


Spring 1992

Volume 14, Number 4

# The MONO LAKE NEWSLETTER



Inside: 1992 SCIENCE UPDATES

# 1992 Mono Lake Foundation Workshops

*Sponsored by the Mono Lake Foundation and the Mono Lake Committee.*

The Mono Lake Foundation is a non-profit corporation, administered by a volunteer board, dedicated to the preservation of the Mono Basin ecosystem through education and research.

Our 1992 workshops offer an exciting array of weekend field seminars. We have old favorites plus a new class on glaciers led by everyone's favorite geologist, Jim Parker. Michael Ross and Lisa Rhudy are back with a weekend of exploring Mono Lake with your kids.

All classes are limited to 15 people.

*To register or for more information, please contact Sally Gaines, Mono Lake Workshops, P.O. Box 153, Lee Vining, CA 93541; or call (619) 647-6496 between 7:30 AM and 7:30 PM.*

## **Birds of the Mono Basin**

*Dave Shuford June 6-7 \$75/person, \$60/MLC member*

Dave Shuford of Point Reyes Bird Observatory is a master birder and patient instructor. Beginners as well as experts will enjoy this intimate introduction to Mono's birdlife. We will learn to identify approximately 70 species by plumage and song, and to understand their roles in our environment.

## **Lake and Stream Ecology**

*Dave Herbst June 27-28 \$75/person, \$60/MLC member*

In the desert environs of the Mono Basin, Mono Lake and other aquatic habitats are true oases of life. The lake is a long-brewing soup of life that has nourished wildlife for millennia. Streams, springs and ponds in the area also support a prolific community of organisms. With biologist Dave Herbst we will explore these areas, examining the lives of insects, fish, and plants.

## **Mono-Bodie Photography**

*Clinton Smith July 17-19 \$150/person \$135/MLC member*

The group will spend the first day exploring the ghost town of Bodie. Participants will be able to spend time inside buildings closed to the public and will remain at the park until after sunset. The final two days will be spent experiencing and photographing some of the tufa groves, aspen-lined canyons, volcanoes, and other unique features of the Mono Basin. The class will be loosely structured and will not be simply a tour of the photographic hot spots. This acclaimed photographer/philosopher intends to stimulate thinking and sensitivity. The class is open to all levels of expertise.

## **Volcanoes of the East Side**

*Jim Parker July 25-26 \$75/person, \$60/MLC member*

California's most varied and intriguing volcanic terrain is here in Mono County. Join a tour from the Bodie Hills to the Long Valley Caldera and learn about everything from rhyolites to basalts, glass flows to glowing avalanches. Beginners as well as experts will enjoy this intimate introduction to Vulcan's playground. The workshop will definitely **not** be cancelled in the event of an eruption!

## **Wildflowers of the Mono Basin**

*Mark Bagley August 1-2 \$75/person, \$60/MLC member*

From Mono's shores to alpine meadows, few places on earth rival the colorful magnificence of Mono's summer wildflower bloom. Mark Bagley, full-time botanist, private biological consultant and trip leader for the local chapter of the California Native Plant Society, will teach you to identify flowers and introduce you to simple plant characteristics and the natural history of the Mono Basin. While exploring from Mono Lake to tree line, we will see at least a dozen different plant communities and learn to identify many flowers, trees, and shrubs. The class will hike several miles at 10,000 foot elevation.

## **Fall Bird Migration of the Eastern Sierra**

*Dave Shuford August 8-9 \$75/person, \$60/MLC member*

The east slope of the Sierra Nevada is a major migration route for birds travelling from northern nesting areas to the warm southern habitats. This is the time of year to see the greatest diversity of landbirds, shorebirds and waterbirds in the Mono Basin and Crowley reservoir. Your instructor is well acquainted with the birds and where to find them.





### Natural History Canoe Tours

Gary Nelson and crew. Every Saturday, Sunday, 8AM, 9:30 AM, 11AM. June 13 through September 13. Adults \$10, Kids \$5. Sorry, no children under 4 years of age.

Join your expert guides for natural history from a unique perspective -- the lake itself. Starting near South Tufa, you will canoe through tufa spires along Mono's shoreline and learn about this ancient, life-productive lake. Reservations are strongly recommended for these one-hour tours, [call (619) 647-6595]. Special, longer group tours can be arranged. All participants must wear the provided life jackets and obey all safety rules.

Our thanks to REI for donating two new canoes.



Photo by Arno Grether

### Glaciers Past and Present

Jim Parker August 8-9 \$75/person, \$60/MLC member (August 10 is an optional day, with an additional \$30/person charge)

The best glacial deposits in all of California lie in the Eastern Sierra. This two-day tour will begin with the fabulous system of moraines in Bridgeport Valley and the Mono Basin, tracing the paths of vanished rivers of ice. The last and optional day will be spent exploring the living Dana Glacier in the high reaches above Tioga Pass; participants must be able to hike a strenuous six miles at high elevations.

### Mono Basin Family Nature Exploration

Michael Ross, Lisa Rhudy and kids August 15-16 \$90/family of four, \$30 for additional kids, \$50/adult. A 10% discount for MLC members

Michael Ross, author of the Mono Lake coloring book and other children's natural history books, will lead a family-oriented exploration of the Mono Basin. We will befriend birds, bugs and flowers; wade through a marsh; swim in Mono Lake; visit tufa towers; hike to a waterfall; visit a beaver pond and perhaps catch a glimpse of a Big Horn Sheep. Join us for a fun-filled weekend complete with a group campfire program in Lee Vining Canyon.

### Mono-Bodie Historical Tour

Arlene Reveal August 22-23 \$75/person, \$60/MLC member

We will journey with a local historian and story teller, back to the days of the Paiutes, prospectors and pioneers, bringing Mono's rough and tumble past vividly to life. We'll explore mining camps, stamp mills, homesteads and graveyards.

### Writing and the Natural World

Lauren Davis August 29-30 \$75/person, \$60/MLC member

This workshop will focus on the philosophy and craft of nature writing. We will discuss writers whose work evokes the essence of the Eastern Sierra and Great Basin -- John Muir, Mary Austin, Idaho Strobbridge, Edna Brush Perkins and Steve Trimble. Then we'll practice applying elements of their literary approach through writing exercises in the field. We'll also discuss techniques for the teaching of natural history writing. Our field excursions will not be strenuous but will include beautiful off-the-beaten-path locations around Mono Lake and its streams.

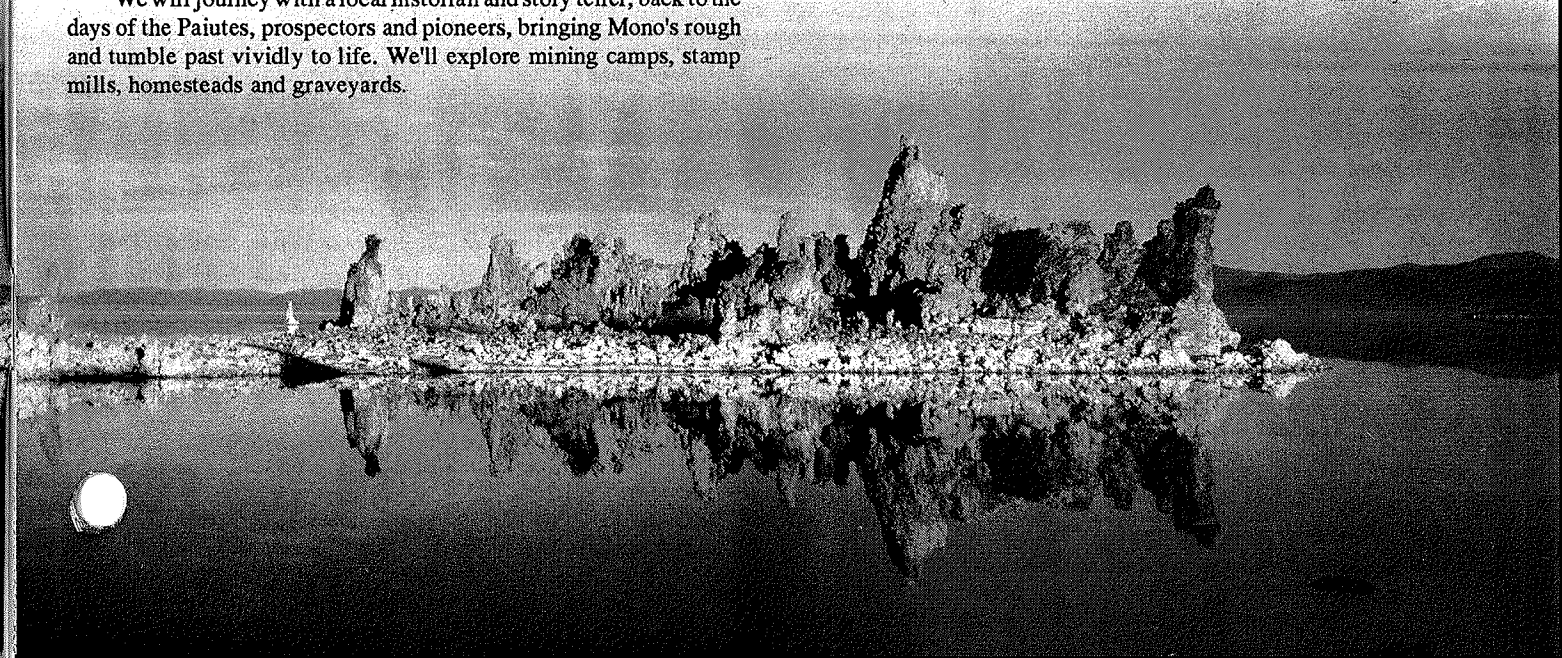
**Canoe tours end September 13!** September is a nice month in which to visit!

### Mono Basin Fall Photography

Jim Stimson October 23-25 \$110/person \$90 MLC member

We will explore various locations along the lake, as well as photograph the autumn colors in nearby canyons. We will have discussions covering composition and methods of exposure under the diverse variety of lighting conditions encountered in the Eastern Sierra. Other topics include Zone System, visualization, filtering, and developing a personal vision. The workshop is for all levels of enthusiastic color or black and white photographers.

Photo by Warren Marr



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## This Issue's Cover:

The photo of a moonrise over Mono Lake was donated by Dan Warsinger, a photographer fortunate enough to live and work in nearby Yosemite National Park.

This issue of the Mono Lake Newsletter features our yearly report of scientific research done in the Mono Basin. As usual, it also deals with the ongoing struggle to save this valuable, threatened ecosystem.

While the newsletter explains much of the work being done on Mono Lake's behalf, a photograph like Dan's can remind us simply and beautifully why all that work is important.

Mono is simply a uniquely magnificent place. How can we not want to leave it intact for future generations?

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*The Mono Lake Committee is a non-profit citizens' group dedicated to saving Mono Lake from excessive diversion of water from its tributary streams. We seek a solution that will meet the real water needs of Los Angeles and leave our children a living, healthy and beautiful lake.*

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## Poconip

by Bob Schlichting

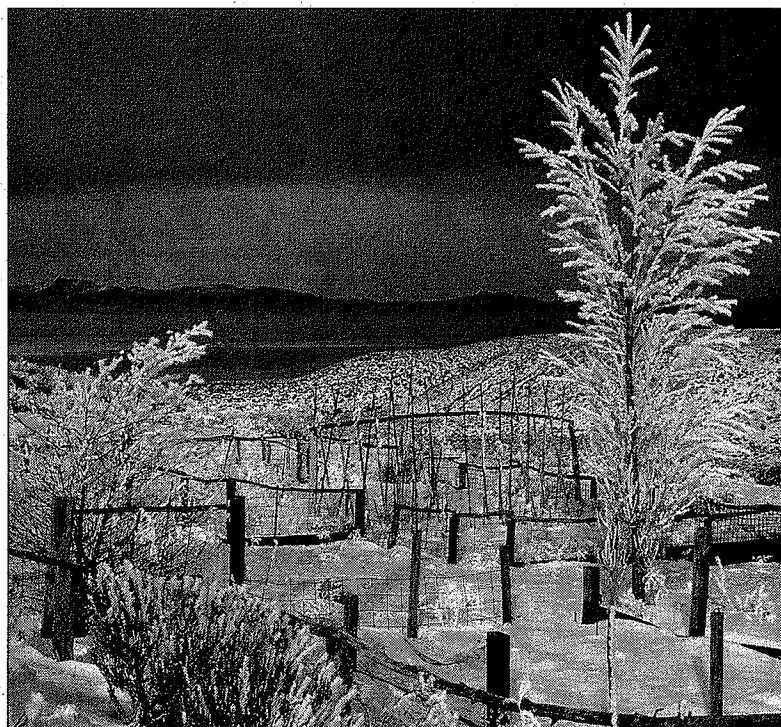


Photo by David Gaines

Fog formed over Mono Lake this January -- an icy, persistent winter blanket that the Paiute call "*poconip*". The frozen air stole in silently from the lake, coating everything -- sagebrush, trees and tufa -- with a velvety sheen of ice.

As I trudged through half a foot of snow along Mono's shore, I found the *poconip* unsettling. Wrapped in it, my senses of hearing and sight were oddly muted. Vision was reduced to a few claustrophobic feet; the enveloping fog dampened all sounds. I wore layer upon layer of clothing as protection against the cold; even my sense of touch seemed numbed.

For two weeks in January, the sun had been masked by mist. Day after day, dim, grey light trickled down through the icy blanket. Without the movement of the sun, time itself seemed to slow in the thick fog.

The layer of *poconip* over Mono Lake and the town of Lee Vining was dense, but shallow. A ten-minute drive past the Aeolian Buttes to the south or up Conway Summit to the north would put you above it. Journeying two miles up the closed Tioga Pass one afternoon delivered me into bright sunshine glaring off fields of snow. Temperatures in sunny Mammoth and Bridgeport rose into the high 40's, while Lee Vining, buried beneath the frigid fog, remained well below the freezing mark.

By January's third week, the *poconip* began to burn off in early afternoon. As it slowly dissipated, you could look toward the sun and see thousands of tiny ice crystals. They drifted through the air like multicolored sequins. A friend said they looked like glittering fairy dust; Tinker Bell must have flown by recently, she laughed.


The icy moisture worked strange miracles on snow. The airborne crystals settled gently onto the blanket of white, stacking themselves into delicate formations like tiny frozen feathers. Sometimes the snow under these formations would melt away, leaving fluffy arches of ice that seemed to hover inches above the ground. They appeared to be tiny clouds fallen to earth.

I watched the *poconip* dissolving one afternoon from Mono Lake's south shore. A hole appeared in the fog bank. Mount Dana, snowcapped and majestic, appeared for a moment before the mists closed in front of it again.

After the *poconip* had cleared from most of the lake, warm mist continued to float from a spot along the water's edge at South Tufa. It rose above tiny freshwater springs, surfacing only inches off shore. I stuck my finger into one that had formed a six-inch-wide limestone reef -- the beginning of a new tufa spire. The fresh water welling up was warm to the touch.

Less than a foot way, a second spring gushed from the lake bottom. It was much colder -- probably 40 degrees colder -- than the first. Two similar-sized springs within a foot of each other, each bubbling from a different source.

Discoveries like that never fail to astound me. I find beauty everywhere at Mono Lake, in the birds and brine shrimp, tufa and volcanoes, water and wind.

Many others share my sense of wonder for this place: numerous scientists study this rare, valuable ecosystem. This issue of the newsletter highlights their work with our annual scientific updates. Read their work. It will remind you how unique, how important, and how fragile Mono Lake is. 

## Lake Views: An Editorial

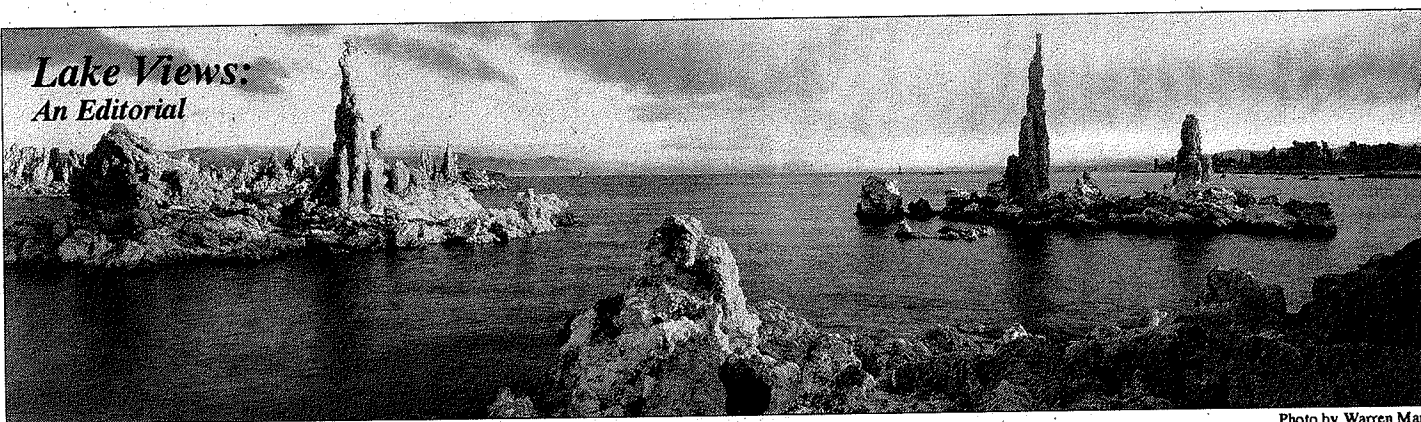


Photo by Warren Marr

# Letter Reveals Faulty Logic of DWP's Position

by Bob Schlichting

*"For the past fifteen years, a heated battle has been waged between the Department of Water and Power and those who have fought to protect Mono Lake -- an ecosystem that until this century, has thrived for about a million years. DWP has lost the court battles -- fair and square."*

That's how Richard Katz, State Assembly member from Los Angeles' 39th District, began a February 10th letter to DWP Commission President Mike Gage. *"The Department continues to file appeal after appeal, fiercely fighting a losing battle and squandering over \$12 million in taxpayer dollars over what amounts to 15,000 acre feet of water per year.... I'm incredulous that the Department and the Commission has continued to drain the City's funds when nearly three years ago they were handed the tools to replace that water -- many times over."*

The "tools" Katz refers to is a \$60 million fund established by Assembly Bill 444 to finance replacement water for LA. Katz co-authored the legislation along with Assemblymembers Phil Isenberg and Bill Baker in 1989.

DWP has yet to join the Mono Lake Committee in applying for the money. Responding to the Assemblyman's letter on February 25th, Daniel W. Waters, DWP General Manager and Chief Engineer, explained why.

*"There are no assurances that the Department of Water Resources would commit all of the AB 444 funds (\$60 million) to projects benefitting Mono Lake,"* wrote Waters. He then articulated DWP's position -- a position that seems surprisingly illogical.

While admitting DWP has been involved in "protracted litigation," he explains that, *"These lawsuits challenged the City's rights to more than 70,000 acre-feet annually of the highest quality water available to the people of Los Angeles. This is enough water to supply 400,000 people and has a water and energy replacement cost of \$27 million per year."*

In that "protracted legislation," DWP lost, time and time again. The California Supreme Court unanimously concluded in 1983 *"that the public trust doctrine, as recognized and developed in California decisions, protects navigable waters [Mono Lake] from harm caused by diversion of non-navigable tributaries."*

In 1989, those tributaries themselves were ruled worthy of protection. Four long-dry streams in the Mono Basin were rewatered by court order. The court also demanded that the fisheries that once thrived before diversions began must be restored.

So, despite what DWP's General Manager asserts, the amount of water in dispute today is, as Assemblyman Katz correctly points out, 15,000 acre-feet, not 70,000. By court decree, approximately 55,000 acre-feet a year must flow down Mono's streams and, incidentally, into the lake.

DWP's position ignores those court decisions.

Mr. Waters' letter then takes exception to the Six-Poin Plan put forth by the Mono Lake Committee to resolve the litigation. *"We believe the lake level advocated by the Mono Lake Committee (elevation 6386) is unnecessarily high. Based on extensive studies and recent experience, the Department strongly believes that the environmental resources of the Mono Basin would be protected at the current lake level."*

The current lake level is 6374.5 feet above sea level. However, a preliminary injunction now in force requires DWP to maintain Mono Lake at an elevation *above* 6377 feet -- at least two-and-a-half feet higher than present levels -- to prevent harm to the ecosystem. In his summary to the decision, Superior Court Judge Terrence Finney opined that there was *"an excellent chance"* that a level that high or higher will eventually be decided upon.

Again, DWP's position ignores the decision of the court.

*"Over a 25-year period and assuming normal runoff, the cost of replacement water and energy for maintaining the lake at elevation 6375 is approximately \$400 million as compared to a cost of more than \$700 million for maintaining the lake at elevation 6386,"* continues Waters. *"I believe a cost difference of this magnitude far outweighs the benefits that might be available through AB 444 unless agreement can be reached on a lake level much lower than 6386."*

Seven hundred million is an intimidating figure -- unless you do some simple math. DWP claims it costs \$27 million to replace 70,000 acre-feet of Mono Basin water a year.

But the argument is no longer over 70,000 acre feet a year.



Now, as water goes down Mono's streams according to court order, only 15,000 acre feet are in dispute. Giving 15,000 acre-feet a year to Mono Lake for 25 years could raise it to the Committee's suggested 6386 level -- at about a fifth of the cost quoted by DWP.

Even DWP's projected price of maintaining the lake at the much lower elevation of 6375 feet is incorrect. Mandatory stream flows more or less stabilize the lake at 6372. Again, those flows are already lost to DWP by court order; therefore making a settlement to permanently protect Mono Lake at the 6375 level would cost DWP little more than it has already lost. However, it *would* give the Department access to \$60 million in AB 444 funds.

Mr. Waters compares that \$60 million against DWP's *hypothetical* financial loss and finds the state money too paltry a sum. But why not more accurately compare the worth of the 15,000 acre-feet of lost Mono Basin water with the worth of the *replacement water* that AB 444 funds could produce?

Assemblyman Katz addressed the possibilities for reclaimed water in his letter. *"Currently, the City annually loses approximately one million acre-feet of treated water that flows down the LA river into the ocean. This water can be recycled and used for a variety of uses -- the irrigation of parks and golf courses, groundwater recharge, and non-potable purposes in public and private buildings."*

After noting that while DWP currently recycles only 1,000 acre-feet of water a year while nearby Orange County presently recycles 50,000, the LA-area Assemblyman pointed out that *"DWP's own East Valley project, which is proposed for expansion and upgrade, has been sitting on the drafting table. The projection for East Valley Project's recycling capability is estimated at 50,000 acre-feet. The project has languished for only one reason: funding. Certainly the rate payers would question why the latest [LA water rate] increase might include a small set aside for East Valley Project -- when \$60 million has remained untouched."*

The East Valley facility is budgeted in the neighborhood of \$40 million; AB 444 funds could pay for that project and more.

But DWP hasn't applied for the money. The Department has turned its back on millions of dollars that could produce, with the East Valley Project alone, *three times* the water we are arguing over in the Mono Basin. Yet the Department maintains that the *"cost difference... far outweighs the benefits."*


AB 444 money was never meant to be payment in lieu of diversions from the Mono Basin. The legislation was expressly written so DWP cannot use the fund to simply buy replacement water lost because of court decisions. To buy replacement water from sources like the Bay Delta, would simply transfer the Mono Lake problem to another ecosystem.

No, with AB 444, the state legislature created a \$60 million fund of *investment capital*. In the East Valley Project alone, that capital could produce, at a minimum, three times the water lost from the Mono Basin.

DWP says the \$60 million fund furnished by AB 444 is not enough. But if we use DWP's own logic and figures, the Department is walking away -- not from \$60 million -- but from *three times the amount of water it is losing in the Mono Basin*. If, as DWP's General Manager states, Mono's water is worth \$700 million, then the AB 444 should be worth three times that amount -- over \$2 billion.

Unfortunately, the longer the Department's bureaucrats stall, the less chance Los Angeles has of securing AB 444 funds. As Katz warned in his letter, *"DWP knows that this pot of money will continue to dwindle as other entities may now begin to tap this funding source."*

The position of DWP's staff makes no economic sense. It overlooks the results of years of litigation. It overlooks the commitment made by the Department's own Commission to water conservation and reclamation.

It also ignores a changing political climate in which DWP's position on Mono Lake is seen as less and less reasonable by such public officials as Assemblyman Richard Katz. He summed up his frustration in his February letter when he wrote: *"It seems to me that DWP is bent on achieving a lose-lose situation -- for no significant or beneficial reason other than to keep from admitting the obvious: you've been wrong."* 



#### Lake Level Watch:


## Drought Continues For Mono Lake

While major storms in February dropped much needed snow in the Eastern Sierra, precipitation in the area remains well below normal. Estimates from DWP in early March indicated that there was only a one-in-ten chance that the area would receive its normal snowpack by April 1.

At Gem Pass, the headwaters of Rush Creek, the measured snowpack was 79 percent of normal in early March. Nearby Mammoth Pass stood at 70 percent. In contrast, this Winter's El Nino rains have increased the precipitation amounts of Los Angeles and Southern California

to 146 percent of normal.

Currently, Mono Lake stands at 6374.5 feet above sea level. Current projected amounts of Spring and Summer runoff should bring up the lake to an elevation of 6375.2. Barring major amounts of moisture, the lake is predicted to drop again to 6374 by Fall.

Even at the higher elevation, Negit Island is barely separated from the mainland. Last year, the gulls abandoned Negit before their chicks had successfully fledged. It is uncertain whether the gulls will return to Negit this year because of coyotes and other marauders that are able to walk to the nesting sites. 



**Good news! The Mono Lake Tufa State Reserve is safe for another year!**

*Faced with severe budgetary problems, the California State Department of Parks and Recreation had threatened to close it as early as this summer.*

*We thought you should know more about Mono Lake's state reserve -- and the two people who have managed it for over ten years.*

## **The Tufa Reserve's Ranger Carle -- Both Of Them**

by Bob Schlichting

In January, 1982, legislation went into effect establishing the Mono Lake Tufa State Reserve. Shortly thereafter, the ranger assigned to the park arrived for duty -- Janet and David Carle.

"We interviewed for the one available position as a two-person job-share," explained Janet. "It was the first time that two rangers were

allowed to fill one position, splitting both the work and the salary. It's a rare situation; to this day, we're the only married couple working like this in the state park system."

The Carles met in 1975, when they both had summer jobs as campground rangers in King's Canyon National Park. They were married a year later, while David was a ranger doing night security at the Hearst Castle State Historic Park. They both decided on a career with the state park service, even though they realized the odds of working together were slim.

"Life can be tough for a married couple who are park rangers," David allowed. "When Janet and

I met, the state would try to assign couples to locations somewhat close together. But now it's much more difficult. Today assignments are made solely on the basis on seniority. Married couples can be given assignments hundreds of miles apart."

"Our sharing the one Mono Lake ranger position has worked remarkably well, both for us and for our employers," said Janet. "It has allowed David and me to raise a family while we both continue our careers. We have two boys -- Nick, now nine years old, and Ryan, seven.

"For the state, the arrangement has been extremely cost effective; for one salary, the parks department has gotten the equivalent of a ranger and a half. Both David and I bring different skills to the job."

Janet graduated from the University of California at Davis with a degree in Environmental Studies, while David majored as a wildlife and fisheries biologist. He agrees that their different specialties have helped them at the State Reserve.

"This is the old type of ranger job that goes back 40 years,"

he explained. "Today, most state parks have specialized staffs with people to do maintenance, people to do law enforcement, and people to do interpretation or administration. The tufa reserve has only one position. Janet and I need to be 'jacks of all trades.'"

"We do everything from cleaning chemical toilets to

leading nature hikes, from cutting down and eradicating tamarisk trees to aiding researchers who are studying the ecosystem," Janet added. "We present programs to numerous school groups that travel here each year from all over California."

"We also built and maintain two board-walks at Mono Lake, one at Old Marina along highway 395, and one below the county park. Those two locations are visited by about half of the more than 200,000 visitors to Mono Lake last year. South tufa accounts for the other half," Dave explained.

Another important part of their job is studying and commenting on Environmental Impact Reports. "David and I are the ones representing the state's interest in environmental matters here at the lake. Protection of Mono's public trust values of is one of the reasons the legislature formed the Reserve back in 1982."

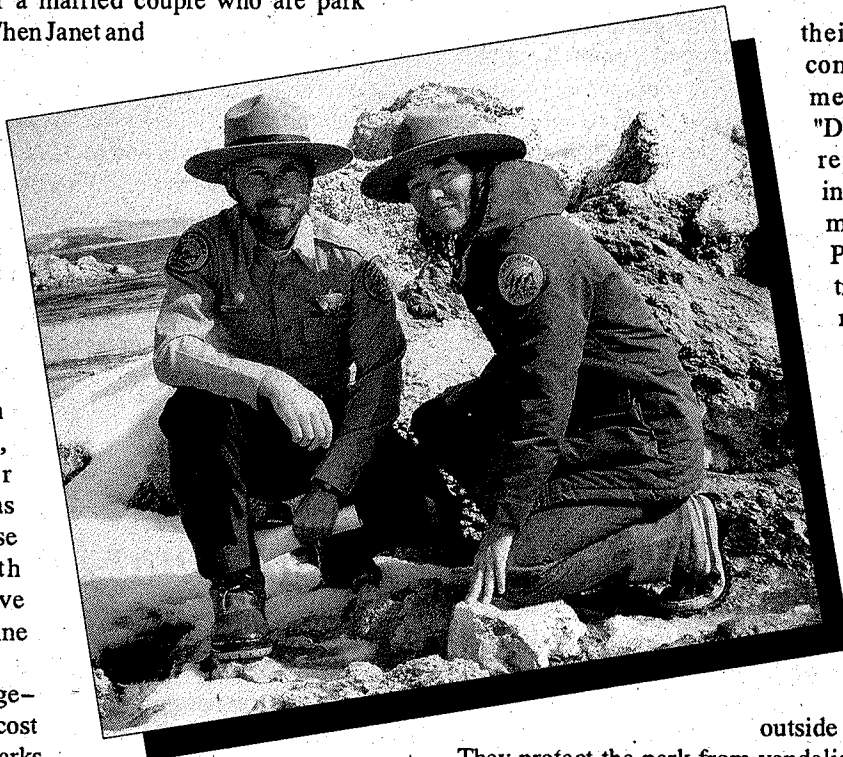
As tufa rangers, David and Janet have carried out numerous search and rescue operations over the years. They also carry guns; as fully empowered peace officers, they enforce all state laws, both inside and

outside the Tufa State Reserve.

They protect the park from vandalism, and try to educate the occasional tourist who tries to take some tufa home.

"We've had to track down people who take tufa as souvenirs," said David. "One man -- a teacher from the Central Valley -- had a pickup truck full of tufa. We convinced him to return it."

What would have happened if the Mono Lake Tufa State Reserve had been closed by department budget cuts? Who






would take over the duties of the missing state rangers?

"That's a good question," David admitted. "Some people have suggested the Forest Service might take on the extra work, but the federal government has budget restraints, just like the state. Taking over our jobs would be a big addition to the Forest Service's workload. Probably 70 percent of our time is spent out in the field."

The irony is that closing the Reserve would not have saved the state all that much money. The yearly cost of the park is roughly \$57,000, which includes one ranger salary with benefits;

rented office space and all the associated administrative costs, including telephone; a truck, gasoline; and even part-time help taken on during the summer to help explain Mono Lake to visiting tourists.

"But the worst part is that, if the reserve had been abandoned now, the state would be sending a totally wrong message to the courts and to the public," Janet concluded. "This year court-ordered actions may bring the Mono Lake conflict to a critical point. Now is not the time for the State Park System to hedge on its commitment to Mono Lake and the Tufa Reserve." 

## ***Tufa Reserve Safe; Other Parks Still in Jeopardy!***

Financial shocks have threatened not only the Tufa State Reserve but the entire state park system. Already budget cuts have sliced equipment purchasing, maintenance, temporary help and office operating expenses. Other cost-cutting measures will include reduced hours and the closure of some parks.


Two committees are working to rebuild the State Department of Parks and Recreation. The first, dubbed the "Phoenix Committee", is made up of

state park employees. It is headed up by Ted Hilliard, newly appointed Executive Assistant to the Parks Director and a member of the Mono Lake Scenic Area Advisory Board. The Phoenix Committee made the final decision about the Tufa Reserve on March 16th.

The second group, a Blue Ribbon committee, is made up of business and environmental leaders as well as 12 legislators. They are working to identify a permanent, stable source of funding for the

parks department and make recommendations to the state legislature.

Both groups need your letters of support. According to Hilliard, only one-third of one percent of California's budget goes to state parks, yet they generate over a billion dollars a year.


Please write to your state Assembly member and Senator and urge them to support stable and adequate funding for all parks. Send your letters to *State Capitol, Sacramento, CA 95814*. 

## ***Demand Heavy For Mono Teacher Guide***

Over 100 orders have come in for the newly created Mono Lake Committee teaching packet. Written by former Committee Programs Coordinator Carolyn Callahan, the 30-page booklet gives instructors a comprehensive plan to teach their students about the history, ecology, and importance of Mono Lake.

"The project was put together with the help and advice of many teachers, reflecting a broad scope of teaching styles," said Callahan. It is designed for grades three through seven, but is easily adaptable to all age groups.

Six different lessons discuss not only the natural and cultural history of the Mono Lake area, but the importance of conservation in today's world. They lay out suggested activities and questions for discussion.

A \$4 donation is requested for the packet, which is available at the Visitor Center in Lee Vining. Orders may also be placed by phoning (619) 647-6595. 

## ***August Alaskan Trip Aids Mono Lake***

A summer cruise that explores the Inside Passage and Gulf of Alaska is being sponsored by the Mono Lake Committee. The price of the eleven-day trip includes a \$250 donation to help save Mono Lake.


"If you enjoy seeing creatures while enjoying your own creature comforts, this cruise is for you," said Mildred Bennett, coordinator of the trip. The natural history adventure will be aboard the 138-passenger *World Discoverer* of Clipper Adventure Cruises as it sails from Prince Rupert, B.C. to Kodiak Island in the Gulf of Alaska.

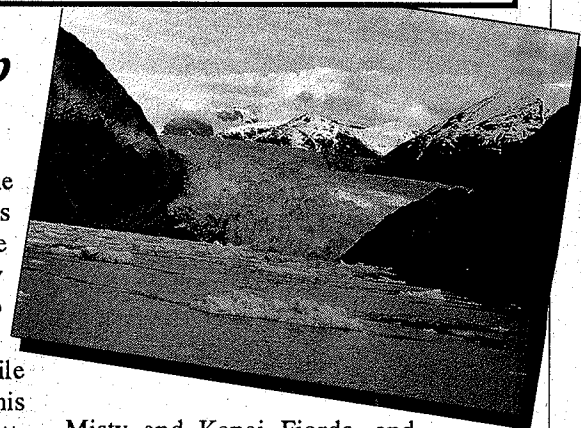
The journey, from August 13-23, 1992, will emphasize coastal wilderness. Experienced naturalists will be aboard the ship, and there will be numerous excursions ashore via zodiac landing craft to explore the plant and animal life found in seldom-visited coves and inlets.

Special wilderness areas to be visited include Glacier and Icy Bays, Prince William Sound, Katmai National Park,

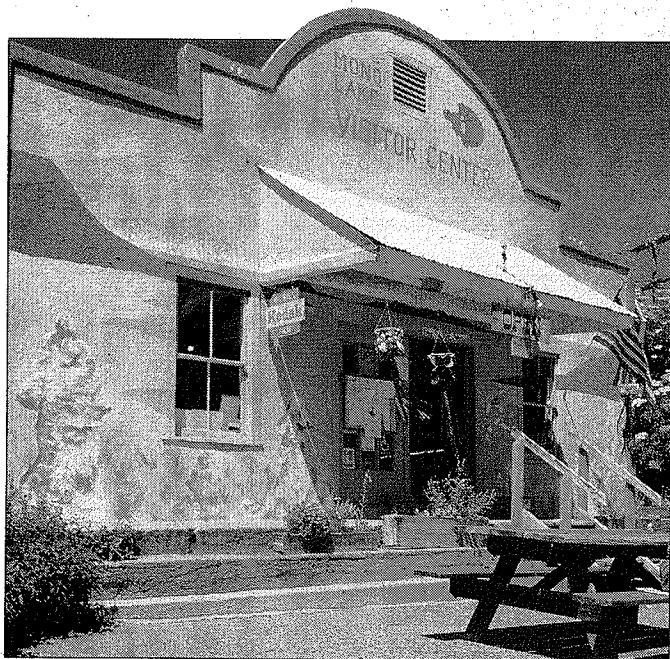
Misty and Kenai Fjords, and Kodiak Island. The trip ends in Anchorage after a flight from Kodiak.

The fare for Mono Lake participants is five percent less than the normal price, and includes the donation to Mono Lake. Prices start at \$2612 per person, double occupancy. Airfare is additional.

Brochures with details about the Alaskan adventure are available by writing *Mildred Bennett, 2719 Marin Avenue, Berkeley, CA 94708*, or by phoning (510) 526-1260. Information will also be available soon about Mono Lake Committee trips to Patagonia in February, 1993, and Antarctica in January, 1994. 



# Rebuilding Begins On Committee Headquarters!



This Spring, the initial phase of the Mono Lake Committee's project to remodel its headquarters begins in Lee Vining.

"It was a decision made by the winter weather," said Shelly Backlar, Development Director in charge of funding the project. "Melting snows and a bad leak destroyed part of a Visitor Center wall and some flooring. While we don't yet have the money for the entire remodeling project, it is imperative that we begin some work, if only to prevent more damage to the building."

"It's time to get started," agreed Visitor Center Manager Shannon Nelson. "Our building needs some TLC before the summer season begins."

So far, members' response to the remodel has been impressive, according to Backlar. Pledges of money, material and labor have all arrived. She added that those who have eagerly volunteered their time and skills will be contacted soon. "We want you to be part of the transformation," she said.


**Patagonia**, the Ventura-based mountaineering and clothing manufacturer, sent a design team to Lee Vining in late March to make recommendations about improving the Committee's store. They provided suggestions on how to better integrate merchandise with the new displays that explain the on-going struggle to save Mono Lake.

The Visitor Center has always been an important tool for educating the public to the threat facing Mono Lake. In addition, it is an important source of income for the Committee. "Sales of merchandise generated over \$41,000 toward our operating budget last year," said Nelson.

The opening of the Forest Service's Visitor Center and

its retail store makes our remodeling project even more important. "We have a new competitor in Lee Vining," Shannon admitted. "If our headquarters is to continue to attract visitors, educate the public, and earn funds to fight for the lake, we need to invest some money now."

This first phase of the remodeling project will concentrate on making the Committee's Visitor Center waterproof, and to repair the damage caused this winter. Areas now being utilized by the bookstore and by displays will be revamped to make better use of space. Lighting will be upgraded. And, by this summer, the Mono Lake Committee will finally be able to offer its visitors public restroom facilities. **DMC Industries**, an energy and water-conservation firm in Los Angeles, plans to donate low-flow, state-of-the-art plumbing fixtures. In addition, the outside will be beautified, with spaces for visitors to sit.

"Thanks to our volunteers, by June our Visitor Center will have a new look," said Shannon Nelson. "And -- like the Committee itself -- it will be a grassroots effort." 

## *Can you help us with our wish list?*

**Here are some of the items needed by the Committee for the first phase of its remodeling project:**

- Oak barrels, to be used as outside planters
- Potting soil
- A picnic table and benches
- 8 35-foot rolls of asphalt roofing
- 50 feet of track lighting
- Industrial carpet, to cover the rebuilt floor
- A dozen sheets of 3/4 inch plasterboard.
- Paint

**To help with our educational displays, we can use:**

- A VCR and TV monitor

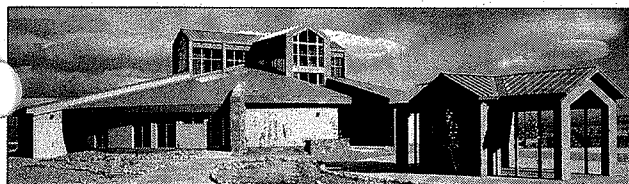
**For our soon-to-be-revised slide show presentation, we could use:**

- A dissolve unit for our two-projectors
- An audio cassette tape deck
- Speakers

**And, as always, in our offices in both Lee Vining and Burbank, we need:**

- Computers -- either IBM compatible or Macintosh
- Printers -- either dot matrix or laser
- A photocopier.

**If you can help, please contact Shelley Backlar in Burbank, at (818) 972-2025.**



## Forest Service's Mono Basin Scenic Area Visitor Center: **Grand Opening Ceremony Scheduled For May 30th**

Although it might open its doors quietly in April or early May, the new \$5 million US Forest Service Scenic Area Visitor Center will host its official opening ceremony May 30th. The facility will be dedicated to the memory of David Gaines, founder of the Mono Lake Committee.

Overlooking Mono Lake from a point of land just north of Lee Vining, the federally-owned building encompasses over 13,000 square feet on two floors. It features a 98-seat theatre, almost 3,000 square feet of exhibit space, a bookstore, research library, photo galleries, and administrative offices for both the Scenic Area staff and the Tufa State Reserve.

"There are four features of the Center about which I feel really proud," said Nancy Upham, Manager of the US Forest Service Scenic Area. "For one, we are the permanent home of the *At Mono Lake* Photo Exhibit."

Assembled by the Friends of the Earth Foundation in 1983, the touring exhibit features such renowned photographers as Ansel Adams, Brett Weston and Galen Rowell interpreting Mono Lake. The *At Mono Lake* collection will be housed in a specially designed room with humidity and temperature controls.

Natural and cultural history displays will help explain the Mono Basin to visitors. In addition to these permanent exhibits, the center has a changeable display area called *The Moods of Mono*. It will feature "additional photo displays, Indian artwork, original paintings, or other special exhibits," explained Upham. "The main hall is intended to educate people, to help them understand the ecosystem as a whole. *Moods of Mono* is the area that will reach their heart."

The third area of which the Scenic Area Manager Upham

is proud is the building's theater. Several times a day a new film on the Mono Basin, specially made for the government center, will be screened for visitors. Special evening programs will also be held here.

Finally, the research library and teaching center downstairs will house a herbarium -- "a permanent collection of plant species from the Mono Basin", said Upham. "We also have set up an area where school classes can come. We have a microscope set up to project onto a screen, so an entire class can look at something all at the same time. We have some great educational tools."


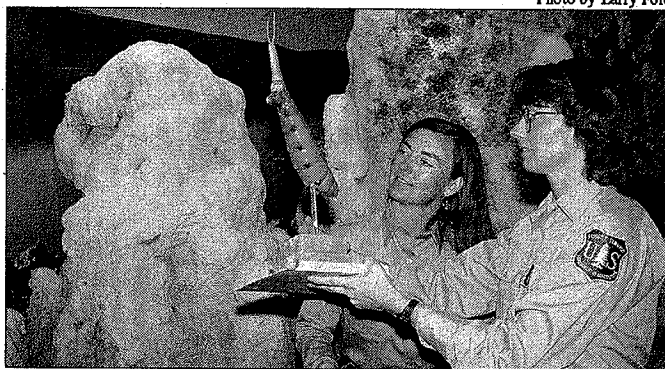
The US Forest Service Visitor Center has taken six years to plan and construct. Ground breaking ceremonies took place back in March, 1990. 

Photo by Larry Ford



US Forest Rangers Deanna Dulen (left) and Randi McPherson work to install displays for the new Scenic Area Visitor Center. The \$5 million facility will officially open May 30th.

## ***We Need Your Help! Join the Contest! Our Visitor Center Needs A New Name!***

The Mono Lake Committee worked hard to help create the Mono Basin Scenic Area. But now that the Forest Service's Visitor Center is about to open, there is much confusion in Lee Vining.

Suddenly there are *two* Visitor Centers at Mono Lake. Even some of our members mistake the new \$5-million-dollar government building for the Committee's headquarters. Merchandise destined for one center is mistakenly shipped to the other.


The name of the Mono Basin Scenic

Area Visitor Center -- that's the Forest Service's building -- isn't going to change. So, to prevent the confusion, we've decided to rename *our* Visitor Center. To that end, we've started a contest.

Send us your suggestions. The Committee's new Visitor Center name needs to explain who we are, and what we do. For example, *Mono Lake Committee Headquarters* has been suggested, but that sounds more like an office building than a place for visitors. Likewise, the *Save Mono Lake Center* sounds too

strident, and still doesn't clear up the confusion.

Hey -- we never said this would be an easy contest! But the person sending in the name that the Committee staff judges as best -- whether we use it or not -- will win a \$25 gift certificate from our center -- our bookstore -- our headquarters.

Deadline for submissions is April 17. Send all entries to Shannon Nelson, PO Box 29, Lee Vining, CA 93541. (Use the handy membership envelope included in the newsletter, if you like!) 



06 JUN. 91

Things are getting worse.\*

Thanks for your reply - the only organization among 100's to be so considerate.

on second thought, as a former Tuolumne Meadows area - Mt Dana like I have added you to my short list of worthwhile efforts

check attached

ADK

\*Please send chocolate.

## Direct Mail -- The Personal Touch

by Bob Schlichting

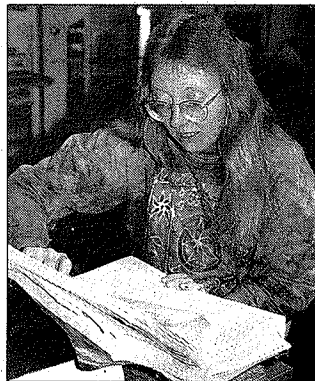
Vining, Elaine strives to make dealing with the Committee as personal and pleasant as possible.

"Most of the complaints we get come from people receiving duplicate mailings," Elaine explained. "There can be a computer lag of six weeks if you change your address or renew your membership. For that reason, people sometimes get renewal reminders even after they have already responded."

The Committee also sends several mailings a year to attract new members, using lists rented or exchanged with other environmental groups. We do a computer purge of those lists to remove the names of our members. However, if, say, the *Sierra Club* has you listed with a different first name, spells your name differently, or has a different address, you may get one or more Mono Lake letters.

"In cases like that, we can't take you off our mailing list, because you're not yet on it. You need to tell *other* groups not to trade your name," said Light.

For years the Mono Lake Committee has offered that option to its members. Look at your address label. If it has the number




Membership Coordinator Elaine Light checks the latest list of Committee supporters.

"10" in the upper right, it means your name will *not* be traded to others. Allowing our contributors the option of not having their name traded to other groups means our mailing program costs more, but we think your privacy is worth it.

The Mono Lake Committee tries to be sensitive

in other ways, too. For example, we use recycled paper in our mailing program whenever possible. Even the window in our envelope is recyclable glassine, not plastic.

But, in the end, it is Elaine's sensitivity that makes our direct mail program work. Two-thirds of our entire operating budget comes from fundraising appeals, and we frequently get comments like the one from **Daniel Rosen**, of Oakland. When renewing his membership, he added, "*I can't think of any other environmental organization which uses its modest resources more effectively. Keep up the good work.*" 

## Membership Problems? Let Your Label Work for You!

Use the handy membership envelope included in the newsletter to send this coupon to Elaine Light in Lee Vining!

Attach Label(s) Here!

... and check the appropriate boxes, right.

Change of Address:

New Address

City, State, Zip

Phone Number

☐ **Renewals** -- If you just renewed but continue to get renewal notices, your payment and the reminders may have crossed in the mail. If you continue to receive requests, let us know. We'll track down the reason why.

☐ **Duplicate Mailings** -- If you're receiving two copies of the Mono Lake Newsletter or other Committee mailings, please attach both labels with different membership ID numbers. (The long number just above your name.)

☐ **Missed Issues** -- If you haven't gotten issues of the Mono Lake Newsletter, attach a brief note to indicate which ones. The newsletter is published quarterly.

☐ **List Preference** -- We occasionally make our membership list available to other environmentally-conscious organizations. Please check here if you would prefer not to receive such mailings. (If you're already a 10, don't worry -- you're on the "don't trade" list.)

☐ **Other Questions or Problems?** Attach your label and include a brief note.

## Event Will Benefit Mono Lake

# Bay Birdathon '92 To Be Held April 25th

For the third year in a row, the Marin and Golden Gate Audubon Societies will join forces to raise funds for Mono Lake. The Bay Birdathon will be held April 25. At least 50 percent of the proceeds will go to National Audubon's Mono Lake Legal Fund, while at least an additional 30 percent will benefit the Mono Lake Committee.

Last year's Birdathon netted over \$9900 to Audubon's legal fund, and almost \$6200 to the Committee. Twenty-three teams took part last year; 21 teams have signed up for the upcoming event.

"Teams can still be formed," said Harrison Karr, chair of Bay Birdathon '92. "Every team gathers pledges for each species of bird they are able to identify in a 24-hour period."


Participants can form a team of their own, gathering pledges and searching for birds on April 25, or can help the Birdathon by simply pledging money for one or more teams. Those filling out the pledge form below will be sent a list of the birds sighted and a notice of the total amount of their pledge.

Contributions are all tax-deductible.

Last year's top fundraisers were the *Semi-Pulverized Plovers*, led by Rich Stallcup. The team brought in almost \$4000 in pledges. In second place, the *So-What Owls*, led by Jean Thomas and Barbara Salzman, raised almost \$2700.

While most of the birdwatching is traditionally done in the San Francisco Bay area, one team, the *Bino'ed Bare-Eyes*, will be identifying species in the Amazon Basin in Ecuador. The *Mono Lake Nosee'ums*, a team made up of Mono Lake Committee staff, will be looking for birds from Bridgeport to Crowley Lake.

"This year, t-shirts will be given to all entering teams, and prizes will be awarded in a number of categories, such as 'most species identified'" said event-organizer Karr. "In addition, premiums such as books, canoe tours or MLC memberships will be given to sponsors who donate \$40 and more."

For details and a complete list of prizes, contact Harrison Karr at (415) 892-6342. 

## Bay Birdathon '92 Pledge Form

Golden Gate Audubon Society  Marin Audubon Society

*I pledge to sponsor one or more of the following Birdathon teams at the rate of \$ \_\_\_\_\_ per species. Contact me after the April 25 Birdathon to collect my pledge.*

☐ Allen's Hummers, Marin

Big Oil Birders (BOB)

☐ BOB #1, Bay area

☐ BOB #2, Gulf Coast

☐ Biking Bushed Kids, Bay area

☐ Bino'ed Bare-Eyes,  
Amazon Basin, Ecuador

☐ Bodega Bay Bushtwits, Marin

☐ Casual Vagrants, Easy Bay

☐ Environmentalists, San Francisco

☐ Huffing Puffins, East Bay

☐ Loonatics, San Francisco

☐ Mines Roadrunners, Marin

☐ Mono Lake Nosee'ums, Lee Vining

☐ Murphy's M.O.B., San Francisco

☐ Not So Oldsquaws, East Bay

☐ Rockingbirds, Tiburon

☐ Semi-Pulverized Plovers, Bay area

☐ So-What Owls, Bay area

☐ Urban Tyrants, San Francisco

☐ Wandering Tattlers, San Francisco

☐ Waterfoul, Marin

☐ I want to support the team with the *highest* species total at \$ \_\_\_\_\_ per species.

☐ I want to support the team with the *lowest* species total at \$ \_\_\_\_\_ per species.

☐ I enclose a contribution of \$ \_\_\_\_\_.

☐ I will lead my own team and will gather pledges of at least \$1.00 per species.

\_\_\_\_\_  
Name

\_\_\_\_\_  
Address

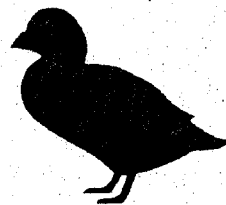
\_\_\_\_\_  
City, State, Zip

\_\_\_\_\_  
Daytime Phone

Make checks out to: Marin Audubon or Golden Gate Audubon  
and Mail to:

*All contributions  
are tax deductible.*

**Bay Birdathon '92  
c/o Harrison Karr  
1150 East Court  
Novato, CA 94945**





# 1992 Mono Science Updates

*Each year the Mono Lake Newsletter presents summaries of research being carried out by scientists in the Mono Basin.*

*The past season has been a busy and productive one. Some projects, like remote radar sensing of moraines, will help develop techniques to extend geological knowledge world-wide. Information from other studies will help guide the court-ordered restoration work being done on Rush and Lee Vining Creeks.*

*Much of this research will be included in the Mono Basin Environmental Impact Report due this year. The EIR is an important part of the State Water Resources Control Board's hearings to protect the lake. But all of the research adds to our understanding of the beautiful, unique place that is Mono Lake.*

## **Benthic Ecology: Building Models and Time Machines**

*David Herbst  
Sierra Nevada Aquatic Research  
Laboratory  
University of California  
Star Route 1, Box 198  
Mammoth Lakes, CA 93546*

To predict Mono Lake's future, we need to understand its past. Although it is an ancient lake, precious little information exists to tell us how it has changed over time.

One barometer of Mono's physical change has been lake level and salinity. In 1940, before stream diversions from the Mono Basin began, the elevation of the lake was 6417 feet above sea level. The salt content was about 5 percent. The current elevation is 6374 and salts have increased to a 10 percent concentration. From these changes we can make projections about Mono's past and possible future.

During 1991, I began experiments to study the effect of salinity on the biological productivity of Mono Lake. Using 200-gallon tanks adjusted to varied salinities between five and 15 percent, miniature ecosystems (microcosms) were created to simulate the productive, shallow lake bottom (benthic) habitats of the lake.

These little time machine tanks, stocked with natural sediments, sand,

algae and the eggs of the alkali fly, were designed to test the productivity of Mono Lake under conditions existing from before 1940 to some unknown future -- possibly 25 years into the next century if water diversions and/or droughts continue unabated.

Results are currently being analyzed and are consistent with previous laboratory studies. These experiments will be included in the Environmental Impact Report being prepared for the State Water Resources Control Board.

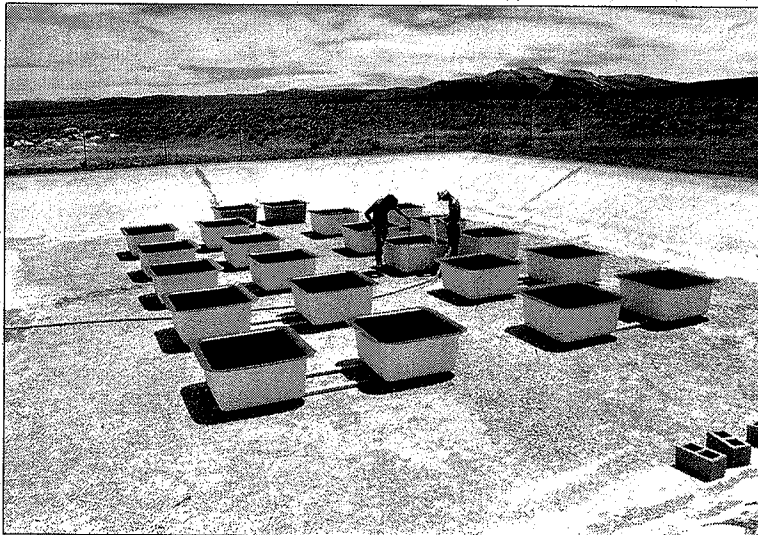
In other studies, samples of rock and sediments were collected at two-week intervals from different locations around Mono Lake. Counts of the alkali fly larvae and pupae from these samples are being used to calculate how rapidly the population

grows throughout the season, when certain life stages become abundant and serve as a food supply for birds.

Calculations used to determine the flies' population growth are altered by the effects of salinity on the physiology of the larvae, and by the amount of lake bottom area available as habitat for the flies because of Mono Lake's changing level. By incorporating these influences, we can build a mathematical model of how environmental changes could alter the abundance of the alkali fly. The microcosm tank experiments and population productivity models provide complementary approaches to understanding Mono.

Other research projects completed in 1991 included studies of algae inhabiting the lake bottom, and the formation of mineral deposits.

During SCUBA diving studies in 1989, the primary formation of the evaporite mineral gaylussite was discovered. Composed of calcium, sodium and carbonate, gaylussite is in a hydrated state (water is bound to the mineral structure), and precipitates from Mono Lake water as the salinity increases and the temperature decreases. During periods when temperature warms or salinity is diluted, the mineral redissolves, but only partially -- leaving behind stable crystals of calcium carbonate aragonite -- tufa! This transformation is a previously unknown process and accounts for encrusting tufa found on



A collection of 200-gallon tanks simulate the Mono Lake ecosystem at various lake levels. Since the lake's waters increase in salinity as its volume decreases, these tanks, dubbed "little time machines," create conditions from the past and the possible future if Mono continues to decline.



pumice blocks around Mono Lake.

Samples of algae growing on underwater rock and sediment surfaces were also collected. Three new species of diatoms were identified. These single-celled algae are an important food source for the alkali fly, and form the base of the benthic food chain.

Studies of the effects of salinity on the growth of diatoms and other algae are

currently underway, providing another indicator of Mono Lake's productivity in the past and in the future.

**Collaborators:**

M. Embury of the Sierra Nevada Aquatic Research Laboratory; J.L. Bischoff, of the US Geological Survey in Menlo Park; J.P. Kociolek of the California Academy of Sciences in San Francisco; W. Kimmerer of Biosystems Analysis in Tiburon; and T. J. Bradley of the University of California, Irvine.

**Support:**

University of California Water Resources Center; Los Angeles DWP through the State Water Resources Control Board EIR process.

**Recent publications:**

J.L. Bischoff, D.B. Herbst and R.J. Rosenbauer. 1991. Gaylussite Formation at Mono Lake, CA. *Geochim. Cosmochim. Acta* 55:1743-1747.

J.P. Kociolek and D.B. Herbst. 1992. Benthic diatoms of Mono Lake, CA. *Trans. Amer. Microscop. Soc.* -- in press.

## Riparian Vegetation Ecology: Instream Flow Needs of Black Cottonwood Trees

Juliet C. Stromberg  
Duncan T. Patten  
Center For Environmental Studies  
Arizona State University  
Tempe, AZ 85287-3211

Tree species growing along waterways require specific amounts of water and seasonal patterns of flow to establish seedlings and to maintain healthy adult populations. Many cottonwood (*Populus*) species, for example, require flows over the stream banks during the spring germination period for successful establishment. They also need a certain yearly average (as well as minimum) volume of flow to maintain a healthy tree canopy.

The methods used to determine what stream flows benefit riparian vegetation are not as well developed as those describing the needs of fisheries. Nevertheless, they are a critical component in decisions affecting the total ecosystem. The requirements of vegetation must be factored into any determination of legally-defined instream flows, along with requirements for fish and other aquatic organisms. All the components of an ecosystem are strongly linked; vegetation stabilizes streambanks and offers habitat for restored fisheries.

One method that can be used to determine the instream flows needed by riparian vegetation involves three steps.

First, tree cores are collected to obtain a chronological record of the annual rate of

Rush Creek is strongly related to the annual volume of the stream flow. (The annual volume is used as an indicator of the amount of water available along the riparian zone.) Recent work has focused on refining models that correlate annual flows with

tree growth at various distances from the stream.

Since diversions began, most cottonwoods growing at distances of tens of meters away from the streambed have died from lack of water, although a few clusters do remain. Data from such remaining clusters indicate that trees at the perimeter of the floodplain produce only half as much wood for a given annual volume of stream flow as do trees along the channel. Whereas flows of 15,000 to 40,000 acre-feet/year (20 to 55 cubic feet/second) are associated with maintenance growth rates of channel-side trees, flows of above 60,000

af/y (over 85 cfs) are associated with maintenance growth rates for floodplain trees.

Using the black cottonwood as an indicator of the response of species growing in the floodplain, the data suggest that wide riparian zones (more than 300 feet) along Rush Creek are maintained by flows that are in the range of pre-diversion flow of 55,000 af/yr and above. The sequential reduction stream flows is associated with the sequential reduction in the width of the riparian strip.

This research was supported by Jones and Stokes Associates, Inc., Sacramento, California.

Photo from exhibits for the Aiken case



A Winter aerial view of the bottomlands of Rush Creek, circa 1930. Notice the wide riparian corridor and watercress beds in this area below Highway 395.

growth. Second, long-term historical data is gathered on stream flows. Finally, these two sets of data are used to develop models expressing the rate of annual wood production as a function of annual stream flow volume.

These models in turn can be used in conjunction with other models that relate wood production rates to other measures of a healthy ecosystem, such as canopy vigor or population mortality rates. From this, the instream flow needs can be determined.

Prior work in the Mono Basin has shown that growth rate of riparian black cottonwoods (*Populus trichocarpa*) on

## Glacial Deposits Show Past Dynamics of Ice

Andrew J. Bach  
Department of Geography  
University of California  
Davis, CA 95616

Since 1989, I have been studying glacial moraines at Pine Creek, in Northern Inyo County.

During the Pleistocene Epoch (2 million to 10 thousand years ago), the earth's climate periodically changed, allowing snow to accumulate in the high Sierra Nevada. The snow formed glaciers large enough to flow down the mountain canyons and into the basins to the east.

As the glaciers moved down canyon, they carried and pushed such debris as soil and boulders along their edges. This debris was deposited when the glaciers melted and receded into the mountains. These remaining deposits, called *moraines*, appear as long narrow ridges protruding from the mouths of canyons near Mill, Lee Vining, Walker, Parker and Rush creeks in the Mono Basin.

For over one hundred years, scientists have attempted to determine how old each moraine is, in order to reconstruct the magnitudes of the glacial events and infer how earth's climate behaved in the past. Two major problems have kept researchers from being able to do this: first, valley glaciers, when confined within bedrock canyons, will override older glacial deposits, essentially erasing their existence; and second, the glaciers in the arid Eastern Sierra Nevada were apparently above tree line, so that no materials such as buried trees are available for radiocarbon dating. Until recently, no other method has

been available to date the deposits.

Both these problems have been overcome in the last few years. Careful mapping at Pine Creek has shown that, once outside the bedrock canyon, glaciers were very dynamic in choosing their direction of flow. Topographic relations of moraines at 17 major streams between Bridgeport and Bishop indicate that the glaciers had changed their courses. This

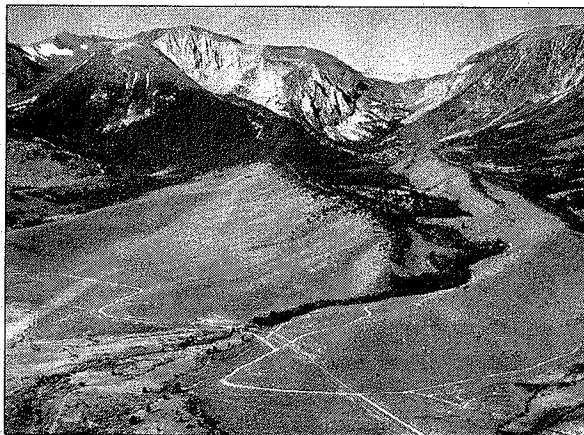


Photo by Andrew Bach

Looking southwest at moraines along Walker Creek. Bloody Canyon is in the background. A glacier flowed straight toward camera until it was diverted, depositing moraines on the left, center. The glacier was then diverted again, moving toward camera and depositing the high, tree covered moraines.

activity is not limited to the Sierra Nevada, as it has been reported in the Rocky Mountains, Iceland, Bavaria and Tibet, but it appears much more prevalent here.

The reason(s) for the changes in direction of ice flow are not readily apparent, but may include some combination of ice dynamics, erosion, deposition and/or tectonic activity. Ongoing studies of the geomorphic and age relations of the moraines may determine why the glaciers

were so active, and may provide insights into the dynamics of existing glaciers elsewhere.

The moraines along Walker Creek have long been noted as indicating the glacier had changed its course (McGee, 1885; Russell, 1889). Fred Phillips and others (1990, *Science*, v.248; 1529-32), using new dating methods which give the actual ages of moraine surfaces, determined that the Walker Creek moraines were deposited during five distinctive glacial periods, and that the glacier changed its direction at least twice.

Experimental dating techniques attempt to determine how long glacially-scoured boulders have been exposed on the surface of moraines. One technique uses radiocarbon dating on rock varnish, organic matter which has been accreted to the surfaces of boulders. The chemistry of rock varnish can also be used to estimate its age.

Another technique analyzes the accumulation of rare cosmogenic isotopes in boulder surfaces (see Phillips and others, above). Cosmogenic isotopes are unique atoms created by the constant bombardment of the earth's surface by cosmic rays. The annual accumulation of cosmogenic

isotopes can be calculated for a given latitudinal and topographic position, allowing ages to be determined by the amount of the isotope occurring in the rock's surface.

The combination of new dating techniques and the recognition of the dynamics of the glaciers may lead to one of the most complete records of Pleistocene glaciation in the world coming from the Eastern Sierra Nevada.

## Aircraft Radar Remote Sensing of Sierra Nevada Moraines

Richard R. Forster  
Andrew N. Fox  
Department of Geological Sciences  
Snee Hall, Cornell University  
Ithaca, NY 14853

The moraines near Mono Lake were

deposited by mountain glaciers that occupied the Sierra Nevada during the Earth's Pleistocene Epoch (2 million to 10 thousand years ago). The ones that the Cornell Andes project is investigating form the long, narrow ridges around the lakes June, Grant, and Walker. They are analogous to the less

accessible moraines found in climatically and geographically similar parts of the Andes.

Moraines are of special interest to climate history researchers because glaciers advance and retreat in response to climate change. Our objective is to differentiate the relative ages of the moraine sequence using surface roughness measurements from radar imagery. Younger moraines have

more boulders and less soil on their surface than older moraines, which have been exposed longer to weathering processes. With age, boulders crack and slowly disintegrate, decreasing their number and angularity while increasing the soil cover. This results in a smoother surface.

One of the target parameters that affects the intensity (brightness) of an object on a radar image is the roughness of the object. The younger moraines will therefore appear brighter on the radar image than will older ones. This method will be tested using the Sierra Nevada moraine sequences. Once refined, it will be applied to the inaccessible sequences in the Andes.

Current research is focusing on quantitatively determining the surface roughness of the moraines from additional information contained in the radar signal. The surface roughness of the moraines will be correlated to numerical ages.

Researchers at New Mexico Tech have numerically dated the Walker Valley moraines by calculating the amount of time the surface boulders have been exposed from measurements of atomic isotopes. The final step will be to associate a measured surface roughness of a moraine with its

numerical age.

The technique will be used on images of the Andes Mountains from the Shuttle Imaging Radar (SIR-C) scheduled for a 1993 space shuttle flight. Thus, studies of the Mono Basin moraines will enable dating of remote South American moraines for use in climate change research.

*The Mono Basin area was imaged with a multi-frequency, multi-polarization Synthetic Aperture Radar (SAR) on board a NASA DC-8 aircraft during the summer of 1989 (right). The roughness of the five moraine sequences in the Walker Valley was quantified in the field by measuring relative heights at 15 cm intervals along the crests of the moraines. Comparison of the field profiles with the radar imagery indicates that the optimal parameters for distinguishing relative age from pixel intensity differences are P-band frequency (wavelength of 68 cm and HH polarization (meaning transmit Horizontal, receive Horizontal). Using these radar parameters, it was possible to differentiate the younger Tioga and Tenaya moraines from the Younger Tahoe, Older Tahoe, and Mono Basin moraine sequences.*

*This research is being supported by NASA/JPL SIR-C project.*



A radar image of the Walker Lake area. (The top is northeast.) Walker Lake is the dark area in the center; the northern portion of Grant Lake is in the upper right, and the Dana Plateau appears as the white flat area on the far left. The Walker Valley moraines are the white-crested grey ridges extending from Walker Lake to the top center of the image. Also visible are Mt. Lewis, Mt. Gibbs, Kidney Lake, Gibbs Lake, and Parker Lake. (NASA/JPL AIR SAR, P-band, HH Polarization, not geometrically corrected.)

## Small Vertebrates on Mono's Islands

Michael Morrison  
Department of Forestry and Resource  
Management  
University of California  
Berkeley, CA 94720

During 1990 and 1991, systematic surveys were begun of the distribution and

abundance of vertebrates on Paoha and Negit Islands.

This work was undertaken by William M. Block, US Forest Service, Rocky Mountain Forest and Range Experiment Station; Linnea S. Hall, University of California, Berkeley; Joseph R. Jehl, Jr., Hubbs Sea World Research Institute; and Michael L. Morrison.

Emphasis was placed on the occurrence of small rodents. Deer mice (*Peromyscus maniculatus*) and montane voles (*Microtus montanus*) were captured on Paoha, but only deer mice on Negit. Deer mice occurred in very high abundance on both islands. Voles occurred only in the marsh on the southeast corner of Paoha.

No amphibians or reptiles were found on either island. Lagomorphs [members of the rabbit family] occurred on both islands, but in very low numbers.

Data from bird surveys are being analyzed. Preliminary results indicate that the marsh on Paoha harbors an avifauna that is similar to mainland marshes. Overall, however, the islands have a lower species diversity than the mainland, and no species of terrestrial passerines [songbirds] are unique to the islands.

Data resulting from our work is being prepared for publication. We intend to continue monitoring wildlife populations on the islands to determine trends in abundance.

*Our work was supported, in part, by the Los Angeles Department of Water and Power; and by the White Mountain Research Station, University of California, Bishop, CA 93514.*



Deer mouse (*Peromyscus maniculatus*)



## Migratory Birds 1991: 2000 Grebes and Counting!



Dr. Jehl, (left) and Dr. Ellis dipnet a grebe for banding.

Joseph R. Jehl, Jr.  
Hubbs-Sea World Research Institute  
1700 South Shores Road  
San Diego, CA 92109

Continuing studies started in 1980, Hubbs-Sea World Research Institute monitored the status of the major migratory bird species that use Mono Lake. We also continued our comparative studies of bird life at other saline lakes, especially Great Salt Lake, Utah; Lake Abert, Oregon; and Stillwater, Nevada.

These studies are important for understanding the relative importance of Mono Lake as a breeding or staging area.

They also shed some light on how migratory birds may be responding to prolonged drought conditions.

In 1991, breeding of California Gulls at Mono Lake began a week or so later than usual. Delays such as this sometimes result in reduced productivity; yet, on the Paoha Islets at least, the gulls tied for their second best year since

1982, with 4442 pairs producing 5764 chicks (1.3 chicks per pair).

Wilson's Phalarope numbers continued to decline at Mono Lake, although they were very large at Great Salt Lake. It is possible that the local decline is related to the prolonged drought, but confirming that hypothesis will require further work.

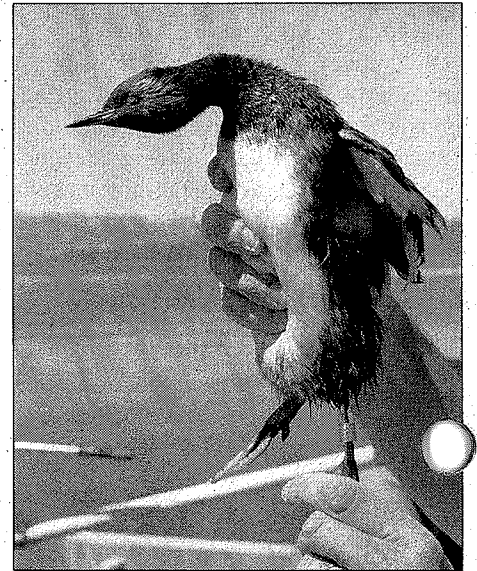
Eared Grebes were present in the hundreds of thousands as usual and lingered into January. Studying their condition and migration remains a high priority. We catch them -- slowly and with a lot of work -- by netting them from a small boat.

So far we have banded over 2000 grebes and have had several recoveries.

The rate of band returns should increase in the future as the birds age and die off, it will take a long time before we obtain enough recoveries to have a better understanding of the source area for those birds staging at Mono Lake.

With Dr. Mike Morrison of the University of California, Berkeley, we participated in studies of small mammal populations on Negit and Paoha islands.

Support for the birds studies came from the Los Angeles Department of Water and Power.



Both Photos by Joseph Jehl, Jr.

A grebe, with leg band in place.

## Development Of Late Holocene Sand Dunes On The North Shore Of Mono Lake

Catherine A. Toft  
Center For Population Biology  
University of California  
Davis, CA 95616

Deborah Elliott-Fisk  
Natural Reserve System  
Office of the President  
University of California  
Oakland, CA 34612-3560

James Richards  
Department of Land, Air, Water Resources  
University of California  
Davis, CA 95616

Mono Lake has been gradually receding since its high stand during the last glaciation about 13,000 years ago. As the lake level dropped, lake bed sediments were exposed. A number of plant species then colonized the new shorelines, beginning the natural process of plant succession on shorelines of various "ages" (measured as time since exposure).

We are studying how this process occurs at Mono Lake by investigating the plant communities and their relationships with soils and land forms on a dune ecosystem roughly a thousand years old.

Our studies are producing hypotheses about dune formation and how plants strongly affect the physical and chemical properties of the dunes, and vice versa.

Two plant species, *Sarcobatus vermiculatus* (greasewood) and *Distichlis spicata* (salt grass), are hardy and ubiquitous colonizers in western desert environments. These species are remarkably tolerant to both the high salinity and the high alkalinity of typical dry lakebed substrates. Researchers are still investigating just how these two species can tolerate soil chemical conditions that would prohibit the establishment of other plant species outright.

We can get a rough estimate of the at which vegetation colonizes exposed lake

bed from observations of lakeside habitats near Los Angeles began serious diversions of water from Mono Lake in the 1940's. At springs and along creek deltas around the lake, salt grass colonizes the lake bed rapidly, right down to the current shore, if there is sufficient input of fresh water (exactly how "fresh" the water has to be is not yet known).

We see greasewood plants established right up to the mid-1960's shorelines, although they are still rare on the younger exposed lakebed. The flora of dune ecosystems further from the current lake shore and at least a few hundred years old still comprises predominantly salt grass and greasewood.

Dune ecosystems even further from the lake and between 500 and a thousand years old have a much richer flora. The dune tops alone are predominantly greasewood. However, on the dune slopes, the shrub *Chrysothamnus nauseosus* (common rabbitbrush) is abundant. The lee of the dunes (away from the lake) supports

two other common shrubs, *Tetradymia canescens* (horsebrush) and *Chrysothamnus viscidiflorus* (sticky rabbitbrush).

Based on detailed vegetation analysis and work elsewhere in the Great Basin, we have developed an hypothesis of dune development that features a dynamic interaction between dune vegetation and land forms.

We hypothesize that greasewood absorbs water at night from its lower roots and releases it into near-surface sand on the dunes. This influx of water beyond the small amounts present from precipitation or capillary action from below may be critical to the establishment or survival of other species of plants and associated species of animals, such as the abundant insect life found on the thousand-year-old dunes.

These insects are not merely opportunistic bystanders in dune colonization. Their burrowing activities bring various nutrients into the sand

substrates, permitting plant establishment and facilitating nutrient cycling through the ecosystem. The adult stages are important pollinators. This integrated ecosystem thus contains many feedbacks that accelerate the processes of dune formation and of plant succession on the dunes.

We hope to apply our discoveries in this study to revegetation projects on the Owens Lake bed, left dry by diversion of water to Los Angeles.

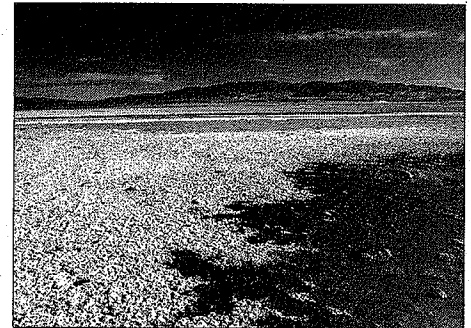


Photo by Bob Schlichting  
Owens Lake

## Population Size and Reproductive Success of Gulls in 1991

Jan Dierks  
Point Reyes Bird Observatory  
4990 Shoreline Highway  
Stinson Beach, CA 94970

California Gulls nest at lakes and reservoirs in the western United States and Canada. The colony at Mono Lake is second in size only to the one at Great Salt Lake, Utah.

This season marks the ninth year Point Reyes Bird Observatory has conducted research to determine the number and success rate of California Gulls breeding at Mono Lake.

In 1991, an estimated 43,520 adult gulls nested at Mono, a number at the low end of the range of 44,000 to 49,500 individuals found for the years 1983 to 1989. The phenomenal population increase for 1990, to 61,500 breeding gulls, was not sustained in 1991.

The Negit Islets and Negit Island supported 80 percent of the lake's

breeding gulls. In our plots on the Negit Islets, an average of 0.94 chicks fledged (reached flying age) per nest. This is lower than the 1.08 to 1.43 chicks fledged per nest in other recent years (1986-1990).

In all, 22,304 chicks fledged lakewide, a number in the low end of the range between 23,000 to 46,000 found in other recent years (1986-1990).

For the third consecutive year, coyotes entered gull colonies on Negit Island during nesting. Roughly half as many gulls nested

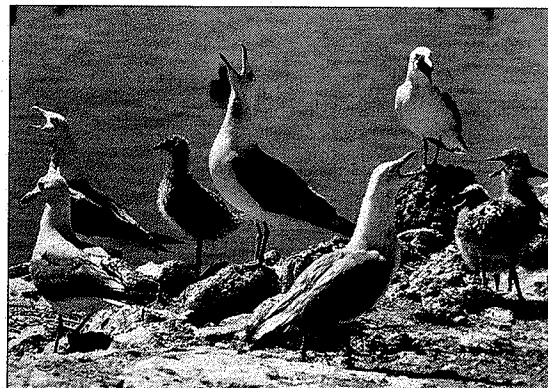
on there in 1991 as the year before, the first drop in nest initiations since it was recolonized in 1985.

Negit Island was abandoned by the gulls during the 1991 breeding season. Pancake Islet, no longer separated from the mainland in 1991, was not used for nesting.

Negit Island and Twain, Pancake, and Java Islets were connected to the mainland when the lake level reached its lowest point in the early 1980's. Nesting on these islands was disrupted by coyotes when the islands were easily accessible, but the gulls recolonized when the lake level subsequently rose.

With the current drought, Mono's level has fallen to the point that both Pancake Islet and Negit Island are connected to the mainland. If the lake level continues to fall, nesting on Twain Islet, which currently supports 50 percent of the lake's nesting gulls, will be threatened as well.

Our work was made possible by the help of a large number of volunteers. Dr. Joseph R. Jehl, Jr. provided gull data for the Paoha Islets.



## Near-Shore Groundwater and Salt-Flat Processes at Mono Lake, California

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Santa Cruz, CA 95064

David P. Groeneveld  
Great Basin Unified Air Pollution Control  
District  
Bishop, CA 93514

The changing levels of Mono Lake affect the location and discharge of shoreline springs, the extent of marsh and riparian habitat, and the composition of plant communities. Of particular interest to us is the production of airborne dust from the shoreline exposed over the last few decades by the declining lake level.

Evaporation of the underlying saline groundwater leads to precipitation of a

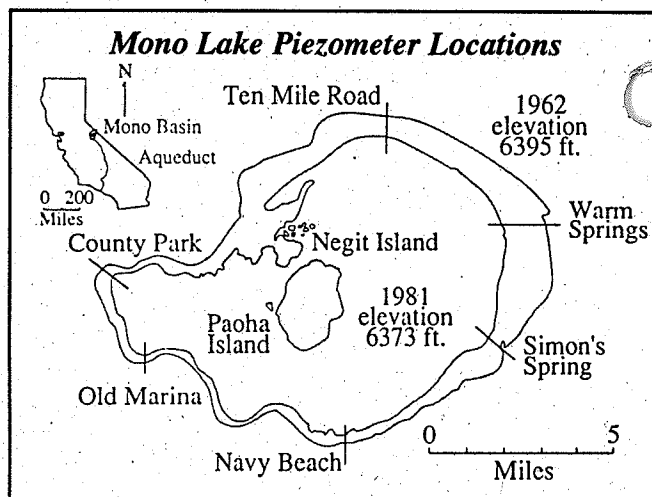
seasonal salt crust, a substantial air pollution source under high winds. The high salinity and concentration of elements such as boron and arsenic in this water prevents the establishment of plants which would reduce salt erosion by wind.

In our studies, we looked at how the shoreline water table behaves at different locations around the lake. We used data from piezometers at six sites. These piezometers were installed in September, 1986 as a cooperative effort by the Los Angeles Department of Water and Power, the Great Basin Unified Air Pollution Control District, and the University of California, Santa Cruz. DWP hydrographers collected monthly water level readings from these piezometers for three and one half years.

The water table around Mono Lake behaves differently both seasonally and in response to changes in the lake level. In general, the water table near shore is low in late summer and high in the winter and spring. An exception is at Navy Beach on the south shore, where the water table fluctuates with the lake level. Four different regional patterns can be distinguished:

1. Close to the Sierra Nevada, high recharge and steep water table gradients combine with permeable sediments to produce fresh groundwater which has followed the receding lakeshore. Groundwater flow is sufficient to flush saline water lakeward and to support the diverse vegetation which rapidly establishes itself as the lake waters recede.

2. The flat, arid northeastern shoreline has low water table gradients, low recharge, and low permeability clay layers deposited on the former lake bottom. Here saline water apparently remains trapped up gradient from the receding lakeshore. Salinity of groundwater near the surface is high, due to evaporation from the shallow water table.



The size of Mono Lake in 1962 and in 1981 are shown in this map, along with the six locations at which piezometers were placed to measure ground water. The inset, left, places Mono Lake in the state of California.

Plant life is largely absent in this zone.

3. A variation along the arid part of the shore occurs at Warm Springs and Simon's Spring in the east and southeast, where major fault systems conduct large quantities of water to the lake. This fresh water supports dense marsh vegetation. In the zone between the marshlands, plants have been slower to establish themselves, due to more restricted flows.

4. On the south shore, Navy Beach has steep topographic and watertable gradients, intermediate recharge, and permeable near-surface sediments formed by ash from the Mono Craters. Moderate groundwater recharge has flushed most shallow saline water lakeward. Initially, plants established themselves quickly as the discharge of groundwater followed the declining lake. The continuing decline of the water table, combined with the dry soils, now fosters mostly droughty, widely spaced saltgrass cover.

The factors controlling the water table interact differently at each site. Their combination influences the basin's water balance and water quality. They also affect the establishment of plants, the development of salt flats, and the production of airborne dust.

*This work is supported by the Great Basin Unified Air Pollution Control District, using pass-through funds from the Los Angeles Department of Water and Power and grants from the U.S. Geological Survey and the Geological Society of America.*



A piezometer is a piece of tubing open at some depth to allow ground water in from the surrounding soil. Using an auger, David Rogers is installing several at Ten Mile Road in the project to track seasonal and spatial variations in groundwater levels and quality at Mono Lake.



# Aquatic Ecology

Gayle Dana, Robert Jellison, John Melack,  
and Jose Romero  
Marine Science Institute  
University of California  
Santa Barbara, CA 92106

In 1991, we continued our efforts toward describing and understanding the Mono Lake ecosystem. We utilized results from laboratory experiments and an extensive ten-year monitoring program to develop computer models of physical, chemical, and biological processes in the lake. These models will be used to assess the impacts of various freshwater inflow and lake level alternatives considered in the Mono Basin Environmental Impact Report.

Our research indicates that the availability of nitrogen limits the growth of phytoplankton (microscopic free-floating plants) during much of the year in Mono Lake.

Like many productive temperate lakes, nutrient levels decline in spring because of phytoplankton growth. After the surface water warms up and becomes less dense, particulate and dissolved nitrogen accumulates in the cold bottom water as phytoplankton and detrital material sink.

During autumn, the surface waters cool until they become more dense than underlying water. At that time the lake "turns over." Nutrients are returned to the upper water column as deep waters are mixed upward.

In 1983, due to the high volume of fresh water flowing into the lake, Mono became chemically stratified, a condition called *meromixis*. Less saline water overlay "older", more saline water.

During the next six years, nutrients accumulated near the bottom and algal production near the surface was depressed.

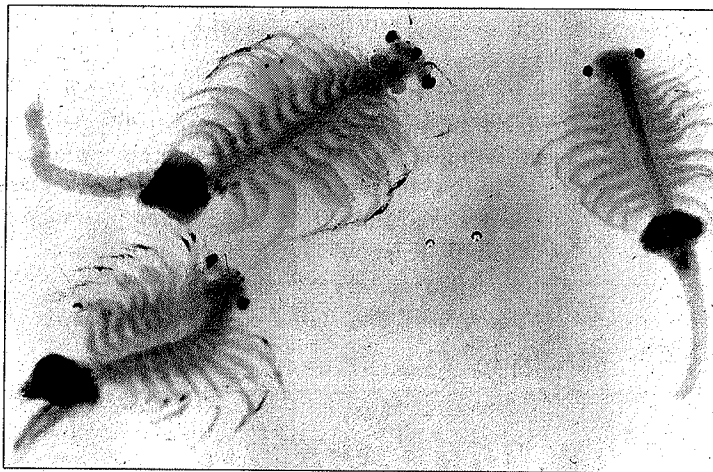
Evaporation and the reduction of inflow eventually led to more saline surface water, and *meromixis* ended in November, 1988.

Following the breakdown of

*meromixis*, phytoplankton production was greatly enhanced by the pulse of nutrients from the bottom water. This was subsequently followed by a decline to the levels of production previously observed in 1982. The results of this "natural experiment" highlight the importance of nitrogen recycling in Mono Lake.

Due to the importance of the vertical flux of nitrogen in Mono, we have developed a physical mixing model which predicts the vertical structure of the water column under various climatic and management regimes. This model uses meteorological data including wind speed, air temperature, humidity, solar insolation, and the physical properties of Mono Lake water. In addition to vertical mixing, it also predicts temperature and salinity profiles for a simulated period.

As part of this year's research, we reanalyzed earlier salinity experiments on *Artemia monica* -- the Mono Lake brine shrimp. These experiments indicate that salinity affects nearly every aspect of *Artemia* life history. However, the extrapolation of these results is complicated by interactions between *Artemia*, phytoplankton, and nutrients.



Mono Lake Brine Shrimp, *Artemia monica*

While nitrogen limits phytoplankton growth when *Artemia* numbers are low during winter and spring, the growth of phytoplankton is primarily limited by grazing in the summer. Reciprocally, *Artemia* reproduction is limited by food (phytoplankton) during the summer.

The tight coupling between phyto-

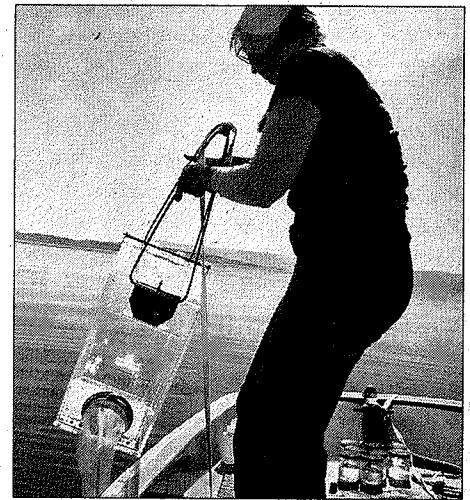


Photo by Gayle Dana

Petra Lenz using a Schindler trap to collect *Artemia monica* on Mono Lake.

plankton and *Artemia* means that when brine shrimp are abundant, food levels are low and per capita reproduction decreases. When shrimp are scarce, food is abundant and per capita reproduction increases.

We have utilized a computer model which includes nitrogen, phytoplankton, and *Artemia* to predict the effects of different salinities on Mono Lake's ecosystem. Initial results indicate the effects of increased salinity on the brine shrimp's numbers and reproduction levels are less than that which would be predicted by direct extrapolation of the salinity tests. This is due to the compensatory feedbacks between phytoplankton and *Artemia*.

Our emphasis in 1992 will be to couple the vertical mixing model with a biologically mediated model of nutrient changes, algal growth, and brine shrimp dynamics. This coupled model will further clarify the

interaction between *Artemia* and phytoplankton. It will also allow examination of other relevant questions, including the potential for biological feedbacks on plankton dynamics.

This research is supported by a grant to Dr. J. M. Melack from the Los Angeles Department of Water and Power.

## DWP Report: The Mono Lake Ecosystem: 1979-1991

Kevin Covert  
Los Angeles Department of  
Water and Power  
P.O. Box 111  
Los Angeles, CA 90051

The Department of Water and Power has sponsored environmental research at Mono Lake for more than a decade. The accompanying figure summarizes this multi-year database.

The California Gull data were collected in large part by Dr. Joseph Jehl of the Hubbs Sea World Research Institute in San Diego. Dr. John Melack of the University of California, Santa Barbara and his staff at the Sierra Nevada Aquatic Research Laboratory, Robert Jellison and Gayle Dana, compiled the data on planktonic algae and brine shrimp.

The years 1979-1991 were eventful. The wet winters of 1983-86 raised the lake nearly eight feet and provided a natural experiment on ecosystem effects of changing lake level. The growth of planktonic algae was suppressed for several years after the lake rose because important algal nutrients were trapped near the lake bottom by a dilute surface water lens. This lens formed in 1983 when record snowmelt failed to mix

completely with the lake's salty water and gradually eroded until the lake turned over in 1989.

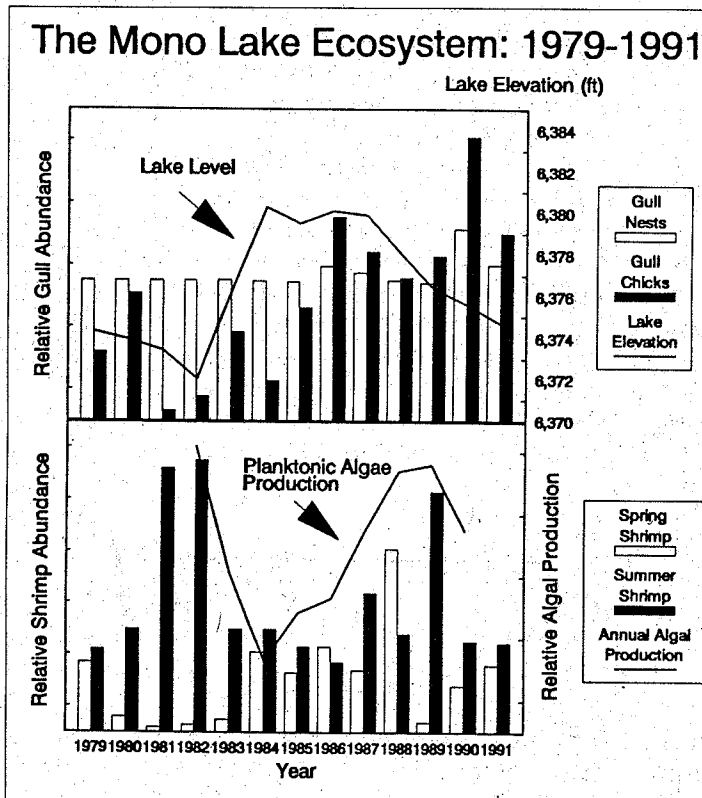
In light of concerns regarding the fragility of the Mono Lake food chain, it is worth noting that any effects that this large reduction in planktonic primary production had on other links in the food chain are so small as to be indistinguishable from

normal ecosystem variation. As the figure shows, spring and summer brine shrimp numbers from 1983 to 1991 are comp-

parable to 1979-1982 numbers and Gull nesting has been steady over the entire period, despite the fact that the Negit Island landbridge was alternately exposed, submerged, and exposed again.

Gull chick numbers appear unrelated to fluctuations in algae production or brine shrimp abundance. These data demonstrate the health of the Mono Lake ecosystem at lake levels between 6372 and 6380 feet and show that concerns over the imminent collapse of the ecosystem are unsupported by available information.

The Department of Water and Power has committed to the protection of the Mono Lake ecosystem and will continue to support the research needed to achieve a reasonable and informed resolution of the Mono Lake controversy.



*Our thanks to all those researchers who sent in reports, charts and photographs for this year's Science Updates. If you have questions about their work, please contact them directly.*

## MLC Staff Hellos and Goodbyes

by Amy Gonzalez

The Burbank office recently said goodbye to **Liz Fishman Near**, the Committee's ace development coordinator. Liz helped plan such complicated fundraising events as the Wine Cellar Drawing and Bike-A-Thon, and is now working as a consultant for a variety of Southland organizations,

including the Center For Non-Profit Management. She and her Occidental College professor husband (and Bike-A-Thoner) Michael just bought a house in Sierra Madre -- congratulations!

Arkansas native and Razorback fan **Wade Partridge** has taken over her position in the fundraising department. Wade

graduated from Hendrix College with a degree in political science and public relations before moving West with his wife Julie to study acting at the American Academy of Dramatic Arts in Pasadena. He made his TV acting debut on the comedy series *Designing Women*.

Lee Vining said goodbye to **Carolyn Callahan**, Mono Lake Committee Programs Coordinator. In February returned to the Bay area to continue studies in conservation, specifically solar energy,

and to get "re-culturized" to city life once again. One of her last projects before leaving was the Mono Lake teacher's packet described on page 9. Her dedication and cheerfulness will be missed by all.


**Geoff McQuilken** has been acting as temporary sales manager of the Committee's Visitor Center. When that position is permanently filled, he will assume Carolyn's duties and begin organizing the new displays to be featured in the Committee's Lee Vining headquarters.

Former intern **Bryan Flaig** has been working on creek restoration in the Mono Basin; he is rejoining the MLC as a Policy Staff Assistant. Currently in the Bay area doing research on creek restoration, he will return to Lee Vining to assemble historical

data that should be critical to the upcoming State Water Board hearings later this year.

**Len Steege**, a high school senior, has been helping at the Visitor Center through a county-funded work program called Workability. Since early February, the Lee Vining native has been helping out every weekday and weekends. He plans to attend Sierra College next fall.

And the Committee has a new Winter intern, replacing **Terry Stonich**. My name is **Amy Gonzalez**, and I look forward to the next few months working in Lee Vining. I attended the University of Pittsburgh, and I was born and lived many years in the area, near the Ohio Valley and West Virginia. The Eastern Sierra is a definite change, but I feel honored to be here, exploring and

working on a cause in which I believe -- saving Mono Lake. 

**Job Openings:** The Lee Vining office has openings in its intern program for Fall, 1992. Interns do everything, from leading tours, to operating our Visitor Center, assisting with mail and membership work, attending meetings and writing reports. They also work on special projects utilizing their individual talents. Internships last three months and include minimum wage, with low-cost housing available in Lee Vining. To apply, contact Shannon Nelson at (619) 647-6595.

## Accolades

Our thanks to **Rosa Chroman**, **Kendra Wetshor**, and the other members of *The Saving Nature Club* of Nevada City, California. They sent a donation and the letter printed on the right.

**The Conejo Valley Audubon Society** in Thousand Oaks recently held their annual banquet and auction and donated a generous share of the proceeds to the Committee.

## In Celebration

The marriage of **Allison Beale** and **Thierry Work** of Davis was honored by a donation from Christopher Paddock, from San Francisco.

**Vernon and Mary Moore** of Oakland thought of an unusual holiday gift for **David and Hilary Nally** this year: they sent a check to the Mono Lake Committee on behalf of their friends.

## In Memory

**Gail Baxter**, of Berkeley, died in last year's devastating East Bay fire. **Al Baxter**, husband, was severely burned in the fire that completely destroyed their home and all their belongings.



Dear friends at Mono Lake,  
(flying birds, shrimp & people alike!)  
We're back again the Saving Nature Club!!! to refresh your memory of us we are a group of 7 home schooled children 80 miles west of Reno on the San Juan Ridge. Every year we participate in a Christmas fair, we make all things we sell. This year we made 237 dollars out of that we are sending you \$79.100% of the proceeds go to help save nature. we would like you to send us some literature on your organization so we can send it to friends & relatives.

With Love & Peace  
Rosa Chroman & Kendra Wetshor  
The Saving Nature Club

a difficult time and wish him a speedy recovery.


**Dorothy DesBaillets**, a resident of Mono City, passed away recently. **Nancy Goldwater**, of Minden, Nevada, sent the Committee a donation in her memory.

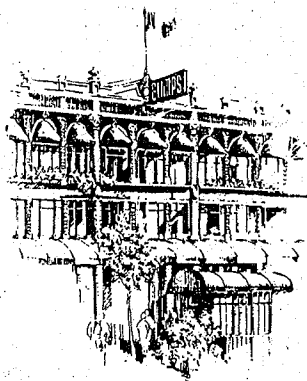
**Peter Boyer**, of Glendora, made a contribution in remembrance of his much-missed Owens Valley friend, **Hattie Schaffer**. She and her husband opened the **Winnedumah Inn** in Independence back in 1927; Hattie ran the small hotel until her death in 1990.

From Long Beach, **Virginia Reid Moore** sent a memorial donation for Bishop resident **Bud Orris**, who died in June, 1991.

A gift honoring the memory of **Daniel Levinson** -- "loving husband, father and grandfather" -- was made by

Los Angeles residents **Edith and Mort Gaines**.

And contributions continue to arrive honoring long-time Owens Valley resident **Enid Larson**, who died last April. Ridgecrest residents **Mary Ann and Ronald Henry** are the latest to remember the internationally-known activist and biologist. 



*Gump's, San Francisco*

## 7th Annual Fine Wine Cellar Drawing-- Twice As Much Fun!

This year, for the first time, there will be *two* Fine Wine Cellar Drawings and two tasting events -- one in San Francisco, and one in Los Angeles. With a suggested donation of \$50, you may enter either drawing for a chance to win one of four fine wine cellars valued at over \$500 each. With each donation, you may take a friend to the reception and tasting in your area, where the winning tickets will be chosen. Ticket sales will be limited to 500 for each event to insure favorable odds.

For \$100 you will be entered in *both* drawings, increase your chances to win one of four cellars, and be entered in a special drawing to win:

*A two-night's stay in the Sterling Vineyards' Guest Cottage, in Calistoga. A tour and tasting at the winery is also included.*

**Be a part of the drawing. Come to the tasting and sample superb vintages.  
Your contribution will ensure that the ultimate winner is Mono Lake!**

**For more information, contact Shelly or Wade  
at (818) 972-2025.**

### **San Francisco Drawing**

*Friday, May 1, 1992*

*6:30 to 9:30 PM*

*Gumps*

*250 Post Street*

*Wine Tasting by Rosenblum Cellars*

*Antipasti courtesy of Il Fornaio*

*A San Francisco landmark since 1861, Gump's is the quintessential department store. It's an elegant and unusual setting for the Northern California reception.*

*Il Fornaio has twice been voted the Bayarea's Best Italian Restaurant. They are donating delectable antipasti.*

*Rosenblum Cellars in Alameda, specializing in fine Zinfandels, will pour three wines for a special tasting.*



*Hollywood Roosevelt Hotel,  
Los Angeles*

### **Los Angeles Drawing**

*Friday, May 15, 1992*

*6:30 to 9:30 PM*

*Hollywood Roosevelt Hotel*

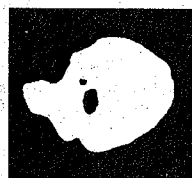
*7000 Hollywood Blvd.*

*Wine Tasting by Maurice Car'rie*

*Hors d'oeuvres*

*The recently refurbished Hollywood Roosevelt Hotel is a local showplace, the ideal spot for the Southern California occasion.*

*Temecula's Gold Medal-winning Maurice Car'rie Vineyard and Winery will host a special tasting. Callaway Vineyard and Winery, noted for their comprehensive environmental program, will provide their 1990 'Calla-Lees' Chardonnay for the celebration.*



**THE  
MONO LAKE  
COMMITTEE**

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