DESERT REPORT

CNRCC DESERT COMMITTEE

June 2010 News of the desert from Sierra Club California/Nevada Desert Committee **www.desertreport.org**

BY MIKE CIPRA

Protecting The Natural Sounds Of Death Valley

"It is our birthright to listen, quietly and undisturbed, to the natural environment and take what meanings we may." Gordon Hempton, *One Square Inch of Silence*

Spring in Death Valley. You've made the journey to explore that slot canyon you've always wanted to experience—you know the one, with Native American petroglyphs and the profound silence you can find only in the desert. The only thing sweeter than that silence is the distinctive call of a red-tailed hawk flying overhead. These natural sounds connect you to the Earth and are an important part of the experience you seek. You've hiked a few miles, through dark and ancient narrows cut by millennia of flash floods, and as you stop to appreciate the silence, a helicopter flies over. Its blades make a raucous noise, and you think: What is that doing here?

Despite the passage of federal legislation in 2000 to regulate air tours and protect natural sound in the parks, the National Park Service (NPS) faces significant challenges as it attempts to preserve the last remaining places in our country where the sounds of nature can inspire us.

The Air Tour Management Act of 2000 banned air tours over Rocky Mountain National Park. The act also required all commercial plane and helicopter tour operators to apply to the Federal Aviation Administration (FAA) for authority to conduct air tours. While this law does not apply to Grand Canyon National Park or national parks in Alaska, the legislation did take a major step towards protecting parks like Death Valley by requiring the FAA, in cooperation with the Park Service, to develop an Air Tour Management Plan for every national park that has air tours.

Unfortunately, ten years' worth of deliberations have failed to produce a single plan, largely because the FAA will not defer to the NPS concerning noise impacts upon visitors and park resources. Because the NPS is mandated by the National Park Service Organic Act of 1916 to "promote and regulate the use of the Federal areas known as national parks," and is recognized by the Council on Environmental Quality for its jurisdiction by law to examine the

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JANE CIPRA

The Panamint Mountains across the Panamint Valley – normally quiet and remote

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BY PAT FLANAGAN

CHILDREN AND THE NATURAL WORLD

Down Home Learning

Although the material of this article is set in the desert, it really concerns the education of children about their natural world. If we fail in this, our concerns about particular regions and habitats will be irrelevant. The author lives in Twentynine Palms, adjacent to Joshua Tree National Park. In addition to writing curriculum for the DPC education program, she is the resource advocate for the Mojave Desert Land Trust and serves on the board of the Morongo Basin Conservation Association. - Editor

Lucky is the child who grows up immersed in the natural world, down in the dirt on hands and knees. Lucky are the students whose early grasp of biology and history involves the natural world they live in. Such learning is the foundation of E.O. Wilson's first novel, Anthill, in which he describes the explorations of his evolving hero Raff through the Nokobee swamps and pine woodlands of Alabama:

Raff's learning process was ordinary. It was also primeval. For two hundred thousand years or more of their history, human beings had to learn a great deal the way Raff did in order to survive … Raff's learning was kinesthetic, by which is meant it employed action that engaged all the senses, and it was channeled by instinct … This was the quality of Raff's Nokobee self-education, which his parents mistook for frivolous child's play. It was enjoyable, and thereby true to the way the brain is constructed. It was ordained by genes to which modern classrooms and textbooks are ill-fitted.

The well-documented realization that children build their lifelong love of the land – and active stewardship of it – through experiences in nature prompted the Desert Protective Council to provide field trips for Imperial Valley California elementary students. These were very popular, and after a couple of years it seemed a good idea to develop science curricula that would get students thinking like scientists before going out to explore like naturalists, in other words, fuel their instincts for fun, as Wilson reminds us, while meeting the state standards for science and social studies. The social studies part will become clear shortly.

The Salton Basin, a Living Laboratory

As one member of the Grass Roots Educators (GRE) team, I accepted the curriculum challenge because I felt GRE had the core of the 'field naturalist' curriculum already in place and student tested. I realized the Salton Basin was a challenging area, but I was familiar with the Colorado Desert and the Salton Sea from long years of my own exploring. Well, I was right and I was wrong. I was right that the curriculum was adaptable, but I was wrong in thinking I was familiar with the Basin. I was familiar with birding at the sea and its environs and just assumed all that flat land would easily fall into place. Reflecting back, it is delicious how wrong I was and what an adventure it became getting it right. Imperial Valley students inhabit a living laboratory full of the superlatives that would strike a coastal Californian mute.

- The Salton Basin is the largest area of dry land below sea level in the Western Hemisphere, over 2000 square miles.
- The lowest elevation is 227 feet below sea level. This low point is covered by the Salton Sea, the largest lake in California (average size 15 miles by 35 miles with a maximum depth of 52 feet).
- Birding at the Salton Sea can put you in touch with over 400 documented species.
- The Salton Basin is one of the most seismically active areas in North America. This earthquake activity comes from continual

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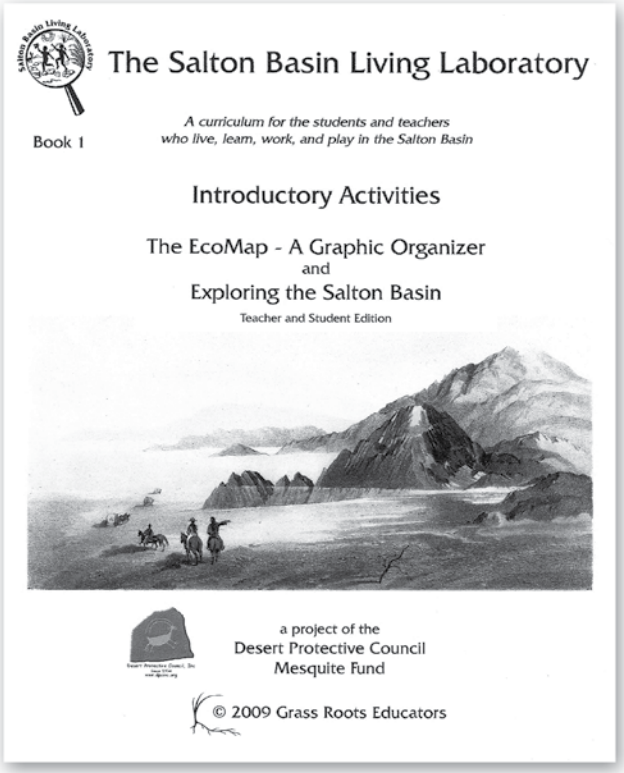

Curriculum Guide for the Salton Basin

BY TOM EGAN

SOMETIMES THE GOOD GUYS WIN, BUT THEN WHAT?

West Mojave Route Designation Revisited

Remember, if we are unable to obtain the necessary compliance, it supports activist groups that are seeking additional restrictions for OHV use!

So reads a somewhat cryptic notice posted on a few of the infrequent trailhead bulletin boards in the western Mojave Desert. It refers to routes designated as open for vehicle travel per the West Mojave (WEMO) Plan, adopted by the Bureau of Land Management (BLM) in 2006. This amendment to the California Desert Conservation Area (CDCA) Plan finalized route designations, even though numerous deficiencies were identified in public protests. This federal decision and supporting environmental impact statement were later found to have violated the Federal Land Policy and Management Act (FLPMA) and the National Environmental Policy Act (NEPA).

TOM EGAN

Above: Signs as they should be

Such congressional Acts are in place to assure that environmental considerations (i.e., impacts to soils, vegetation, watersheds, wildlife, and cultural values) are carefully evaluated and minimized. The public is also to be properly informed of decision-making processes affecting our public lands. This was not done with regard to the WEMO Plan route designation.

A 2009 ruling by the U.S. District Court for the Northern District of California held that BLM did not adhere to its own regulations in analyzing and minimizing the environmental impacts of its WEMO Plan route designation. Over 5,098 miles of routes were identified as open for vehicle travel in this plan, with an inadequate range of alternatives considered. Vehicular use on many of these routes adversely affects soils, vegetation and wildlife, areas of critical environmental concern, non-motorized recreation and private lands.

The Court also held that many routes designated open for travel are in violation of the CDCA Plan, which limits routes eligible for designation to those in existence in 1980. BLM did not adhere to this restriction, instead designating numerous routes illegally created during the last three decades as "*open*" to enhance "*connectivity*". BLM reasoned that the designation of existing routes in non-compliance areas, even where illegally-created routes would be incorporated, would increase use compliance. Routes designated as "*open*" for travel were to be signed and made "*more obvious and attractive*" to use than "*closed*" routes. In contrast, "*closed*" routes would not be signed and left to natural reclamation.

A field study of the WEMO route designation, undertaken in 2010 and supported by the Alliance for Responsible Recreation, found few routes signed as open or closed. Regular use is occurring on anything that remotely looks like a trail. Worse still, in most of the planning area, new routes are proliferating. A considerable degree of non-compliant vehicle use appears to be associated with "*green-sticker*" licensed motorcycles and quads, though full-sized vehicle use of designated closed routes also occurs on a regular basis.

While an occasional route network trailhead is now posted with a sign indicating that vehicle travel is "*Limited to Routes Signed as Open*," finding an open route sign on these designated routes is a rarity. Intersections of open-closed routes are not marked and even the most well-meaning citizen would have difficulty determining what route is legally open at such junctions. Even more troubling, in the very few instances of closed route rehabilitation or barrier installation noted in this field study, non-compliant vehicle use has continued. In some instances this non-compliant use has resulted in extensive resource damage and wasted thousands of taxpayer dollars. Vehicle use on the ground, four years following the adoption of the WEMO Plan, in a word, is chaos.

So what's next? Because BLM must adhere to its own regulations and address the 1980 route limitation, the WEMO route designation will be revisited. When it is, some hard questions need to be answered and some difficult decisions need to be made. BLM certainly erred in relation to how many routes it designated, relative to natural resources impacted, non-motorized recreation activities impeded, private property violated, and the level of vehicle use the

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DESERT COMMITTEE MEETING

The next Desert Committee meeting will be held August 7 and 8 in the White Mountains group campground with John Moody as chair. The fall meeting is scheduled for November 13 and 14. It will be at the Whitewater Preserve with Pat Flanagan as chair. As always we encourage local citizens in the area to attend as many of the items on the agenda include local issues. E-mail Tom Budlong at tombudlong@roadrunner.com or call (310-476-1731) to be put on the invitation list.

BY LAURA CUNNINGHAM

RENEWABLE ENERGY

Going Solar
The Importance Of Planning

Spring is the windy season in the Mojave. As I walked across the arid creosote desert of Nevada's Amargosa Valley I tried to avoid the long stream of air-borne dust and sand blowing off Big Dune, carried by horizontal gales ten miles south into town. The dune is surrounded on three sides by public lands where applications have been filed for industrial-scale solar energy facilities. All these projects will need to pump groundwater in a basin in overdraft, and the wrangling over water rights continues. Rare and endemic beetles live on the sand flats in the footprint of at least one solar project. The local people would prefer that one company move its project farther away from town, but in this part of the desert the applications are so dense, that no more available land exists. The Bureau of Land Management is obliged to accommodate first-come-first-serve here with no limits and no organization. In a nutshell, this valley demonstrates the problems which arise from a lack of planning.

There is hope. In the nation's move toward more renewable energy there are many innovative technologies and strategies for placing renewables on the landscape in more environmentally sensitive ways.

Photovoltaic Panels on Rooftops

Far from the desert I sat in Sacramento's Energy Commission building listening to energy planner Bill Powers, of Powers Engineering, who gave testimony on the latest photovoltaic technologies on behalf of the Center for Biological Diversity. (1) As an alternative to industrial-scale power plants in the desert, he discussed a distributed generation paradigm. The southern California urban core, for example, could support photovoltaic (PV) panels capable of generating 6000 megawatts (MW) of electrical power. Southern California Edison is already applying for 500 MW of commercial rooftop solar generation, and PG&E is moving forward with another 500 MW agreement.

Commercial rooftop space in California is sufficient to produce 20,000 MW of power, and if parking lot space were covered, another 20,000 MW of power might be achieved. If small PV arrays were placed around all of California's 13,000 electrical substations, still another 27,000 MW would be possible. Not that all this is even needed, but it shows that in the push for remote desert solar we have ignored the urban potential.

Because solar electrical energy is produced at a rate dictated by nature, it might occasionally overload the transmission grid. Powers explained how telemetry installed on the panels could indicate when loads are exceeded. The utility could then reduce the power produced by individual arrays.

Advanced cadmium telluride thin-film photovoltaic installations will have a capacity factor (a measure of the efficiency of power plant operation) of 24%. If placed on rooftops these installations would require no new land space. (2) Contrast this with the proposed Ivanpah Solar Electric Generating System, a thermal power tower system with a 28% capacity factor which would cover 3,237 acres of Mojave Desert. To extend comparisons further, consider the Sacramento Municipal Utility District-owned Cosumnes Power Plant. This is a 500 MW advanced, natural gas-fired, combined cycle power plant. It occupies less than 20 acres of private land, operates with a 60% capacity factor, and uses a transmission line that once served the retired Rancho Seco nuclear power plant. Clearly, good planning will be needed to shut down fossil fuel plants.

What about cost? Many argue that large-scale rooftop PV power is still too pricey. Powers asserted that a revolution in photovoltaic systems is underway, with costs of thin-film cells notably lower than in 2008. These flexible sheets can be placed on roofs

Harper Lake Thermal Solar Facility – the land is scraped clear

LAURA CUNNINGHAM

with adhesives, the simplest possible installation for a power plant. There is no need for bolts and racks. Funding options include local government loans, such as the Assembly Bill 811 programs used successfully by Palm Desert, Berkeley, and San Francisco. Power Purchase Agreements are another option in which an energy company finances, installs, owns, and operates the equipment on your property. You have no up-front expenses and receive a small rental fee.

In this urban scenario there is no need for new mega-transmission lines which can cost up to $1 million a mile. Any loss of solar intensity in coastal cities would be comparable to transmission line losses from remote projects which Powers estimates to average 7.5% and rise to 14% during peak times.

Distributed Thermal Solar Power

In addition to photovoltaic generation, new solar thermal technologies can find a place in and near urban load centers. In Palmdale, California, the company eSolar has a facility utilizing small heliostats (mirrors), a 5 MW Sierra SunTower collector, and a 5MW General Electric steam turbine, all on 20 acres of disturbed land. These small central-receiver solar thermal plants are modular and can be scaled up by adding more 10-acre units, a quick and economical way to build on vacant lots or as infill development on unused pieces of land within urban sprawl.

On its website the company says: "eSolar encourages all of its partners to locate facilities near densely populated urban centers to avoid the environmental upheaval caused by developing remote wildlands. By using small parcels of private land, eSolar projects avoid conflicts with environmental values in a fragile desert ecosystem while simultaneously bypassing lengthy permitting processes." Access to existing transmission lines is a big plus, says eSolar, as this issue has been a stumbling block for remote projects.

Combined Solar and Natural Gas systems

To function smoothly, society will still need baseload power plants that run at night and regardless of cloudy days. Natural Gas Combined Cycle plants should be required to use advanced modern steam turbines that can reduce the amount of carbon dioxide emitted by running more efficiently. Other interesting options are also available, such as Integrated Solar Combined Cycle (ISCC), or "hybrid" power plants. These combine a baseload natural gas plant with a peaking solar thermal plant, sharing the same steam turbine.

The City of Palmdale, for example, wants to build their Palmdale Hybrid Power Project on a 377-acre site in its urban landscape with a nominal output of 570 MW. A high efficiency natural gas-fired combined cycle turbine would be integrated with a parabolic trough solar thermal design which provides about 10 percent of the peak power generated. The steam turbine would be wet cooled (allowing more efficient generation than dry-cooling) using reclaimed water from local wastewater treatment plants, another advantage of placing the plant within the city.

Power tower technology can also be used in other hybrid designs. Although the use of biomass for the production of energy involves a number of serious problems, hybrid plants close to agricultural waste sources in the Central Valley could be considered as well. (4)

One disadvantage of certain solar thermal designs, including the Palmdale hybrid proposal, is the use of Therminol and related products to carry heat energy to the power block. These are expensive and flammable heat transfer fluids used in the solar field. Their leaking vapors, unfortunately, have the potential to ignite. Newer and safer designs use direct steam generation without resorting to these flammable fluids.

The Bottom Line - We Need to Plan Carefully

If California is serious about reducing greenhouse gases while increasing renewable energy production in a responsible way, then city-based solutions should be considered as alternatives to large remote desert solar plants that will scrape and destroy healthy ecosystems. Billions of dollars available today from Department of Energy loan guarantees and from Reinvestment Act grants which cover 30% of construction costs have created a land rush, choking off voices calling for long term planning.

An Energy Resource Plan would consider how much capacity is needed and how much would be for peaking, intermediate, and baseload use. Solar plants are comparable to peaking plants that run when demand is high, such as during hot summer afternoons when the air conditioners are revving up. The plan would also consider whether building several smaller power plants over a longer time would be more economical and less risky than one large unit built immediately.

The future of our wild deserts may depend on it. ◆

Laura Cunningham became involved with renewable energy issues in the deserts of California and Nevada after working as a tortoise biologist on Mojave Desert construction projects. She started the information website Basin and Range Watch with her husband Kevin Emmerich in 2008. She currently works as an artist-naturalist with a book on the ecological history of California coming out this fall from Heyday Books.

REFERENCES:

1.http://www.energy.ca.gov/sitingcases/ivanpah/documents 2010-01-12_Transcript_Evidentiary_Hearing.pdf
2. For more on capacity factors see: "You Need To Know This: Solar (And Other) Power Plant Ratings" by Tom Budlong, Desert Report December 2009, page 14.
3. CPUC GHG Modeling, Combined Cycle Gas Turbine v. 4, 11/7/07. http://www.ethree.com/GHG/21%20Gas%20CCGT%20Assumptions%20v4.doc.
4. http://www.sierraclub.org/policy/conservation/biomass.aspx]

LAURA CUNNINGHAM

Rooftop photovoltaic panels and water heating, Las Vegas

BY MESONIKA PIECUCH

OFF-ROAD VEHICLES

Mayhem On The PCT
Telling The Truth

"A man with a machine and inadequate culture is a pestilence." Wendell Berry

If you are old enough to have popped popcorn on a stovetop, changed TV channels by turning a knob, or memorized all the lyrics to *Sgt. Pepper's Lonely Hearts Club Band*, you may recall one of my favorite television programs: "To Tell the Truth."

Do you remember it? The set-up was simple. Moderator Bud Collyer introduced three candidates, each of whom claimed to be the central character, named and described in an affidavit. Two were impostors, one was the real deal. Four celebrity panelists asked questions. The real deal had to answer truthfully; the impostors could lie. At the end of questioning, and after the panelists voted, Collyer demanded, "Will the real _____ please stand up!" After some head fakes and feigned rising, the real deal stood up.

Some of us believe there is a lot of feigning, head faking and pretense in current battles over off-road vehicle (ORV) abuse. ORV incursions onto unauthorized public lands have increased. Dirt bikes, ATVs, quads, and other off-highway vehicles, have inflicted massive damage to wildlife habitats, plants, archaeological sites, and shared use areas nationwide. Nowhere is this phenomenon more evident than on the portion of the historic Pacific Crest Trail (PCT) which runs through California's Tehachapi Mountains.

Yet, judging from the comments of some illegal riders (a minority, to be sure), they claim to stand in a long line of true American pioneers, conquering new lands like Lewis and Clark. They are the true nature lovers. Moreover, criticism of the effects their machines have upon the PCT often brings the defiant response, "We have as much right to this land as you do. You're not taking away our rights!" In fact, current struggles over public land use and ORVs can be seen, at their foundations, as a clash of worldviews.

It's time to play "To Tell the Truth." Whose rights are really being violated? Who are the true "nature lovers?" Which worldview will prevail?

A dust-up with history

Before there were roads there were trails and before trails – at least, in the Tehachapi Mountains – there were pinons, scrub oaks, black oaks, Jeffrey pines, lupine, semi-desert chaparral, coyote, bear, rabbits, bobcats, all in a complex eco-society of plants, trees, flowers, mammals, insects, reptiles, rock and soil. The earliest human incursion almost certainly involved a Kawaiisu hunter. This portrait of what the area looked like represents the fundamental starting point for any discussion regarding recreation and the PCT for, as still photographs, video, and personal inspection prove, the area now bears little resemblance to what it was in the past.

From Rosamond through Cameron Canyon, Bean Canyon, and Oak Creek, a spider's web of exposed soils, now rutted, gouged, plowed, banked, dug, rudely trenched, and otherwise scarred, have created a scene reminiscent of some eerie moonscape to which Kirk and Spock have been transported. Roots have been exposed, plants destroyed, soil and seed displaced, animal habitats devastated.

Question: what new factor was introduced between the original condition of the area and its present condition? Answer: illegal ORV riding. The irony is that nearly thirty years ago public agencies and interests charged with establishing this portion of the PCT were well aware of the likelihood of ORV incursions. Here is the story.

In 1932, wilderness advocates, conservationists, and government representatives attended the Pacific Crest Trail System Conference, organized by Clinton C. Clarke. Under his leadership, and inspired by the goal of creating an integrated, interconnected system of existing trails, young hikers, outdoorsmen, and other volunteers spent three decades scouting, mapping, and signing trails. In 1968, Congress officially designated the PCT, comprising 2,650 miles from Mexico to Canada, as a National Scenic Trail, including the "desert segment" of Eastern Kern County. The Kern County portion of the PCT was established after an environmental assessment study was completed. The results were set forth in a 1981 report authored by a USDA/Forest Service officer. That 30-year-old document reflects the proverbial writing on the wall.

Although presenting a finding of "no significant impact," the report also discloses numerous potential problems with placement of the PCT. These potential problems included threats to endangered plants and animal species, vandalism of private property, disturbance of archaeological sites/resources, and "potential conflict with ORV users." But the PCT route was established in 1983, despite objections from some property owners. One telling section in the same report portends the conflicts of today: "A variety of non-public dirt roads provide access to the alternate route. These will present management problems in controlling illegal ORV use on this segment."

What the officials did not, and perhaps could not, anticipate

Above: Vehicle tracks on the PCT

was an evolution in ORV technology which would combine with a mechanistic worldview to devastate the very trail they established.

It was Honda that introduced the first off-highway, all-terrain vehicles to the United States during the early 1970s and promoted it as a vehicle designed to provide "thrills" for its rider[s]. Over the years, these vehicles, responding to market demand and technical innovations, evolved in speed, power, and maneuverability.

The law did not change, however. Riding ORVs upon private property was always legal as long as the property belonged to you. Riding without permission upon someone else's property was, by definition, trespassing. Riding upon public lands not specifically designated for mechanized use was illegal. But still the siren call of "thrills" beckoned illegal riders to conquer new frontiers.

Despite the self-evident damages caused by illegal riding and the clarity of the law, some in the ORV community continue to portray themselves as true outdoorsmen, nature's true defenders. One recalls W. C. Field's claim for expertise in electricity. "I am an expert in electricity," he said."My father occupied the chair of electricity at the state prison."

The PCT as petri dish

Predictably, as ORV incursions increased, local residents whose properties abut the trail suffered cut fences, damaged equipment, harassment to livestock, and, at times, physical threats. "No Trespassing" signs disappeared soon after placement. Vacation homes were vandalized.

Meanwhile, law enforcement, although answering calls for help, faced having to respond to very remote areas of the PCT in vehicles ill-equipped for the terrain. Offending riders were usually long gone by the time deputies arrived.

The trail continued to deteriorate. The PCT had become a recreational petri dish, culturing the very worst forms of plant and habitat destruction. But residents and advocacy groups persisted. With the help of an expanded Alliance for Responsible Recreation, COW San Bernardino, and Responsible Trails America, ORV Watch Kern County increased its efforts to educate law enforcement, media, and federal officials regarding the PCT damage. Incursions were captured on video and posted on ORV Watch Kern County's website and YouTube channel. An email, post card, and letter-writing campaign attracted the attention of media and government officials nationwide.

Funded in part by stimulus monies, and in coordination with the U.S. Forest Service, State Parks, and Bureau of Land Management, the Kern County Sheriff's Department launched a counter-offensive on Easter weekend 2010, focusing upon the PCT. The joint effort, involving multi-agency personnel on the ground and in helicopters, netted three felony arrests and eleven citations. According to residents in the area, the arrests and, presumably, news accounts, have brought blessed weeks of peace and quiet.

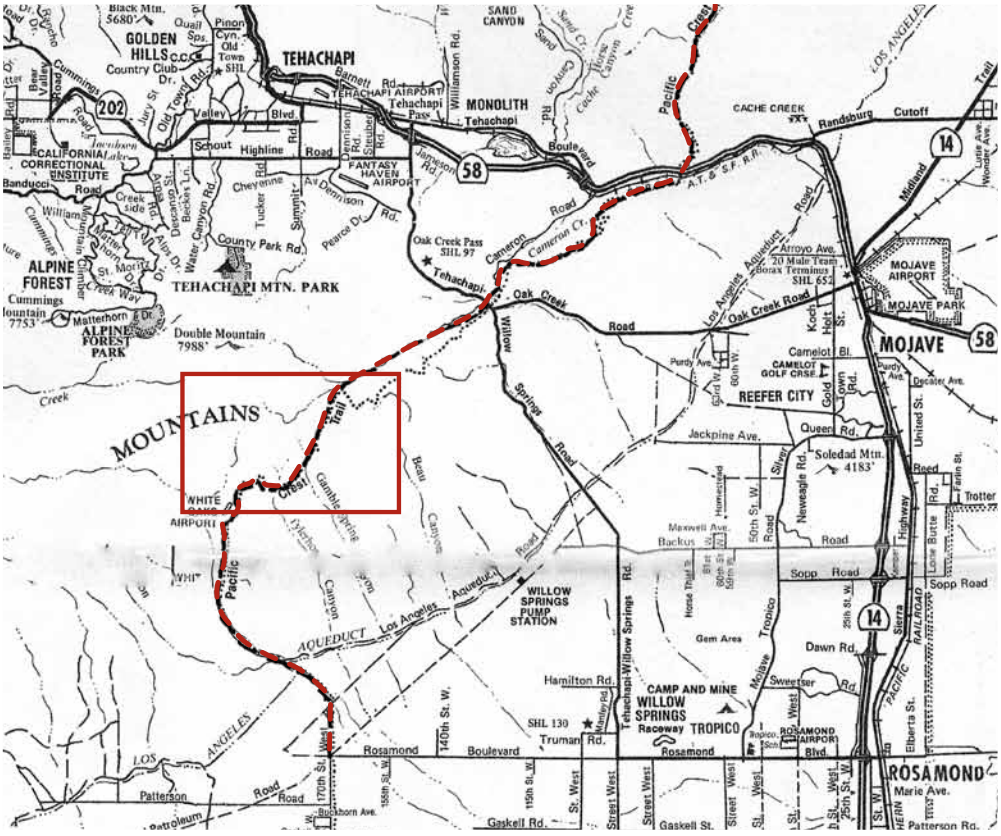
Conclusions

Several conclusions emerge based upon the foregoing, and are stated here in the form of propositions:

- The law regarding the use of ORVs on the Kern County portion of the PCT is clear: there are no areas authorized for riding. None.
- Despite dedicated efforts at trail blockage, signage, map distribution, and education, only aggressive law enforcement, involving citations and fines, has curbed abuse on the PCT.
- Private citizens and advocacy groups triggered law enforcement action through an unrelenting campaign involving contact with government officials at local, state, and federal levels, through an aggressive media campaign (including press releases, email contact, website management, and telephone calls), and through the use of the so-called "new media," such as blog sites and YouTube.
- Consistent, unflagging political action of this type can expose not only conflicts over the PCT, but damage to private and public lands nationwide.

Many today advocate gobbling up more space for ORVs. They want to dine at the expense of public lands. They believe this is their democratic right. But remember what Benjamin Franklin once said: "Democracy is two wolves and a lamb voting on what to have for lunch."

Notice to diners: the Pacific Crest Trail is not on the menu.



Pacific Crest Trail south of Tehachapi

Mesonika Piecuch, a registered nurse, is an agrarian Jeffersonian conservative and the founder of ORV Watch, Kern County. Her home is close to the portion of the PCT that she describes.

BY MIKE PRATHER

WATER AND POWER

Solar Energy Proposal For Owens Lake And Adjacent Lands

The completion of the Los Angeles Aqueduct in 1913 condemned Owens Lake to near extinction. All streams would now flow into the 'ditch' and south to Los Angeles, not reaching the Owens River and thus denying the lake its life's blood. In ten years the enormously important wildlife stopover was reduced to a chain of small wetlands along its former shoreline, and it became the largest single-point PM-10 dust source in the United States. The lake that had lived more than 800,000 years was a skeleton of its former self.

Seventy years later, in the 1980's, birders from the Eastern Sierra Audubon Society began to discover that the small remaining wetlands at Owens Lake supported hundreds of shorebirds and waterfowl during spring and fall migrations. Several hundred snowy plovers nested there as well. Regular surveys of birds were begun, and these established a modern baseline of wildlife use.

In 2001 the first water was released by the Los Angeles Department of Water and Power (LADWP) onto the lake's surface to control the regionally hazardous dust problem. Driven by the Clean Air Act, this project covers 35 square miles – 30 of those square miles being ponds or sheet flooding. The hundreds of shorebirds and waterfowl visiting Owens Lake has exploded into tens of thousands. Last year's Owens Lake Spring Big Day bird census found more than 62,000 birds of more than 70 species. The National Audubon Society has designated Owens Lake an Important Bird Area (IBA) of national significance due to its thousands of shorebirds and waterfowl as well as the hundreds of nesting snowy plovers.

The dust control costs to Los Angeles, in both water and dollars, has been enormous. To date the City has spent over $500,000,000 and is using 65,000 acre-feet of aqueduct water each year. By the end of 2010 water use will be over 90,000 acre-feet annually. For the past two years Eastern Sierra Audubon and Audubon-California have been leading an effort to manage Owens Lake as a whole rather than piecemeal. A planning group consisting of Audubon, LADWP, California Department of Fish and Game, and the California State Lands Commission has made real progress in planning future management of snowy plovers, shallow flooding/pond habitat, seeps and springs and alkali meadows. That effort has now morphed into a larger, more inclusive process using a facilitator that hopes to finish a draft Owens Lake Master Plan by the end of 2010.

MIKE PRATHER

Birders at Owens Lake on Recent Owens Lake Spring Big Day

The Los Angeles Department of Water and Power has added a new component to the planning at Owens Lake in the form of industrial scale solar park development of up to five gigawatts (GW) nominal capacity on Owens Lake and on LADWP lands just north of the lakebed and east of Owens River. Since LADWP states that they can only add 0.5 MW of solar to their power grid, the remaining 4.5 GW would be developed by other solar companies and utility firms. Five gigawatts of solar could cover as much as 78 square miles on and off of the lake.

Audubon's position at Owens Lake has been to support water savings for Los Angeles as long as it goes hand in hand with habitat enhancement and protection. There are large areas on the Owens Lake surface for photovoltaic solar which could save large volumes of water as well as generate green power. Solar developments must control dust, however, and that still needs to be demonstrated. Los Angeles has stated that if solar proves workable on Owens Lake there could be revenue sharing for wildlife habitat enhancement and protection, possibly in the form of a State Wildlife Reserve at Owens Lake similar to the State Tufa Reserve at Mono Lake. Support for wildlife habitat designation in conjunction with water savings for Los Angeles has broad support. Successful solar at Owens Lake is not assumed and remains a question.

With 20-30 square miles potentially available for solar on the lake's surface, an additional 48-58 square miles might possibly be developed north of the lake. Specifically, this is land from Lone Pine north to the Manzanar area and east of the Owens River. This LADWP property is where controversy exists. This land is virtually undisturbed desert scrub. To develop it for photovoltaic (PV) solar or for thermal solar would require land leveling on a huge scale. The land is wind deposited aeolian soil anchored by desert shrubs, so dust would be a serious issue. In addition, gaps exist in bio-

logical knowledge, specifically relating to Mojave ground squirrels, burrowing owls, golden eagles and LeConte's thrashers. Sensitive plant species and desert amphibians are also poorly understood.

Within the Eastern Sierra conservation community, groups wonder if it is appropriate to once again ask the Owens Valley to disproportionally provide to communities far away more than a fair share of its resources. Given the history of water and land use in the Owens Valley is it fair to ask the area to sacrifice large tracts of undisturbed desert for the good of the rest of California? Given that Los Angeles would use only one tenth of the solar power generated and the rest would go to the statewide grid, is this for the greater 'greenhouse gas' good or is this an enormous money generator for Los Angeles once again at the expense of the Owens Valley? With large industrial scale projects proposed elsewhere in California, including a 6 GW (6,000 MW) plant within the Westland Irrigation District, is the size of the LADWP project here just too large?

Solar at Owens Lake and LADWP lands off of the lake will not occur quickly and may not occur at all. Environmental assessment must be done, and in the case of Owens Lake a lease from the California State Lands Commission must be granted. Transmission capacity is sufficient only for part of the power generated which will require expansion of power transmission corridors and a NEPA assessment for the BLM lands crossed.

In the Eastern Sierra an ad hoc group of conservation organizations has been having conference calls once a week, hosting field trips for outside groups and individuals, and has traveled to Los Angeles to meet with LADWP and LA City Council staff. This group will continue participating in the oversight of the Los Angeles Solar Park proposal. There has been no specific project offered with a description, and all of the discussion has taken place in a constantly changing environment of rumor, new changes, and lack of information. If it is possible, any solar built on Owens Lake might lessen pressure on lands off the lake. Los Angeles, however, has committed to ending coal use in its power generation and is looking to its own lands for solar opportunities as well revenue generation.

For more information and for possible answers to questions please contact mprather@lonepinetv.com.

Mike Prather has been an activist in the Lower Owens Valley for many years. He is a member of the Owens Valley Committee, the Eastern Sierra Audubon, and the Sierra Club.

GREG REIS

Owens Lake, Proposed Site for Los Angeles DWP Solar Energy Facility

West Mojave Route Designation

ED PATROVSKY

Signs Ignored: Bighorn Wilderness Area

CONTINUED FROM PAGE 3

agency can effectively manage. Should illegally created routes be designated open, given that BLM is unable to manage current vehicle use? Should "*green-sticker*" vehicles be further restricted until such time as BLM's designated route network is properly posted, with designated closed routes addressed more effectively? Legalizing illegal routes to control route proliferation makes as little sense as allowing criminal activity in order to control crime. The natural resource values which make vehicle travel fun and exciting on our public lands must be a foremost consideration in route designation. Non-motorized uses and private lands must also be respected and woven into a workable, responsive management plan.

Considering that the CDCA Plan called for effective route designation in 1980, it is past time that these issues were appropriately addressed. When the WEMO Plan route designation is revisited, it needs to be done in a manner involving the public and complying with applicable law. A systematic means of regularly monitoring vehicle use also needs to be integrated into on-the-ground management. When such monitoring documents non-compliance or destruction of natural features associated with vehicle use, action needs to be immediately implemented. Since "*Deterrence is equal to the chance of being caught, multiplied by the penalty*" singularly applies to vehicle use management in the Mojave Desert, there is only one action that fulfills existing law. Where vehicle use non-compliance is documented through systematic monitoring, the affected area must be temporarily closed until non-compliance is remedied.

The current level of unauthorized vehicle use in the western Mojave Desert cannot be sustained. It's time to stop looking the other way and pretending there is nothing wrong, or that nothing can be done. We must insist that BLM, who is entrusted with managing our public lands for both current and future generations, step up to the plate and do what's right. BLM should do this not merely to satisfy so-called "*activist groups*" who choose to become involved in public land issues, but to carry out the agency's mandate to benefit all. The governing paradigm for vehicle use on public lands must become: ***Use it responsibly or lose it***.

Tom Egan is a member of the Mojave Group of the San Gabriel Chapter, Sierra Club, and a spokesperson of the Rangers for Responsible Recreation. He has been actively involved with off-road vehicle use and route designation issues for over 20 years.

Current Issues

Congressional Designation For Owens Valley's Alabama Hills?

Over the past two years a local effort has been underway to evaluate the possibility of a Congressional designation for the Alabama Hills near Lone Pine in the southern Owens Valley. Led by the Alabama Hills Stewardship Group, the preferred designation would be within the BLM's National Landscape Conservation System – possibly a National Scenic Area or Outstanding Natural Area. Local groups and individuals make up the Alabama Hills Stewardship Group, including business owners, Inyo County Film Commissioner, an Inyo Supervisor, Lone Pine Paiute-Shoshone Tribe, climbers, Lone Pine Chamber of Commerce, and conservationists – Friends of the Inyo, Audubon, and Sierra Club.

The stimulus for this legislative effort is the common concern that the overall landscape of the Alabama Hills needs greater resources and attention in order to avoid a slow downward trend in its condition. Visitation is increasing, and is diverse – sightseers, photographers, hikers, rock climbers, filmmaking, and motorized touring. Goals are to have a healthy and sustainable landscape and to ensure that current uses can continue at appropriate levels.

Boundaries are being drafted that would include all of the core granite boulder formations that visitors come from all over the world to see. A total of 25,000-30,000 acres is taking shape west of Lone Pine, north and south of the Whitney Portal Road. Thirty or more stakeholders have met, and workshops and tours have been given to Inyo County supervisors. Discussions have taken place with activists working on the Santa Rosa/San Jacinto Mountain National Monument as well as the Piedras Blancas Outstanding Natural Area. Currently legislative language is being written, drafted with guidance from Senator Feinstein's office and from BLM.

For more information please contact Mike Prather – mprather@lonepinetv.com or 760.876.5807.

MIKE PRATHER

Alabama Hills - To be protected

Ridgecrest Solar Power Project

Solar Millennium proposes to construct a utility-scale solar thermal power facility across 3,920 acres of public land administered by the BLM west of Highway 395, north and south of Brown Road as it crosses the El Paso Wash. The Ridgecrest Solar Power Project (RSPP) would use solar parabolic trough technology to nominally generate 250 MW of electricity on a disturbed area of 1,760 acres.

Community members from Ridgecrest and Inyokern are concerned about the impact of the project to the Indian Wells Valley aquifer, the likely spread of Valley Fever from construction disturbance of the soil, impacts to wildlife and desert flowers, and the loss of recreational opportunities.

The BLM, in the "Staff Assessment and Draft Environmental Impact Statement" (SA/DEIS), identifies the February 2010 modified version of RSPP as the preferred alternative even though the agency recognizes that the "environmentally preferred alternative" is no project/no action. In contrast, CEC staff recommend approval of the No Project/No Action Alternative based on their assessment that the proposed site features "unique habitat and biological resources" and that the project's impacts to biological and visual resources cannot be mitigated. The proposed site supports a large population of the Federal- and State-listed Mojave desert tortoise, overlaps the BLM-designated Mohave Ground Squirrel (MGS) Conservation Area, and "supports genetic linkage" between populations of the California-listed MGS. The conservation interveners – Basin and Range Watch, Center for Biological Diversity, Desert Tortoise Council, Kerncrest Audubon Society, and Western Watersheds Project – support the CEC staff recommendation that the California Energy Commission deny certification.

Comments should be sent to the BLM before July 8. The SA/DEIS may be reviewed at http://www.energy.ca.gov/sitingcases/solar_millennium_ridgecrest/documents/index.html .

The Lower Colorado River Protection Act Of 2009, HR3481

HR3481 was introduced by Congressman Raul Grijalva (AZ) in order to create an EPA program to protect the water quality of the Lower Colorado River.

The goal of the Lower Colorado River Protection Act is to restore and maintain the ecosystems and water quality of the River thereby protecting the health of millions of Americans who drink its water and eat food grown with its water, protecting the River Basin's precious natural resources, and insuring the regions economic prosperity.

If enacted, the Lower Colorado River Protection Act will:

- Create an environmental research program for the River to design and monitor solutions for ecosystem and water quality problems.
- Involve regional stakeholders in creating a plan to protect the Lower Colorado River. Stakeholders will include the public, local and state governments, Indian tribes, and providers of water, wastewater services, and energy.
- Create an EPA program to protect the River which will be based in EPA's Region 9 headquarters. The EPA will work with other Federal agencies and local authorities, will run the environmental research program, will provide support for the development of the plan, and will implement projects in the Lower Colorado River Basin.
- Provide help to River communities who have been financially strained by their own efforts to protect the River.

The Sierra Club and the public can assist in getting HR3481 enacted into law by contacting the following officials and asking for their support: President Obama (Tel: 202-456-1414, Fax: 202-456-2461); Secretary of the Interior Ken Salazar (Tel: 202-208-7351 Fax: 202-208-6956)

Dish-Stirling At Plaster City: Desert Renewable Energy

Ten square miles of the Yuha Desert in Imperial County are targeted for installation of 30,000 solar collection devices called SunCatchers. Each is a parabolic dish with a 30 hp heat-driven Stirling Engine at the dish focal point. The site is largely undisturbed, is rich in prehistoric evidence, and has a vibrant Yuha plant community. The source of mirror wash water in this dry environment has become a heated controversy. Substantial adverse visual, cultural, biological, and other impacts have been identified in the environmental review process. The project apparently relies on federal loan guarantees and Recovery Act grants to finance construction. Alternative sites on high-salinity, fallow agricultural lands in the Imperial agricultural areas near the Colorado River have been analyzed. Though characterized as a 750 MW project, the net output is less than 200 MW with solar energy's 25% capacity factor resulting from nights, short winter days, and low morning and evening sun angles.

The dish-Stirling devices have been under development for over 30 years. A 60-unit demonstration project in Arizona was installed in early 2010. A major question is the advisability of ramping from the 60 demonstration units of largely untested technology to 30,000 production units without extensive field testing. The companies, SES / Tessera Solar, are also proposing a slightly larger project near Calico in San Bernardino County and still another 12,000 unit project in Colorado.

Material on this project has previously appeared in *Desert Report*, March 2009, "Sterling Energy Systems Solar Two Project."

Carrizo Plain National Monument RMP Finalized

The Resource Management Plan which will guide the administration of the Carrizo Plain National Monument was signed on April 10, 2010. This culminated an effort which began with the creation of the Monument in 2001, was put on hold for nearly two years following the death of the Monument manager, and was resumed actively in 2007. Notable stipulations in the plan include:

- creation of a detailed Conservation Target Table (chart) specifying goals, monitoring protocols, and management alternatives for a long list of habitat resources;
- restriction of all roads to street-legal vehicles; and
- designation of 62.455 acres as *Primitive* with the stipulation that they be managed "so as not to impair their natural character."

Although there will, as always, be exceptions, it is probably accurate to say that most of the participants in the planning effort, environmentalists, local communities, grazing permittees, Native Americans, and recreational users, are satisfied that the plan is responsible and fair.

Friends Of The Desert Mountains Receive Landscape Stewardship Award

Buford Crites, President of the Friends of the Desert Mountains, accepted the Public Lands Foundation - Landscape Stewardship Award – from Henri Bisson, President of the Public Lands Foundation, during an awards ceremony held at the Santa Rosa & San Jacinto Mountains National Monument Visitors Center.

The award recognized the expedient actions by the Friends in acquiring open lands in a highly challenging environment where many open spaces have been identified for development within a fast growing Coachella Valley region. The Friends have been able to acquire those lands, elude development, and afford them permanent protection. At the same time, they have collaborated with various partners of the National Monument to promote stewardship of nationally significant resources contained in a 280,000-acre landscape that spans life zones from the Sonoran Desert near sea level to the sub-alpine zone at 10,834 feet atop Mt. San Jacinto.

Buffort Crites was co-author of an article in the *Desert Report*, March 2010, "Sand to Snow National Monument."

Ruby Pipeline Revisited

The Toiyabe Chapter of the Sierra Club has submitted a petition for rehearing to the Federal Energy Regulatory Commission. The request challenges the April 5, 2010, decision to accept the final EIS and approve the Ruby Pipeline Project. In order to bring natural gas to the west coast, this project would install a 42-inch pipeline within a 110-foot right-of-way corridor through northern Nevada, from Utah to the California border, and would significantly impact the region's fragile and scenic high desert ecosystem. This region comprises prime habitat for the sage grouse, a species which has greatly declined in the last few decades. The Sierra Club maintains, among other matters, that the Environmental Impact Statement failed to consider alternative routes that most likely would result in far less environmental impacts. For more information, contact David von Seggern (vonseg1@sbcglobal.net), chair of the Ruby Pipeline Task Force, Toiyabe Chapter.

Wind Zero Project Still Under Study

No decision has yet been made concerning the Wind Zero proposal to create a private military and law enforcement training facility next to a residential neighborhood south of Ocotillo, CA. (*Desert Report*, March 2009, "More Military Training In The California Desert?") The project includes 16 semi-open rifle ranges, a heliport, 10 live-fire shoot houses, an air strip, and a six mile racetrack. Before the period to comment on the draft EIR (available http://www.icpds.com/?pid=2308) ended over 600 questions were submitted by people who had concerns about the project. Water availability, noise, dust, disturbance to archeological resources, and stray ordinance are among the problems cited in the comments. Members of People Against Wind Zero (PAWZ) are continuing to form alliances with other groups and are continuing to gather signatures on petitions opposing the project. The Board of Supervisors for Imperial County will ultimately make a decision about the project For more information or if you would like to help PAWZ contact Susan Massey, 760-356-5649, or go to the Facebook page People Against Wind Zero.

BY ROBERT COATES AND DONALD ALBRIGHT

SIERRA SAN PEDRO MARTIR

Protecting The Sky Island

A stiff breeze sings through the trees and is heard retreating into the woods, then another long gust comes. The aspens advertise their health with plentiful, light green leaves glittering. Behind the wind and the chirp of the morning birds, there lies a profound silence. This jutting range is steep to the west, with a flattish ladle-shaped plateau tilted upward to the north, and on the east side, a steep last escarpment of schist, harder than the range's main rock, granodiorite. The plateau is heaven in the spring and summertime and exciting in late summer and fall when the monsoons roar up the gulf and also across Mexico to hit the plateau with lashing rains and lightning.

DICK SCHWENKMEYER

One of us (Albright) first explored the Martir in the early 1950s as a Boy Scout, going along on a Sierra Club mule pack trip led by the legendary Becky McScheehee. In 1960 Albright and Coates made an early ascent of 10,100 foot Picacho Del Diablo, and we have made many trips to the plateau since. In 2004 we took a group of five Nature Conservancy scientists there, intending to get the Martir blipping on the Conservancy's radar. Although this small, classic mountain range has been protected within an oval-shaped national park since 1946, civilization is squeezing the Baja California's wild areas from all sides. The aquifers on the east side of the Martir, for example, invite agriculture, although there has been only one, now-discontinued ejido (small community).

What are the current, visible threats?

To the southwest Los Piños Company, the peninsula's largest grower, is seeking to dam the Rio San Antonio to water tomatoes along the coast at Camalu near San Quintin Bay. The dam site is a narrow canyon with year-round water upstream from the ruins of Mission San Antonio.

Also exhibiting the spirit of Baja development is the Escalera Nautica* (Nautical Ladder), a poorly-conceived vision of the Mexican government. A harbor is under construction at Santa Rosalita on the Pacific side. From there yachts will be trucked on new roads across the peninsula to Bahia de Los Angeles on the Gulf of California. Studies have shown that American yachtsmen have no desire to sail the northern, non-tropical part of the Gulf, nor do they want to risk their boats crossing the backbone of Baja. Yet, the project proceeds.

Quaking Aspen in Vallecitos Meadow

Finally, four years ago the government also approved "Enchanted Mountain Resort and Retreat" adjoining the park's southern boundary. Plans called for an airport, lodges, 2,000 one-to-five acre parcels with cabins, a golf course, horse corrals, and even a snow ski facility. Cabin prices were listed at $47,000 and up.

The history, geography, and ecology of San Pedro Martir all indicate that further exploitation will destroy its essential character. Two-hundred-fifty miles south of the US border, the Martir rises abruptly on all sides. The eastern, desert side features faulting and escarpments similar to those of California's Peninsular Ranges and Sierra Nevada. The granites that form the spines of all three ranges are all 92 million year old. These granites are capped and fringed by earlier metamorphic rocks, Jurassic and Triasic schists and quartzites with pegmatites--and no gemstones! The range tilts from a western hinge, so the eastern scarp peaks are the tallest and steepest.

Failed mining projects dot the western foothills, but the only successful mining operation near the Martir that we know of was located on its western slopes. Two energetic Swedish families, the Melings and the Johnsons, settled a ranch in the 1890s,. Johnson was a mining engineer, and in the time of Teddy Roosevelt, he bored two tunnels through ridges, building a sluiceway to power his successful placer gold operation. Nowadays there is a well-paved road running from San Telmo past the well-run and famous Meling Guest Ranch.

When Pancho Villa began marauding along the border and San Diego was in fear of an invasion, Johnson and Meling shut down the mine, not wanting to be an attraction. When the Revolution ended and a new Mexican Constitution was adopted, one of its provisions forbade importing water from one watershed to another. So the Valladores Gold Mine remains a mysterious scar on the mountainside, right beside a southern switchback in the newly-paved road, and just before one enters the plateau's forested national park. This high plateau rises from 6,500 feet on its south end and 25 miles to the north it reaches 9,200 feet. Its east side is fringed by peaks, including one topped by the Mexican National Observatory's 100-inch telescope. The 10,100 foot precipitous granodiorite spire of Picacho del Diablo (La Providencia on Mexican maps) looms to the east, separated from the plateau by mile-deep Diablo Canyon.

What is spectacular about the Martir stems from its elevation and the resulting "sky island" ecosystem. Here, isolated over a mile above the surrounding desert, the traveler could be in the high country of the Sierra Nevada 600 miles to the north The spectacular woods feature the southernmost aspen stands in North America, Sierra Martir cypress, incense cedar, lodgepole and sugar pines, white fir, and occasionally beneath them the endemic San Martir mint. The chaparral-covered desert canyons dropping down from the plateau shelter California fan palms, and the ubiquitous blue fan palm, while all over the range mountain lions, big horn sheep, coyotes, and numerous small mammals share the environment with the occasional California condor, the southernmost population of pinyon jays, and even the endemic Nelson's trout, a rainbow subspecies. But the authors see changes occurring: less dependable winter rains, more torrential summer rains that are eroding meadows, and overall drier conditions that are leading to fires such as one that in 2006 burned 20 miles to just inside the south edge of the plateau. Dying lodgepole pines will add to the danger.

Our 2004 expedition for the Nature Conservancy (TNC) was intended to ring an alarm in the organization's critical care unit. This article has the same purpose for our readers. TNC has tremendous resources, including an office in Ensenada that is finalizing real estate deals to protect critical spots in the Sierra Juarez and the flyway at San Quintin Bay. The Martir is on its list. Your encouragement would help secure more protection for the Sky Island.

Contact information: The Nature Conservancy Mexico Program, Calle Sexta 1760, Col Obrera, Ensenada, Baja California CP 22830. Tel. (614) 152.1155, Fax (614) 152.1154. For more information: http://agaveworks.net/docs/escnaut-en.pdf

Robert Coates is Founding President of the SDAU Geology Alumni Association. Donald Albright is a teacher and geologist with the San Diego Natural History Museum.

CRAIG DEUTSCHE

Cattle Camp in La Encantada Meadow

Down Home Learning

CONTINUED FROM PAGE 2

movement along the San Andreas Fault system. At the same time, the East Pacific Rise is separating the Californias (Baja Peninsula and portions of California west of the San Andreas Fault) from the mainland of Mexico. The San Andreas and the East Pacific Rise are part of the same system, which starts down near the Antarctic and continues to Cape Mendocino in northern California.

- The multiple columns of steam rising across the Imperial Valley Geothermal Area mark the 10 generating plants with a combined capacity of 327 megawatts of electricity.
- Over the past 3.5 million years, the Colorado River has deposited water and sediments from the formation of the Grand Canyon. The sediments exceed 20,000 feet at the deepest point in the Basin.
- The badlands of the Anza-Borrego Desert on the western edge of the Basin are internationally known for their fossil flora and fauna buried within a continuous record of sediments spanning 9 million years.
- The Salton Basin is the hottest, driest part of California. The maximum temperatures in the Salton Basin exceed 100 degrees F more than 110 days each year, and climb higher than 110 degrees F more than 15 days each year.
- Imperial County is one of the top 10 agricultural counties in the country, and the largest year-round irrigated agricultural area in North America.

The EcoMap©

When bombarded with such diverse environmental data, how can we help students organize it in a way that downplays memorizing and triggers insight and discovery? The Salton Basin Living Laboratory (SBLL) curriculum uses the EcoMap©, a unique tool that provides a framework on which to hang environmental data, such as the listed superlatives above. The EcoMap© visualizes how the structural or non-living elements interact with the functioning, living world through continuous feedback loops. Starting from their own experiences, teachers and students learn how to build the map from its simplest beginning to the final level. All the elements are defined and referenced to the Salton Basin and Imperial County in order to ground students in the geography and natural history of their home place.

The Stories

The first completed field trip is "A Trip Through Time," which provides students an opportunity to explore the ancient landscapes of the Anza-Borrego Desert. In development are trip guides to the New River Wetland and the Salton Sea Sonny Bono National Wildlife Refuge. Just driving down the road to these sites offers students the opportunity to see with new eyes an ancient and historic landscape. Our task is to open those eyes behind the bus windows. What stories can we tell to make the ancient and historic stand out from the endless agricultural fields?

Our answer is maps. All maps tell a story. The route of Juan Bautista de Anza through the Salton Basin is documented and signed along his journey. His 1774-1775 overland journeys culminated in the discovery and settlement of San Francisco. Trip diaries and route information are available on the Internet, so students can follow his daily adventures as they prepare for their field trip. It

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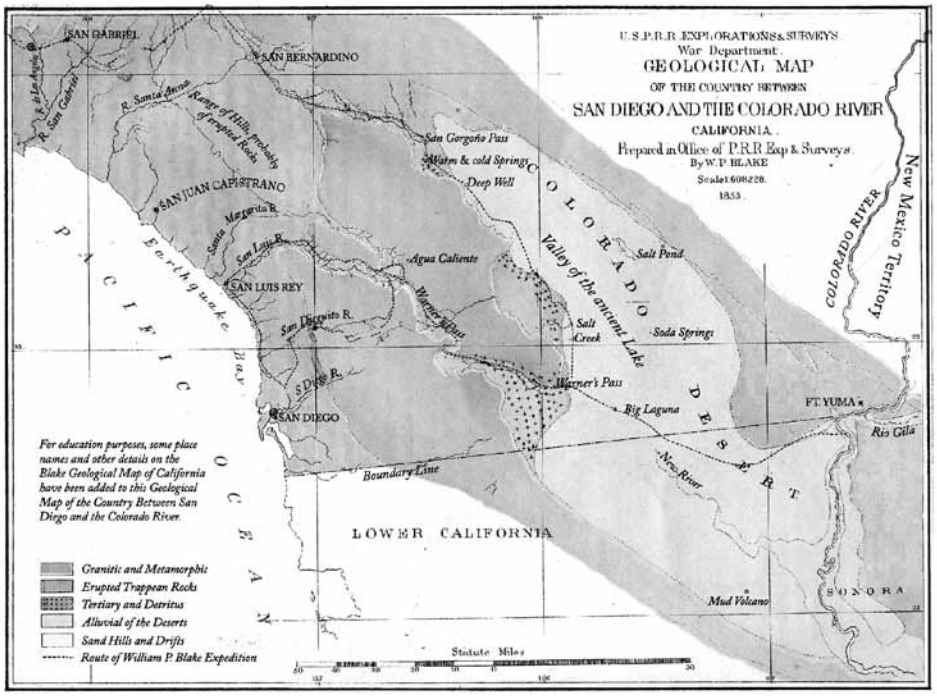
Children And The Natural World: Down Home Learning

CONTINUED FROM PAGE 13

makes for thoughtful reading.

The Williamson Expedition of the Pacific Railway Survey entered the Salton Basin in 1853 with the mission to discover a practical route across the desert. Their traverse of the Basin from north to south was the first, so there were no maps, except those in the minds and rock art of native peoples. It was up to the newly graduated 27-year-old William Phipps Blake, as geologist for the expedition, to make the first map. The expedition spent five weeks exploring 300 miles of the Colorado Desert. They traveled about 11 miles on a really good day, usually less, sometimes more. Blake stopped constantly to measure the temperature, take barometric pressure readings to determine the elevation, collect samples of soils, plants, and fossils, draw cross sections of geologic formations, and question the native peoples he met along the way. His final report is a brilliant synthesis of his observations and a benchmark for naturalist writers today. Blake's map and observations inspire and guide our SBLL teachers and students today.



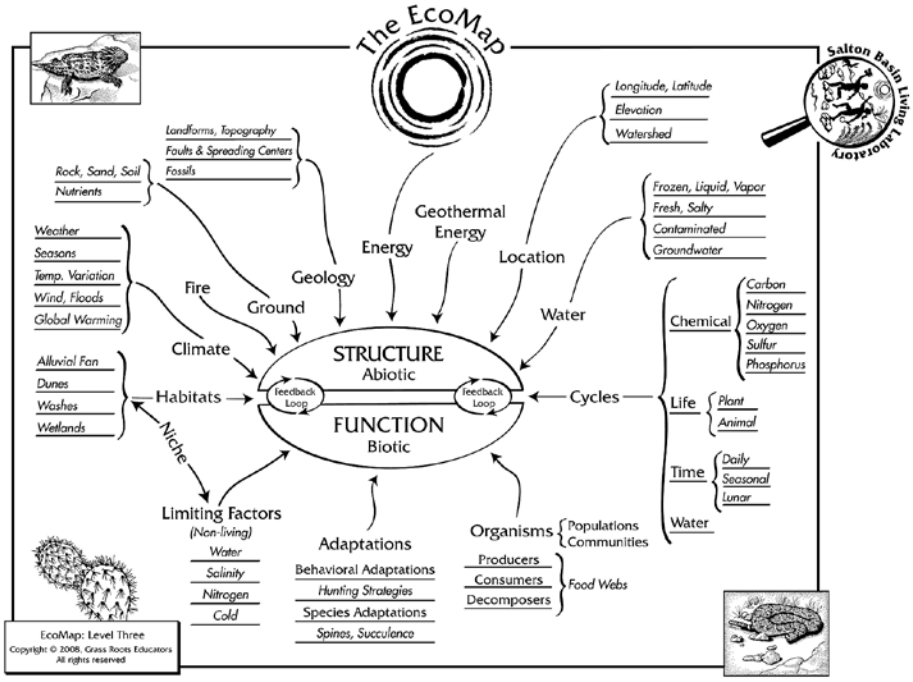
William Blake's Geologic Map of Southern California, 1855

Godfrey Sykes is another of our guides. He explored the Salton Basin and studied the workings of the Colorado River for 44 years, from 1891 until 1935. He observed, measured, and described how the river flowed into the delta before there were any levees, canals, railroads, or other man-made devices to capture, divert, or slow the natural flow of the Colorado River and its sediments. Sykes's maps, measurements, and descriptions help today's paleontologists understand the sedimentary history of the basin.

Using the maps of Blake and Sykes, students learn to read, compare, and contrast the information depicted on the maps. Students and teachers use a total of eight maps, including the EcoMap©, in their quest to understand and explore the Salton Basin. By incorporating the history of the early mapmakers, the landscape gains the third dimension of time. During the long bus ride, students are asked to list what they see that William Blake would not have seen. They make very long lists and while doing so turn their mind's eye to an earlier time when learning rode a horse, slept under the stars, dug for water, and saw new and surprising sights every day.

Living in cities, we easily lose our connections to the land. It becomes more and more important that children have a chance to experience the world in the way that Raff did. Perhaps the statement below, written by one of the children in the program, provides a bit of hope:

The Mammoth, however has only four teeth at a time. Two at the top and two at the bottom. It was really neat to see them, because the sharper the teeth are the more younger the mammoth is. Also, the more dull and warn down they are, that mammoth is older … another one of my favorite things at Borrego was seeing the different layers. The layers identify how old that part of that mountain is. Usually, a duller and warn down tip of a mountain is older, and a sharper and the more point it has to it, then that mountain is young. It is kind of like the mammoth's teeth. Emily, 6th grade ◆



EcoMap Used in the Classroom Studies

Outings

Following is a list of desert trips. Outings are not rated. Distance and elevation gain can give you an indication of the suitability of a trip, but the condition of the trail, or lack of a trail, can change the degree of difficulty. An eight mile, 900' elevation gain hike on a good trail would be easy to moderate, the same hike cross-country could be strenuous. If you have not previously participated in a desert outing, it is recommended that you call the leader and ask about the suitability of the trip given your conditioning.

For questions concerning an outing, or to sign up, please contact the leader listed in the write-up. For questions about Desert Committee Outings in general, or to receive the outings list by e-mail, please contact Kate Allen at kj.allen@wildblue.net or 661-944-4056.

The Sierra Club requires participants to sign a standard liability waiver at the beginning of each trip. If you would like to read the Liability Waiver before you choose to participate, please go to http://www.sierraclub.org/outings/chapter/forms, or contact the Outings Department at (415) 977-5528 for a printed version.

For an updated listing of outings, visit the Desert Report website at www.desertreport.org and click on Outings.

Sierra Club California Seller of Travel number is CST 2087766-40. (Registration as seller of travel does not constitute approval by State of California.)

GORGE SCRAMBLE LEVEL 3: END OF THE WORLD. MIDDLE FORK. AMERICAN RIVER CANYON.

July 10-11, Saturday-Sunday

Beautiful gorge area, river portion was not affected by 2001 Starr Fire. Many great pools for swimming. First day is a long one, overnight at Three Cedars campsite. Water will be cold due to releases from French Meadow Reservoir; bring a spring wetsuit. Bring overnight gear in pack for flotation. For more details, see description at: http://www.motherlode.sierraclub.org/deltaSierra/GSPAGES/gspage10.htm (Trip #10.)
Leader, Paul Plathe, 209-476-1498. Motherlode Chapter Gorge Scrambling Section

GUZZLER CLEANUP IN MT GRAFTON WILDERNESS

July 24-26, Saturday-Monday

Join us as we carry out the pieces of an old, unneeded guzzler from this wilderness area about an hour's drive south of Ely, just off U.S. 93. The pieces of the guzzler will have been cut into manageable size pieces. To make the toting downhill easier, bring a frame backpack to strap guzzler pieces to. We will work with John R. Miller from the Ely BLM. Participants should be in good shape for working at altitude. Central commissary (optional) $15. High clearance recommended. Contact leader Vicky Hoover, 415-977-5527, vicky.hoover@sierraclub.org. CNRCC Wilderness Committee

BRISTLECONE PINES

Aug 21-22, Saturday-Sunday

Come with us to the beautiful White Mountains to camp, hike and just relax. On Saturday, we'll hike the Ancient Bristlecone Pine Forest on a moderate 5-mile round trip interpretive trail, followed by a picnic lunch and a short optional hike to a nearby old mining cabin. Back at camp, we'll enjoy Happy Hour, a potluck feast and a campfire. Sunday pack up and head home. Group size strictly limited. Send $8 per person (Sierra Club), 2 large SASE, H&W phones, email, rideshare info to Reserv/Leader: Lygeia Gerard, P.O. Box 294726, Phelan, CA 92329, (760-868-2179). CNRCC Desert Committee

GORGE SCRAMBLE LEVEL 3: DEVIL CANYON. MIDDLE FORK. FEATHER WILD AND SCENIC RIVER CANYON.

August 28-29, Saturday-Sunday

This spectacular canyon receives big flows that scour the granite walls to a light gray finish. Cook your dinner on an open fire. 1800 feet of elevation gain on hike out. Bring a good quality air mattress and overnight gear packed for flotation. Experienced gorge scramblers only. This strenuous outing requires excellent swimming skills. For more information on this activity go to: http://www.motherlode.sierraclub.org/deltaSierra/GSPAGES/gspage0.htm. Leader; Paul Plathe, 209-476-1498. Motherlode Chapter Gorge

TAMARISK BASH IN SURPRISE CANYON

September 4-5, Saturday-Sunday

This is a traditional end of summer outing as we help remove invasive tamarisk from Surprise Canyon north of Ridgecrest, CA. It is warm weather, but the year-round stream will let us soak and cool as the spirit moves us. We will work Saturday with Marty Dickes, our coordinator from the BLM. Sunday is reserved for a hike to cooler elevations above the desert. Enjoy carcamping, a potluck dinner Saturday, and campfire stories. Contact leader Craig Deutsche, craig.deutsche@gmail.com, (310-477-6670) CNRCC Desert Committee

SERVICE AND HIKING IN THE CARRIZO PLAINS

September 24-26, Friday-Sunday

This is an opportunity to visit and to assist an outstanding and relatively unknown national monument. There will be an optional and scenic hike high in the Caliente Mountains on Friday. Others may join us for National Public Lands Day on Saturday when we will participate with other volunteers restoring one of the historic homesteads in the center of the Plain. On Sunday, we will tour a number of the historic, prehistoric, and geologic sites in the Monument. Leader Craig Deutsche, craig.deutsche@gmail.com, (310-477-6670) CNRCC Desert Com

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BY DR. CAMERON BARROWS, PH.D.

WHAT DO WE DO NOW?

The Anatomy Of An Invasion
Sahara Mustard

Second only to habitat loss from agriculture and urban development, invasive species are believed to be one of the greatest threats to the loss of biodiversity worldwide. We know the examples. Hawaii's native forests, birds, and even land snails have been decimated by non-native plants and animals brought to those islands by a succession of visitors beginning with the Hawaiians themselves, but accelerated after Captain Cook's arrival. Southern California's sage scrub communities are being replaced with non-native grasslands and mustards, an invasion fueled by too-frequent fires and daily deposits of nitrogen "fertilizer" delivered via air pollution from our vehicles, especially from the ships and trucks associated with the ports of Long Beach and Los Angeles. And there is salt cedar *(Tamarix ramosissima)*, brought in from the Middle East for windbreaks and to stabilize levees. It has now invaded virtually every wetland in our desert southwest, in many cases completely replacing the cottonwood and willow forests that once provided critical habitat for birds and other wildlife. Surely those dry, harsh desert landscapes beyond the riparian oases would be resistant to the invasion of non-native species, but our deserts have also been invaded.

CAMERON BARROWS

CAMERON BARROWS

Above: A "sea" of Sahara mustard dominating the Coachella Valley Preserve's landscape in 2005.

Top: A dune primrose, *Oenothera deltoides*, struggling for space, water, and sunlight with a larger Sahara mustard.

The list of serious desert invaders isn't long: a few grasses like European split-grass and red brome *(Schismus barbatus and Bromus rubens)*, a wild geranium *(Erodium cicutarium)*, and most recently Sahara mustard *(Brassica tournefortii)*. A short list, but the impacts to native biodiversity may be very large. In the Mojave Desert these species have fueled wildfires in ecosystems where native species lack adaptations to survive those fires. In the last couple of decades that recent invader, Sahara mustard, has seemingly "exploded" across the desert landscape, causing desert land managers and others to wonder whether anything can be done to stem its geometrically expanding range.

Herbariums in museums and universities have provided a wealth of information about the invasions of non-native plants. Sahara mustard was first collected and included in a herbarium specimen in 1927, although it was initially misidentified as the wrong species of mustard. Andy Sanders, curator of the University of California at Riverside's herbarium, discovered the mistake, provided a correct identification, and then plotted Sahara mustard's path of invasion. That 1927 specimen was collected from southern California's Coachella Valley, likely the result of an inadvertent introduction, hitching a ride along with palm trees imported from northern Africa when the Coachella Valley's now- thriving date industry was just beginning. Years went by, and despite active plant collecting few additional Sahara mustard specimens were recorded.

Then during a series of strong El Niños in the late 1970s and early 1980s, the mustard started showing up across our desert region. The first herbarium specimen collected near Tucson, Arizona was in 1978; considered rare until 1991, it was abundant by 2005. Back in the Coachella Valley the mustard was widespread during the particularly wet years of the late 1970s and early 1980's; it returned to obscurity until the next strong El Niño of 1994-1995 when again it grew as a continuous ocean of mustard across the valley floor. Once more it became uncommon, even during the particularly good wild-flower year of 1998, but it returned in 2005 and again in 2008, 2009, and 2010.

A critical question was to identify what, if any, long-term impacts on biodiversity might result from the mustard invasion. In 2005, with the help of BLM volunteers, we established a series of 0.1-hectare plots (about ¼ acre, or roughly the size of 2 suburban residential lots). On half the plots (15) we hand-weeded out all of the mustard (treatment plots); the other half we left alone to later

measure the effect the mustard was having (control plots). The results were dramatic. On control plots native wildflowers germinated in numbers similar to treatment plots, but underneath the dense canopy of mustard they then put all their energy reserves into trying to reach the sunlight, and had little or nothing left for creating flowers and seeds. There was a 90% reduction in the natives' re-productive success on the control plots (measured in numbers of flowers and seed pods) compared to the treatment plots. This pattern included an endangered plant species, the Coachella Valley milkvetch *(Astragalus lentiginosus* var *coachellae)*. Later, in the early fall of 2005, nearly 2 inches of rain fell, germinating both more mustard and annual plants and allowing us to measure whether the effect of our weeding would last more than one season; it did. Up to two growing seasons after weeding, even without further treatments, there were still (slightly) more natives and less mustard on the plots we weeded in 2005.

So we now know that with the mustard densities we have seen in the Coachella Valley (sometimes more than 300 plants per square meter), the negative effect of Sahara mustard on native annual plants is severe. If similar conditions (rainfall and mustard densities) continue, the native annual plant seed bank will become increasingly depleted, and native annuals will become increasingly scarce.

What we still don't know is more important at this point:

- What is the impact on plant- and seed-eating rodents, reptiles, and insects if they no longer have choices between a broad diversity of plant and seed types and sizes? How will those effects be expressed throughout the desert food web?
- Currently the most active sand dunes and hummocks appear to be resistant to mustard invasions, but is there an incremental stabilization occurring that will eventually envelop these habitats that are so important for a host of endemic species?
- The mustard has exploded and seemingly ebbed several times in recent decades. Are there apparently random weather patterns that favor natives over the mustard that will, over time, allow for coexistence?
- What are the best options for controlling Sahara mustard?

This last question may be especially challenging. Hand weeding is a great way to engage a community of concerned citizens, but considering the acres infested, its impact will be narrow in scope. The best hand-weeding strategy will be to select locations of reasonable size where we can maintain examples of our spectacular desert flora. The visual impact will be tremendous.

Another possible approach is the use of biological controls. There may very well be a particular beetle or virus that keeps this species in check in its native Africa and Middle East. However getting a bio-control approved for release is difficult, expensive, and time consuming. The mantra for weed control needs to be like that for physicians, to "do no harm;" our track record with introducing bio-controls includes too many costly mistakes to try to fast-track this process. The relatively close genetic relationship between Sahara mustard and a suite of important agricultural crops (broccoli, cabbage, etc.) will make that task even more difficult. A final option may be the judicious use of fast-degrading herbicides. Sahara mustard usually germinates a month before natives do, offering a potential window for control efforts. Again we need to be cautious and do no harm. There are no easy choices, but there seems to be a strong public will to find a solution. ♠

Dr. Cameron Barrows, Ph.D. served as the first Manager of the Coachella Valley Pre-serve System from 1986 through 2006. He currently holds an Assistant Research Ecologist position with U. C. Riverside's Center for Conservation Biology. His research focus uses many of the insights and data collected on the sand dunes to develop meaningful and responsive measures of whether species are at risk of extinction.

References

Barrows, CW, Allen EB, Brooks ML, and Allen MF. 2009. Effects of an invasive plant on a desert sand dune landscape. BIOLOGICAL INVASIONS 11:673-686.

Rao LE, Parker DR, Bytnerowicz A, et al. 2009. Nitrogen mineralization across an atmospheric nitrogen deposition gradient in Southern California deserts. JOURNAL OF ARID ENVIRONMENTS 73:920-930

DeFalco LA, Esque TC, Scoles-Sciulla SJ, et al. 2010. Desert wildfire and severe drought diminish survivorship of the long-lived Joshua Tree (Yucca brevifolia; Agavaceae). AMERICAN JOURNAL OF BOTANY 97:243-250

Outings

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BLUE LAKES BACKPACK AND DAYHIKE

October 23-25, Saturday-Monday

The Blue Lakes Wilderness Study Area is tucked away in the remote northwest corner of Nevada in the Pine Forest Range. We'll backpack to Blue Lake on Saturday, do a day hike on Sunday, and return to the cars on Monday, perhaps making a partial loop. I have not been there yet, so right now it's a mystery to all of us, but I do plan to scout it. The backpack will be 5-8 miles with 2000-3000 feet of elevation gain, depending on the state of the roads. Participants are responsible for their own meals. Leader: John Wilkinson, johnfw1@mac.com, (408-876-8295).

GHOST TOWN EXTRAVAGANZA

October 30-31, Saturday-Sunday

Spend Halloween weekend visiting the ghosts of California's colorful past. Join us at this spooky desert landscape near Death Valley. Camp at the historic ghost town of Ballarat (flush toilets & hot showers). On Saturday, do a challenging hike to ghost town Lookout City with expert Hal Fowler who will regale us with eerie tales of this wild west town. Later we'll return to camp for Happy Hour and a special holiday potluck feast, followed by a midnight visit to the ghosts and goblins in Ballarat's graveyard. On Sunday, a quick visit to the infamous Riley townsite before heading home. Group size strictly limited. Send $8 per person (Sierra Club), 2 large SASE, H&W phones, email, rideshare info to Leader: Lygeia Gerard, P.O. Box 294726, Phelan, CA 92329, (760-868-2179). CNRCC Desert Committee

Protecting The Natural Sounds Of Death Valley

CONTINUED FROM PAGE 1

"effects of noise on national park areas," the National Parks Conservation Association (NPCA) has long felt that the Park Service should have authority to determine and regulate noise impacts.

This issue intersects crucially with Death Valley National Park because the park is currently undergoing an Air Tour Management planning process initiated in June of 2009. Death Valley may very well be the first park in the nation to develop an Air Tour Management Plan.

A unique vehicle is driving Death Valley's environmental process, an Aviation Rulemaking Committee, which is intended to expedite review by incorporating input before releasing the plan for public scoping. In June 2009 the NPS and the FAA brought together stakeholders to determine issues that would affect the eventual environmental documents. Five tour operators or their representatives attended along with one environmental group, the National Parks Conservation Association. At that meeting NPCA brought up the disproportionate representation of commercial interests and the paucity of environmental stakeholders as a cause for concern.

Using input from the June 2009 meeting, the NPS and FAA sought public comments this past March for an environmental assessment of an Air Tour Management Plan for Death Valley. NPCA worked with members of the Sierra Club Desert Committee and other environmental stakeholders to develop scoping comments for this plan. Dick Hingson, a Sierra Club member and a longtime advocate on the air tour issue, also contributed ideas to the process

The comments that NPCA developed after consulting with these individuals and groups asked for three alternatives to be examined in the plan:

1. No commercial air tours;
2. Commercial air tours capped at the current level of 67 per year, with stricter limits on helicopter tours as a percentage of total tours;
3. Commercial air tours capped at the current level of 67 per year, with existing percentages of helicopters and fixed-wing aircraft.

Currently, the maximum number of air tours authorized by law in Death Valley is 67. The Air Tour Management Act of 2000 makes it clear that until plans are completed, parks are managed under "interim operating authority," which sets flight limits for each park based on the number of air tours over the parks upon passage of the law in 2000. For Death Valley, the number of reported tours taking place when the act passed was 67 per year.

The actual level of air tours is currently less than 67 per year because there is not enough commercial demand for Death Valley air tours to fill 67 tours each year. What's the explanation for this lack of demand? It could be the recognition by park visitors that they can see the park's vistas more conventionally and less expensively on the park's roads and trails. But some of the lack of demand may result from the limited marketing of Death Valley air tours. That can change, depending on the whim of the tour companies. In Grand Canyon National Park, visitors can also access remarkable vistas from the roads, trails, and overlooks, yet there are currently tens of thousands of air tours each year in the Grand Canyon. This airport-like situation damages visitor experience, and according to wildlife researchers, negatively impacts the breeding and foraging behavior of bighorn sheep.

Death Valley, like the Grand Canyon, has populations of bighorn sheep and impressive vistas. What Death Valley doesn't have—right now—is tens of thousands of air tours every year. The Death Valley Air Tour Management Plan offers those who appreciate the value of natural sounds a precedent-setting opportunity to express the importance of these existing values and influence the process. Death Valley National Park's General Management Plan even points the way toward advocacy on this issue: "Perhaps the Park's greatest assets today are the clear air, vast open spaces that stretch toward distant horizons, and the overwhelming silence."

Speaking on behalf of silence is not arguing for nothingness. It is advocating for everything that we can hear and experience profoundly in nature. At the moment Death Valley is the place where this issue is emerging, and the environmental community has an important role to play. We can remind the FAA and the NPS that it is the Park Service's responsibility to steward our country's national treasures so that our children and grandchildren can also experience the natural world, unimpaired by commercial enterprises. To get on the list to comment on the Death Valley Air Tour Management Plan, email Lelaina_Marin@nps.gov.

There is one more important development that has the potential to fundamentally affect this process—in March of 2010, U.S. Senators Wyden and Merkley introduced an amendment to the FAA Reauthorization Act of 2010 that would clearly define the respective roles of both the FAA and NPS in completing air tour plans. For the NPS, that means making determinations about the significance of noise impacts from air tours on park resources and park visitors. For the FAA, that means regulating flight safety. The final bill has not yet passed. As with all environmental laws and their implementation, the best way to influence the process is to get involved, letting those who are making decisions know what you value.

Mike Cipra served as California Desert Program Manager for the National Parks Conservation Association from January 2008 until May 2010. He is currently working on a novel about sex, drugs, and the conservation of our national parks.

JANE CIPRA

Little Hebe Crater - one of the sites popular for air tours

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DESERT REPORT

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All policy, editing, reporting, and graphic design is the work of volunteers. To receive *Desert Report* please mail the coupon on the back cover. Articles, photos, letters and original art are welcome. Please contact Craig Deutsche (craig.deutsche@gmail.com, 310-477-6670) about contributions well in advance of deadline dates: February 1, May 1, August 1, and November 1.

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The Sierra Club California/Nevada Desert Committee works for the protection and conservation of the California/Nevada deserts; supports the same objectives in all desert areas of the Southwest, monitors and works with governments and agencies to promote preservation of our arid lands, sponsors education and work trips, encourages and supports others to work for the same objectives, and maintains, shares and publishes information about the desert.

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