

**POINTS OF INTEREST
IN THE
OWENS RIVER VALLEY**

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A Center for Land Use Interpretation publication

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THE CENTER FOR LAND USE INTERPRETATION
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about how the nation's lands are apportioned, utilized, and perceived.

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FOREWORD

The Owens River Valley is the subject of this guidebook published by the Center for Land Use Interpretation, one of a series of occasional regional titles produced by the Center. The points of interest selected in this book are drawn from the Center for Land Use Interpretation's land use database, a collection of "unusual and exemplary" land use sites in the United States, with an additional level of magnitude applied for this regional survey.

The reason to focus on this area is to explore this compelling back space of California, and this shadow of the urban southland. From the preparation for the first aqueduct a hundred years ago to the recreational urban tourists of today, the Owens Valley has been an extension of the city, a fact physically asserted on the ground, as more than 95% of the private land in the valley is owned by the Los Angeles Department of Water and Power.

By following the Valley, with its ten thousand foot walls, the guide follows the cyborg river that is channelled, artificially enhanced, and ducted to serve as the drinking water supply for more than half of the citizens of the City of Los Angeles. It follows two major powerlines that bring electricity to the city. It follows a highway connecting the Mammoth Mountain ski resort to the skiers, fishermen to their fish, and bottled water to its market.

In this away place, we see the effects of the cause of Los Angeles, and by extrapolation, the codependent relationship between the urban and rural, the consumers and the consumed. The local and remote are two sides of the same coin.

INTRODUCTION BY KAZYS VARNELIS

A visit to California's Owens River Valley serves as a case study for understanding the reach of the city and the reshaping of nature. This forgotten land has made possible the massive growth of Los Angeles, even though it lies hundreds of miles away. In popular history, the Owens River Valley was an idyllic California Eden, a bountiful farming region under the eastern Sierras, until Los Angeles stole the flow of the river to fill its aqueduct. Passions over water still run high in the Valley but as this guide demonstrates, water is only one of a series of infrastructures overlaying its terrain. Between the Sierras and the White Mountains water, power, and recreational tourism intersect with a landscape, at once beautiful and toxic, natural and reshaped by man.

We have no record of the natural state for the Owens River Valley. Its indigenous peoples, the Shoshone and Paiutes, redirected river water into channels to irrigate their crops. After a bloody war, white settlers extended these systems, turning the more typical desert scrub of the Valley into heavily irrigated farmland. Had this condition endured, the Owens River Valley likely would have turned into a landscape of industrialized agriculture similar to California's present day Central Valley. The redirection of Owens River water to Los Angeles, the concurrent purchase of much of the land in the Valley by the city – L. A. is the largest landowner there – and the establishment of national park and national forest boundaries to protect the watershed all directed the territory toward an artificially enforced wildness.

Only some seven miles wide, the Valley is bounded by the 14,000' east face of the Sierras on the west - among them Mount Whitney, the tallest mountain in the lower forty-eight states - and by the 14,000' White Mountains on the other. The result is the deepest valley in the United States, indeed, one of the deepest on Earth. In this unique scenery are some of California's best spots for hiking, fishing, skiing, and mountain climbing.

By the 1930s, the Valley's picturesque landscape was recognized as its salvation from economic ruin. Father John J. Crowley, known locally as "the desert padre," traveled up and down the Valley, helping the peoples of the depressed communities understand that tourism could replace agriculture as its main industry. Today tourism brings the people of the city to the Valley. These visitors make life economically feasible but also leave behind demands and expectations that reshape both the local culture and the local environment.

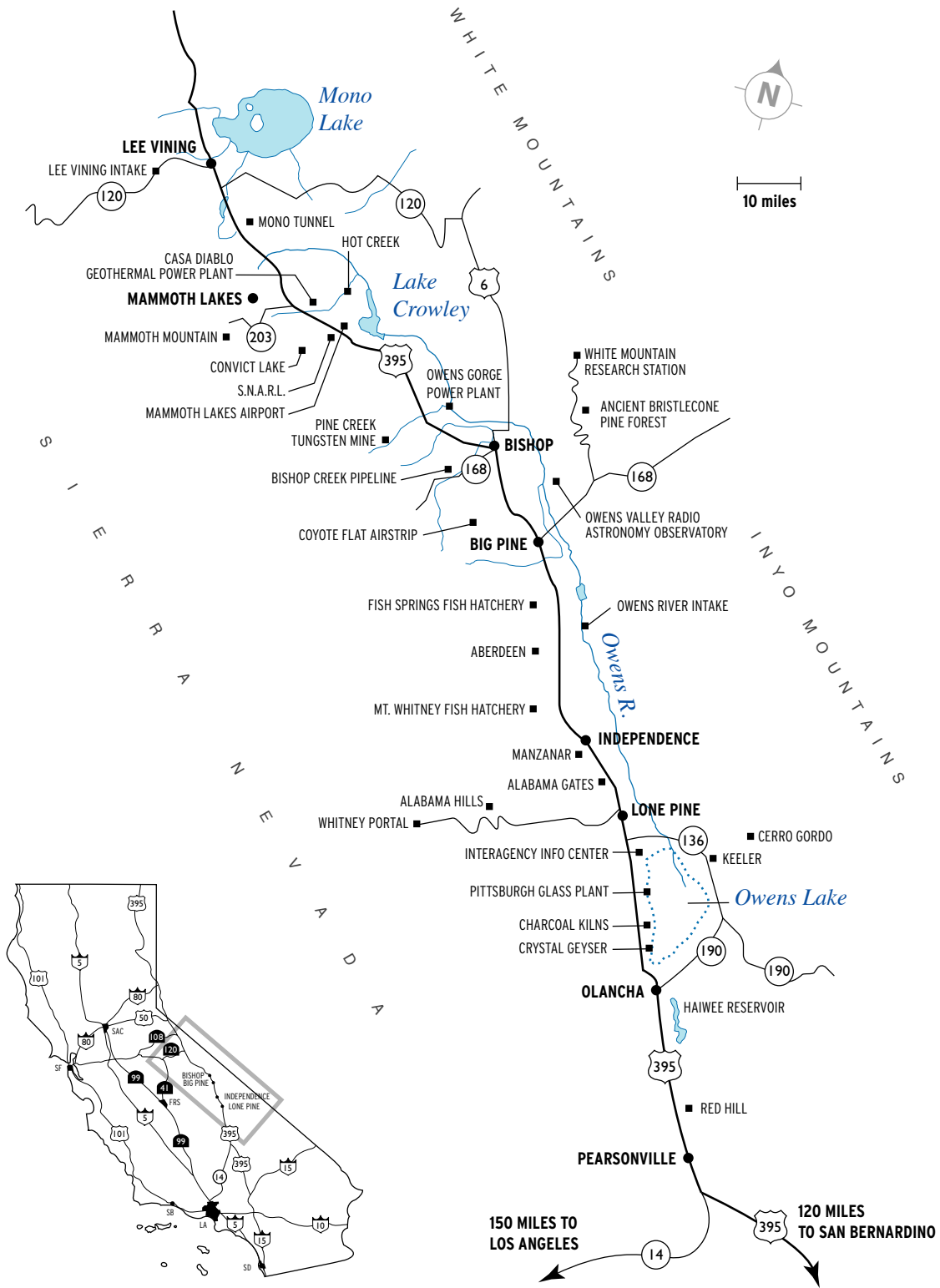
The vast forces that have built the mountains bounding the Valley have also created a landscape of violence and toxicity. The largest recorded earthquake in California - 8.3 on the Richter scale - was centered in the Owens Valley town of Lone Pine, but even this seems minor when we visit the lava-strewn plains north of Bishop to see the trauma inflicted upon the earth 760,000 years ago when the Long Valley Caldera erupted. Today, volcanism's remnants serve simultaneously as innocuous tourist attractions – a domesticated sublime - and as deadly threats to human life. A remnant of the eruption, Mammoth Mountain is one of the continent's top ski areas, but underneath lies a volcano that may yet erupt. Likewise, the rejuvenating hot springs of Mammoth Hot Creek, also caused by vulcanism, have killed over a dozen people in the past 50 years. Our domestication of nature comes at a price.

Until the conquest of the American frontier in the late 1880s, the wondrous, natural landscape was key to the young country's national self-image. For European settlers, the vastness of the continent and the extremity of its features were proof of God's gift of manifest destiny. But, as historian David Nye explains, with the conquest of the frontier complete, we needed to turn to a technological sublime: the belief that our manifest destiny was confirmed by our construction of immense engineering works that would tame the sublime continent. Works such as the Hoover Dam, the skyscrapers of New York, the Golden Gate bridge, and the Saturn V rocket all stand as evidence of this technological monumentality. Not only did these works tame the continent - and in the case of the latter, the unfathomable distance between Earth and moon itself - they themselves were sublime: gigantic and awe-inspiring.

But these are icons of a bygone age. If there is a sublime today, our awe now derives not from a visible icon but from the vastness and incomprehensibility of an unmappable network that appears everywhere simultaneously. If the Los Angeles Aqueduct was built in the days of the emerging large-scale domination of nature, it also anticipates this networked sublime. Taking the six hours to follow the Aqueduct from the city to its furthest reaches above Mono Lake forces one into the scale of ultra-large human artifacts that cannot be comprehended spatially but rather are understood only through the measure of the time it takes an automobile to travel from one end to another. Rather than demonstrating our capacity to control the world, such objects demonstrate a technology so vast and ungraspable that it is a form of nature again.

Driving through the Owens Valley, we find evidence of these multiple layers of infrastructure and belief at work. Rather than seeing them purely as distractions from the "natural," we should recognize that not only are they inescapable, but that our very conception of the "naturalness" of the Owens Valley is dependent on them.

Kazys Varnelis is president of the Los Angeles Forum for Architecture and Urban Design and an architectural historian at the Southern California Institute of Architecture.



This guide is arranged from south to north, and centered on the only road through the region, US Highway 395. It covers the area from just below the Valley, through the Valley's four towns, then up the volcanic tablelands north of Bishop another 50 miles to Mono Lake. We begin just south of the Owens River Valley, near the town of Pearsonville, 180 miles north of Los Angeles, at the Inyo County Line.





PEARSONVILLE

Pearsonville is the home of a gas station, the Pearsonville Speedway and the No Name Trailer Park. It is also the Hubcap Capital of the World, where Grandma Lucy Pearson will help you search for a long lost hubcap among the hundreds of thousands she has in stock. Hubcap dealers from Los Angeles regularly stop by Pearsonville to bring back hubcaps to sell at twice the price in the city.



PACIFIC INTERTIE

The twin power lines of the Owens Gorge Transmission Line and the Pacific Intertie cross the highway a few times, and are visible throughout the valley. The 230,000 volt Owens Gorge Transmission line delivers electricity generated at three hydroelectric plants in the Owens River Gorge to Los Angeles. Carrying 1,000,000 volts for 846 miles, the Pacific Intertie is the world's longest distance and highest voltage transmission line, bringing power from the hydroelectric plants of the Columbia River area in Washington state to Southern California.



RED HILL

Red Hill is a volcanic cinder cone that has been mined since the 1950s. Lava rock is valued for its porous, lightweight characteristics, and is generally used as an aggregate for making cinder blocks. One of the largest uses of the material from this hill is for blocks used to construct sound barrier walls along the freeways of Los Angeles. The present company, the Twin Mountain Rock Company, has been mining here since 1978. It is owned by the Rinker Materials Corporation of West Palm Beach Florida, one of the nation's largest aggregates producers. Some years ago, local citizens made a successful effort to save Red Hill from complete deconstruction by limiting mining to the side hidden from the road.



COSO JUNCTION

The road to Coso intersects with Highway 395 at a rest stop established by Caltrans. Coso is a geothermically active area, with a geothermal electric power plant, a remarkable collection of native American petroglyphs, and an abandoned hot springs resort from the 1920's. Coso has to be visited by appointment, however, as it is located entirely within China Lake Naval Weapons Center, a million acre Navy landscape where, among other things, the Sidewinder missile was developed. At the rest stop at Coso Junction are some displays about the Native Americans first displaced from the Valley in the 1860's, and again when the City of Los Angeles bought much of their land. The Indians now live on small reservations in the Valley. The displays are part of a series of interpretive infrastructure erected by a group of government, local, and commercial organizations called CURES (Coalition for Unified Recreation in the Eastern Sierra), which has established the Highway 395 Eastern Sierra Scenic Byway to promote tourism in the area.



HAIWEE RESERVOIR AQUEDUCT INTAKE

The Los Angeles Aqueduct consists of two roughly parallel pipe/channel systems. The original aqueduct was completed in 1913, and is gravity fed for its entire journey of over 200 miles to Los Angeles. A second aqueduct, roughly paralleling the original one, was completed in 1970. Both of these aqueducts flow into the Haiwee Reservoir, the southernmost reservoir in the "resource" (Owens Valley) end of the water supply system. Emerging from the water at the southern end of the Haiwee are the intakes that draw the reservoir water into both the first (1913) and the second (1970) aqueducts. From this point south to Los Angeles, the water flows only in troughs and pipes.



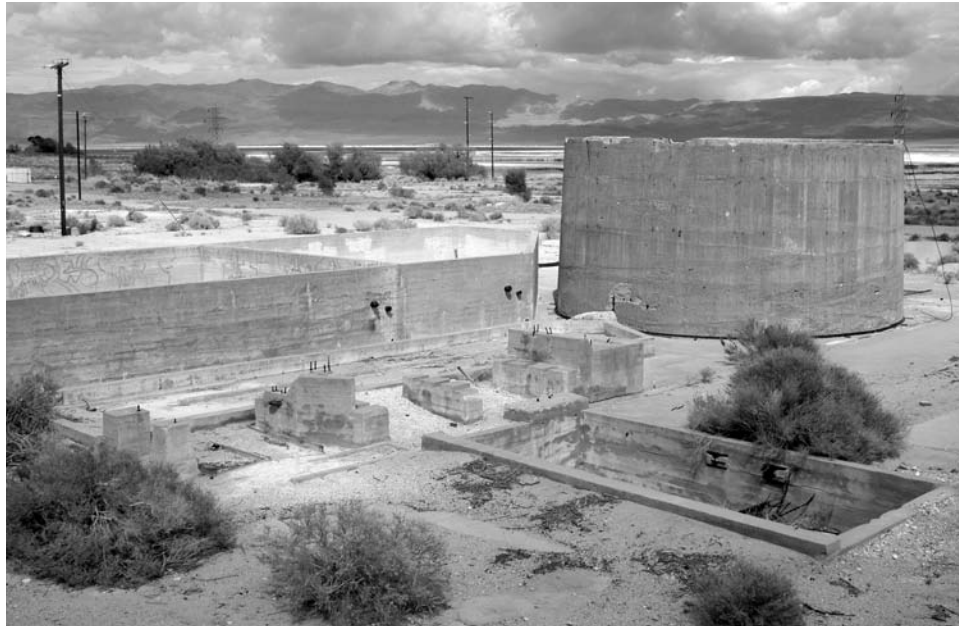
MERRITT CUT

The Haiwee Reservoir is actually two reservoirs - the North Haiwee and the South Haiwee- that are separated by an earthen dam called the Merritt Cut. At the Cut, a bypass channel can divert the water around the south reservoir through a channel. At the south end of the South Haiwee Reservoir is a dam and a hydroelectric power plant that can use the drop in elevation to generate electricity which, like the water that generates it, is carried south to Los Angeles. At the north end of the North Haiwee Reservoir is another dam, next to the channel where the aqueduct water enters the reservoir. The primary function of the Haiwee reservoirs is to slow the water down to allow particulates to drop out of suspension before entering the mostly enclosed aqueduct to the south, and to allow sunlight and air to help purify it. Swimming is not allowed in the Haiwee, though fishing with rubberized waders is permitted.



CRYSTAL GEYSER PLANT

The primary source for the most popular bottled water brand in Southern California is in a series of metal sheds on the east side of the highway in Olancho. Here, on the western shore of dried-up Owens Lake, is where Crystal Geyser spring water is pumped out of the ground and bottled. The path of the trucks carrying Crystal Geyser water to Los Angeles parallels that of water flowing through the Aqueduct.



RUINS OF CARTAGO

Piles of potash and ruins from a processing plant that closed many years ago cover the area around the town of Cartago, which was once a port on Owens Lake. In the 1870s, bullion from the mines at Cerro Gordo that were shipped across the lake landed here, and were transferred on to Remi Nadeu's 14 mule teams for transport to Los Angeles. The teams then returned here, full of provisions, that were shipped across the lake to Keeler and up to the mines. This commerce helped to stimulate the formation of the City of Los Angeles.



CHARCOAL KILNS

Ancient in appearance, charcoal kiln ruins can be found at a number of places in the Southwest, near 19th century mining operations. These, the Cottonwood Charcoal Kilns, on the edge of Owens Lake, were used in the 1870s to supply Cerro Gordo with charcoal, as by then all the trees on that side of the lake had been cut down. A flume moved trees from the mountains to the west to the kilns. The wood was then burned slowly to make charcoal. Despite efforts by preservationists, including cyclone fencing and being sprayed with a waterproof material, the earthen kilns are slowly melting. Their accompanying historical plaque has been mounted more securely in solid rock and new concrete.



OWENS LAKE

Owens Lake is a 100 square mile alkali lake that famously dried up after the city of Los Angeles diverted the region's water to its aqueduct. Dust blowing from the exposed dry lake bed makes Owens Lake the largest point source of PM 10 (10 micron Particulate Matter) airborne pollution in the country. After years of political campaigning by local residents, in July 1998, the Los Angeles Department of Water and Power and the Great Basin Unified Air Pollution Control District signed an agreement to attain federal air quality standards by 2006. Dust control, already underway, will be achieved through shallow flooding, cultivation of salt grass, and the spreading of gravel on the lake bed.



PITTSBURGH PLATE GLASS COMPANY'S CHEMICAL PLANT RUINS

At the old rail siding of Bartlett, on the east side of the highway, and the west shore of Owens Lake, the ruins of the Pittsburgh Plate Glass Company's chemical plant are some of the few structures between Olancho and Lone Pine. The modernist lab building and the large sheds and silos have been largely unused since the 1960s, when the company ceased crystallizing and processing carbonate compounds mined from the exposed lake bed. After it was abandoned, the plant was bought by a Dr. McCabe, a medical valve inventor, who used it recreationally, along with some Hollywood friends. Though Dr. McCabe died some years ago, people who knew him still own the building.



CERRO GORDO MINE

Cerro Gordo is a classic mining ghost town, in the mountains east of Owens Lake. Starting in the 1860's, this remote site became a major source for silver, lead, zinc, and other minerals. An aerial tramway operated for a few decades, bringing ore from the mines, as high up as 9,000 feet, down to the shores of Owens Lake, where it was transported across the lake by steamships to the landing at Cartago. Later, the railway was brought around the lake to Keeler and Swansea, which had smelters and processing facilities for the mine. Now Cerro Gordo is a privately owned, partially restored historic site, reachable on a treacherous dirt road.



KEELER

Keeler is the only existing settlement on the east side of Owens Lake. Through the 19th and early 20th century, the town has been a landing for boats crossing the lake, a terminus for the area's railroad, and a center for mineral processing, and once had over 7,000 residents. The population today, though less than 100, is composed of some of the region's more colorful characters, who live in overgrown houses, covered in Owens Lake dust. Just south of town, on Highway 136, the DWP has developed a staging area for the dust reduction programs on the lake.



EASTERN SIERRA INTERAGENCY INFORMATION CENTER

The Eastern Sierra Interagency Information Center provides information on the geology, ecology, history, and tourist possibilities of the Owens Valley and Eastern Sierra. Nine government agencies cooperate to run the information center. Mount Whitney, the tallest peak in the contiguous forty-eight states is visible from here, pointed through a display in the window.



LONE PINE

The town of Lone Pine is known as the gateway to Mt. Whitney, and was the epicenter of the strongest earthquake in California's recorded history. On March 26, 1872 a tremor registering 8.3 on the Richter scale shook the town, killing twenty-seven people as the eastern side of the Owens Valley dropped twenty feet. There is a graveyard for the victims of the quake just north of town.



WHITNEY PORTAL

Thirteen miles west of Lone Pine and 8,365 feet above sea level, Whitney Portal is base camp for climbers to Mount Whitney. Over 20,000 climbers a year attempt the hike to the top of the highest peak in the lower forty-eight states. Although the hike is only ten miles long, the elevation gain on the way to the 14,495 foot peak, coupled with the likelihood of altitude sickness, makes it a challenge. Once at the top, there is a small cabin for shelter. At the base, the Whitney Portal Store provides supplies and food for hikers. Bear attacks on cars in the Whitney Portal area are common, even during the day.



ALABAMA HILLS

The Alabama Hills, just west of Lone Pine, have been used for over 400 movies and television shows, especially Westerns and British-army-in-India films, featuring the likes of John Wayne, Gene Autry, Tom Mix, Errol Flyn, the Lone Ranger, Clint Eastwood, and Mel Gibson. This unusual landscape is favored by the industry because it can be filmed to look like other places.



ALABAMA GATES

When they are opened, the Alabama Gates, on the west side of the highway, four miles north of Lone Pine, divert the flow of water out of the aqueduct into a spillway leading to the now dry bed of the Owens River. The most famous event in Owens Valley history took place here in 1924 when sixty local men took over the Alabama Gates and opened the spillway to return the water to the Owens River. With the construction of Crowley Lake, the need to divert water into the Owens River in times of abundance has largely ended.



MANZANAR

Manzanar was the first of the ten Japanese-American relocation camps in the United States established during World War II. Prior to the war, the site was an active farming community, with apple orchards, packing houses, and a post office. The last harvest was in 1932, after the site had been bought by the City of Los Angeles, and left to dry up. During the war, it became an instant and involuntary town of 10,000 people of Japanese ancestry, housed and working in hundreds of buildings built hurriedly by the Army Corps of Engineers. After the war, the buildings were removed, many of them finding new uses in the surrounding communities. The site continues to be developed into an interpretive site, operated by the National Park Service.



INDEPENDENCE

Though smaller than Lone Pine and Bishop, the town of Independence is the Inyo County seat, and the regional administrative and maintenance center for the Los Angeles DWP. Local attractions include the Eastern California Museum, founded in 1928 and offering a view of Owens Valley history, and the home of early twentieth century writer Mary Austin (who wrote *The Land of Little Rain* about the Owens Valley), and the Winnedumah Hotel, built in 1927. There is a large hand-drawn map of the Owens Valley and its various tourist destinations in the Chevron Station.



MT. WHITNEY FISH HATCHERY

Built in 1917, the Mt. Whitney Fish Hatchery is the earliest and the grandest of the hatcheries in the valley. Game fish such as trout were artificially introduced into the streams of the eastern Sierras and the Owens River watershed starting in the 1870s. The fish native to the area are of the smaller and less desirable variety, like pupfish and suckers. After whirling disease was found at the premises in the late 1980s, this hatchery stopped hatching or raising fish, and was nearly closed by the state. Now it collects and fertilizes eggs that are taken to other hatcheries, including the three other state facilities in the Owens Valley region, which then raise the fry, and grow catchable fish for release.



LOS ANGELES AQUEDUCT INTAKE

The Owens River, coming in from the north, officially enters the Los Angeles Aqueduct at this intake gate 2.5 east of the hunting and fishing resort of Aberdeen. These gates were constructed in 1911, as part of the original aqueduct, which opened in 1913. It is 233 miles from here to Los Angeles, by water.



TINEMINHA RESERVOIR

This reservoir, a few miles up the Owens River from the intake gates, was constructed as a supplementary storage reservoir, to hold the water for a while if the aqueduct had to be shut down for repairs, or if the river's flow occasionally exceeded the capacity of the aqueduct.



TULE ELK VIEWPOINT

A hilltop viewpoint above the Tinemaha Reservoir was constructed to provide sighting opportunities of the Tule Elk. The Tule are the smallest form of elk, and once roamed the Central Valley and Coast Range of California, their main habitat, until being hunted nearly to extinction by 1870. Although they are not native to the Eastern Sierra, Owens Valley's Tule Elk herd originated as a group of 27 elk released into the area around the Tinemaha Reservoir in the 1930s. They had first been relocated to the Yosemite Valley, but were later evicted by the Park Service, as they are not native to Yosemite either.



FISH SPRINGS FISH HATCHERY

The Fish Springs Fish Hatchery is one of three active state hatcheries in the Owens Valley area. It produces about 1.6 million catchable-size trout a year. Although trout are not indigenous to the lakes of the Sierras, they are a major attraction, providing local towns with a great deal of fishing-related tourism in the summer. Statewide, sport fishing is a \$3 billion a year industry, fueling some 75,000 jobs. The existence of game fish in the Owens River Valley is maintained by the state hatcheries, which are funded by fees from fishing licenses.



BIG PINE

Big Pine is located on Highway 395, at the intersection of Highway 168, which heads east over Westgard Pass, past the remote Deep Springs College, and on to the Fish Lake Valley in Nevada. At this intersection, at the north end of Big Pine is a big pine -actually a Sequoia - that was planted in 1913 to commemorate the opening of the Westgard Pass road, promoted by hopeful locals at the time as a possible transcontinental thoroughfare. This was not the big pine that gave the town its name. That big pine is said to have been cut down to make way for a gas station.



ANCIENT BRISTLECONE PINE FOREST

The Methuselah Tree has been called the oldest living thing in the world. It is a 4,723 year old bristlecone pine, located in an otherworldly "forest" of these trees in the White Mountains, on the east side of Owens Valley. The forest is a protected area, and there is a visitors center and walking trails through the various groves. Despite the notoriety of the tree, its identity is not indicated on the walking trail, in order to protect it from souvenir-hunters and vandals. The tree is a sort of invisible attraction. Its status as the "oldest living thing" is of course debatable. A recently discovered creosote bush in the Mojave is said to be 11,700 years old.



WHITE MOUNTAIN RESEARCH STATION

The White Mountain Research Station is a high altitude and alpine research complex, composed of four facilities, located at different elevations on the peaks of the White Mountains. The highest of these stations, the Summit Laboratory, is a small building at 14,250 feet above sea level and is the highest high-altitude lab in North America (and fourth highest in the world). Research is conducted in a variety of disciplines, including archeology, physiology, biology, and aerospace. The research station was founded by the Navy in 1940, and is operated by the University of California.



OWENS VALLEY RADIO OBSERVATORY

The Owens Valley Radio Observatory is a major radio astronomy observatory site, with numerous large steerable dishes. It is located here because of the lack of conflicting radio sources, a result of the remoteness and depth of the Owens Valley, with 14,000' mountains on either side. Features of the facility include the Caltech Millimeter Array, which consists of six 10-meter dishes on a configurable track; a solar interferometer antenna array, with two 27-meter dishes; and two Cosmic Microwave Background antennas. Most of the site is operated by Caltech, with the exception of the Very Long Baseline Array (VLBA) antenna, which is one of a network of ten antenna sites across the United States that make up the VLBA, a National Science Foundation project.



BISHOP

Bishop is an old ranching town, and the biggest settlement in the Owens Valley. It is located at the northern end of the valley, though the Owens River, Highway 395, and the Los Angeles Aqueduct system continue north from here towards Mono Lake. Just north of town, Highway 6 begins, a two lane blacktop that heads east 3,200 miles to the tip of Cape Cod. Attractions include the Owens Valley Paiute-Shoshone Indian Cultural Center, on Indian land west of downtown, and a tribal casino.



LAWS RAILROAD MUSEUM

Laws was the name of a stop on the old railroad, and though the railroad is gone, the stop is now a railroad museum. The rail line that once connected the Owens Valley to the world, the Carson and Colorado, was built in the 1880s, primarily to service the mines of the valley. It ran from Carson City, Nevada, to Keeler, and was originally going to continue south and east to the Colorado River. Instead, a Southern Pacific route terminated at Owenyo, just north of Lone Pine, connecting the valley to the south. The Owens Valley line was abandoned by the 1960s, and the steel rails removed for scrap. Many of the historic looking buildings moved to the museum at Laws are old movie sets. Like much of the Valley, the museum is on land leased from the Los Angeles Department of Water and Power.



BISHOP CREEK PIPELINE

Highway 168 follows Bishop Creek, southwest from Bishop, into the Sierras. Bishop Creek falls 5,500' in 15 miles, and has been harnessed to generate electricity. This has been done not by the DWP, but by the Southern California Edison Corporation. Two reservoirs control the flow, the redwood dams on South Lake and Lake Sabrina, and a pipeline carries the water diverted from the creek to a string of four powerhouses.



COYOTE FLAT AIRSTRIP

At 9,988 feet above sea level, Coyote Flat was the highest airfield in North America, before it was decommissioned and marked with an 'X' a few years ago. The remote airstrip and its surrounding 642 acres, southwest of Bishop, was operated as a high altitude test site by the Air Force Flight Test Center at Edwards Air Force Base, the organization associated with testing and developing the most advanced airplanes in world, such as the Stealth fighter and the Stealth bomber. The Coyote Flat airstrip had a few buildings that were torn down recently, and the asphalt has been removed from the runway. The Forest Service is restoring the area to a more natural condition.



OWENS GORGE POWER PLANTS

The Owens River Gorge is a natural canyon carved by the river as it passed through the volcanic tablelands at the northern end of the Owens Valley. This landform, a giant, sloping volcanic scab, was formed on top of the existing valley floor 760,000 years ago by the eruption of the nearby Long Valley Caldera. The DWP has built three hydropower plants in the gorge, to take advantage of the 2,300 foot drop between Crowley Lake and the Owens Valley. Between the plants, river water is diverted into pipelines in order to maintain a high enough rate of flow to operate the turbines.



PINE CREEK TUNGSTEN MINE

Located high in the Sierras, this mine, formerly owned by Union Carbide, opened in 1916 and served as the largest tungsten producer in the United States. Tungsten's durability, hardness, and resistance to corrosion caused it to be used in high speed tools, light bulb filaments, armor plating for tanks, and armor-piercing bullets. The "Mine in the Sky" extended thousands of feet into the mountains. The mine is a casualty of globalization: with tungsten mines in China producing the ore at less than half of what it cost to extract it here, the mine was no longer profitable and production ceased in April 2000. The company town of Rovana, half way up the road to the mine, is an interesting relic.



CROWLEY LAKE

Part of Long Valley was flooded by the city of Los Angeles in 1941 to form Crowley Lake, the largest reservoir of the L.A. Aqueduct system. Crowley Lake's creation came about because in water rich years in the 1930s, the DWP had to divert excess water back into the valley through the Alabama Gates (flooding the mineral operations in Owens Lake). Crowley Lake now absorbs excess water. The lake is named after Father John Crowley, "the desert Padre," who was a key figure in Owens Valley history and a local hero. When it became obvious that, as a result of the city of Los Angeles's appropriation of the water supply, agriculture had become impossible in the Owens Valley, many of the residents of the valley lost all hope. Father Crowley traveled up and down the valley, convincing many of them that the beauty of the valley could make it a tourist destination. Thus, it is fitting that while it exists to serve the L.A. Aqueduct, Crowley Lake is also a prime destination for anglers. 30,000 fishermen gather on shore and in boats to mark the beginning of fishing season. Father Crowley was killed in 1940 in an automobile accident, perhaps a victim of the recreational traffic he helped create.



S. N. A. R. L.

The Sierra Nevada Aquatic Research Laboratory (SNARL) has been operating at the base of the Sierras since 1973, managed by the University of California, Santa Barbara. The lab's 55 acre site on the west side of Highway 395 includes a system of nine artificial diversions of Convict Creek, used to study stream hydrology and ecology. Research at SNARL influenced the State Water Resource Control Board's 1994 decision to order Mono Lake's water level to be raised to restore its ecosystem. In addition to the field lab here, SNARL has a snow lab on Mammoth Mountain, and recently acquired the old High Sierra Presbyterian Church on Highway 395.



MAMMOTH LAKES AIRPORT

The Mammoth Lakes Airport exists primarily to serve as a quick way for charters and people who have their own planes to get to the areas fishing and hunting areas and the nearby ski resort at Mammoth Mountain. Expansion plans at the airport include a resort and condo complex to be built on the flightline, along with additional retail space and a luxury RV park.



MAMMOTH LAKES FISH HATCHERY

This is the largest rainbow trout fish hatchery in California as well as a key waystation for the raising of the Golden trout, California's state fish. The journey of the Golden trout begins when employees of the Mt. Whitney Fish Hatchery hike into the wilderness to trap pregnant females. At the Mt. Whitney Fish Hatchery, the females lay their eggs. When the eggs reach a stage at which they have recognizable eyes, they are brought to the Mammoth Lakes Fish Hatchery. After growing into three-inch fingerlings, the fish are loaded on board a tanker airplane that takes off from Mammoth Lakes Airport and dumps the fish into lakes in the Sierras. Prior to the stocking program, the natural range of the Golden trout did not extend to these lakes.



HOT CREEK GEOTHERMAL AREA

One of the most spectacular hot springs in the country, the Hot Creek Hot Springs are hot enough to burn flesh. More than a dozen people have been killed here since the 1960s, despite the signs that warn of "scalding water, broken glass, arsenic in the water, sporadic high pollution, sudden temperature changes, unpredictable eruptions, and unstable ground."



CASA DIABLO HOT SPRINGS GEOTHERMAL POWER PLANT

The Casa Diablo Hot Springs Power Plant, east of Highway 395, is a geothermal electrical production complex, one of several in the state. Wells drilled into the ground inject water that is heated to 300 degrees by the naturally hot rock and fluid in the ground, then it is extracted and generates steam that turns turbines to produce electricity. The 12 production wells and three plants on site generate 40 Megawatts of electricity, enough to power roughly 40,000 homes. The plant is owned by Mammoth Pacific.



MAMMOTH MOUNTAIN AND LONG VALLEY CALDERA

The Mammoth Mountain Ski Area is the single largest alpine ski area in the country. The development of the mountain into a ski resort was started by Dave McCoy, a Los Angeles Department of Water and Power surveyor and hydrographer, who in 1953, was awarded a permit to operate it as a skiing site permanently, on the condition that he develop it. The first chair lift opened in 1955. In 1996, Intrawest Corporation of Vancouver, British Columbia, acquired a majority stake in Mammoth, and a \$100 million capital improvement program is underway. Mammoth Mountain is a volcano that formed less than 200,000 years ago, located just inside the southern boundary of the Long Valley Caldera, an active volcanic formation.



MAMMOTH MOUNTAIN CO2 TREE KILL ZONE

Part of the Tamarack cross-country ski trail system at Mammoth near Horseshoe Lake has been closed because of a high levels of carbon dioxide in the local atmosphere produced by constant outgassings from the mountain. The danger to humans is greatest in the winter as the carbon dioxide collects underneath the snow surface. Places where the snowcap breaks such as at rest rooms or in snow holes around trees are likely places for the heavy gas to accumulate. The death of a cross-country skier in 1997 has been blamed on these emissions. The Horseshoe lake tree kill area is around 170 acres in size, and growing. Solar-powered monitoring devices scattered through the area are helping government agencies better understand the evolving situation.



MONO TUNNEL, WEST PORTAL

The 11.3 mile long Mono Tunnel was bored through the hills known as the Mono Craters, extending the reach of the Los Angeles Aqueduct into the Mono Basin. Completed in 1940, the tunnel increased the capacity of the system by 35%. The Mono Craters are a recent formation, believed to have been formed just in the last 10,000 years. This made digging through them especially difficult, as work crews encountered hot water, steam, and carbon dioxide gas. Several people died during tunnel construction. Remains of one of four camps occupied during the tunnel's construction are still visible at the west side of the Mono Tunnel. For five years this was a town for workers and their families, with a peak population of over 200 people, and 26 buildings.



LEE VINING CREEK INTAKE

338 miles from Los Angeles, Lee Vining Creek is diverted into the Los Angeles Aqueduct system's Lee Vining-Grant Lake conduit. This is the northernmost point in the system. As the DWP points out, it is due east of the Golden Gate Bridge.



MONO LAKE

Approximately 350 miles from Los Angeles, Mono Lake marks the last visible effects of the Los Angeles Aqueduct system. Although the saline lake is not itself used for drinking water, its feeder streams were largely diverted to the Los Angeles Aqueduct starting in 1941. Controversy about the draining of Mono Lake reached a fever pitch in the 1980s and 1990s and resulted in an agreement with the city of Los Angeles to begin letting water return to the lake, allowing it to rise somewhat.



MONO LAKE COMMITTEE

Located on the brief main drag of Lee Vining, the Mono Lake Committee Information Center and Bookstore is the local base for the organization that was formed in 1978 to protect and restore the Mono basin ecosystem. The organization has been largely successful in its efforts.



MONO LAKE VISITOR'S CENTER

The Mono Lake Visitor Center opened in 1992. Though it overlooks the treeless landscape of Mono Lake, it is operated by the National Forest Service.



CONWAY SUMMIT OVERLOOK

The Conway Summit Overlook is a turnout on Highway 395 north of the lake, with a variety of interpretive panels. The view is dramatic, looking south over the Mono Basin, after which it is all downhill to Los Angeles.

Acknowledgements

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