasure to another person. In other words, that viewer got my message.

The requirements of what makes a good picture can be as varied as there are individual photographers. Since I have the floor, I will discuss what I like in a picture. Even though the focus is on bird photography, many points are relevant to other kinds of picture taking. To start: the subject must be sharp and clear, preferably from bill to tip of tail or at least bill and head. Blurred images strain viewers' eyes and generally have to be verbally excused, with some embarrassment. A highlight in the eye adds sparkle to the picture. The principle image or images should occupy at least one quarter of the frame. Exposure should be correct, not too dark or too light. Complementary surroundings (background and foreground) can enhance the overall quality of the picture. Try to avoid unnatural or manmade items. Cut-off parts (feet, tail, etc.) of the bird can be distracting. These are only general rules which can be bent or broken for special purposes, but should be kept in mind whenever composing a picture in the viewfinder.

How to get this ideal picture is the challenge. Let's begin with image size, which brings us to lens selection. Most birds are small, wary and can move quickly. In addition, most have a tolerance point beyond which they will not allow a photographer to approach. A telephoto lens is the obvious solution, but these lenses are large, heavy and expensive. As mentioned in a previous column, every prospective decision must be based on compromise. The "normal" or "standard" 35 millimeter (mm) camera lens is 50mm focal length, a size that is good for general photography such as scenics and people. This is the basis for sizing telephoto lenses. For example, a 300mm which magnifies six times the normal lens perspective is relatively inexpensive and lightweight, but usually not powerful enough except for large easily approachable birds. One solution is to buy a teleconverter. Here is a small auxiliary lens that fits between the prime lens and camera multiplying the focal length by usually 2 or 1.4 times. One problem is that exposure is greatly reduced. In addition, unless a good quality (expensive) lens and teleconverter are used, image excellence is tremendously deteriorated.

The next compromise to be considered is a mirror lens. Advantages are: it is relatively inexpensive, lightweight, compact and is available in the popular 500mm size. Inevitable trade-offs are image quality, lack of contrast, slow (poor light capability) and often annoying doughnut shaped reflections appear in pictures.

One possible way around some problems with the above lenses is to use faster films. Drawbacks presented by this alternate were discussed in my previous column. All the above leads to another basic rule in photography. Generally, "You get what you pay for, quality is not cheap." Whenever possible, buy the best conventional telephoto lens you can afford, usually, but not always, the same make as the camera you are using. Sizes I find most useful are 400mm or 500mm. Slide film I prefer is Kodachrome 64 and suggest Kodachrome 200 as a good compromise. Highly recommended, to reduce camera shake, is a sturdy tripod of sufficient height so that when standing it's easy to look through the viewfinder without the center post being raised more than about a foot. Don't forget that a 400mm lens, even a lightweight mirror lens, not only multiplies image size eight times but does the same to camera movement. Another way to minimize this problem is to use a shoulder brace.

Approaching the subject with camera and telephoto lens, shooting as you go until the bird flies off or the desired distance is reached, is called stalking. Most photographers use this method often, because it allows good pictures to be attained with a minimum of effort and equipment. But large telephoto lenses are only one avenue for bird photographers to get bigger images. We'll discuss other ways in future columns.

Photo description:
TUFTED DUCK - female. Taken 4 February 1991 at the Ventura sewage plant using a Nikon N8008 camera and a Nikon 400mm F3.5 lens with a Nikon 2X teleconverter, making the focal length 800mm, all mounted on a Bogen tripod. Exposure was at 250th/second at an effective aperture of F7.0 on Kodachrome 64 film in bright sunlight at a distance of about 40 feet.

Birds Of The Season

by Hank Brodkin

May is upon us. For the next six weeks, many of us will be combing the oases in the eastern parts of southern California in the hope of uncovering that rarest of avian finds - the vagrant. Some of the favorite places are Mojave, the California City-Galileo Park area, and Butterbredt Springs in eastern Kern County, Furnace Creek Ranch and Scotty's Castle in Death Valley National Monument, Deep Springs in eastern Inyo County and Oasis Ranch in southeastern Mono County - as well as the closer at home Morongo Valley and Desert Center. Coastal locations such as Point Loma in San Diego and Huntington Beach Central Park have also proved to be good spring "vagrant traps". For more information and exact locations of these and other good birding places, refer to *Where Birders Go In Southern California*, by Henry Childs, available at the LAAS bookstore.

Migrants have started arriving right on schedule and the rains of March should make life a little easier for them.

As usual this time of year, reports of unusual birds are few. As always, however, there were a few surprises.

A **Short-tailed Shearwater** along with a few **Sooties** were among the hundreds of **Black-vented Shearwaters** seen from a whale-watching boat off Redondo on 10 March (Dave Koeppel).

Ten **Wood Ducks** were at Descanso Gardens on 21 February (Gayle Benton) and a **Black Scoter** was in the Marina del Rey channel on 19 March. An early **Swainson's Hawk** was over Encino on 6 March (Jon Dunn) and a total of three were flying WNW over La Crescenta on 17 and 24 March (Kimball Garrett).

The first eight **Elegant Terns** had returned to Bolsa Chica on 12 March (Steve Mlodinow). A **Rhinoceros Auklet** was inshore near the Malibu Lagoon on 24 February (Keith Axelson) and a **Tufted Puffin** was reported flying off Point Dume on 3 March (Mitch Heindel).

Eight **Long-eared** and 3 **Short-eared Owls** were near the ranger station at the San Jacinto Wilderness Area east of Lake Perris (Vernon Howe).

The breeding pair of **Vermilion Flycatchers** had returned to Morongo Valley by 8 March (Bob Pann) and the first spring **Ash-throated Flycatcher** was reported from Rancho Los Cerritos by Bob Beckler. Most unexpected was the **Scissor-tailed Flycatcher** that showed up near Upper Newport Bay on 17 March (Bill O'Connell) and was still present 23 March.

The first **Violet-green** and **Barn Swallows** reported this spring come from Palos Verdes on 22 February (MH).

Three **Varied Thrushes** were at Descanso Gardens on 21 February (GB) and 22 **Sage Thrashers** were counted at the San Jacinto Wilderness Area on 10 March (VH).

Spring's first **Solitary Vireo** locally was at Harbor Lake on 9 March (Martin Biehower) and the first **Warbling Vireo** was seen in central Los Angeles on 6 March (Ed Navajosky).

A **Black-and-white Warbler**, probably one overlooked this winter, was reported from Beverly Hills on 6 March (Patricia Ayers) and another bird that also possibly wintered locally was a **Northern Waterthrush** found at Harbor Lake on 16 March (MH).

First **oriole** reports this season are a **Hooded** in Ventura on 16 March (Wanda Dameron), many **Northerns** reported by many observers on 17 March, and an early **Scott's** was seen in Joshua Tree National Monument on 10 March (Jim Connelly).

Vagrant time provides a good opportunity to discuss the steps that should be taken upon sighting a rare or unusual bird. First, a complete description of the bird should be written as soon as possible after the sighting - ideally while the bird is still in view. As soon as possible, get corroboration of the sighting. The more people who verify the sighting, the more acceptable it will be. This is especially desirable for a first state record, a bird that has only been seen a few times in the state or a bird that is completely out of season - such as a Black-chinned Hummingbird or Swainson's Hawk in mid-winter. Please call either Dave Koeppel or myself (see phone numbers below) as soon as possible after the sighting.

Send your description to *American Birds*, to which as Audubon Society birders, you might consider subscribing [call (212) 546-9191 for information]. For sighting in Los Angeles County, send your description to Subregional Editor Kimball Garrett, Section of Ornithology, LACMNH, 900 Exposition Blvd., Los Angeles, CA 90007. Descriptions of birds seen elsewhere in southern California go to Regional Editor Guy McCaskie, San Diego Natural History Museum, Balboa Park, P.O. Box 1390, San Diego, CA 92112 or to the appropriate subregional editor (see *American Birds*). Descriptions will be forwarded automatically to the California Bird Records Committee.

Good Birding!

Records of rare and unusual bird sightings reported in this column should be considered tentative pending review by the American Birds *regional editors or, if appropriate, by the* California Bird Records Committee.

Send your bird observations with as many details as possible to:

Hank Brodkin
27 -1/2 Mast Street
Marina del Rey, CA 90292
(213) 827-0407
- or -
David Koeppel
(213) 454-2576

C A L E N D A R

8:00 a.m. in the parking lot. To get there, take the 10 Fwy E about 17 miles past Banning to Hwy 62 N. Pass through the town of Morongo Valley, take a right on East Dr., then a left into the preserve.

Sunday, May 5 - Chuck Bernstein will lead a trip for beginning birders at **Malibu Creek State Park** and **Malibu Lagoon** for **Birdathon '91**. Register with Audubon House.

Sunday, May 5 - Topanga State Park. Gerry Haigh will lead participants through this nearby area composed of sycamores, grasslands, scrub oak and chaparral. Ideal trip for beginning birders or for someone new in the area. From Topanga Canyon Blvd. heading SW from the Valley, take a very sharp turn E (uphill) on Entrada Dr. (7 miles S of Ventura Blvd., 1 mile N of Topanga Village). Follow the signs to the state park, and meet in the parking lot of Trippet Ranch at 8:00 a.m. $3 parking fee. (LA, p.109, D-4)

Saturday, May 11 - Salton Sea. Leader **Chet McGaugh**, compiler of the N.E.S.S. Christmas Bird Count. Breeding desert birds, late migrating shorebirds and other migrants. Meet at 7:00 a.m. at sign-in booth at Wister Refuge on Davis Rd. We will bird Davis Rd., Red Hill and vicinity, then proceed around the South End Refuge, up past Salton City, and perhaps touch on the north end. $8 + refuge fee, Limited to 20. Sign-up with Audubon House mandatory. Bring scopes and lunch.

Saturday, May 18 - Placerita Canyon. Leader **Mary Carmona**. The group will explore the oak woodlands and grasslands of the canyon and Walker Ranch. Take Hwy 14 to Placerita Canyon Rd., and drive E (right) about 3.5 miles to the Placerita Nature Center lot on the right. Meet at 7:30 a.m. outside the chained lot (inside if open) and finish by noon. (LA, p.127, J-4)

Sunday, May 19 - Mojave Area. Tour the desert oases surrounding Mojave with **Nick Freeman** for a full day of brightly colored warblers, dingy Empidonax flycatchers, Chukar and others. **Change of Meeting Place:** 7:30 a.m. at the California City Golf Course lot. Take Hwy 14 past Mojave about 10 miles, turn right on California City Blvd. Go thru town about a mile past the shops, turn left at the Central Park sign. The first right turn will take you into the lot.

Sunday, May 19 - Whittier Narrows Regional Park. Join **David White** on this regular morning walk to see resident birds and spring migrants. Meet at 8:00 a.m. at the Nature Center, 1000 Durfee Ave. in South El Monte, off 60 Fwy between Santa Anita and Peck Dr. exits, W of 605 Fwy. (LA, p.47, D-5)

Sunday, May 26 - Malibu Lagoon. Meet at 8:30 a.m. in the lagoon parking lot. The lot is on the ocean side of PCH, just W of the lagoon bridge, but you can turn right into town for street parking. The lagoon lot has a daily fee. This walk is under the leadership of a member of Santa Monica Bay Audubon Society. (LA, p.114, B-5)

Sunday, June 2 - Topanga State Park. Leader **Gerry Haigh**. Meet at 8:00 a.m. See May 5 write-up for details.

Saturday, June 8 - San Gabriel Mountains. Leader **David Koeppel.** Meet at 7:00 a.m. at Charlton Flat campground entrance. Full day of birding at Chilao, Buckhorn, Dawson Saddle and Grassy Hollow. (LA, p.G, C-2) See *Picnic* announcement on page 8 for directions.

Saturday & Sunday, June 15 and 16 (17th optional) - Southern Sierras Weekend with **Bob Barnes.** Limited participation. 152 species seen last year. Fee $22 plus $10 for optional Monday extension. For more information on the trip and lodging, reserve with SASE per field trip policy.

Saturday, June 15 - Whittier Narrows Regional Park. Leader **David White.** Meet at 8:00 a.m. See May 19 write up for details.

Sunday, June 23 - LAAS Annual Picnic, see announcement on page 8.

Sunday, June 30 - Big Bear Lake and Vicinity. Co-leaders **Louis Tucker** and **Nick Freeman.** Meet outside Coldbrook Campground in Big Bear at 8:00 a.m. Take Hwy 18 or 38 to Big Bear Lake, then proceed about halfway along the south side of the lake on Hwy 18 and turn S on Tulip Rd. The campground will be on the south side as the road curves. Target birds include Williamson's Sapsucker, Calliope and Rufous Hummingbirds, mountain finches and White-headed Woodpecker. It should be warm and there may be bugs, so come prepared. Bring lunch.

Saturday & Sunday, July 13 & 14 - San Jacinto Area. Meet **Monte Taylor** at Hurkey Campground at noon on Saturday. Bird, camp, and bird again on Sunday. Night birding included. No fee, but reserve by phone or SASE.

WESTERN TANAGER
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Annual membership in both societies is $35 per year, $21 for seniors, and presently $20 for new members for their first year. Members receive the *Western Tanager* newsletter and *Audubon* magazine, a national publication.

Renewals of membership are computerized by National Audubon and should **not** normally be sent to LAAS. New memberships and renewal of **lapsed** memberships may be sent to Los Angeles Audubon House at the above address. Make checks payable to the order of National Audubon Society.

Non-members may subscribe to the *Western Tanager* for $15 per year. The newsletter is sent by first class mail to subscribers and members who pay an additional $7. Make checks payable to Los Angeles Audubon Society.

National Headquarters, New York
(212) 832-3200
Los Angeles Audubon Headquarters, Library and Bookstore are open
Tuesday - Saturday
10:00 a.m. - 3:00 p.m.
(213) 876-0202 - office
(213) 874-1318 - bird tape
(updated Thursdays)

RESERVATION AND FEE EVENTS
(Limited Participation)
POLICY AND PROCEDURE

Reservations will be accepted ONLY if ALL the following information is supplied:

(1) Trip desired
(2) Names of people in your party
(3) Phone numbers (a) usual and (b) evening before event, in case of emergency cancellation
(4) Separate check (no cash please) to LAAS for exact amount for each trip
(5) Self-addressed stamped envelope for confirmation and associated trip information

Send to Reservations Chairman Millie Newton, LAAS, 7377 Santa Monica Blvd., Los Angeles, CA 90046.

If there is insufficient response, the trip will be cancelled two Wednesdays prior to the scheduled date (four weeks for pelagics) and you will be so notified and your fee returned. Your cancellation after that time will bring a refund only if there is a paid replacement.

Millie Newton is available at Audubon House on Tuesdays 10 - 3 to answer questions about field trips. If you desire to carpool to an event, she can also provide contacts for you. Our office staff is also available Tuesday- Saturday for most reservation services.

C A L E N D A R

EVENING MEETINGS

Meet at 8:00 p.m. in Plummer Park
ID Workshop preceeds the meeting at 7:30 p.m.

Tuesday, May 14, 1991 - The Red-cockaded Woodpecker. Craig Rudolph of the National Forest Service will present an illustrated lecture on this endangered woodpecker. The general biology of this intriguing, cooperative breeder, the reasons for its decline, and efforts to protect the species will be among the topics discussed.

ID Workshop - Jonathan Alderfer discusses Ladder-backed and Nuttall's Woodpeckers.

Tuesday, June 11, 1991 - Birding in Eastern South Africa. On his recent birding adventure in south Africa, **Raymond Schep** photographed his way through some of the country's birding hot spots. The Crowned Crane, Sacred Ibis and Crowned Eagle are among the many remarkable birds featured.

ID Workshop - To Be Announced

Printed on Recycled Paper.

PELAGIC TRIPS

Sunday, May 5 – Los Angeles toward Santa Barbara Island and Osborne Banks; 6:00 a.m. to 6:00 p.m. Cost $32. Leaders: Kimball Garrett and Lee Jones.

Saturday, May 18 - 1/2 day trip to Redondo Canyon and San Pedro Escarpment; 8:30 a.m. to 1:30 p.m. Leaders: Kimball Garrett and Mitch Heindel.

Saturday, August 17 - Orange County trip (from San Pedro); Catalina to Lausen Sea Mount; 5:30 a.m. to 6:00 p.m. Cost $36. Leaders: Brian Daniels and Lee Jones.

Sunday, August 18 - Los Angeles toward Santa Barbara Island; 6:00 a.m. to 6:00 p.m. Cost $32. Leaders: Kimball Garrett and Lee Jones.

Saturday, September 14 - Ventura to the back side of Santa Rosa Island – weather permitting; 8:00 a.m. to 6:00 p.m. Cost: $60.

Saturday, October 12 - Los Angeles to Santa Barbara Island and beyond; 6:00 a.m. to 6:00 p.m. Cost $32. Leaders: Herb and Olga Clarke.

Saturday, November 16 - Los Angeles to Santa Barbara Island and beyond. Trip is planned to look for ALCIDS; 6:00 a.m. to 6:00 p.m. Cost $32. Leaders: Arnold Small and Herb Clarke.

Note: Surcharge may be required for all trips if fuel costs rise.

See Reservation Policy on page 11

FIELD TRIPS

CALL THE TAPE!

Before setting out on any field trip, call the Audubon bird tape at (213) 874-1318 for special instructions or possible cancellations that may have occurred by the Thursday before the trip.

Notations in parentheses after trip listings refer to Thomas Bros. map page and grid coordinates (county, page number, grid coordinates).

Saturday, May 4 - Big Morongo Wildlife Preserve. Leader **Daniel Cooper** will be birding this renowned desert oasis and adjacent areas in search of breeding desert birds such as Brown-crested and Vermillion Flycatchers, Summer Tanager, and Scott's Oriole, as well as Yellow-breasted Chat and migrating flycatchers. Meet at

Continued on previous page

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UNITED STATES, EASTERN

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BIRDING THE DELAWARE VALLEY REGION, Harding	12.95
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BIRDS OF SOUTH FLORIDA: AN INTERPRETIVE GUIDE, Toops & Dilley	9.50
A BIRDER'S GUIDE TO GEORGIA, Greenberg & Anderson	9.95
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BIRDING AREAS OF IOWA, Petersen	5.95
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UNITED STATES, WESTERN

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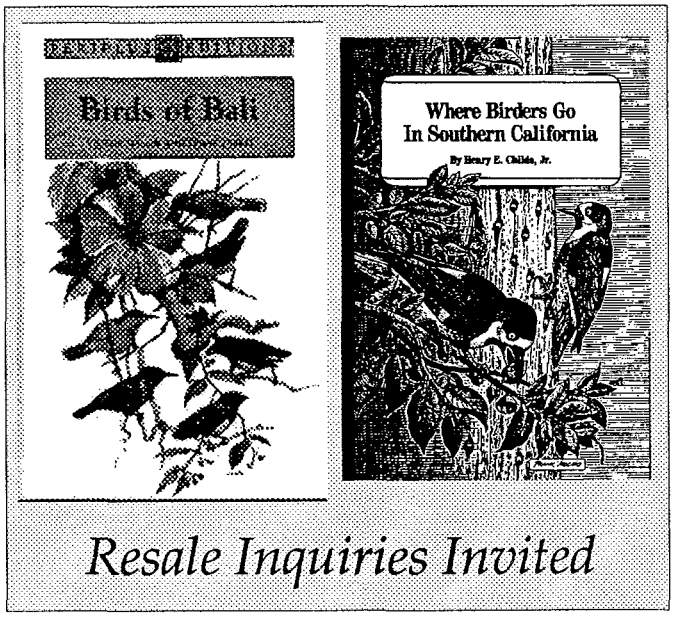

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